



MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM OF MICHIGAN
ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2017
LAPEER CO (4403)



Spring, 2018

Lapeer Co

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

This report presents the results of the Annual Actuarial Valuation, prepared as of December 31, 2017. The report includes the determination of liabilities and contribution rates resulting from the participation of Lapeer Co (4403) in the Municipal Employees' Retirement System of Michigan ("MERS"). MERS is an independent, professional retirement services company that was created to administer retirement plans for Michigan municipalities on a not-for-profit basis. This report contains the minimum actuarially determined contribution requirement, in alignment with the MERS Plan Documents, funding policy and Michigan Constitution. Lapeer Co 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, 2017 annual actuarial valuation is to:

- Measure funding progress
- Establish contribution requirements for the fiscal year beginning January 1, 2019
- 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, 2017 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-2017AnnualActuarialValuation-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

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:

	12/31/2017 *	12/31/2016
Funded Ratio	86%	83%

* Reflects assets from Surplus divisions, if any.

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 third 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 2018 your municipality is making employer contributions based on rates without the phase-in applied, contact MERS to ensure the No Phase-in rate is used again for 2019 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:	12/31/2017	12/31/2017	12/31/2016	12/31/2016	12/31/2017	12/31/2017	12/31/2016	12/31/2016
Fiscal Year Beginning:	January 1, 2019	January 1, 2019	January 1, 2018	January 1, 2018	January 1, 2019	January 1, 2019	January 1, 2018	January 1, 2018
Division								
02 - POLC Sheriff	14.77%	15.52%	16.35%	17.52%	\$ 54,750	\$ 57,522	\$ 58,055	\$ 62,213
04 - S.T.A.R.S.	7.95%	8.13%	7.83%	8.12%	55,967	57,199	50,397	52,245
06 - CMH Union	8.23%	8.55%	9.52%	10.01%	19,701	20,465	22,084	23,230
10 - AFSCME	8.53%	9.24%	10.47%	11.57%	10,852	11,756	12,938	14,294
11 - Gnrl Non Union	10.00%	10.52%	10.13%	10.90%	20,368	21,428	20,817	22,407
12 - Gnrl Teamsters	9.58%	10.12%	9.83%	10.68%	22,108	23,342	21,379	23,230
13 - Elected & Appt. Dept H	8.74%	9.58%	8.61%	10.13%	9,958	10,916	8,159	9,596
20 - COAM/POAM Disp	9.59%	10.02%	10.29%	10.97%	6,231	6,509	6,321	6,738
40 - MCF Non Union	17.82%	18.33%	17.42%	18.23%	86,596	89,082	80,249	83,978
60 - CMH Non Union	10.51%	11.26%	10.36%	11.19%	6,140	6,578	8,232	8,889
Municipality Total					\$ 292,671	\$ 304,797	\$ 288,631	\$ 306,820

Employee contribution rates reflected in the valuations are shown below:

Valuation Date:	Employee Contribution Rate	
	12/31/2017	12/31/2016
Division		
02 - POLC Sheriff	2.49%	2.49%
04 - S.T.A.R.S.	1.27%	1.27%
06 - CMH Union	0.00%	0.00%
10 - AFSCME	0.00%	0.00%
11 - Gnrl Non Union	0.00%	0.00%
12 - Gnrl Teamsters	0.00%	0.00%
13 - Elected & Appt. Dept H	2.53%	2.53%

Valuation Date:	Employee Contribution Rate	
	12/31/2017	12/31/2016
Division		
20 - COAM/POAM Disp	0.00%	0.00%
40 - MCF Non Union	0.00%	0.00%
60 - CMH Non Union	0.00%	0.00%

The employer may contribute more than the minimum required contributions, as these additional contributions will earn investment income and may result in lower future contribution requirements. Employers making contributions in excess of the minimum requirements may elect to apply the excess contribution immediately to a particular division, or segregate the excess into one or more of what MERS calls "Surplus" divisions. An election in the first case would immediately reduce any unfunded accrued liability and lower the amortization payments throughout the remaining amortization period. An election to set up Surplus divisions would not immediately lower future contributions, however the assets from the Surplus divisions could be transferred to an unfunded division in the future to reduce the unfunded liability in future years, or to be used to pay all or a portion of the minimum required contribution in a future year. For purposes of this report, the assets in any Surplus division have been included in the municipality's total assets, unfunded accrued liability and funded status, however, these assets are not used in calculating the minimum required contribution.

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

Assuming that experience of the plan meets actuarial assumptions:

- To accelerate to a 100% funding ratio in 10 years, estimated monthly employer contributions for the fiscal year beginning in 2019 for the entire employer would be \$377,947, instead of \$304,797.

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 Investment Return Assumption and Asset Smoothing

A defined benefit plan is funded by employer contributions, participant contributions, and investment earnings. Investment earnings have historically provided **more than half** of the funding. The larger the share of benefits being provided from investment returns, the smaller the required contributions, and vice versa. Determining the contributions required to prefund the promised retirement benefits requires an assumption of what investment earnings are expected to add to the fund over a long period of time. This is called the **Investment Return Assumption**.

The MERS Investment Return Assumption is **7.75%** per year. This, along with all of our other actuarial assumptions, is reviewed every five years in an Experience Study that compares the assumptions used against actual experience and recommends adjustments if necessary. If your municipality would like to explore contributions at lower investment return assumptions, please review the budget projection scenarios later in this report.

To avoid dramatic spikes and dips in annual contribution requirements due to short term fluctuations in asset markets, MERS applies a technique called **asset smoothing**. This spreads out each year's investment gains or losses over the prior year and the following four years. This smoothing method is used to determine your actuarial value of assets (valuation assets), which is then used to determine both your funded ratio and your required contributions. The (smoothed) **actuarial rate of return for 2017 was 6.08%, while the actual market rate of return was 13.07%**. To see historical details of the market rate of return, compared to the smoothed actuarial rate of return, refer to this report's [Appendix](#), or visit our [Defined Benefit resource page](#) on the MERS website.

As of December 31, 2017 the actuarial value of assets is 101% of market value due to asset smoothing. This means that meeting the actuarial assumption in the next few years will require

average annual market returns that exceed the 7.75% investment return assumption, or contribution requirements will continue to increase.

If the December 31, 2017 valuation results were based on market value instead of the actuarial value:

- The funded percent of your entire municipality would be 85% (instead of 86%); and
- Your total employer contribution requirement for the fiscal year starting January 1, 2019 would be \$3,746,244 (instead of \$3,657,564).

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. An Experience Study is completed every five years to review the assumptions and methods. The next Experience Study will be completed in 2020.

Risk can also be managed through a plan design that provides benefits that are sustainable in the long run.

The Actuarial Standards Board has issued Actuarial Standards of Practice (ASOP) No. 51. This standard will be effective for any actuarial work with a measurement date on or after November 1, 2018. This means, the December 31, 2018 and later annual actuarial valuation reports for MERS will have to comply with this standard. This standard will require the actuary to identify risks that, in the actuary's professional judgment may significantly impact the plan's future financial condition. The actuary will have to assess the potential effects of the identified risks on the plan's future financial condition. The assessment may or may not be based on numerical calculations. However, the assessment should reflect the specifics of the plan (i.e. funded status, plan demographics, funding policy, etc.). If the actuary concludes that numerical calculations are necessary to assess the risk, the actuary can use various methods to quantify the risk such as scenario tests, sensitivity tests, stress tests, etc.

