MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM OF MICHIGAN

ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2017

BENZIE CRC (1001)

Spring, 2018

Benzie CRC

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 Benzie CRC (1001) 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. Benzie CRC 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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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	41%	39%

* 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								
01 - Gnrl Emp	-	-	-	-	$ 21,596	$ 22,548	$ 21,136	$ 22,564
11 - Commissioners	-	-	-	-	93	99	85	94
12 - Admin	-	-	-	-	6,760	7,086	6,544	7,033
HA - New hires after 7/1/20	5.44%	5.52%	5.24%	5.37%	4,191	4,251	3,605	3,695
Municipality Total					**$ 32,640**	**$ 33,984**	**$ 31,370**	**$ 33,386**

Employee contribution rates reflected in the valuations are shown below:

	Employee Contribution Rate	
Valuation Date:	**12/31/2017**	**12/31/2016**
Division		
01 - Gnrl Emp	0.00%	0.00%
11 - Commissioners	2.82%	2.82%
12 - Admin	0.00%	0.00%
HA - New hires after 7/1/20	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 $54,325, instead of $33,984.

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

How and Why Do These Numbers Change?

In a defined benefit plan, contributions vary from one annual actuarial valuation to the next as a result of the following:

- Changes in benefit provisions (see Table 2)
- Changes in actuarial assumptions and methods (see the Appendix)
- Experience of the plan (investment experience and demographic experience); this is the difference between actual experience of the plan and the actuarial assumptions. For example:
    - Lower actual investment returns would result in higher required employer contributions, and vice-versa.
    - Smaller than assumed pay increases would lower required employer contributions.
    - Reductions in the number of active employees would lower required contribution dollars, but would usually increase the contribution rate expressed as a percentage of (the now lower) payroll.
    - Retirements at earlier ages than assumed would usually increase required employer contributions.
    - More non-vested terminations of employment than assumed would decrease required contributions.
    - More disabilities or survivor (death) benefits than assumed would increase required contributions.
    - Longer lifetimes after retirement than assumed would increase required employer contributions.

Actuarial valuations do not affect the ultimate cost of the plan; the benefit payments (current and future) determine the cost of the plan. Actuarial valuations only affect the timing of the contributions into the plan. Because assumptions are for the long term, plan experience will not match the actuarial

assumptions in any given year (except by coincidence). Each annual actuarial valuation will adjust the required employer contributions up or down based on the prior year's actual experience.

Comments on 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 40% (instead of 41%); and
- Your total employer contribution requirement for the fiscal year starting January 1, 2019 would be $410,460 (instead of $407,808).

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**
12/31/2017 Valuation Results	**5.75%**	**6.75%**	**7.75%**	**8.75%**
Accrued Liability	$ 9,275,270	$ 8,452,761	$ 7,748,584	$ 7,141,411
Valuation Assets[1]	$ 3,165,129	$ 3,165,129	$ 3,165,129	$ 3,165,129
Unfunded Accrued Liability	$ 6,110,141	$ 5,287,632	$ 4,583,455	$ 3,976,282
Funded Ratio	34%	37%	41%	44%
Monthly Normal Cost	$ 9,699	$ 7,900	$ 6,453	$ 5,314
Monthly Amortization Payment	$ 30,545	$ 28,945	$ 27,531	$ 25,793
Total Employer Contribution[2]	$ 40,244	$ 36,845	$ 33,984	$ 31,107

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.

Your municipality includes one or more Surplus divisions. The assets in a Surplus division may be used to reduce future employer contributions or to accelerate the date by which the municipality becomes 100% funded. The timing and use of these Surplus assets is discretionary.

