



# Municipal Employees' Retirement System of Michigan

Annual Actuarial Valuation Report  
December 31, 2018 - Manistee Co (5101)



Spring, 2019

Manistee 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 for Manistee Co (5101) as of December 31, 2018. The report includes the determination of liabilities and contribution rates resulting from the participation in the Municipal Employees' Retirement System of Michigan ("MERS"). This report contains the minimum actuarially determined contribution requirement, in alignment with the MERS Plan Document, Actuarial Policy, and the Michigan Constitution and governing statutes. Manistee Co is responsible for the employer contributions needed to provide MERS benefits for its employees and former employees.

The purposes of this valuation are to:

- Measure funding progress as of December 31, 2018,
- Establish contribution requirements for the fiscal year beginning October 1, 2020,
- Provide information regarding the identification and assessment of risk,
- Provide actuarial information in connection with applicable Governmental Accounting Standards Board (GASB) statements, and
- Provide information to assist the local unit of government with state reporting requirements.

This valuation assumed the continuing ability of the plan sponsor to make the contributions necessary to fund this plan. A determination regarding whether or not the plan sponsor is actually able to do so is outside our scope of expertise and was not performed.

The findings in this report are based on data and other information through December 31, 2018. The valuation was based upon information furnished by MERS concerning Retirement System benefits, financial transactions, plan provisions and active members, terminated members, retirees and beneficiaries. We checked for internal reasonability and year-to-year consistency, but did not audit the data. We are not responsible for the accuracy or completeness of the information provided by MERS.

The Municipal Employees' Retirement Act, PA 427 of 1984 and the MERS' Plan Document Article VI sec. 71 (1)(d), provides the MERS Board with the authority to set actuarial assumptions and methods after consultation with the actuary. As the fiduciary of the plan, MERS Retirement Board sets certain assumptions for funding and GASB purposes. These assumptions are checked regularly through a comprehensive study, called an Experience Study. The most recent study was completed in 2015, as prepared by the prior actuary, and is the basis of the assumptions and methods currently in place. **At the February 28, 2019 board meeting, the MERS Retirement Board adopted new economic assumptions effective with the December 31, 2019 annual actuarial valuation, which will impact contributions beginning in 2021.** An illustration of the potential impact is found in this report.

The Michigan Department of Treasury provides required assumptions to be used for purposes of Public Act 202 reporting. These assumptions are for reporting purposes only and do not impact required contributions. Please refer to the State Reporting page found at the end of this report for information for this filing.

For a full list of all the assumptions used, please refer to the division-specific assumptions described in table(s) in this report, and to the Appendix on the MERS website at:  
<http://www.mersofmich.com/Portals/0/Assets/Resources/AAV-Appendix/MERS-2018AnnualActuarialValuation-Appendix.pdf>.

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

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. To the best of our knowledge the information contained in this report is accurate and fairly presents the actuarial position of Manistee Co as of the valuation date. All calculations have been made in conformity with generally accepted actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and with applicable statutes.

David T. Kausch, Rebecca L. Stouffer, and Mark Buis are members of the American Academy of Actuaries. These actuaries meet the Academy's Qualification Standards to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsor. GRS maintains independent consulting agreements with certain local units of government for services unrelated to the actuarial consulting services provided in this report.

The Retirement Board of the Municipal Employees' Retirement System of Michigan confirms that the System provides for payment of the required employer contribution as described in Section 20m of Act No. 314 of 1965 (MCL 38.1140m).

This information is purely actuarial in nature. It is not intended to serve as a substitute for legal, accounting or investment advice.



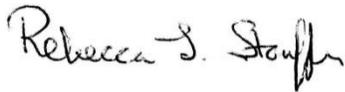
This report was prepared at the request of the MERS Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). GRS is not responsible for the consequences of any unauthorized use. This report should not be relied on for any purpose other than the purposes described herein. Determinations of financial results, associated with the benefits described in this report, for purposes other than those identified above may be significantly different.

If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, that conditions have changed since the calculations were made, that the information provided in this report is inaccurate or is in anyway incomplete, or if you need further information in order to make an informed decision on the subject matter in this report, please contact your Regional Manager at 1.800.767.MERS (6377).

Sincerely,



David T. Kausch, FSA, FCA, EA, MAAA



Rebecca L. Stouffer, ASA, FCA, MAAA



Mark Buis, FSA, FCA, EA, MAAA



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# Executive Summary

## Funded Ratio

The funded ratio of a plan is the percentage of the dollar value of the actuarial accrued liability that is covered by the actuarial value of assets. While funding ratio may be a useful plan measurement, understanding a plan's funding trend may be more important than a particular point in time. Refer to Table 7 to find a history of this information.

	12/31/2018	12/31/2017
Funded Ratio*	72%	74%

\* Reflects assets from Surplus divisions, if any.

There has been a change in actuary and actuarial software since the December 31, 2017 valuation. Throughout this report are references to valuation results generated prior to the 2018 valuation date. Results prior to 2018 were received directly from the prior actuary or extracted from the previous valuation system by MERS's technology service provider.

## Required Employer Contributions:

Your required employer contributions are shown in the following table. Employee contributions, if any, are in addition to the employer contributions. Changes to the actuarial assumptions and methods based on the 2015 Experience Study are phased-in over a 5-year period. This valuation reflects the fourth 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 you requested and have been billed using No Phase-in rates, your 2019 rates will continue to use the No Phase-in method. If you have been billed using the Phased-in rates and wish to change to rates based on No Phase-in, please contact MERS.

	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:	12/31/2018	12/31/2018	12/31/2017	12/31/2017	12/31/2018	12/31/2018	12/31/2017	12/31/2017
Fiscal Year Beginning:	October 1, 2020	October 1, 2020	October 1, 2019	October 1, 2019	October 1, 2020	October 1, 2020	October 1, 2019	October 1, 2019
<b>Division</b>								
01 - General	-	-	-	-	\$ 0	\$ 0	\$ 0	\$ 0
02 - Sheriff/POAM	-	-	-	-	15,602	16,095	12,487	13,473
04 - MCF	-	-	-	-	51,352	52,810	48,974	51,890
10 - 911 Employees	10.32%	10.56%	7.69%	8.20%	4,689	4,797	3,230	3,446
11 - Exec Employees	-	-	-	-	0	0	13,108	13,810
12 - Elected Officials	-	-	-	-	0	0	6,182	6,508
13 - GEA & TPOAM	-	-	-	-	8,507	8,750	9,137	9,777
14 - Crt EEs, Exec EEs & Elctd	-	-	-	-	44,537	45,135	17,781	18,977
20 - Sheriff/Adm	-	-	-	-	8,899	9,075	7,930	8,282
HA - AFSCME hired aft 10/01/2011	7.13%	7.16%	6.97%	7.03%	3,087	3,099	2,647	2,671
HB - Sheriff POAM (POLC) af 10/1/12	6.98%	6.98%	7.23%	7.23%	5,331	5,331	4,890	4,890
HC - Executive after 10/1/2012	8.06%	8.08%	7.46%	7.49%	3,006	3,012	2,693	2,705
HE - Court EEs hired af 11/1/2012	7.47%	7.49%	7.50%	7.55%	6,062	6,077	4,792	4,822
<b>Municipality Total</b>					<b>\$ 151,072</b>	<b>\$ 154,181</b>	<b>\$ 133,851</b>	<b>\$ 141,251</b>

Employee contribution rates:

Valuation Date:	Employee Contribution Rate	
	12/31/2018	12/31/2017
<b>Division</b>		
01 - General	0.00%	0.00%
02 - Sheriff/POAM	12.28%	12.28%
04 - MCF	4.85%	4.85%
10 - 911 Employees	2.52%	2.52%
11 - Exec Employees	2.44%	2.44%
12 - Elected Officials	4.53%	4.53%
13 - GEA & TPOAM	15.00%	7.87%
14 - Crt EEs, Exec EEs & Elctd	3.28%	3.28%
20 - Sheriff/Adm	2.88%	2.88%
HA - AFSCME hired aft 10/01/2011	0.00%	0.00%
HB - Sheriff POAM (POLC) af 10/1/12	0.00%	0.00%
HC - Executive after 10/1/2012	0.00%	0.00%
HE - Court EEs hired af 11/1/2012	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 division could be transferred to an unfunded division in the future to reduce the unfunded liability in future years, or to be used to pay all or a portion of the minimum required contribution in a future year. For purposes of this report, the assets in any Surplus division have been included in the municipality's total assets, unfunded accrued liability and funded status, however, these assets are not used in calculating the minimum required contribution.