Some of these risk assessment measures have already been incorporated in the MERS annual valuation reports. For example, the projections of funded percentage and employer contributions shown on the following pages could be used to gauge the risk associated with long term investment rates of return different than the assumed 7.75% annual rate. A history of the municipality's funded percentage as shown in Table 7, could indicate the trend in funded status over time.

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 the Investment Return Assumption. 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, 2017 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 Investment Return Assumption			
	Lower Future Annual Returns		Valuation Assumption	Higher Returns
	5.75%	6.75%	7.75%	8.75%
12/31/2017 Valuation Results				
Accrued Liability	\$ 153,799,144	\$ 136,232,956	\$ 121,537,828	\$ 109,161,786
Valuation Assets ¹	\$ 104,595,688	\$ 104,595,688	\$ 104,595,688	\$ 104,595,688
Unfunded Accrued Liability	\$ 49,203,456	\$ 31,637,268	\$ 16,942,140	\$ 4,566,098
Funded Ratio	68%	77%	86%	96%
Monthly Normal Cost	\$ 351,876	\$ 269,033	\$ 205,988	\$ 158,204
Monthly Amortization Payment	\$ 241,380	\$ 169,922	\$ 98,809	\$ 16,844
Total Employer Contribution²	\$ 593,256	\$ 438,955	\$ 304,797	\$ 175,048

¹ The Valuation Assets include assets from Surplus divisions, if any.

² 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 assumption scenarios. All four projections take into account the past investment losses that will continue to affect the actuarial rate of return in the short term. Under the 7.75% scenarios in the table on the next page, 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.

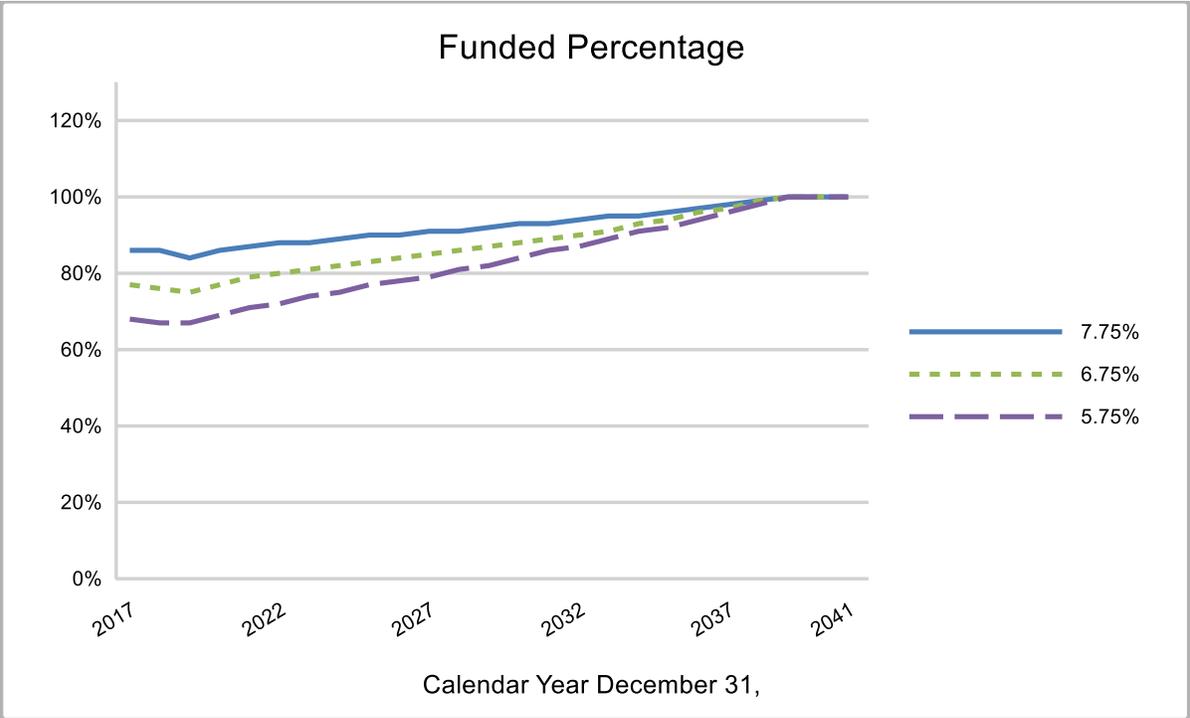
The 7.75% scenarios provide an estimate of computed employer contributions based on current actuarial assumptions, and a projected 7.75% market return. The other two scenarios may be useful if the municipality chooses to budget more conservatively, and make contributions in addition to the minimum requirements.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

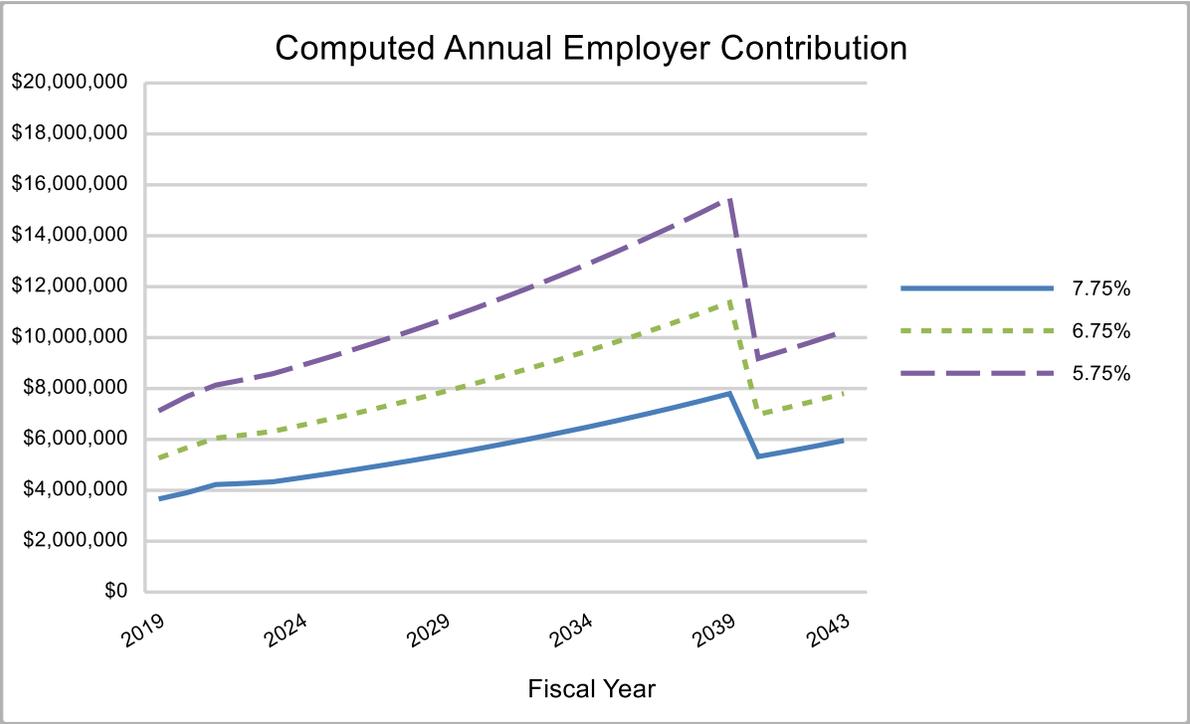
Valuation Year Ending 12/31	Fiscal Year Beginning 1/1	Actuarial Accrued Liability	Valuation Assets ²	Funded Percentage	Computed Annual Employer Contribution
7.75%¹					
WITH 5-YEAR PHASE-IN					
2017	2019	\$ 121,537,828	\$ 104,595,688	86%	\$ 3,512,052
2018	2020	127,200,000	108,800,000	86%	3,850,000
2019	2021	132,900,000	112,100,000	84%	4,240,000
2020	2022	138,700,000	118,900,000	86%	4,290,000
2021	2023	144,600,000	125,900,000	87%	4,350,000
2022	2024	150,400,000	131,900,000	88%	4,510,000
NO 5-YEAR PHASE-IN					
2017	2019	\$ 121,537,828	\$ 104,595,688	86%	\$ 3,657,564
2018	2020	127,200,000	108,800,000	86%	3,910,000
2019	2021	132,900,000	112,200,000	84%	4,230,000
2020	2022	138,700,000	119,100,000	86%	4,270,000
2021	2023	144,600,000	126,200,000	87%	4,330,000
2022	2024	150,400,000	132,100,000	88%	4,490,000
6.75%¹					
NO 5-YEAR PHASE-IN					
2017	2019	\$ 136,232,956	\$ 104,595,688	77%	\$ 5,267,460
2018	2020	142,400,000	107,800,000	76%	5,670,000
2019	2021	148,700,000	111,700,000	75%	6,050,000
2020	2022	155,100,000	119,300,000	77%	6,170,000
2021	2023	161,500,000	127,000,000	79%	6,320,000
2022	2024	167,900,000	133,800,000	80%	6,550,000
5.75%¹					
NO 5-YEAR PHASE-IN					
2017	2019	\$ 153,799,144	\$ 104,595,688	68%	\$ 7,119,072
2018	2020	160,600,000	106,800,000	67%	7,690,000
2019	2021	167,600,000	111,400,000	67%	8,130,000
2020	2022	174,700,000	119,900,000	69%	8,350,000
2021	2023	181,800,000	128,700,000	71%	8,580,000
2022	2024	188,900,000	136,500,000	72%	8,910,000