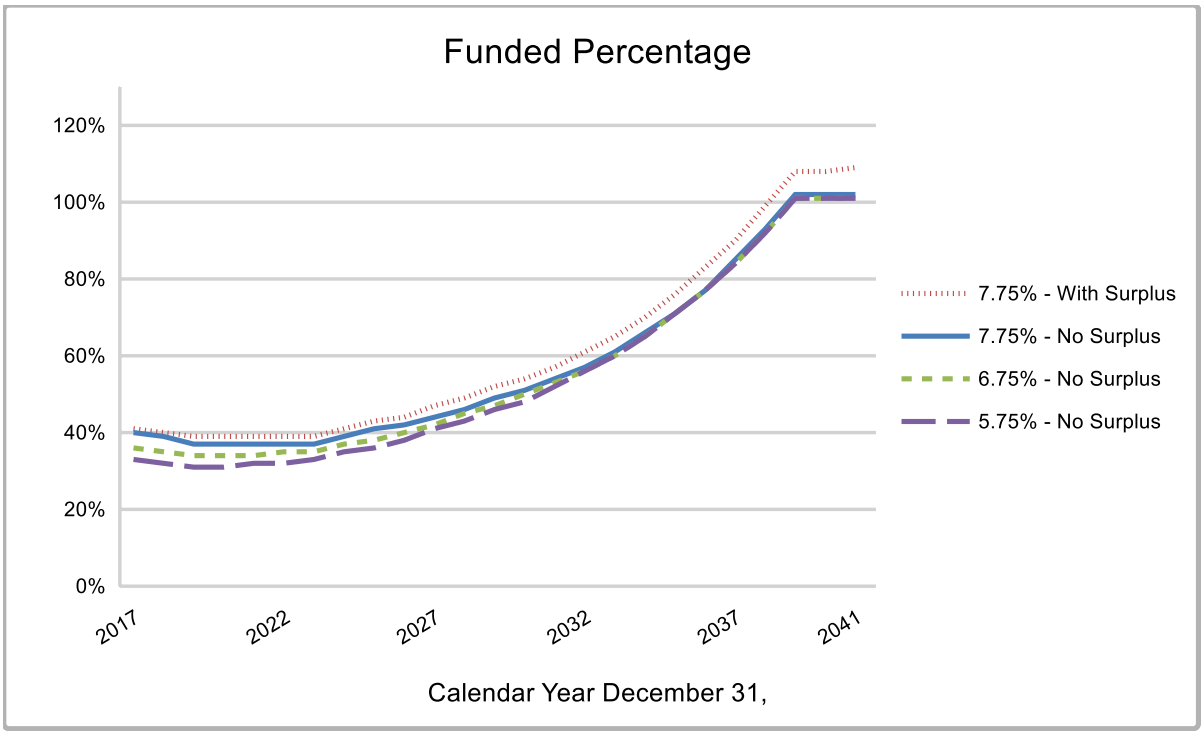
The Funded Percentage graph shows projections of funded status under the 7.75% investment return assumption, both including the Surplus assets (contributed as of the valuation date), and without the Surplus assets. The graph including the Surplus assets assumes these Surplus assets grow with interest and are not used to lower future employer contributions. We modeled the projections including the Surplus assets in this fashion because the use of these assets is discretionary by the employer and we do not know when and how the employer will use them. Once the employer uses these Surplus assets, any future employer contributions are expected to be lower than those shown in the projections.