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

Assuming that experience of the plan meets actuarial assumptions:

- To accelerate to a 100% funding ratio in 10 years, estimated monthly employer contributions for the fiscal year beginning in 2020 for the entire employer would be \$219,998, instead of \$154,181.

### **How and Why Do These Numbers Change?**

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

- Changes in benefit provisions (see Table 2)
- Changes in actuarial assumptions and methods (see the Appendix)
- Experience of the plan (investment experience and demographic experience); this is the difference between actual experience of the plan and the actuarial assumptions.

### **Comments on Investment Rate of Return Assumption**

A defined benefit plan is funded by employer contributions, participant contributions, and investment earnings. Investment earnings have historically provided **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 at least every five years in an Experience Study that compares the assumptions used against actual experience and recommends adjustments if necessary. If your municipality would like to explore contributions at lower assumed investment return assumptions, please review the "what if" projection scenarios later in this report.

## Assumption Change in 2019

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

## Comments on Asset Smoothing

To avoid dramatic spikes and dips in annual contribution requirements due to short term fluctuations in asset markets, MERS applies a technique called **asset smoothing**. This spreads out each year's investment gains or losses over the prior year and the following four years. This smoothing method is used to determine your actuarial value of assets (valuation assets), which is then used to determine both your funded ratio and your required contributions. The (smoothed) **actuarial rate of return for 2018 was 3.80%, while the actual market rate of return was (4.12)%**. To see historical details of the market rate of return, compared to the smoothed actuarial rate of return, refer to this report's Appendix, or view the "[How Smoothing Works](#)" video on the [Defined Benefit resource page](#) of the MERS website.

As of December 31, 2018 the actuarial value of assets is 110% 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, 2018 valuation results were based on market value instead of actuarial value:

- The funded percent of your entire municipality would be 66% (instead of 72%); and
- Your total employer contribution requirement for the fiscal year starting October 1, 2020 would be \$2,143,968 (instead of \$1,850,172)

## Alternate Scenarios to Estimate the Potential Volatility of Results ("What If Scenarios")

The calculations in this report are based on assumptions about long-term economic and demographic behavior. These assumptions will never materialize in a given year, except by coincidence. Therefore the results will vary from one year to the next. The volatility of the results depends upon the characteristics of the plan. For example:

- Open divisions that have substantial assets compared to their active employee payroll will have more volatile employer contribution rates due to investment return fluctuations.
- Open divisions that have substantial accrued liability compared to their active employee payroll will have more volatile employer contribution rates due to demographic experience fluctuations.
- Small divisions will have more volatile contribution patterns than larger divisions because statistical fluctuations are relatively larger among small populations.
- Shorter amortization periods result in more volatile contribution patterns.

Many assumptions are important in determining the required employer contributions. In the following table, we show the impact of varying the Investment Return assumption and the Wage Inflation assumption. Lower investment returns would result in higher required employer contributions, and vice-versa. Lower wage inflation generally results in lower required employer contributions as a dollar amount in the long run, and vice versa.

The relative impact of each economic 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, 2018 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.

It is important to note that calculations in this report are mathematical estimates based upon assumptions regarding future events, which may or may not materialize. Actuarial calculations can and do vary from one valuation to the next, sometimes significantly depending on the group's size. Projections are not predictions. Future valuations will be based on actual future experience.

**The Retirement Board has adopted a change to the Investment Return Assumption from 7.75% to 7.35%, and the wage inflation from 3.75% to 3.00%. This change will be effective in the December 31, 2019 valuation which will impact the Fiscal Year 2021 contribution. The scenario shown using these assumptions as of December 31, 2018 is illustrative only. The actual impact of this change when reflected in the 2019 valuation will be different.**

12/31/2018 Valuation Results	Assumed Future Annual Smoothed Rate of Investment Return		
	Lower Future Annual Returns	Adopted 2019 Assumption	Valuation Assumptions
<b>Investment Return Assumption</b>	<b>5.75%</b>	<b>7.35%</b>	<b>7.75%</b>
<b>Wage Increase Assumption</b>	<b>3.75%</b>	<b>3.00%</b>	<b>3.75%</b>
Accrued Liability	\$ 69,263,190	\$ 57,431,932	\$ 55,632,646
Valuation Assets <sup>1</sup>	\$ 40,319,436	\$ 40,319,436	\$ 40,319,436
Unfunded Accrued Liability	\$ 28,943,754	\$ 17,112,496	\$ 15,313,210
<b>Funded Ratio</b>	58%	70%	72%
Monthly Normal Cost	\$ 88,737	\$ 47,639	\$ 47,868
Monthly Amortization Payment	\$ 159,378	\$ 110,665	\$ 95,440
<b>Total Employer Contribution<sup>2</sup></b>	<b>\$ 256,919</b>	<b>\$ 169,085</b>	<b>\$ 154,181</b>

<sup>1</sup> The Valuation Assets include assets from Surplus divisions, if any.

<sup>2</sup> If assets exceed accrued liabilities for a division, the division may have an overfunding credit to reduce the division's employer contribution requirement. If the overfunding credit is larger than the normal cost, the division's full credit is included in the municipality's amortization payment above but the division's total contribution requirement is zero. This can cause the displayed normal cost and amortization payment to not add up to the displayed total employer contribution.

## Projection Scenarios

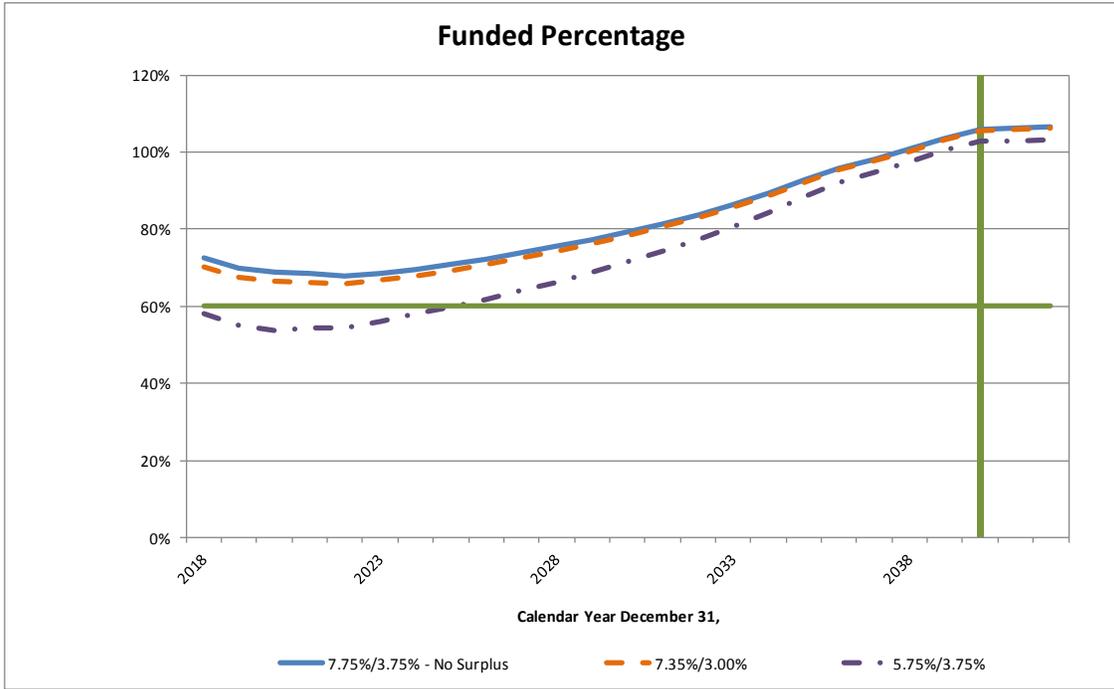
The next two pages show projections of the plan's funded ratio and computed employer contributions under the actuarial assumptions used in the valuation and alternate economic scenarios. All three projections take into account the past investment losses that will continue to affect the actuarial rate of return in the short term.