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

² Valuation Assets do not include assets from Surplus divisions, if any.



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



Notes:
All projected contributions are shown with no phase-in.

Employer Contribution Details For the Fiscal Year Beginning January 1, 2019

Table 1

Division	Total Normal Cost	Employee Contribut. Rate	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. Conversion Factor ²
			Employer Normal Cost	Payment of the Unfunded Accrued Liability ⁴	Computed Employer Contribut. No Phase-In				
Percentage of Payroll									
02 - POLC Sheriff	10.51%	2.49%	8.02%	7.50%	15.52%	14.77%			0.83%
04 - S.T.A.R.S.	7.77%	1.27%	6.50%	1.63%	8.13%	7.95%			0.84%
06 - CMH Union	8.08%	0.00%	8.08%	0.47%	8.55%	8.23%			0.81%
10 - AFSCME	8.36%	0.00%	8.36%	0.88%	9.24%	8.53%			0.80%
11 - Gnrl Non Union	8.24%	0.00%	8.24%	2.28%	10.52%	10.00%			0.80%
12 - Gnrl Teamsters	7.97%	0.00%	7.97%	2.15%	10.12%	9.58%			0.79%
13 - Elected & Appt. De	11.04%	2.53%	8.51%	1.07%	9.58%	8.74%			0.77%
20 - COAM/POAM Disp	8.70%	0.00%	8.70%	1.32%	10.02%	9.59%			0.82%
40 - MCF Non Union	9.40%	0.00%	9.40%	8.93%	18.33%	17.82%			0.79%
60 - CMH Non Union	7.49%	0.00%	7.49%	3.77%	11.26%	10.51%			0.77%
Estimated Monthly Contribution³									
02 - POLC Sheriff			\$ 29,718	\$ 27,804	\$ 57,522	\$ 54,750			
04 - S.T.A.R.S.			45,732	11,467	57,199	55,967			
06 - CMH Union			19,334	1,131	20,465	19,701			
10 - AFSCME			10,631	1,125	11,756	10,852			
11 - Gnrl Non Union			16,784	4,644	21,428	20,368			
12 - Gnrl Teamsters			18,392	4,950	23,342	22,108			
13 - Elected & Appt. De			9,700	1,216	10,916	9,958			
20 - COAM/POAM Disp			5,651	858	6,509	6,231			
40 - MCF Non Union			45,672	43,410	89,082	86,596			
60 - CMH Non Union			4,374	2,204	6,578	6,140			
Total Municipality			\$ 205,988	\$ 98,809	\$ 304,797	\$ 292,671			
Estimated Annual Contribution³			\$ 2,471,856	\$ 1,185,708	\$ 3,657,564	\$ 3,512,052			

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 (i.e. closed divisions), invoices will be based on the above dollar amounts which are based on projected fiscal year payroll. See description of Open Divisions and Closed Divisions in the [Appendix](#).
- 4 If projected assets exceed projected liabilities as of the beginning of the January 1, 2019 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-MERS (6377).

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

Benefit Provisions

Table 2

02 - POLC Sheriff: Open Division

	2017 Valuation	2016 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	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	2.49%	2.49%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

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

	2017 Valuation	2016 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:	5 years	5 years
Employee Contributions:	1.27%	1.27%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

06 - CMH Union: Open Division

	2017 Valuation	2016 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0%	0%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

Table 2 (continued)

10 - AFSCME: Open Division		
	2017 Valuation	2016 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0%	0%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)
11 - Gnrl Non Union: Open Division		
	2017 Valuation	2016 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0%	0%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)
12 - Gnrl Teamsters: Open Division		
	2017 Valuation	2016 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0%	0%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)
13 - Elected & Appt. Dept Heads: Open Division		
	2017 Valuation	2016 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	2.53%	2.53%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

Table 2 (continued)

20 - COAM/POAM Disp: Open Division

	2017 Valuation	2016 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0%	0%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

40 - MCF Non Union: Open Division

	2017 Valuation	2016 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	55/25	55/25
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0%	0%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

60 - CMH Non Union: Open Division

	2017 Valuation	2016 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	10 years	10 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	50/25	50/25
	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	0%	0%
Act 88:	Yes (Adopted 10/30/1970)	Yes (Adopted 10/30/1970)

Participant Summary

Table 3

Division	2017 Valuation		2016 Valuation		2017 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
02 - POLC Sheriff							
Active Employees	76	\$ 4,130,920	74	\$ 3,958,957	42.8	13.0	13.4
Vested Former Employees	15	88,625	15	88,625	46.9	5.8	16.8
Retirees and Beneficiaries	53	1,255,292	56	1,344,018	67.7		
04 - S.T.A.R.S.							
Active Employees	277	\$ 7,843,521	264	\$ 7,176,151	36.5	5.8	5.8
Vested Former Employees	45	261,325	47	266,237	47.7	11.5	13.0
Retirees and Beneficiaries	78	591,694	73	536,412	70.8		
06 - CMH Union							
Active Employees	63	\$ 2,667,609	62	\$ 2,588,429	45.5	10.0	10.0
Vested Former Employees	9	80,255	8	55,241	48.2	9.6	11.5
Retirees and Beneficiaries	25	374,341	26	391,261	67.3		
10 - AFSCME							
Active Employees	37	\$ 1,417,705	37	\$ 1,377,505	52.2	14.7	14.8
Vested Former Employees	15	127,106	17	137,994	53.0	11.5	15.0
Retirees and Beneficiaries	41	397,056	42	414,966	70.1		
11 - Gnrl Non Union							
Active Employees	46	\$ 2,270,725	48	\$ 2,292,774	50.6	14.1	14.4
Vested Former Employees	13	190,069	12	185,119	50.1	12.7	14.2
Retirees and Beneficiaries	34	512,194	32	495,140	73.0		
12 - Gnrl Teamsters							
Active Employees	66	\$ 2,572,555	65	\$ 2,425,005	49.7	14.2	14.2
Vested Former Employees	14	150,489	14	150,489	47.6	12.8	14.6
Retirees and Beneficiaries	41	558,054	42	567,171	72.5		
13 - Elected & Appt. Dept							
Active Employees	25	\$ 1,270,726	22	\$ 1,056,163	61.3	17.5	20.0
Vested Former Employees	6	121,638	7	129,016	54.7	11.3	18.9
Retirees and Beneficiaries	23	462,549	21	384,098	72.4		
20 - COAM/POAM Disp							
Active Employees	16	\$ 724,132	15	\$ 684,837	41.6	10.3	10.7
Vested Former Employees	3	33,425	3	33,425	50.1	11.5	15.4
Retirees and Beneficiaries	5	111,389	4	91,660	62.1		
40 - MCF Non Union							
Active Employees	94	\$ 5,416,645	93	\$ 5,135,406	43.9	10.3	10.3
Vested Former Employees	17	212,496	13	173,533	46.5	11.0	12.4
Retirees and Beneficiaries	62	1,066,784	60	1,047,673	69.3		