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

Valuation Year Ending 12/31	Fiscal Year Beginning 1/1	Actuarial Accrued Liability	Valuation Assets[2]	Funded Percentage	Computed Annual Employer Contribution
7.75%[1]					
WITH 5-YEAR PHASE-IN					
2017	2019	$ 7,748,584	$ 3,077,107	40%	$ 391,680
2018	2020	7,740,000	2,980,000	39%	420,000
2019	2021	7,720,000	2,860,000	37%	448,000
2020	2022	7,680,000	2,840,000	37%	461,000
2021	2023	7,640,000	2,830,000	37%	489,000
2022	2024	7,600,000	2,810,000	37%	588,000
NO 5-YEAR PHASE-IN					
2017	2019	$ 7,748,584	$ 3,077,107	40%	$ 407,808
2018	2020	7,740,000	2,980,000	39%	427,000
2019	2021	7,720,000	2,880,000	37%	446,000
2020	2022	7,680,000	2,870,000	37%	459,000
2021	2023	7,640,000	2,860,000	37%	473,000
2022	2024	7,600,000	2,840,000	37%	584,000
6.75%[1]					
NO 5-YEAR PHASE-IN					
2017	2019	$ 8,452,761	$ 3,077,107	36%	$ 442,140
2018	2020	8,430,000	2,950,000	35%	465,000
2019	2021	8,400,000	2,850,000	34%	485,000
2020	2022	8,360,000	2,850,000	34%	500,000
2021	2023	8,310,000	2,860,000	34%	523,000
2022	2024	8,260,000	2,850,000	35%	628,000
5.75%[1]					
NO 5-YEAR PHASE-IN					
2017	2019	$ 9,275,270	$ 3,077,107	33%	$ 482,928
2018	2020	9,240,000	2,920,000	32%	508,000
2019	2021	9,200,000	2,830,000	31%	529,000
2020	2022	9,150,000	2,850,000	31%	545,000
2021	2023	9,080,000	2,870,000	32%	571,000
2022	2024	9,020,000	2,890,000	32%	674,000

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

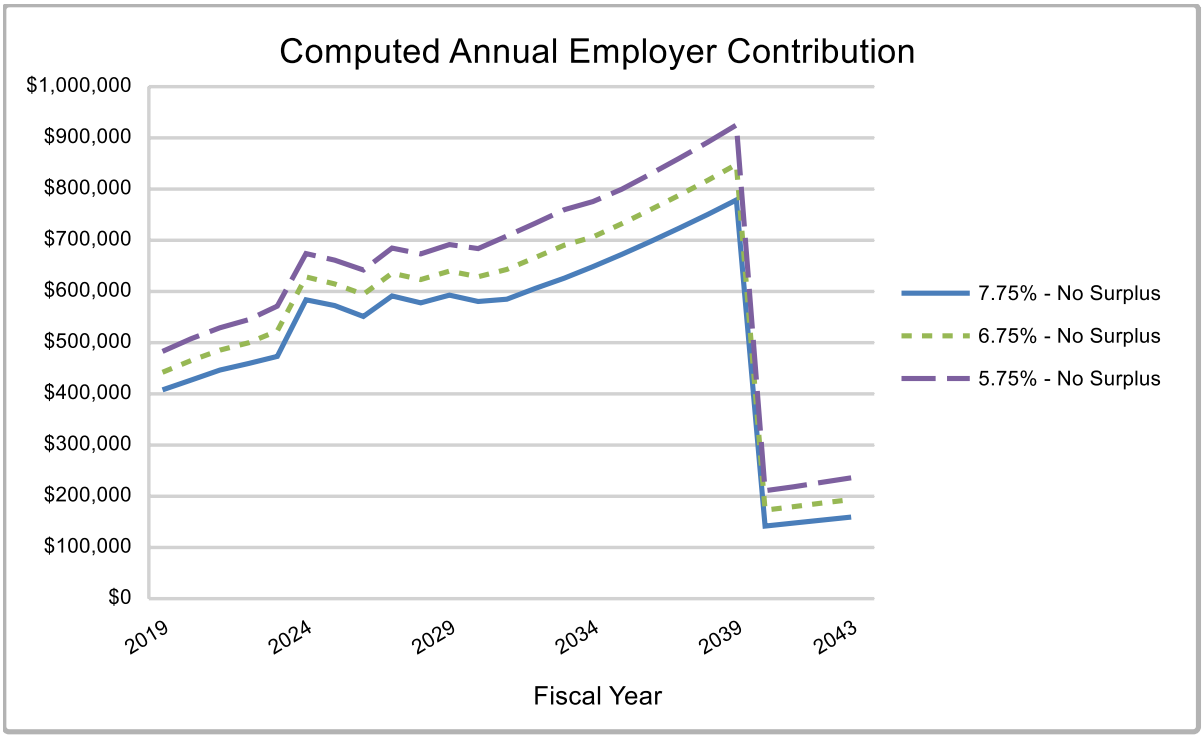
2 Valuation Assets do not include assets from Surplus divisions, if any.