The 7.75%/3.75% scenario provides 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 7.35%/3.00% and 5.75%/3.75% projections provide an indication of the potential required employer contribution if these assumptions were met over the long-term.

Valuation Year Ending 12/31	Fiscal Year Beginning 10/1	Actuarial Accrued Liability	Valuation Assets <sup>2</sup>	Funded Percentage	Computed Annual Employer Contribution
<b>7.75%<sup>1</sup>/3.75%</b>					
<b>NO 5-YEAR PHASE-IN</b>					
2018	2020	\$ 55,632,646	\$ 40,319,436	72%	\$ 1,850,172
2019	2021	\$ 57,300,000	\$ 40,000,000	70%	\$ 2,100,000
2020	2022	\$ 58,900,000	\$ 40,500,000	69%	\$ 2,230,000
2021	2023	\$ 60,500,000	\$ 41,400,000	68%	\$ 2,360,000
2022	2024	\$ 61,900,000	\$ 42,000,000	68%	\$ 2,540,000
2023	2025	\$ 63,300,000	\$ 43,300,000	68%	\$ 2,650,000
<b>7.35%<sup>1</sup>/3.00%</b>					
<b>NO 5-YEAR PHASE-IN</b>					
2018	2020	\$ 57,431,932	\$ 40,319,436	70%	\$ 2,029,020
2019	2021	\$ 59,000,000	\$ 39,800,000	67%	\$ 2,280,000
2020	2022	\$ 60,500,000	\$ 40,300,000	67%	\$ 2,400,000
2021	2023	\$ 62,000,000	\$ 41,100,000	66%	\$ 2,520,000
2022	2024	\$ 63,300,000	\$ 41,700,000	66%	\$ 2,690,000
2023	2025	\$ 64,500,000	\$ 43,000,000	67%	\$ 2,790,000
<b>5.75%<sup>1</sup>/3.75%</b>					
<b>NO 5-YEAR PHASE-IN</b>					
2018	2020	\$ 69,263,190	\$ 40,319,436	58%	\$ 3,083,028
2019	2021	\$ 71,100,000	\$ 39,200,000	55%	\$ 3,400,000
2020	2022	\$ 73,000,000	\$ 39,300,000	54%	\$ 3,570,000
2021	2023	\$ 74,700,000	\$ 40,600,000	54%	\$ 3,730,000
2022	2024	\$ 76,300,000	\$ 41,600,000	55%	\$ 3,940,000
2023	2025	\$ 77,900,000	\$ 43,700,000	56%	\$ 4,050,000

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

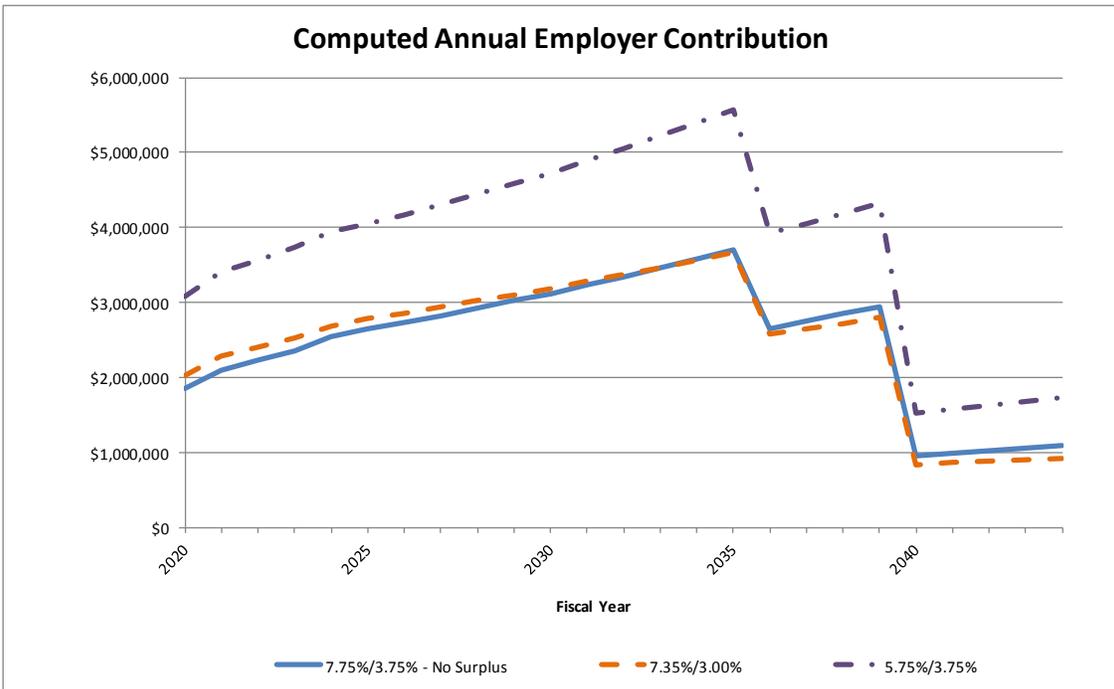
<sup>2</sup> Valuation Assets do not include assets from Surplus divisions, if any.



Notes:

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

The green indicator lines have been added at 60% funded and 22 years following the valuation date for PA 202 purposes.



Notes:

All projected contributions are shown with no phase-in.

## Table 1: Employer Contribution Details For the Fiscal Year Beginning October 1, 2020

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions <sup>1</sup>			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In <sup>5</sup>	Blended ER Rate With Phase-In <sup>5</sup>	Employee Contribut. Conversion Factor <sup>2</sup>
			Employer Normal Cost	Payment of the Unfunded Accrued Liability <sup>4</sup>	Computed Employer Contribut. No Phase-In				
<b>Percentage of Payroll</b>									
01 - General	0.00%	0.00%	-	-	-	-	-	-	-
02 - Sheriff/POAM	16.07%	12.28%	-	-	-	-	16.26%	15.89%	-
04 - MCF	9.50%	4.85%	-	-	-	-	-	-	-
10 - 911 Employees	10.33%	2.52%	7.81%	2.75%	10.56%	10.32%	-	-	0.89%
13 - GEA & TPOAM	14.78%	15.00%	-	-	-	-	18.37%	17.98%	-
14 - Crt EEs, Exec EEs & Elctd	12.21%	3.28%	-	-	-	-	26.22%	25.90%	-
20 - Sheriff/Adm	11.32%	2.88%	-	-	-	-	-	-	-
HA - AFSCME hired aft 10/01/2011	7.23%	0.00%	7.23%	-0.07%	7.16%	7.13%	18.37%	17.98%	0.87%
HB - Sheriff POAM (POLC) af 10/1/12	7.28%	0.00%	7.28%	-0.30%	6.98%	6.98%	16.26%	15.89%	0.92%
HC - Executive after 10/1/2012	7.58%	0.00%	7.58%	0.50%	8.08%	8.06%	-	-	0.95%
<b>Estimated Monthly Contribution<sup>3</sup></b>									
01 - General			\$ 0	\$ (10,873)	\$ 0	\$ 0			
02 - Sheriff/POAM			2,100	13,995	16,095	15,602			
04 - MCF			13,119	39,691	52,810	51,352			
10 - 911 Employees			3,549	1,248	4,797	4,689			
13 - GEA & TPOAM			(47)	8,797	8,750	8,507			
14 - Crt EEs, Exec EEs & Elctd			10,196	34,939	45,135	44,537			
20 - Sheriff/Adm			1,493	7,582	9,075	8,899			
HA - AFSCME hired aft 10/01/2011			3,131	(32)	3,099	3,087			
HB - Sheriff POAM (POLC) af 10/1/12			5,559	(228)	5,331	5,331			
HC - Executive after 10/1/2012			2,826	186	3,012	3,006			