Table 3 (continued)

Division	2017 Valuation		2016 Valuation		2017 Valuation		
	Number	Annual Payroll ¹	Number	Annual Payroll ¹	Average Age	Average Benefit Service ²	Average Eligibility Service ²
60 - CMH Non Union							
Active Employees	11	\$ 650,991	14	\$ 885,501	45.2	13.8	13.8
Vested Former Employees	3	33,240	4	54,596	51.6	12.1	20.1
Retirees and Beneficiaries	11	254,067	6	140,590	67.7		
Total Municipality							
Active Employees	711	\$ 28,965,529	694	\$ 27,580,728	43.0	10.0	10.1
Vested Former Employees	140	1,298,668	140	1,274,275	48.7	11.0	14.2
Retirees and Beneficiaries	373	5,583,420	362	5,412,989	70.1		
Total Participants	1224		1196				

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	2017 Valuation		2016 Valuation	
	Employer and Retiree ¹	Employee ²	Employer and Retiree ¹	Employee ²
02 - POLC Sheriff	\$ 18,902,543	\$ 1,360,897	\$ 16,751,814	\$ 1,171,406
04 - S.T.A.R.S.	11,491,538	561,735	10,071,777	491,348
06 - CMH Union	8,302,244	31,470	7,153,541	30,926
10 - AFSCME	8,107,561	46,419	7,107,501	45,616
11 - Gnrl Non Union	10,736,580	26,879	9,709,842	26,414
12 - Gnrl Teamsters	11,487,669	13,858	10,143,359	13,618
13 - Elected & Appt. Dept Heads	9,248,987	379,105	7,785,755	396,430
20 - COAM/POAM Disp	2,934,472	0	2,451,710	0
40 - MCF Non Union	15,601,541	70,476	13,906,391	84,044
60 - CMH Non Union	4,117,284	3,558	3,531,973	15,022
Municipality Total	\$ 100,930,419	\$ 2,494,397	\$ 88,613,663	\$ 2,274,824
Combined Assets	\$103,424,816		\$90,888,487	

¹ Reserve for Employer Contributions and Benefit Payments

² Reserve for Employee Contributions

The December 31, 2017 valuation assets (actuarial value of assets) are equal to 1.011321 times the reported market value of assets (compared to 1.077095 as of December 31, 2016). 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 (Valuation Assets)	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
	Required	Additional						
2007	\$ 3,268,463		\$ 153,907	\$ 4,504,185	\$ (2,144,291)	\$ (8,522)	\$ 0	\$ 61,321,749
2008	2,820,446		121,929	2,983,475	(2,357,504)	(5,875)	0	64,884,220
2009	3,356,569		127,565	3,719,493	(2,592,458)	(7,466)	0	69,487,923
2010	2,701,704		120,400	4,108,154	(2,887,422)	(3,985)	0	73,526,774
2011	2,392,517	\$ 1,276,817	118,290	4,243,170	(3,227,971)	(18,286)	0	78,311,311
2012	2,469,808	12,604	118,808	3,720,946	(3,576,831)	(2,462)	11,703	81,065,887
2013	2,427,970	104,953	201,995	4,942,034	(3,871,478)	(12,924)	0	84,858,437
2014	2,590,936	1,456,298	213,190	5,008,867	(4,315,512)	(3,232)	2,842	89,811,826
2015	2,866,216	0	224,327	4,518,511	(4,713,623)	(1,488)	(3,220)	92,702,549
2016	3,002,820	1,914,751	222,970	5,202,130	(5,116,753)	(32,929)	(1)	97,895,537
2017	3,374,657	2,376,293	233,100	6,149,445	(5,494,078)	(5,719)	66,453	104,595,688

Notes:

Transfers in and out are usually related to the transfer of participants between municipalities, and to employer and employee payments for service credit purchases (if any) that the governing body has approved.

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

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

The Valuation Assets include assets from Surplus divisions, if any.

Actuarial Accrued Liabilities and Valuation Assets As of December 31, 2017

Table 6

Division	Actuarial Accrued Liability	Valuation Assets ¹	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
02 - POLC Sheriff				
Active Employees	\$ 11,780,546	\$ 6,983,575	59.3%	\$ 4,796,971
Vested Former Employees	508,422	508,422	100.0%	0
Retirees And Beneficiaries	12,947,649	12,947,649	100.0%	0
Pending Refunds	<u>53,196</u>	<u>53,196</u>	100.0%	<u>0</u>
Total	\$ 25,289,813	\$ 20,492,842	81.0%	\$ 4,796,971
04 - S.T.A.R.S.				
Active Employees	\$ 7,221,833	\$ 5,284,512	73.2%	\$ 1,937,321
Vested Former Employees	1,444,191	1,444,191	100.0%	0
Retirees And Beneficiaries	5,313,434	5,313,434	100.0%	0
Pending Refunds	<u>147,591</u>	<u>147,591</u>	100.0%	<u>0</u>
Total	\$ 14,127,049	\$ 12,189,728	86.3%	\$ 1,937,321
06 - CMH Union				
Active Employees	\$ 4,498,274	\$ 4,266,792	94.9%	\$ 231,482
Vested Former Employees	382,048	382,048	100.0%	0
Retirees And Beneficiaries	3,772,395	3,772,395	100.0%	0
Pending Refunds	<u>6,825</u>	<u>6,825</u>	100.0%	<u>0</u>
Total	\$ 8,659,542	\$ 8,428,060	97.3%	\$ 231,482
10 - AFSCME				
Active Employees	\$ 3,948,879	\$ 3,725,017	94.3%	\$ 223,862
Vested Former Employees	904,088	904,088	100.0%	0
Retirees And Beneficiaries	3,608,876	3,608,876	100.0%	0
Pending Refunds	<u>8,310</u>	<u>8,310</u>	100.0%	<u>0</u>
Total	\$ 8,470,153	\$ 8,246,291	97.4%	\$ 223,862
11 - Gnrl Non Union				
Active Employees	\$ 5,739,395	\$ 4,937,167	86.0%	\$ 802,228
Vested Former Employees	1,138,513	1,138,513	100.0%	0
Retirees And Beneficiaries	4,808,894	4,808,894	100.0%	0
Pending Refunds	<u>738</u>	<u>738</u>	100.0%	<u>0</u>
Total	\$ 11,687,540	\$ 10,885,312	93.1%	\$ 802,228
12 - Gnrl Teamsters				
Active Employees	\$ 6,780,241	\$ 5,927,802	87.4%	\$ 852,439
Vested Former Employees	708,909	708,909	100.0%	0
Retirees And Beneficiaries	4,995,025	4,995,025	100.0%	0
Pending Refunds	<u>0</u>	<u>0</u>	0.0%	<u>0</u>
Total	\$ 12,484,175	\$ 11,631,736	93.2%	\$ 852,439