Notes:

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

Assumes assets from Surplus divisions will not be used to lower employer contributions during the projection period.



Notes:

All projected contributions are shown with no phase-in.

Projected employer contributions do not reflect the use of any assets from the Surplus divisions.

Valuation Year Ending 12/31	Fiscal Year Beginning 1/1	7.75% Phase-In	7.75% No Phase-In	6.75% No Phase-In	5.75% No Phase-In
2017	2019	No	No	No	No
2018	2020	No	No	No	No
2019	2021	No	No	No	No
2020	2022	No	No	No	No
2021	2023	01	No	01	01
2022	2024	01	01	01	01

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

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									
01 - Gnrl Emp	8.35%	0.00%	-	-	-	-	32.77%	31.47%	
11 - Commissioners	6.77%	2.82%	-	-	-	-	32.77%	31.47%	
12 - Admin	9.51%	0.00%	-	-	-	-	32.77%	31.47%	
HA - New hires after 7/	5.39%	0.00%	5.39%	0.13%	5.52%	5.44%	32.77%	31.47%	0.93%
Estimated Monthly Contribution[3]									
01 - Gnrl Emp			$ 1,542	$ 21,006	$ 22,548	$ 21,596			
11 - Commissioners			14	85	99	93			
12 - Admin			743	6,343	7,086	6,760			
HA - New hires after 7/			4,154	97	4,251	4,191			
Total Municipality			**$ 6,453**	**$ 27,531**	**$ 33,984**	**$ 32,640**			
Estimated Annual Contribution[3]			**$ 77,436**	**$ 330,372**	**$ 407,808**	**$ 391,680**			

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

01 - Gnrl Emp: Closed to new hires, linked to Division HA

	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:	0%	0%
Act 88:	No	No

11 - Commissioners: Closed to new hires, linked to Division HA

	2017 Valuation	2016 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	1.50% Multiplier (no 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:	2.82%	2.82%
Act 88:	No	No

12 - Admin: Closed to new hires, linked to Division HA

	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:	3 years	3 years
Employee Contributions:	0%	0%
Act 88:	No	No

Table 2 (continued)

HA - New hires after 7/1/2011: Open Division, linked to Division 01, 11, 12		
	2017 Valuation	**2016 Valuation**
Benefit Multiplier:	Hybrid Plan - 1.00% Multiplier	Hybrid Plan - 1.00% Multiplier
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	-	-
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
Employee Contributions:	0%	0%
Act 88:	No	No

Participant Summary

Table 3

Division	2017 Valuation Number	2017 Valuation Annual Payroll[1]	2016 Valuation Number	2016 Valuation Annual Payroll[1]	2017 Valuation Average Age	2017 Valuation Average Benefit Service[2]	2017 Valuation Average Eligibility Service[2]
01 - Gnrl Emp							
Active Employees	6	$ 242,722	7	$ 259,237	55.4	19.5	19.5
Vested Former Employees	8	87,171	7	73,086	52.2	14.1	14.6
Retirees and Beneficiaries	32	454,542	32	455,230	69.7		
11 - Commissioners							
Active Employees	1	$ 5,410	1	$ 5,389	63.8	25.8	25.8
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	3	2,774	3	2,774	80.5		
12 - Admin							
Active Employees	2	$ 93,953	3	$ 132,710	52.7	8.3	8.3
Vested Former Employees	3	33,461	2	28,195	53.5	10.5	11.7
Retirees and Beneficiaries	8	170,715	7	148,244	67.2		
HA - New hires after 7/1/							
Active Employees	21	$ 813,764	18	$ 716,469	46.7	2.9	4.6
Vested Former Employees	1	2,239	1	2,239	40.1	3.1	14.3
Retirees and Beneficiaries	0	0	0	0	0.0		
Total Municipality							
Active Employees	**30**	**$ 1,155,849**	**29**	**$ 1,113,805**	**49.4**	**7.3**	**8.5**
Vested Former Employees	**12**	**122,871**	**10**	**103,520**	**51.5**	**12.3**	**13.9**
Retirees and Beneficiaries	**43**	**628,031**	**42**	**606,248**	**70.0**		
Total Participants	**85**		**81**				