**Table 1 (continued)**

Division	Total Normal Cost	Employee Contribut. Rate	Employer Contributions <sup>1</sup>			Computed Employer Contribut. With Phase-In	Blended ER Rate No Phase-In <sup>5</sup>	Blended ER Rate With Phase-In <sup>5</sup>	Employee Contribut. Conversion Factor <sup>2</sup>
			Employer Normal Cost	Payment of the Unfunded Accrued Liability <sup>4</sup>	Computed Employer Contribut. No Phase-In				
<b>Percentage of Payroll</b>									
HE - Court EEs hired af 11/1/2012	7.32%	0.00%	7.32%	0.17%	7.49%	7.47%	26.22%	25.90%	0.88%
<b>Estimated Monthly Contribution<sup>3</sup></b>									
HE - Court EEs hired af 11/1/2012			\$ 5,942	\$ 135	\$ 6,077	\$ 6,062			
<b>Total Municipality</b>			<b>\$ 47,868</b>	<b>\$ 95,440</b>	<b>\$ 154,181</b>	<b>\$ 151,072</b>			
<b>Estimated Annual Contribution<sup>3</sup></b>			<b>\$ 574,416</b>	<b>\$ 1,145,280</b>	<b>\$ 1,850,172</b>	<b>\$ 1,812,864</b>			

- <sup>1</sup> The above employer contribution requirements are in addition to the employee contributions, if any.
- <sup>2</sup> If employee contributions are increased/decreased by 1.00% of pay, the employer contribution requirement will decrease/increase by the Employee Contribution Conversion Factor. The conversion factor is usually under 1%, because employee contributions may be refunded at termination of employment, and not used to fund retirement pensions. Employer contributions will all be used to fund pensions.
- <sup>3</sup> For divisions that are open to new hires, estimated contributions are based on projected fiscal year payroll. Actual contributions will be based on actual reported monthly pays, and will be different from the above amounts. For divisions that will have no new hires (i.e., closed divisions), invoices will be based on the above dollar amounts which are based on projected fiscal year payroll. See description of Open Divisions and Closed Divisions in the Appendix.
- <sup>4</sup> Note that if the overfunding credit is larger than the normal cost, the full credit is shown above but the total contribution requirement is zero. This will cause the displayed normal cost and unfunded accrued liability contributions to not add across.
- <sup>5</sup> For linked divisions, the employer will be invoiced the Computed Employer Contribution 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.**

## Table 2: Benefit Provisions

### 01 - General: Closed to new hires

	2018 Valuation	2017 Valuation
<b>Benefit Multiplier:</b>	2.00% Multiplier (no max)	2.00% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	-	-
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	0.00%	0.00%
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

### 02 - Sheriff/POAM: Closed to new hires, linked to Division HB

	2018 Valuation	2017 Valuation
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	50/25	50/25
<b>Early Retirement (Reduced):</b>	55/15	55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>COLA for Future Retirees:</b>	2.50% (Non-Compound)	2.50% (Non-Compound)
<b>Employee Contributions:</b>	12.28%	12.28%
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

### 04 - MCF: Closed to new hires

	2018 Valuation	2017 Valuation
<b>Benefit Multiplier:</b>	2.00% Multiplier (no max)	2.00% Multiplier (no max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	30 & Out	30 & Out
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	4.85%	4.85%
<b>DC Plan for New Hires:</b>	4/1/2017	4/1/2017
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**10 - 911 Employees: Open Division**

	<b>2018 Valuation</b>	<b>2017 Valuation</b>
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	-	-
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	2.52%	2.52%
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**11 - Exec Employees: Closed to new hires**

	<b>2018 Valuation</b>	<b>2017 Valuation</b>
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	55/20	55/20
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	2.44%	2.44%
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**12 - Elected Officials: Closed to new hires**

	<b>2018 Valuation</b>	<b>2017 Valuation</b>
<b>Benefit Multiplier:</b>	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	8 years	8 years
<b>Early Retirement (Unreduced):</b>	55/20	55/20
<b>Early Retirement (Reduced):</b>	50/25 55/15	50/25 55/15
<b>Final Average Compensation:</b>	5 years	5 years
<b>Employee Contributions:</b>	4.53%	4.53%
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**13 - GEA & TPOAM: Closed to new hires, linked to Division HA**

	2018 Valuation	2017 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	8 years	8 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	15.00%	7.87%
Act 88:	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**14 - Crt EEs, Exec EEs & Elctd: Closed to new hires, linked to Division HE**

	2018 Valuation	2017 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	8 years	8 years
Early Retirement (Unreduced):	55/20	55/20
Early Retirement (Reduced):	50/25 55/15	50/25 55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	3.28%	3.28%
Act 88:	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**20 - Sheriff/Adm: Closed to new hires, linked to Division HF**

	2018 Valuation	2017 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	8 years	8 years
Early Retirement (Unreduced):	50/25	50/25
Early Retirement (Reduced):	55/15	55/15
Final Average Compensation:	5 years	5 years
Employee Contributions:	2.88%	2.88%
Act 88:	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**HA - AFSCME hired aft 10/01/2011: Open Division, linked to Division 13**

	2018 Valuation	2017 Valuation
Benefit Multiplier:	1.50% Multiplier (no max)	Hybrid Plan - 1.50% 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:	0.00%	0.00%
Act 88:	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**HB - Sheriff POAM (POLC) af 10/1/12: Open Division, linked to Division 02**

	<b>2018 Valuation</b>	<b>2017 Valuation</b>
<b>Benefit Multiplier:</b>	1.50% Multiplier (no max)	Hybrid Plan - 1.50% Multiplier
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	55/25	55/25
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	0.00%	0.00%
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**HC - Executive after 10/1/2012: Open Division**

	<b>2018 Valuation</b>	<b>2017 Valuation</b>
<b>Benefit Multiplier:</b>	1.50% Multiplier (no max)	Hybrid Plan - 1.50% Multiplier
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	-	-
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	0.00%	0.00%
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

**HE - Court EEs hired af 11/1/2012: Open Division, linked to Division 14**

	<b>2018 Valuation</b>	<b>2017 Valuation</b>
<b>Benefit Multiplier:</b>	1.50% Multiplier (no max)	Hybrid Plan - 1.50% Multiplier
<b>Normal Retirement Age:</b>	60	60
<b>Vesting:</b>	6 years	6 years
<b>Early Retirement (Unreduced):</b>	-	-
<b>Early Retirement (Reduced):</b>	-	-
<b>Final Average Compensation:</b>	3 years	3 years
<b>Employee Contributions:</b>	0.00%	0.00%
<b>Act 88:</b>	Yes (Adopted 12/8/1970)	Yes (Adopted 12/8/1970)

### Table 3: Participant Summary

Division	2018 Valuation		2017 Valuation		2018 Valuation		
	Number	Annual Payroll <sup>1</sup>	Number	Annual Payroll <sup>1</sup>	Average Age	Average Benefit Service <sup>2</sup>	Average Eligibility Service <sup>2</sup>
<b>01 - General</b>							
Active Employees	0	\$ 0	0	\$ 0	0.0	0.0	0.0
Vested Former Employees	2	4,801	2	4,801	56.3	5.1	10.0
Retirees and Beneficiaries	13	50,429	14	50,839	78.7		
<b>02 - Sheriff/POAM</b>							
Active Employees	12	\$ 662,563	13	\$ 684,175	45.9	17.3	17.3
Vested Former Employees	6	45,604	6	45,604	49.8	7.6	16.9
Retirees and Beneficiaries	22	334,665	21	298,791	68.6		
<b>04 - MCF</b>							
Active Employees	89	\$ 3,771,863	111	\$ 4,308,541	49.1	13.7	14.0
Vested Former Employees	42	227,798	44	228,054	50.1	8.8	11.7
Retirees and Beneficiaries	107	1,278,443	105	1,227,488	69.5		
<b>10 - 911 Employees</b>							
Active Employees	10	\$ 492,728	11	\$ 455,744	49.1	14.4	15.9
Vested Former Employees	6	61,184	5	59,890	50.1	10.6	14.8
Retirees and Beneficiaries	2	32,684	2	32,646	65.6		
<b>11 - Exec Employees</b>							
Active Employees	0	\$ 0	16	\$ 772,920	0.0	0.0	0.0
Vested Former Employees	0	0	5	60,018	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	10	240,336	0.0		
<b>12 - Elected Officials</b>							
Active Employees	0	\$ 0	3	\$ 240,326	0.0	0.0	0.0
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	4	159,650	0.0		
<b>13 - GEA &amp; TPOAM</b>							
Active Employees	12	\$ 387,391	14	\$ 433,489	56.8	17.7	17.7
Vested Former Employees	2	15,457	2	1,506	57.1	10.5	17.0
Retirees and Beneficiaries	20	289,073	19	288,769	68.7		
<b>14 - Crt EEs, Exec EEs &amp; Elctd</b>							
Active Employees	31	\$ 1,512,283	14	\$ 600,580	50.5	13.2	15.0
Vested Former Employees	14	184,506	11	172,494	53.1	10.9	13.8
Retirees and Beneficiaries	46	1,051,257	28	541,520	66.4		
<b>20 - Sheriff/Adm</b>							
Active Employees	4	\$ 258,041	4	\$ 252,043	43.7	21.2	21.2
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	5	179,117	5	179,116	62.8		