Table 6 (continued)

Division	Actuarial Accrued Liability	Valuation Assets¹	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
13 - Elected & Appt. Dept Heads				
Active Employees	\$ 4,477,825	\$ 4,262,514	95.2%	\$ 215,311
Vested Former Employees	930,571	930,571	100.0%	0
Retirees And Beneficiaries	4,541,859	4,541,859	100.0%	0
Pending Refunds	<u>2,148</u>	<u>2,148</u>	100.0%	<u>0</u>
Total	\$ 9,952,403	\$ 9,737,092	97.8%	\$ 215,311
20 - COAM/POAM Disp				
Active Employees	\$ 1,610,401	\$ 1,459,852	90.7%	\$ 150,549
Vested Former Employees	283,666	283,666	100.0%	0
Retirees And Beneficiaries	1,224,175	1,224,175	100.0%	0
Pending Refunds	<u>0</u>	<u>0</u>	0.0%	<u>0</u>
Total	\$ 3,118,242	\$ 2,967,693	95.2%	\$ 150,549
40 - MCF Non Union				
Active Employees	\$ 11,671,446	\$ 4,321,933	37.0%	\$ 7,349,513
Vested Former Employees	1,165,994	1,165,994	100.0%	0
Retirees And Beneficiaries	10,359,652	10,359,652	100.0%	0
Pending Refunds	<u>1,861</u>	<u>1,861</u>	100.0%	<u>0</u>
Total	\$ 23,198,953	\$ 15,849,440	68.3%	\$ 7,349,513
60 - CMH Non Union				
Active Employees	\$ 1,879,957	\$ 1,497,493	79.7%	\$ 382,464
Vested Former Employees	224,075	224,075	100.0%	0
Retirees And Beneficiaries	2,445,926	2,445,926	100.0%	0
Pending Refunds	<u>0</u>	<u>0</u>	0.0%	<u>0</u>
Total	\$ 4,549,958	\$ 4,167,494	91.6%	\$ 382,464
Total Municipality				
Active Employees	\$ 59,608,797	\$ 42,666,657	71.6%	\$ 16,942,140
Vested Former Employees	7,690,477	7,690,477	100.0%	0
Retirees and Beneficiaries	54,017,885	54,017,885	100.0%	0
Pending Refunds	<u>220,669</u>	<u>220,669</u>	<u>100.0%</u>	<u>0</u>
Total	\$ 121,537,828	\$ 104,595,688	86.1%	\$ 16,942,140

¹ Includes both employer and employee assets.

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

Actuarial Accrued Liabilities - Comparative Schedule

Table 7

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2003	\$ 49,842,139	\$ 40,320,750	81%	\$ 9,521,389
2004	53,364,956	44,605,818	84%	8,759,138
2005	57,449,535	48,484,521	84%	8,965,014
2006	62,191,494	55,548,007	89%	6,643,487
2007	67,484,457	61,321,749	91%	6,162,708
2008	72,924,490	64,884,220	89%	8,040,270
2009	75,451,001	69,487,923	92%	5,963,078
2010	79,860,857	73,526,774	92%	6,334,083
2011	85,385,423	78,311,311	92%	7,074,112
2012	89,282,225	81,065,887	91%	8,216,338
2013	94,903,895	84,858,437	89%	10,045,458
2014	101,824,866	89,811,826	88%	12,013,040
2015	112,789,127	92,702,549	82%	20,086,578
2016	117,376,217	97,895,537	83%	19,480,680
2017	121,537,828	104,595,688	86%	16,942,140

Notes: Actuarial assumptions were revised for the 2004, 2008, 2009, 2010, 2011, 2012 and 2015 actuarial valuations.
The Valuation Assets include assets from Surplus divisions, if any.

Division 02 - POLC Sheriff

Table 8-02: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 16,729,281	\$ 14,670,860	88%	\$ 2,058,421
2008	17,581,765	14,978,476	85%	2,603,289
2009	18,248,875	15,931,563	87%	2,317,312
2010	18,864,025	16,376,070	87%	2,487,955
2011	19,600,877	16,856,101	86%	2,744,776
2012	20,140,990	17,176,086	85%	2,964,904
2013	21,155,855	17,829,275	84%	3,326,580
2014	22,552,782	18,334,793	81%	4,217,989
2015	24,783,267	18,659,484	75%	6,123,783
2016	25,234,701	19,305,011	77%	5,929,690
2017	25,289,813	20,492,842	81%	4,796,971

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

Table 9-02: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2007	77	\$ 3,540,996	10.76%	2.49%
2008	76	3,597,122	11.88%	2.49%
2009	76	3,860,058	11.30%	2.49%
2010	74	3,549,868	12.17%	2.49%
2011	73	3,563,819	12.05%	2.49%
2012	73	3,622,005	12.73%	2.49%
2013	73	3,623,507	13.43%	2.49%
2014	73	3,771,938	14.75%	2.49%
2015	75	3,900,580	17.95%	2.49%
2016	74	3,958,957	17.52%	2.49%
2017	76	4,130,920	15.52%	2.49%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

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

Table 8-04: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 7,324,970	\$ 6,226,954	85%	\$ 1,098,016
2008	7,953,439	6,673,168	84%	1,280,271
2009	8,026,964	7,220,033	90%	806,931
2010	8,555,727	7,741,169	90%	814,558
2011	9,432,054	8,301,368	88%	1,130,686
2012	9,947,561	8,889,986	89%	1,057,575
2013	11,055,158	9,554,589	86%	1,500,569
2014	11,568,898	10,114,388	87%	1,454,510
2015	12,981,167	10,795,876	83%	2,185,291
2016	13,220,635	11,377,489	86%	1,843,146
2017	14,127,049	12,189,728	86%	1,937,321

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

Table 9-04: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2007	238	\$ 5,286,231	8.01%	0.00%
2008	239	5,520,840	8.24%	0.00%
2009	245	5,700,181	7.73%	0.00%
2010	237	5,527,623	7.99%	0.00%
2011	304	7,210,900	7.75%	0.00%
2012	306	7,290,485	7.78%	0.00%
2013	301	7,164,177	7.89%	1.27%
2014	288	7,237,326	7.79%	1.27%
2015	288	7,802,578	8.32%	1.27%
2016	264	7,176,151	8.12%	1.27%
2017	277	7,843,521	8.13%	1.27%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 06 - CMH Union

Table 8-06: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 4,019,542	\$ 3,581,079	89%	\$ 438,463
2008	4,514,708	3,953,621	88%	561,087
2009	4,760,194	4,400,022	92%	360,172
2010	5,152,176	4,946,375	96%	205,801
2011	5,712,715	5,626,574	99%	86,141
2012	6,186,499	6,006,035	97%	180,464
2013	6,545,267	6,325,525	97%	219,742
2014	7,293,162	6,889,317	95%	403,845
2015	8,080,012	7,098,971	88%	981,041
2016	8,541,701	7,738,353	91%	803,348
2017	8,659,542	8,428,060	97%	231,482