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]
01 - Gnrl Emp	$ 1,721,252	$ 59,673	$ 1,642,670	$ 58,640
11 - Commissioners	20,428	938	19,665	806
12 - Admin	1,071,943	0	921,960	0
HA - New hires after 7/1/2011	168,427	0	112,133	0
S1 - Surplus Unassoc.	87,037	0		
Municipality Total	**$ 3,069,087**	**$ 60,611**	**$ 2,696,428**	**$ 59,446**
Combined Assets	**$3,129,698**		**$2,755,874**	

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.

Assets in the Surplus division(s) are employer assets that have been reserved to be used by the employer at some point in the future to stabilize increases in contributions. These assets are not used in calculating the employer contribution for the fiscal year beginning January 1, 2019.

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	$ 234,987		$ 0	$ 241,827	$ (361,874)	$ 0	$ 0	$ 3,109,944
2008	243,685		0	128,909	(397,808)	0	0	3,084,730
2009	270,995		0	110,651	(410,143)	0	25,621	3,081,854
2010	264,836		0	139,372	(418,728)	0	0	3,067,334
2011	248,187	$ 26,612	210	136,314	(454,877)	0	25,251	3,049,031
2012	275,641	33,330	2,836	126,772	(473,027)	0	30,995	3,045,578
2013	304,784	39,996	(2,126)	159,646	(546,580)	0	0	3,001,298
2014	311,930	39,996	289	156,830	(586,554)	0	0	2,923,789
2015	337,417	138,112	289	142,205	(591,233)	0	0	2,950,579
2016	359,497	117,160	291	139,955	(599,144)	0	0	2,968,338
2017	361,817	266,647	152	176,321	(608,146)	0	0	3,165,129

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
01 - Gnrl Emp				
Active Employees	$ 821,962	$ 32,121	3.9%	$ 789,841
Vested Former Employees	639,784	26,690	4.2%	613,094
Retirees And Beneficiaries	3,907,839	1,741,415	44.6%	2,166,424
Pending Refunds	861	861	100.0%	0
Total	**$ 5,370,446**	**$ 1,801,087**	**33.5%**	**$ 3,569,359**
11 - Commissioners				
Active Employees	$ 17,240	$ 2,880	16.7%	$ 14,360
Vested Former Employees	0	0	0.0%	0
Retirees And Beneficiaries	18,728	18,728	100.0%	0
Pending Refunds	0	0	0.0%	0
Total	**$ 35,968**	**$ 21,608**	**60.1%**	**$ 14,360**
12 - Admin				
Active Employees	$ 138,653	$ 0	0.0%	$ 138,653
Vested Former Employees	198,388	0	0.0%	198,388
Retirees And Beneficiaries	1,822,534	1,084,078	59.5%	738,456
Pending Refunds	0	0	0.0%	0
Total	**$ 2,159,575**	**$ 1,084,078**	**50.2%**	**$ 1,075,497**
HA - New hires after 7/1/2011				
Active Employees	$ 177,324	$ 165,063	93.1%	$ 12,261
Vested Former Employees	5,271	5,271	100.0%	0
Retirees And Beneficiaries	0	0	0.0%	0
Pending Refunds	0	0	0.0%	0
Total	**$ 182,595**	**$ 170,334**	**93.3%**	**$ 12,261**
S1 - Surplus Unassoc.				
Total	**$ 0**	**$ 88,022**		**$ (88,022)**
Total Municipality				
Active Employees	**$ 1,155,179**	**$ 200,064**	**17.3%**	**$ 955,115**
Vested Former Employees	**843,443**	**31,961**	**3.8%**	**811,482**
Retirees and Beneficiaries	**5,749,101**	**2,844,221**	**49.5%**	**2,904,880**
Pending Refunds	**861**	**861**	**100.0%**	**0**
Surplus Assets	**0**	**88,022**		**(88,022)**
Total	**$ 7,748,584**	**$ 3,165,129**	**40.8%**	**$ 4,583,455**