**Table 3 (continued)**

Division	2018 Valuation		2017 Valuation		2018 Valuation		
	Number	Annual Payroll <sup>1</sup>	Number	Annual Payroll <sup>1</sup>	Average Age	Average Benefit Service <sup>2</sup>	Average Eligibility Service <sup>2</sup>
HA - AFSCME hired aft 10/01/2011							
Active Employees	13	\$ 312,002	12	\$ 272,339	43.7	2.3	3.9
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
HB - Sheriff POAM (POLC) af 10/1/12							
Active Employees	20	\$ 766,305	18	\$ 662,190	39.9	1.8	4.2
Vested Former Employees	2	4,440	1	3,734	44.5	3.2	12.7
Retirees and Beneficiaries	0	0	0	0	0.0		
HC - Executive after 10/1/2012							
Active Employees	8	\$ 404,259	4	\$ 212,254	39.4	2.4	3.9
Vested Former Employees	0	0	1	2,725	0.0	0.0	0.0
Retirees and Beneficiaries	1	2,470	0	0	57.4		
HE - Court EEs hired af 11/1/2012							
Active Employees	13	\$ 605,975	13	\$ 586,320	46.0	2.8	4.2
Vested Former Employees	2	2,212	2	2,212	53.9	1.8	9.8
Retirees and Beneficiaries	0	0	0	0	0.0		
<b>Total Municipality</b>							
Active Employees	<b>212</b>	<b>\$ 9,173,410</b>	<b>233</b>	<b>\$ 9,480,921</b>	<b>47.7</b>	<b>11.3</b>	<b>12.2</b>
Vested Former Employees	<b>76</b>	<b>546,002</b>	<b>79</b>	<b>581,038</b>	<b>50.9</b>	<b>8.9</b>	<b>12.8</b>
Retirees and Beneficiaries	<b>216</b>	<b>3,218,138</b>	<b>208</b>	<b>3,019,155</b>	<b>69.0</b>		
<b>Total Participants</b>	<b>504</b>		<b>520</b>				

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

<sup>2</sup> Descriptions can be found under Miscellaneous and Technical Assumptions in the Appendix.

## Table 4: Reported Assets (Market Value)

Division	2018 Valuation		2017 Valuation	
	Employer and Retiree <sup>1</sup>	Employee <sup>2</sup>	Employer and Retiree <sup>1</sup>	Employee <sup>2</sup>
01 - General	\$ 1,365,255	\$ 0	\$ 1,475,450	\$ 0
02 - Sheriff/POAM	3,647,527	860,245	3,901,406	867,146
04 - MCF	13,354,468	1,226,137	14,207,854	1,076,284
10 - 911 Employees	1,533,316	223,417	1,608,924	205,265
11 - Exec Employees	0	0	3,247,322	221,022
12 - Elected Officials	0	0	1,426,041	70,407
13 - GEA & TPOAM	2,282,443	348,200	2,631,694	309,430
14 - Crt EEs, Exec EEs & Elctd	8,909,085	712,559	5,134,282	400,669
20 - Sheriff/Adm	1,688,258	154,212	1,926,163	99,821
HA - AFSCME hired aft 10/01/2011	82,287	0	60,664	0
HB - Sheriff POAM (POLC) af 10/1/12	165,387	0	123,517	0
HC - Executive after 10/1/2012	84,888	0	59,906	0
HE - Court EEs hired af 11/1/2012	172,223	0	131,576	0
<b>Municipality Total<sup>3</sup></b>	<b>\$ 33,285,137</b>	<b>\$ 3,524,769</b>	<b>\$ 35,934,799</b>	<b>\$ 3,250,044</b>
<b>Combined Assets<sup>3</sup></b>	<b>\$36,809,906</b>		<b>\$39,184,843</b>	

<sup>1</sup> Reserve for Employer Contributions and Benefit Payments.

<sup>2</sup> Reserve for Employee Contributions.

<sup>3</sup> Totals may not add due to rounding.

The December 31, 2018 valuation assets (actuarial value of assets) are equal to 1.095342 times the reported market value of assets (compared to 1.011321 as of December 31, 2017). Refer to the Appendix for a description of the valuation asset derivation and a detailed calculation of valuation assets.

## Table 5: Flow of Valuation Assets

Year Ended 12/31	Employer Contributions		Employee Contributions	Investment Income (Valuation Assets)	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
	Required	Additional						
2008	\$ 1,178,188		\$ 230,119	\$ 1,182,754	\$ (1,182,275)	\$ (6,298)	\$ 23,222	\$ 25,360,755
2009	1,256,070		247,418	1,402,588	(1,339,391)	(9,407)	52,425	26,970,458
2010	1,536,237		276,547	1,639,656	(1,561,388)	(25,378)	0	28,836,132
2011	1,329,259	\$ 0	298,496	1,572,288	(1,763,005)	(16,612)	0	30,256,558
2012	1,253,282	0	339,894	1,458,482	(1,835,042)	(23,342)	56,346	31,506,178
2013	1,277,307	0	309,257	1,925,047	(1,979,373)	(33,091)	36,130	33,041,455
2014	1,304,362	0	407,374	1,915,524	(2,197,586)	(37,483)	48,038	34,481,684
2015	1,352,930	0	381,789	1,718,738	(2,505,464)	(15,796)	0	35,413,881
2016	1,341,154	500,003	452,068	1,888,489	(2,653,542)	(17,468)	29,238	36,953,823
2017	1,432,569	1,520,347	442,134	2,330,111	(2,931,537)	(118,993)	0	39,628,454
2018	1,578,670	411,368	410,390	1,460,302	(3,151,109)	(18,639)	0	40,319,436

**Notes:**

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

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

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

The Valuation Asset balance includes assets from Surplus divisions, if any.

Years where historical information is not available, will be displayed with zero values.

**Table 6: Actuarial Accrued Liabilities and Valuation Assets  
as of December 31, 2018**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
01 - General	\$ 0	\$ 48,338	\$ 399,015	\$ 0	\$ 447,353	\$ 1,495,422	334.3%	\$ (1,048,069)
02 - Sheriff/POAM	3,010,427	373,647	3,829,835	12,030	7,225,939	4,937,551	68.3%	2,288,388
04 - MCF	8,779,594	1,284,207	11,616,161	112,381	21,792,343	15,970,748	73.3%	5,821,595
10 - 911 Employees	1,373,605	406,097	330,370	4,214	2,114,286	1,924,224	91.0%	190,062
13 - GEA & TPOAM	1,506,909	115,875	2,701,227	10,593	4,334,604	2,881,453	66.5%	1,453,151
14 - Crt EEs, Exec EEs & Elctd	4,120,177	1,276,002	10,491,830	12,471	15,900,480	10,538,990	66.3%	5,361,490
20 - Sheriff/Adm	1,294,094	0	1,951,125	0	3,245,219	2,018,135	62.2%	1,227,084
HA - AFSCME hired aft 10/01/2011	86,478	0	0	0	86,478	90,133	104.2%	(3,655)
HB - Sheriff POAM (POLC) af 10/1/12	143,216	10,946	0	0	154,162	181,155	117.5%	(26,993)
HC - Executive after 10/1/2012	95,493	0	27,258	0	122,751	92,982	75.7%	29,769
HE - Court EEs hired af 11/1/2012	196,066	12,965	0	0	209,031	188,643	90.2%	20,388
<b>Total</b>	<b>\$ 20,606,059</b>	<b>\$ 3,528,077</b>	<b>\$ 31,346,821</b>	<b>\$ 151,689</b>	<b>\$ 55,632,646</b>	<b>\$ 40,319,436</b>	<b>72.5%</b>	<b>\$ 15,313,210</b>