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

Table 9-06: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2007	63	\$ 2,120,601	10.20%	0.00%
2008	61	2,159,843	9.90%	0.00%
2009	61	2,370,711	9.24%	0.00%
2010	64	2,438,785	9.21%	0.00%
2011	62	2,411,865	8.57%	0.00%
2012	63	2,399,198	8.71%	0.00%
2013	60	2,362,295	8.72%	0.00%
2014	66	2,650,699	8.95%	0.00%
2015	64	2,689,589	10.37%	0.00%
2016	62	2,588,429	10.01%	0.00%
2017	63	2,667,609	8.55%	0.00%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 10 - AFSCME

Table 8-10: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 5,581,134	\$ 5,474,019	98%	\$ 107,115
2008	5,844,132	5,790,661	99%	53,471
2009	6,169,658	6,052,906	98%	116,752
2010	6,282,205	6,221,094	99%	61,111
2011	6,641,977	6,539,902	99%	102,075
2012	6,907,582	6,605,789	96%	301,793
2013	7,150,032	6,724,524	94%	425,508
2014	7,485,077	7,306,241	98%	178,836
2015	8,175,205	7,406,424	91%	768,781
2016	8,400,053	7,704,587	92%	695,466
2017	8,470,153	8,246,291	97%	223,862

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		
2007	46	\$ 1,536,793	9.34%	0.00%
2008	42	1,408,252	8.53%	0.00%
2009	40	1,464,689	8.80%	0.00%
2010	35	1,243,956	8.85%	0.00%
2011	36	1,238,602	8.62%	0.00%
2012	35	1,236,547	9.73%	0.00%
2013	35	1,204,007	10.44%	0.00%
2014	36	1,294,086	9.05%	0.00%
2015	36	1,318,531	12.14%	0.00%
2016	37	1,377,505	11.57%	0.00%
2017	37	1,417,705	9.24%	0.00%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 11 - Grnl Non Union

Table 8-11: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 6,482,106	\$ 6,251,012	96%	\$ 231,094
2008	7,197,635	6,973,554	97%	224,081
2009	7,267,054	7,812,263	108%	(545,209)
2010	7,765,800	8,327,804	107%	(562,004)
2011	8,256,330	8,680,352	105%	(424,022)
2012	8,689,048	8,919,726	103%	(230,678)
2013	8,995,568	9,176,982	102%	(181,414)
2014	9,690,233	9,460,139	98%	230,094
2015	10,724,425	9,641,494	90%	1,082,931
2016	11,495,764	10,486,873	91%	1,008,891
2017	11,687,540	10,885,312	93%	802,228

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		
2007	64	\$ 2,771,502	9.25%	0.00%
2008	62	2,736,869	8.86%	0.00%
2009	58	2,699,285	5.98%	0.00%
2010	56	2,515,211	6.25%	0.00%
2011	53	2,388,523	6.39%	0.00%
2012	52	2,334,269	7.22%	0.00%
2013	45	2,085,028	7.19%	0.00%
2014	47	2,142,519	8.86%	0.00%
2015	49	2,287,567	11.15%	0.00%
2016	48	2,292,774	10.90%	0.00%
2017	46	2,270,725	10.52%	0.00%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 12 - Gnrl Teamsters

Table 8-12: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 7,510,004	\$ 7,038,360	94%	\$ 471,644
2008	7,966,585	7,350,686	92%	615,899
2009	8,124,274	7,811,903	96%	312,371
2010	8,573,000	8,288,251	97%	284,749
2011	9,094,428	8,919,341	98%	175,087
2012	9,477,282	9,157,210	97%	320,072
2013	10,042,023	9,518,699	95%	523,324
2014	10,754,376	10,415,100	97%	339,276
2015	12,000,053	10,708,134	89%	1,291,919
2016	11,990,124	10,940,029	91%	1,050,095
2017	12,484,175	11,631,736	93%	852,439

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 December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2007	78	\$ 2,635,934	8.83%	0.00%
2008	78	2,654,706	9.19%	0.00%
2009	74	2,665,630	8.47%	0.00%
2010	68	2,434,100	8.75%	0.00%
2011	66	2,349,500	8.17%	0.00%
2012	66	2,370,512	8.64%	0.00%
2013	67	2,421,245	9.15%	0.00%
2014	68	2,518,253	8.60%	0.00%
2015	70	2,626,856	11.11%	0.00%
2016	65	2,425,005	10.68%	0.00%
2017	66	2,572,555	10.12%	0.00%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 13 - Elected & Appt. Dept Heads

Table 8-13: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 5,988,163	\$ 6,071,842	101%	\$ (83,679)
2008	6,316,152	6,299,285	100%	16,867
2009	6,509,265	6,493,331	100%	15,934
2010	6,911,978	6,745,462	98%	166,516
2011	7,159,028	7,370,412	103%	(211,384)
2012	7,416,706	7,533,800	102%	(117,094)
2013	7,688,872	7,768,762	101%	(79,890)
2014	7,945,278	7,966,793	100%	(21,515)
2015	8,598,243	8,131,550	95%	466,693
2016	9,163,879	8,812,991	96%	350,888
2017	9,952,403	9,737,092	98%	215,311

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 December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2007	27	\$ 1,201,441	6.82%	2.53%
2008	25	1,087,404	7.63%	2.53%
2009	26	1,183,905	7.61%	2.53%
2010	24	1,083,981	8.68%	2.53%
2011	24	1,058,033	5.09%	2.53%
2012	23	1,033,001	6.40%	2.53%
2013	23	1,059,325	7.20%	2.53%
2014	23	1,089,442	7.81%	2.53%
2015	24	1,161,536	10.63%	2.53%
2016	22	1,056,163	10.13%	2.53%
2017	25	1,270,726	9.58%	2.53%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 20 - COAM/POAM Disp

Table 8-20: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 1,398,310	\$ 919,935	66%	\$ 478,375
2008	1,541,693	1,037,678	67%	504,015
2009	1,566,343	1,229,516	78%	336,827
2010	1,709,932	1,408,578	82%	301,354
2011	1,877,994	1,587,521	85%	290,473
2012	2,010,409	1,706,187	85%	304,222
2013	2,201,118	1,863,562	85%	337,556
2014	2,434,881	2,170,995	89%	263,886
2015	2,753,847	2,311,935	84%	441,912
2016	2,877,322	2,640,725	92%	236,597
2017	3,118,242	2,967,693	95%	150,549

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

Table 9-20: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2007	15	\$ 639,262	13.42%	0.00%
2008	16	695,634	13.26%	0.00%
2009	16	727,271	11.84%	0.00%
2010	16	692,364	11.67%	0.00%
2011	16	705,498	11.21%	0.00%
2012	16	708,848	11.55%	0.00%
2013	16	714,011	11.84%	0.00%
2014	13	619,208	11.45%	0.00%
2015	16	745,795	12.63%	0.00%
2016	15	684,837	10.97%	0.00%
2017	16	724,132	10.02%	0.00%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 40 - MCF Non Union

Table 8-40: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 9,974,903	\$ 8,799,434	88%	\$ 1,175,469
2008	11,401,936	9,463,994	83%	1,937,942
2009	12,140,501	10,075,912	83%	2,064,589
2010	13,313,568	10,837,700	81%	2,475,868
2011	14,665,104	11,561,516	79%	3,103,588
2012	15,454,455	12,140,833	79%	3,313,622
2013	16,800,339	12,973,786	77%	3,826,553
2014	18,601,707	13,764,128	74%	4,837,579
2015	20,642,980	14,356,008	70%	6,286,972
2016	22,132,421	15,069,028	68%	7,063,393
2017	23,198,953	15,849,440	68%	7,349,513