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.

Table 6 (continued)

Division	Actuarial Accrued Liability	Valuation Assets[1]	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
Linked Divisions HA, 01, 11, 12				
Active Employees	$ 1,155,179	$ 200,064	17.3%	$ 955,115
Vested Former Employees	843,443	31,961	3.8%	811,482
Retirees and Beneficiaries	5,749,101	2,844,221	49.5%	2,904,880
Pending Refunds	861	861	100.0%	0
Total	**$ 7,748,584**	**$ 3,077,107**	**39.7%**	**$ 4,671,477**

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	$ 4,830,963	$ 2,505,519	52%	$ 2,325,444
2004	5,371,854	2,688,848	50%	2,683,006
2005	5,809,295	2,830,180	49%	2,979,115
2006	6,190,918	2,995,004	48%	3,195,914
2007	6,374,895	3,109,944	49%	3,264,951
2008	6,540,206	3,084,730	47%	3,455,476
2009	6,634,473	3,081,854	46%	3,552,619
2010	6,640,819	3,067,334	46%	3,573,485
2011	6,856,191	3,049,031	44%	3,807,160
2012	6,965,380	3,045,578	44%	3,919,802
2013	7,178,769	3,001,298	42%	4,177,471
2014	7,307,234	2,923,789	40%	4,383,445
2015	7,624,779	2,950,579	39%	4,674,200
2016	7,686,364	2,968,338	39%	4,718,026
2017	7,748,584	3,165,129	41%	4,583,455

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 01 - Gnrl Emp

Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	$ 4,721,641	$ 2,322,777	49%	$ 2,398,864
2008	4,840,860	2,268,539	47%	2,572,321
2009	4,891,277	2,214,221	45%	2,677,056
2010	4,790,796	2,176,773	45%	2,614,023
2011	4,941,261	2,134,701	43%	2,806,560
2012	5,038,459	2,113,218	42%	2,925,241
2013	5,211,898	2,046,549	39%	3,165,349
2014	5,294,688	1,954,226	37%	3,340,462
2015	5,478,659	1,900,748	35%	3,577,911
2016	5,465,985	1,832,472	34%	3,633,513
2017	5,370,446	1,801,087	34%	3,569,359

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		
2007	20	$ 715,153	25.64%	0.00%
2008	19	710,536	27.24%	0.00%
2009	19	726,556	27.50%	0.00%
2010	19	710,395	27.53%	0.00%
2011	18	672,855	$ 17,956	0.00%
2012	17	662,329	$ 18,723	0.00%
2013	15	576,764	$ 20,009	0.00%
2014	13	480,629	$ 20,704	0.00%
2015	9	345,589	$ 22,404	0.00%
2016	7	259,237	$ 22,564	0.00%
2017	6	242,722	$ 22,548	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 35 for past benefit provision changes.