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

**Table 6 (continued)**

Division	Actuarial Accrued Liability					Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
	Active Employees	Vested Former Employees	Retirees and Beneficiaries	Pending Refunds	Total			
Linked Divisions HA, 13	\$ 1,593,387	\$ 115,875	\$ 2,701,227	\$ 10,593	\$ 4,421,082	\$ 2,971,586	67.2%	\$ 1,449,496
Linked Divisions HB, 02	3,153,643	384,593	3,829,835	12,030	7,380,101	5,118,706	69.4%	2,261,395
Linked Divisions HE, 14	4,316,243	1,288,967	10,491,830	12,471	16,109,511	10,727,633	66.6%	5,381,878

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

## Table 7: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2004	\$ 22,701,054	\$ 18,266,909	80%	\$ 4,434,145
2005	24,390,467	19,852,104	81%	4,538,363
2006	27,629,462	21,872,750	79%	5,756,712
2007	31,065,279	23,935,045	77%	7,130,234
2008	33,375,896	25,360,755	76%	8,015,141
2009	34,479,961	26,970,458	78%	7,509,503
2010	36,592,533	28,836,132	79%	7,756,401
2011	39,228,060	30,256,558	77%	8,971,502
2012	41,258,320	31,506,178	76%	9,752,142
2013	43,329,826	33,041,455	76%	10,288,371
2014	46,145,483	34,481,684	75%	11,663,799
2015	50,527,189	35,413,881	70%	15,113,308
2016	52,648,167	36,953,823	70%	15,694,344
2017	53,852,149	39,628,454	74%	14,223,695
2018	55,632,646	40,319,436	72%	15,313,210

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.

Years where historical information is not available will be displayed with zero values.

## Tables 8 and 9: Division-Based Comparative Schedules

### Division 01 - General

**Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 724,670	\$ 1,474,886	204%	\$ (750,216)
2009	691,759	1,472,592	213%	(780,833)
2010	623,477	1,327,578	213%	(704,101)
2011	609,042	1,332,163	219%	(723,121)
2012	609,550	1,335,265	219%	(725,715)
2013	564,145	1,359,509	241%	(795,364)
2014	507,088	1,430,025	282%	(922,937)
2015	502,337	1,440,539	287%	(938,202)
2016	498,842	1,456,894	292%	(958,052)
2017	454,497	1,492,154	328%	(1,037,657)
2018	447,353	1,495,422	334%	(1,048,069)

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	1	\$ 9,040	0.00%	0.00%
2009	1	8,640	0.00%	0.00%
2010	1	8,640	0.00%	0.00%
2011	1	8,520	0.00%	0.00%
2012	1	11,187	0.00%	0.00%
2013	0	0	\$ 0	0.00%
2014	0	0	\$ 0	0.00%
2015	0	0	\$ 0	0.00%
2016	0	0	\$ 0	0.00%
2017	0	0	\$ 0	0.00%
2018	0	0	\$ 0	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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division 02 - Sheriff/POAM

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 3,894,810	\$ 2,745,255	70%	\$ 1,149,555
2009	4,016,871	2,889,651	72%	1,127,220
2010	4,209,382	3,096,990	74%	1,112,392
2011	4,552,496	3,309,956	73%	1,242,540
2012	5,087,061	3,596,243	71%	1,490,818
2013	5,468,332	3,834,273	70%	1,634,059
2014	5,931,070	4,046,642	68%	1,884,428
2015	6,586,413	4,228,912	64%	2,357,501
2016	7,037,269	4,434,596	63%	2,602,673
2017	6,814,568	4,822,537	71%	1,992,031
2018	7,225,939	4,937,551	68%	2,288,388

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	24	\$ 1,045,353	12.00%	7.91%
2009	25	1,121,135	12.00%	7.72%
2010	25	1,145,538	12.00%	7.54%
2011	25	1,173,102	12.00%	7.84%
2012	24	1,195,594	\$ 13,782	7.54%
2013	22	1,093,007	\$ 14,572	7.84%
2014	20	1,026,719	\$ 14,709	9.57%
2015	20	1,041,121	\$ 16,695	12.28%
2016	19	1,017,465	\$ 18,431	12.28%
2017	13	684,175	\$ 13,473	12.28%
2018	12	662,563	\$ 16,095	12.28%

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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

**Table 8-04: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 12,956,859	\$ 10,284,029	79%	\$ 2,672,830
2009	13,070,921	10,968,020	84%	2,102,901
2010	14,101,940	11,647,589	83%	2,454,351
2011	15,101,655	12,165,558	81%	2,936,097
2012	15,684,070	12,579,145	80%	3,104,925
2013	16,420,741	13,104,416	80%	3,316,325
2014	17,578,284	13,599,449	77%	3,978,835
2015	19,249,440	13,964,801	73%	5,284,639
2016	20,478,886	15,051,580	74%	5,427,306
2017	21,176,376	15,457,170	73%	5,719,206
2018	21,792,343	15,970,748	73%	5,821,595

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	150	\$ 4,948,211	10.84%	1.09%
2009	155	4,988,760	10.12%	1.09%
2010	166	5,446,601	10.37%	1.09%
2011	164	5,512,443	9.95%	1.79%
2012	150	5,046,655	10.54%	2.07%
2013	132	4,526,071	11.39%	2.07%
2014	128	4,762,440	10.88%	3.24%
2015	133	4,764,948	12.25%	4.22%
2016	132	4,658,970	12.17%	4.85%
2017	111	4,308,541	\$ 51,890	4.85%
2018	89	3,771,863	\$ 52,810	4.85%

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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division 10 - 911 Employees

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 817,655	\$ 664,918	81%	\$ 152,737
2009	854,423	812,535	95%	41,888
2010	938,807	975,230	104%	(36,423)
2011	1,086,257	1,084,705	100%	1,552
2012	1,174,771	1,184,073	101%	(9,302)
2013	1,294,055	1,308,870	101%	(14,815)
2014	1,400,025	1,433,088	102%	(33,063)
2015	1,624,420	1,557,858	96%	66,562
2016	1,793,355	1,694,038	95%	99,317
2017	1,893,930	1,834,727	97%	59,203
2018	2,114,286	1,924,224	91%	190,062

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	11	\$ 425,346	9.16%	2.52%
2009	11	437,482	7.61%	2.52%
2010	11	448,872	6.19%	2.52%
2011	11	463,095	7.05%	2.52%
2012	11	464,434	6.73%	2.52%
2013	11	460,819	6.97%	2.52%
2014	10	431,427	6.72%	2.52%
2015	12	511,836	8.33%	2.52%
2016	12	544,795	8.62%	2.52%
2017	11	455,744	8.20%	2.52%
2018	10	492,728	10.56%	2.52%

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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division 11 - Exec Employees

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 2,788,124	\$ 1,936,487	69%	\$ 851,637
2009	3,211,291	2,157,213	67%	1,054,078
2010	3,278,546	2,275,482	69%	1,003,064
2011	3,529,663	2,364,102	67%	1,165,561
2012	3,769,364	2,446,624	65%	1,322,740
2013	3,914,884	2,537,327	65%	1,377,557
2014	4,168,459	2,630,629	63%	1,537,830
2015	4,608,182	2,705,289	59%	1,902,893
2016	4,843,099	2,786,404	58%	2,056,695
2017	5,069,579	3,507,609	69%	1,561,970
2018	0	0	0%	0

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	17	\$ 742,830	14.58%	2.44%
2009	19	794,052	15.98%	2.44%
2010	18	807,660	15.99%	2.44%
2011	18	806,819	17.03%	2.44%
2012	17	795,876	\$ 12,324	2.44%
2013	17	755,305	\$ 12,095	2.44%
2014	17	778,071	\$ 13,349	2.44%
2015	17	797,847	\$ 16,246	2.44%
2016	17	826,210	\$ 17,362	2.44%
2017	16	772,920	\$ 13,810	2.44%
2018	0	0	\$ 0	2.44%

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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division 12 - Elected Officials