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

Table 9-40: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2007	92	\$ 3,840,560	10.71%	0.00%
2008	89	3,855,445	12.49%	0.00%
2009	93	4,164,596	12.43%	0.00%
2010	96	4,288,706	13.18%	0.00%
2011	95	4,459,948	13.32%	0.00%
2012	93	4,361,594	13.98%	0.00%
2013	97	4,558,300	14.46%	0.00%
2014	95	4,580,417	15.79%	0.00%
2015	91	4,648,259	18.01%	0.00%
2016	93	5,135,406	18.23%	0.00%
2017	94	5,416,645	18.33%	0.00%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 60 - CMH Non Union

Table 8-60: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	\$ 2,476,044	\$ 2,288,254	92%	\$ 187,790
2008	2,606,445	2,363,097	91%	243,348
2009	2,637,873	2,460,474	93%	177,399
2010	2,732,446	2,634,271	96%	98,175
2011	2,944,916	2,868,224	97%	76,692
2012	3,051,693	2,930,235	96%	121,458
2013	3,269,663	3,122,733	96%	146,930
2014	3,498,472	3,389,932	97%	108,540
2015	4,049,928	3,592,673	89%	457,255
2016	4,319,617	3,820,451	88%	499,166
2017	4,549,958	4,167,494	92%	382,464

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

Table 9-60: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution ¹	Employee Contribution Rate ²
	Number	Annual Payroll		
2007	9	\$ 522,479	9.68%	0.00%
2008	9	529,886	11.12%	0.00%
2009	9	546,753	9.19%	0.00%
2010	10	582,803	8.77%	0.00%
2011	9	537,109	8.23%	0.00%
2012	9	546,357	8.85%	0.00%
2013	11	638,867	9.12%	0.00%
2014	12	721,577	8.62%	0.00%
2015	14	853,145	11.08%	0.00%
2016	14	885,501	11.19%	0.00%
2017	11	650,991	11.26%	0.00%

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 6.

See the Benefit Provision History on page 49 for past benefit provision changes.

Division 02 - POLC Sheriff

Table 10-02: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 6,123,783	23	\$ 6,411,126	21	\$ 450,588
(Gain)/Loss	12/31/2016	(384,286)	22	(416,842)	21	(29,292)
(Gain)/Loss	12/31/2017	(1,157,452)	21	(1,247,155)	21	(87,648)
Total				\$ 4,747,129		\$ 333,648

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

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

Table 10-04: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 2,185,291	23	\$ 2,283,847	21	\$ 160,512
(Gain)/Loss	12/31/2016	(406,460)	22	(440,892)	21	(30,984)
(Gain)/Loss	12/31/2017	106,620	21	114,883	21	8,076
Total				\$ 1,957,838		\$ 137,604

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

Division 06 - CMH Union

Table 10-06: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 981,041	23	\$ 1,045,646	21	\$ 73,488
(Gain)/Loss	12/31/2016	(226,508)	22	(245,696)	21	(17,268)
(Gain)/Loss	12/31/2017	(563,150)	21	(606,794)	21	(42,648)
Total				\$ 193,156		\$ 13,572

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

Division 10 - AFSCME

Table 10-10: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 768,781	23	\$ 830,615	21	\$ 58,380
(Gain)/Loss	12/31/2016	(122,547)	22	(132,933)	21	(9,348)
(Gain)/Loss	12/31/2017	(469,186)	21	(505,548)	21	(35,532)
Total				\$ 192,134		\$ 13,500

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

Division 11 - Gnrl Non Union

Table 10-11: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,082,931	23	\$ 1,164,785	21	\$ 81,864
(Gain)/Loss	12/31/2016	(138,278)	22	(149,989)	21	(10,548)
(Gain)/Loss	12/31/2017	(205,812)	21	(221,762)	21	(15,588)
Total				\$ 793,034		\$ 55,728

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

Division 12 - Gnrl Teamsters

Table 10-12: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 1,291,919	23	\$ 1,393,002	21	\$ 97,908
(Gain)/Loss	12/31/2016	(321,890)	22	(349,159)	21	(24,540)
(Gain)/Loss	12/31/2017	(184,466)	21	(198,762)	21	(13,968)
Total				\$ 845,081		\$ 59,400

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

Division 13 - Elected & Appt. Dept Heads

Table 10-13: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 466,693	23	\$ 512,345	21	\$ 36,012
(Gain)/Loss	12/31/2016	(153,740)	22	(166,769)	21	(11,724)
(Gain)/Loss	12/31/2017	(127,968)	21	(137,886)	21	(9,696)
Total				\$ 207,690		\$ 14,592

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

Division 20 - COAM/POAM Disp

Table 10-20: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 441,912	23	\$ 462,455	21	\$ 32,508
(Gain)/Loss	12/31/2016	(218,840)	22	(237,379)	21	(16,680)
(Gain)/Loss	12/31/2017	(73,035)	21	(78,695)	21	(5,532)
Total				\$ 146,381		\$ 10,296

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

Division 40 - MCF Non Union

Table 10-40: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 6,286,972	23	\$ 6,555,921	21	\$ 460,764
(Gain)/Loss	12/31/2016	606,588	22	657,979	21	46,248
(Gain)/Loss	12/31/2017	183,595	21	197,824	21	13,908
Total				\$ 7,411,724		\$ 520,920

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

Division 60 - CMH Non Union

Table 10-60: Layered Amortization Schedule

Type of UAL	Date Established	Original Balance ¹	Original Amortization Period ²	Amounts for Fiscal Year Beginning 1/1/2019		
				Outstanding UAL Balance ³	Remaining Amortization Period ²	Annual Amortization Payment
Initial	12/31/2015	\$ 457,255	23	\$ 490,654	21	\$ 34,488
(Gain)/Loss	12/31/2016	15,929	22	17,273	21	1,212
(Gain)/Loss	12/31/2017	(122,093)	21	(131,555)	21	(9,252)
Total				\$ 376,372		\$ 26,448

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

² According to the MERS amortization policy, each type of UAL (layer) is amortized over a specific period (see [Appendix](#) on MERS website).

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

The unfunded accrued liability (UAL) as of December 31, 2017 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2017 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the [Appendix](#) on the MERS website for a detailed description of the amortization policy.

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:	12/31/2017
Measurement Date of Total Pension Liability (TPL):	12/31/2017

At 12/31/2017, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits:	373
Inactive employees entitled to but not yet receiving benefits:	140
Active employees:	<u>711</u>
	1,224

Covered employee payroll: (Needed for Required Supplementary Information)	\$ 28,965,529
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Average expected remaining service lives of all employees (active and inactive):	5
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Total Pension Liability as of 12/31/2016 measurement date:	\$ 114,171,757
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Total Pension Liability as of 12/31/2017 measurement date:	\$ 118,245,146
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Service Cost for the year ending on the 12/31/2017 measurement date:	\$ 2,376,577
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Change in the Total Pension Liability due to:

- Benefit changes ¹ :	\$ 0
- Differences between expected and actual experience ² :	\$ (1,812,203)
- 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.

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 12/31/2017:	\$ 14,068,785	-	\$ (11,868,144)

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.

GASB 68 Information

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

The following information has been prepared to provide some of the information necessary to complete GASB Statement No. 68 disclosures. 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:	12/31/2017
Measurement Date of Total Pension Liability (TPL):	12/31/2018

At 12/31/2017, the following employees were covered by the benefit terms:

Inactive employees or beneficiaries currently receiving benefits:	373
Inactive employees entitled to but not yet receiving benefits:	140
Active employees:	<u>711</u>
	1,224

Covered employee payroll: (Needed for Required Supplementary Information)	\$ 28,965,529
Average expected remaining service lives of all employees (active and inactive):	5

Total Pension Liability as of 12/31/2017 measurement date:	\$ 119,663,872
Total Pension Liability as of 12/31/2018 measurement date:	\$ 123,982,094
Service Cost for the year ending on the 12/31/2018 measurement date:	\$ 2,474,800
Change in the Total Pension Liability due to:	
- Benefit changes ¹ :	\$ 0
- Differences between expected and actual experience ² :	\$ (1,532,225)
- 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.