Division 11 - Commissioners

Table 8-11: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	$ 35,033	$ 4,342	12%	$ 30,691
2008	35,048	3,170	9%	31,878
2009	34,777	14,393	41%	20,384
2010	36,043	13,679	38%	22,364
2011	26,132	15,219	58%	10,913
2012	29,479	17,926	61%	11,553
2013	31,263	19,103	61%	12,160
2014	31,829	20,140	63%	11,689
2015	34,474	21,036	61%	13,438
2016	35,985	22,049	61%	13,936
2017	35,968	21,608	60%	14,360

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	3	$ 15,189	18.25%	0.00%
2008	3	14,922	18.70%	0.00%
2009	3	14,922	14.12%	0.00%
2010	3	14,922	15.17%	0.00%
2011	3	14,922	$ 90	2.82%
2012	2	10,042	$ 79	2.82%
2013	2	10,261	$ 74	2.82%
2014	2	10,261	$ 75	2.82%
2015	2	10,261	$ 91	2.82%
2016	1	5,389	$ 94	2.82%
2017	1	5,410	$ 99	2.82%

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 35 for past benefit provision changes.

Division 12 - Admin

Table 8-12: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2007	$ 1,618,221	$ 782,825	48%	$ 835,396
2008	1,664,298	813,021	49%	851,277
2009	1,708,419	853,240	50%	855,179
2010	1,813,980	876,882	48%	937,098
2011	1,889,011	898,875	48%	990,136
2012	1,893,319	904,423	48%	988,896
2013	1,916,216	912,023	48%	1,004,193
2014	1,935,592	903,679	47%	1,031,913
2015	2,037,748	952,003	47%	1,085,745
2016	2,059,664	993,039	48%	1,066,625
2017	2,159,575	1,084,078	50%	1,075,497

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	8	$ 322,487	21.61%	0.00%
2008	7	315,122	22.62%	0.00%
2009	7	333,100	21.96%	0.00%
2010	6	258,305	27.96%	0.00%
2011	5	225,423	$ 6,211	0.00%
2012	3	114,253	$ 5,603	0.00%
2013	3	119,137	$ 5,901	0.00%
2014	3	128,195	$ 6,268	0.00%
2015	3	125,218	$ 6,977	0.00%
2016	3	132,710	$ 7,033	0.00%
2017	2	93,953	$ 7,086	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 35 for past benefit provision changes.

Division HA - New hires after 7/1/2011

Table 8-HA: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2011	$ (213)	$ 236	-111%	$ (449)
2012	4,123	10,011	243%	(5,888)
2013	19,392	23,623	122%	(4,231)
2014	45,125	45,744	101%	(619)
2015	73,898	76,792	104%	(2,894)
2016	124,730	120,778	97%	3,952
2017	182,595	170,334	93%	12,261

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

Table 9-HA: Computed Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Computed Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2011	1	$ 46,470	5.48%	0.00%
2012	4	192,934	5.24%	0.00%
2013	7	275,932	5.34%	0.00%
2014	10	396,226	5.28%	0.00%
2015	14	528,961	5.46%	0.00%
2016	18	716,469	5.37%	0.00%
2017	21	813,764	5.52%	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 35 for past benefit provision changes.

Division S1 - Surplus Unassoc.

Table 8-S1: Comparative Schedule

Valuation Date December 31	Valuation Assets
2017	$ 88,022

Division 01 - Gnrl Emp

Table 10-01: 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	$ 3,577,911	23	$ 3,683,469	21	$ 258,888
(Gain)/Loss	12/31/2016	5,858	22	6,353	21	444
(Gain)/Loss	12/31/2017	(95,928)	21	(103,362)	21	(7,260)
Total				**$ 3,586,460**		**$ 252,072**

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 - Commissioners

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	$ 13,438	23	$ 14,080	21	$ 996
(Gain)/Loss	12/31/2016	59	22	69	21	0
(Gain)/Loss	12/31/2017	303	21	327	21	24
Total				**$ 14,476**		**$ 1,020**

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 - Admin

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	$ 1,085,745	23	$ 1,120,658	21	$ 78,768
(Gain)/Loss	12/31/2016	(37,053)	22	(40,191)	21	(2,820)
(Gain)/Loss	12/31/2017	2,220	21	2,392	21	168
Total				**$ 1,082,859**		**$ 76,116**