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 1,126,015	\$ 756,764	67%	\$ 369,251
2009	1,155,370	812,393	70%	342,977
2010	1,215,266	877,694	72%	337,572
2011	1,341,349	941,492	70%	399,857
2012	1,423,344	924,598	65%	498,746
2013	1,757,853	1,047,645	60%	710,208
2014	1,844,538	1,053,537	57%	791,001
2015	2,025,763	1,058,047	52%	967,716
2016	2,285,027	1,154,021	51%	1,131,006
2017	2,393,280	1,513,389	63%	879,891
2018	0	0	0%	0

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	3	\$ 210,143	16.02%	4.53%
2009	3	215,059	15.48%	4.53%
2010	3	219,128	15.21%	4.53%
2011	2	158,524	20.20%	4.53%
2012	1	101,700	\$ 3,038	4.53%
2013	3	220,124	\$ 5,186	4.53%
2014	3	224,009	\$ 5,480	4.53%
2015	3	226,266	\$ 6,689	4.53%
2016	3	196,725	\$ 7,898	4.53%
2017	3	240,326	\$ 6,508	4.53%
2018	0	0	\$ 0	4.53%

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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division 13 - GEA & TPOAM

**Table 8-13: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 3,101,910	\$ 2,175,229	70%	\$ 926,681
2009	3,140,019	2,230,121	71%	909,898
2010	3,264,650	2,360,063	72%	904,587
2011	3,436,020	2,500,608	73%	935,412
2012	3,571,455	2,628,676	74%	942,779
2013	3,602,669	2,668,206	74%	934,463
2014	3,884,839	2,823,151	73%	1,061,688
2015	4,261,728	2,852,966	67%	1,408,762
2016	4,479,273	2,850,355	64%	1,628,918
2017	4,422,418	2,974,420	67%	1,447,998
2018	4,334,604	2,881,453	66%	1,453,151

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	32	\$ 890,442	13.58%	3.56%
2009	32	857,407	14.09%	3.56%
2010	31	870,042	13.98%	3.56%
2011	29	822,796	\$ 9,516	3.56%
2012	28	828,770	\$ 9,031	4.71%
2013	26	767,554	\$ 8,413	4.71%
2014	25	756,257	\$ 9,354	4.71%
2015	21	633,618	\$ 10,768	5.99%
2016	17	556,935	\$ 11,928	5.99%
2017	14	433,489	\$ 9,777	7.87%
2018	12	387,391	\$ 8,750	15.00%

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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division 14 - Crt EEs, Exec EEs & Elctd

**Table 8-14: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 4,887,832	\$ 3,364,001	69%	\$ 1,523,831
2009	5,331,403	3,793,544	71%	1,537,859
2010	5,915,663	4,267,875	72%	1,647,788
2011	6,422,241	4,538,489	71%	1,883,752
2012	6,724,479	4,794,736	71%	1,929,743
2013	7,009,083	5,116,441	73%	1,892,642
2014	7,342,963	5,352,120	73%	1,990,843
2015	7,916,423	5,461,975	69%	2,454,448
2016	8,131,379	5,499,335	68%	2,632,044
2017	8,060,872	5,597,612	69%	2,463,260
2018	15,900,480	10,538,990	66%	5,361,490

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

**Table 9-14: Computed Employer Contributions - Comparative Schedule**

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	35	\$ 1,468,586	14.88%	3.28%
2009	36	1,515,890	14.66%	3.28%
2010	36	1,543,725	15.29%	3.28%
2011	36	1,524,043	16.34%	3.28%
2012	36	1,526,060	\$ 19,955	3.28%
2013	32	1,423,975	\$ 18,681	3.28%
2014	25	1,160,842	\$ 18,142	3.28%
2015	22	940,869	\$ 20,985	3.28%
2016	16	709,590	\$ 20,482	3.28%
2017	14	600,580	\$ 18,977	3.28%
2018	31	1,512,283	\$ 45,135	3.28%

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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division 20 - Sheriff/Adm

**Table 8-20: Actuarial Accrued Liabilities - Comparative Schedule**

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 2,187,117	\$ 1,588,242	73%	\$ 598,875
2009	2,115,719	1,518,250	72%	597,469
2010	2,146,704	1,548,938	72%	597,766
2011	2,253,644	1,592,306	71%	661,338
2012	2,308,192	1,629,893	71%	678,299
2013	2,375,062	1,695,294	71%	679,768
2014	2,498,228	1,743,985	70%	754,243
2015	2,650,198	1,764,453	67%	885,745
2016	2,812,536	1,788,398	64%	1,024,138
2017	3,177,879	2,048,920	65%	1,128,959
2018	3,245,219	2,018,135	62%	1,227,084

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	6	\$ 286,767	19.27%	2.88%
2009	4	229,462	22.36%	2.88%
2010	4	230,387	22.12%	2.88%
2011	4	235,776	23.32%	2.88%
2012	4	237,370	25.05%	2.88%
2013	4	235,773	\$ 4,702	2.88%
2014	3	187,431	\$ 5,042	2.88%
2015	3	189,048	\$ 6,100	2.88%
2016	2	123,445	\$ 6,688	2.88%
2017	4	252,043	\$ 8,282	2.88%
2018	4	258,041	\$ 9,075	2.88%

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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division HA - AFSCME hired aft 10/01/2011

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 0	\$ 0	0%	\$ 0
2009	0	0	0%	0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	4,466	4,510	101%	(44)
2014	13,473	8,618	64%	4,855
2015	20,165	19,966	99%	199
2016	40,714	37,723	93%	2,991
2017	59,787	61,351	103%	(1,564)
2018	86,478	90,133	104%	(3,655)

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 <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	0	\$ 0	\$ 0	0.00%
2009	0	0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	4	69,578	9.02%	0.00%
2014	5	80,788	8.79%	0.00%
2015	8	160,598	8.23%	0.00%
2016	10	238,032	8.26%	0.00%
2017	12	272,339	7.03%	0.00%
2018	13	312,002	7.16%	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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division HB - Sheriff POAM (POLC) af 10/1/12

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 0	\$ 0	0%	\$ 0
2009	0	0	0%	0
2010	0	0	0%	0
2011	0	0	0%	0
2012	1,951	1,133	58%	818
2013	8,802	9,020	103%	(218)
2014	27,066	23,874	88%	3,192
2015	53,123	45,931	87%	7,192
2016	96,983	80,038	83%	16,945
2017	102,701	124,915	122%	(22,214)
2018	154,162	181,155	118%	(26,993)

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

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

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	0	\$ 0	\$ 0	0.00%
2009	0	0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	1	31,595	5.80%	0.00%
2013	6	179,423	6.60%	0.00%
2014	8	252,324	6.61%	0.00%
2015	8	293,975	6.61%	0.00%
2016	13	463,571	6.59%	0.00%
2017	18	662,190	7.23%	0.00%
2018	20	766,305	6.98%	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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division HC - Executive after 10/1/2012

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 0	\$ 0	0%	\$ 0
2009	0	0	0%	0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	4,925	4,605	94%	320
2014	18,074	12,556	70%	5,518
2015	35,437	22,984	65%	12,453
2016	58,863	38,002	65%	20,861
2017	85,173	60,584	71%	24,589
2018	122,751	92,982	76%	29,769

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

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

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	0	\$ 0	\$ 0	0.00%
2009	0	0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	3	77,372	6.97%	0.00%
2014	4	142,298	8.25%	0.00%
2015	4	149,735	8.01%	0.00%
2016	4	171,115	7.99%	0.00%
2017	4	212,254	7.49%	0.00%
2018	8	404,259	8.08%	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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Division HE - Court EEs hired af 11/1/2012

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

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	\$ 0	\$ 0	0%	\$ 0
2009	0	0	0%	0
2010	0	0	0%	0
2011	0	0	0%	0
2012	0	0	0%	0
2013	4,817	3,687	77%	1,130
2014	13,377	13,770	103%	(393)
2015	47,272	38,554	82%	8,718
2016	91,941	82,439	90%	9,502
2017	141,089	133,066	94%	8,023
2018	209,031	188,643	90%	20,388

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

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

Valuation Date December 31	Active Employees		Computed Employer Contribution <sup>1</sup>	Employee Contribution Rate <sup>2</sup>
	Number	Annual Payroll		
2008	0	\$ 0	\$ 0	0.00%
2009	0	0	\$ 0	0.00%
2010	0	0	\$ 0	0.00%
2011	0	0	\$ 0	0.00%
2012	0	0	\$ 0	0.00%
2013	2	74,441	7.34%	0.00%
2014	6	207,654	7.98%	0.00%
2015	8	366,760	8.12%	0.00%
2016	10	484,997	7.46%	0.00%
2017	13	586,320	7.55%	0.00%
2018	13	605,975	7.49%	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 2.