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

	1% Decrease <u>(7.00%)</u>	Current Discount Rate <u>(8.00%)</u>	1% Increase <u>(9.00%)</u>
Change in Net Pension Liability as of 12/31/2018:	\$ 14,590,079	-	\$ (12,313,129)

Note: The current discount rate shown for GASB 68 purposes is higher than the MERS assumed rate of return. This is because for GASB 68 purposes, the discount rate must be gross of administrative expenses, whereas for funding purposes it is net of administrative expenses.

Benefit Provision History

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

02 - POLC Sheriff

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/1999	Benefit B-4 (80% max)
1/1/1999	Member Contribution Rate 2.49%
1/1/1994	Benefit B-3 (80% max)
1/1/1991	Benefit B-2
1/1/1991	Benefit F50 (With 25 Years of Service)
1/1/1988	Benefit C-2/Base B-1
6/1/1985	Member Contribution Rate 0.00%
1/1/1981	Benefit F55 (With 25 Years of Service)
1/1/1981	Member Contribution Rate 5.00%
4/6/1978	Exclude Temporary Employees
1/1/1973	Benefit C-1 (Old)
10/30/1970	Covered by Act 88
6/1/1966	Benefit FAC-5 (5 Year Final Average Compensation)
6/1/1966	10 Year Vesting
6/1/1966	Benefit C (Old)
6/1/1966	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

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

10/1/2017	Probationary Period 3 Months
12/1/2016	Service Credit Purchase Estimates - Yes
2/1/2013	Member Contribution Rate 1.27%
2/1/2013	Benefit F55 (With 25 Years of Service)
5/1/2007	Member Contribution Rate 0.00%
10/1/2005	Member Contribution Rate 2.33%
10/1/2005	Benefit B-2
1/1/1987	Member Contribution Rate 0.00%
1/1/1973	Benefit C-1 (Old)
10/30/1970	Covered by Act 88
6/1/1966	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
6/1/1966	Fiscal Month - January
6/1/1966	Benefit FAC-5 (5 Year Final Average Compensation)
6/1/1966	10 Year Vesting
6/1/1966	Benefit C (Old)
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years
	Defined Benefit Normal Retirement Age - 60

06 - CMH Union

12/1/2016 Service Credit Purchase Estimates - Yes
 4/1/2003 Benefit B-3 (80% max)
 5/1/2001 Member Contribution Rate 0.00%
 1/1/2001 Member Contribution Rate 4.14%
 1/1/2000 Member Contribution Rate 4.41%
 1/1/1999 Member Contribution Rate 0.23%
 11/1/1998 Benefit FAC-5 (5 Year Final Average Compensation)
 11/1/1998 10 Year Vesting
 11/1/1998 Benefit B-2
 11/1/1998 Member Contribution Rate 0.00%
 4/6/1978 Exclude Temporary Employees
 10/30/1970 Covered by Act 88
 Fiscal Month - January
 Defined Benefit Normal Retirement Age - 60
 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

10 - AFSCME

12/1/2016 Service Credit Purchase Estimates - Yes
 1/1/2000 Benefit B-3 (80% max)
 3/1/1991 Benefit B-2
 1/1/1986 Benefit FAC-5 (5 Year Final Average Compensation)
 1/1/1986 10 Year Vesting
 1/1/1986 Member Contribution Rate 0.00%
 10/30/1970 Covered by Act 88
 Fiscal Month - January
 Defined Benefit Normal Retirement Age - 60
 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

11 - Gnrl Non Union

12/1/2016 Service Credit Purchase Estimates - Yes
 12/31/2000 Benefit B-3 (80% max)
 12/1/1990 Benefit B-2
 1/1/1986 Benefit FAC-5 (5 Year Final Average Compensation)
 1/1/1986 10 Year Vesting
 1/1/1986 Member Contribution Rate 0.00%
 4/6/1978 Exclude Temporary Employees
 10/30/1970 Covered by Act 88
 Fiscal Month - January
 Defined Benefit Normal Retirement Age - 60
 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

12 - Gnrl Teamsters

12/1/2016 Service Credit Purchase Estimates - Yes
 1/1/2000 Benefit B-3 (80% max)
 1/1/1991 Benefit B-2

12 - Gnrl Teamsters

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

13 - Elected & Appt. Dept Heads

12/1/2016 Service Credit Purchase Estimates - Yes
 1/1/2005 Benefit B-4 (80% max)
 1/1/2005 Member Contribution Rate 2.53%
 1/1/2001 Benefit B-3 (80% max)
 12/1/1990 Benefit B-2
 6/1/1985 Benefit FAC-5 (5 Year Final Average Compensation)
 6/1/1985 10 Year Vesting
 6/1/1985 Member Contribution Rate 0.00%
 4/6/1978 Exclude Temporary Employees
 10/30/1970 Covered by Act 88
 Fiscal Month - January
 Defined Benefit Normal Retirement Age - 60
 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

20 - COAM/POAM Disp

12/1/2016 Service Credit Purchase Estimates - Yes
 12/31/2000 Benefit FAC-5 (5 Year Final Average Compensation)
 12/31/2000 10 Year Vesting
 12/31/2000 Benefit B-3 (80% max)
 12/31/2000 Benefit F50 (With 25 Years of Service)
 12/31/2000 Member Contribution Rate 0.00%
 4/6/1978 Exclude Temporary Employees
 10/30/1970 Covered by Act 88
 Fiscal Month - January
 Defined Benefit Normal Retirement Age - 60
 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

40 - MCF Non Union

12/1/2016 Service Credit Purchase Estimates - Yes
 1/1/2008 Benefit B-4 (80% max)
 1/1/1999 Benefit B-3 (80% max)
 1/1/1999 Benefit F55 (With 25 Years of Service)
 1/1/1991 Benefit FAC-5 (5 Year Final Average Compensation)
 1/1/1991 10 Year Vesting
 1/1/1991 Benefit B-2

40 - MCF Non Union

1/1/1991 Benefit F55 (With 30 Years of Service)
 1/1/1991 Member Contribution Rate 0.00%
 10/30/1970 Covered by Act 88
 6/1/1966 Fiscal Month - January
 Defined Benefit Normal Retirement Age - 60
 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

60 - CMH Non Union

12/1/2016 Service Credit Purchase Estimates - Yes
 5/1/2001 Benefit B-3 (80% max)
 11/1/1998 Benefit FAC-5 (5 Year Final Average Compensation)
 11/1/1998 10 Year Vesting
 11/1/1998 Benefit B-2
 11/1/1998 Member Contribution Rate 0.00%
 4/6/1978 Exclude Temporary Employees
 10/30/1970 Covered by Act 88
 Fiscal Month - January
 Defined Benefit Normal Retirement Age - 60
 Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

Plan Provisions, Actuarial Assumptions, and Actuarial Funding Method

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

Increase in Final Average Compensation

Division	FAC Increase Assumption
All Divisions	2.00%

Withdrawal Rate Scaling Factor

Division	Withdrawal Rate Scaling Factor
All Divisions	123%

Miscellaneous and Technical Assumptions

Loads – None.