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 HA - New hires after 7/1/2011

Table 10-HA: 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
(Gain)/Loss	12/31/2016	$ 4,195	15	$ 4,447	14	$ 420
(Gain)/Loss	12/31/2017	7,741	15	8,341	15	744
Total				**$ 12,788**		**$ 1,164**

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:		43
Inactive employees entitled to but not yet receiving benefits:		12
Active employees:		30
		85
Covered employee payroll: (Needed for Required Supplementary Information)	$	1,155,849
Average expected remaining service lives of all employees (active and inactive):		3
Total Pension Liability as of 12/31/2016 measurement date:	$	7,524,253
Total Pension Liability as of 12/31/2017 measurement date:	$	7,588,427
Service Cost for the year ending on the 12/31/2017 measurement date:	$	69,238
Change in the Total Pension Liability due to:		
- Benefit changes[1]:	$	0
- Differences between expected and actual experience[2]:	$	22,698
- 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:	$ 678,120	-	$ (585,716)

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:	43
Inactive employees entitled to but not yet receiving benefits:	12
Active employees:	30
	85

Covered employee payroll: (Needed for Required Supplementary Information)	$	1,155,849
Average expected remaining service lives of all employees (active and inactive):		3
Total Pension Liability as of 12/31/2017 measurement date:	$	7,564,834
Total Pension Liability as of 12/31/2018 measurement date:	$	7,577,488
Service Cost for the year ending on the 12/31/2018 measurement date:	$	71,315
Change in the Total Pension Liability due to:		
- Benefit changes[1]:	$	0
- Differences between expected and actual experience[2]:	$	25,480
- 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 12/31/2018:	$ 669,138	-	$ (578,658)

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 Emp

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2006	E 2% COLA Adopted (01/01/2006)
6/1/2005	Benefit F55 (With 25 Years of Service)
1/1/2005	E 2% COLA Adopted (01/01/2005)
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	Benefit B-2
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
1/1/2001	E 2% COLA Adopted (01/01/2001)
1/1/2000	Flexible E 1% COLA Adopted (01/01/2000)
3/21/1994	Exclude Temporary Employees
7/1/1993	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/1993	10 Year Vesting
7/1/1993	Benefit C-1 (New)
7/1/1993	Member Contribution Rate 0.00%
7/1/1993	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 - Commissioners

12/1/2016	Service Credit Purchase Estimates - Yes
7/1/2011	Member Contribution Rate 2.82%
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	E 2% COLA Adopted (01/01/2005)
1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	E 2% COLA Adopted (01/01/2003)
1/1/2002	E 2% COLA Adopted (01/01/2002)
10/1/1998	Benefit FAC-5 (5 Year Final Average Compensation)
10/1/1998	10 Year Vesting
10/1/1998	Benefit C-1 (New)
10/1/1998	Member Contribution Rate 0.00%
9/10/1998	Day of work defined as 1 Hour a Month for All employees.
7/1/1993	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 - Admin

12/1/2016	Service Credit Purchase Estimates - Yes
1/1/2006	E 2% COLA Adopted (01/01/2006)
1/1/2005	E 2% COLA Adopted (01/01/2005)

12 - Admin

1/1/2004	E 2% COLA Adopted (01/01/2004)
1/1/2003	E 2% COLA Adopted (01/01/2003)
12/31/2000	Benefit FAC-3 (3 Year Final Average Compensation)
12/31/2000	10 Year Vesting
12/31/2000	Benefit B-2
12/31/2000	Benefit F55 (With 25 Years of Service)
12/31/2000	Member Contribution Rate 0.00%
7/1/1993	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

HA - New hires after 7/1/2011

7/1/2011	Benefit FAC-3 (3 Year Final Average Compensation)
7/1/2011	6 Year Vesting
7/1/2011	1.0% Multiplier
7/1/1993	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	No Early Reduced Conditions

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	100%

Miscellaneous and Technical Assumptions

Loads – None.