See the Benefit Provision History, later in this report, for past benefit provision changes.

Years where historical information is not available, will be displayed with zero values.

## Table 10: Division-Based Layered Amortization Schedule

### Division 01 - General

**Table 10-01: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ (938,202)	10	\$ (918,572)	10	\$ (112,356)
(Gain)/Loss	12/31/2016	52,943	10	53,839	8	7,944
(Gain)/Loss	12/31/2017	(38,384)	10	(41,573)	9	(5,556)
(Gain)/Loss	12/31/2018	(147,162)	10	(167,697)	10	(20,508)
<b>Total</b>				<b>\$ (1,074,003)</b>		<b>\$ (130,476)</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 02 - Sheriff/POAM

**Table 10-02: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 2,357,501	23	\$ 2,481,057	20	\$ 180,096
(Gain)/Loss	12/31/2016	203,355	22	234,341	20	17,016
(Gain)/Loss	12/31/2017	(663,621)	21	(759,649)	20	(55,140)
(Gain)/Loss	12/31/2018	313,933	20	357,740	20	25,968
<b>Total</b>				<b>\$ 2,313,489</b>		<b>\$ 167,940</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

**Table 10-04: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 5,284,639	23	\$ 6,424,973	17	\$ 521,832
(Gain)/Loss	12/31/2016	(690,714)	22	(791,954)	17	(64,320)
Amendment	12/31/2016	(28,629)	22	(32,826)	17	(2,664)
(Gain)/Loss	12/31/2017	193,774	19	220,695	17	17,928
(Gain)/Loss	12/31/2018	37,992	17	43,293	17	3,516
<b>Total</b>				<b>\$ 5,864,181</b>		<b>\$ 476,292</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 10 - 911 Employees

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 66,562	23	\$ 83,090	20	\$ 6,036
(Gain)/Loss	12/31/2016	25,040	22	28,860	20	2,100
(Gain)/Loss	12/31/2017	(49,368)	21	(56,505)	20	(4,104)
(Gain)/Loss	12/31/2018	132,371	20	150,842	20	10,944
<b>Total</b>				<b>\$ 206,287</b>		<b>\$ 14,976</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 13 - GEA & TPOAM

**Table 10-13: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 1,408,762	23	\$ 1,502,712	20	\$ 109,080
(Gain)/Loss	12/31/2016	179,396	22	206,731	20	15,012
(Gain)/Loss	12/31/2017	(216,493)	21	(247,819)	20	(17,988)
Amendment	12/31/2017	(4,427)	21	(5,062)	20	(372)
(Gain)/Loss	12/31/2018	7,588	20	8,647	20	624
Amendment	12/31/2018	(9,528)	20	(10,858)	20	(792)
<b>Total</b>				<b>\$ 1,454,351</b>		<b>\$ 105,564</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division 14 - Crt EEs, Exec EEs & Elctd

**Table 10-14: Layered Amortization Schedule**

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 2,454,448	23	\$ 2,607,056	20	\$ 189,240
(Gain)/Loss	12/31/2016	107,697	22	124,107	20	9,012
(Gain)/Loss	12/31/2017	(212,857)	21	(243,653)	20	(17,688)
(Gain)/Loss	12/31/2018	785,470	20	895,076	20	64,968
Merger	12/31/2018			2,393,339	20	173,736
<b>Total</b>				<b>\$ 5,775,925</b>		<b>\$ 419,268</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 885,745	23	\$ 945,901	20	\$ 68,664
(Gain)/Loss	12/31/2016	110,882	22	127,778	20	9,276
(Gain)/Loss	12/31/2017	80,741	21	92,423	20	6,708
(Gain)/Loss	12/31/2018	76,649	20	87,345	20	6,336
<b>Total</b>				<b>\$ 1,253,447</b>		<b>\$ 90,984</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division HA - AFSCME hired aft 10/01/2011

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ (1,541)	15	\$ (1,730)	14	\$ (168)
(Gain)/Loss	12/31/2018	(2,144)	15	(2,443)	15	(216)
<b>Total</b>				<b>\$ (4,173)</b>		<b>\$ (384)</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division HB - Sheriff POAM (POLC) af 10/1/12

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
(Gain)/Loss	12/31/2017	\$ (23,700)	15	\$ (26,608)	14	\$ (2,496)
(Gain)/Loss	12/31/2018	(2,349)	15	(2,677)	15	(240)
<b>Total</b>				<b>\$ (29,285)</b>		<b>\$ (2,736)</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division HC - Executive after 10/1/2012

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 12,453	23	\$ 14,402	20	\$ 1,044
(Gain)/Loss	12/31/2016	6,503	22	7,492	20	540
(Gain)/Loss	12/31/2017	3,453	21	3,953	20	288
(Gain)/Loss	12/31/2018	4,361	20	4,969	20	360
<b>Total</b>				<b>\$ 30,816</b>		<b>\$ 2,232</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## Division HE - Court EEs hired af 11/1/2012

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

Type of UAL	Date Established	Original Balance <sup>1</sup>	Original Amortization Period <sup>2</sup>	Amounts for Fiscal Year Beginning 10/1/2020		
				Outstanding UAL Balance <sup>3</sup>	Remaining Amortization Period <sup>2</sup>	Annual Amortization Payment
Initial	12/31/2015	\$ 8,718	23	\$ 12,652	20	\$ 924
(Gain)/Loss	12/31/2016	(4,569)	22	(5,257)	20	(384)
(Gain)/Loss	12/31/2017	498	21	574	20	48
(Gain)/Loss	12/31/2018	12,533	20	14,282	20	1,032
<b>Total</b>				<b>\$ 22,251</b>		<b>\$ 1,620</b>

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

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

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

The unfunded accrued liability (UAL) as of December 31, 2018 (see Table 6) is projected to the beginning of the fiscal year for which the contributions are being calculated. This allows the 2018 valuation to take into account the expected future contributions that are based on past valuations. Each type of UAL (layer) is amortized over the appropriate period. Please see the Appendix on the MERS website for a detailed description of the amortization policy.

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

## GASB 68 Information

The following information has been prepared to provide some of the information necessary to complete GASB Statement No. 68 disclosures. Statement 68 is effective for fiscal years beginning after June 15, 2014. Additional resources, including an Implementation Guide, are available at <http://www.mersofmich.com/>.

Actuarial Valuation Date:	12/31/2018
Measurement Date of the Total Pension Liability (TPL):	12/31/2018
At 12/31/2018, the following employees were covered by the benefit terms:	
Inactive employees or beneficiaries currently receiving benefits:	216
Inactive employees entitled to but not yet receiving benefits (including refunds):	264
Active employees:	<u>212</u>
	692
Total Pension Liability as of 12/31/2017 measurement date:	\$ 52,477,772
Total Pension Liability as of 12/31/2018 measurement date:	\$ 54,231,546
Service Cost for the year ending on the 12/31/2018 measurement date:	\$ 901,273
Change in the Total Pension Liability due to:	
- Benefit changes <sup>1</sup> :	\$ (9,674)
- Differences between expected and actual experience <sup>2</sup> :	\$ (75,558)
- Changes in assumptions <sup>2</sup> :	\$ 0

<sup>1</sup> A change in liability due to benefit changes is immediately recognized when calculating pension expense for the year.

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

Average expected remaining service lives of all employees (active and inactive):	3
Covered employee payroll: (Needed for Required Supplementary Information)	\$ 9,173,410

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:	\$ 5,970,560	\$ -	\$ (5,063,920)

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 - General

12/1/2016	Service Credit Purchase Estimates - Yes
7/1/1996	Benefit B-2
9/1/1992	Temporary 6 Year Vesting (09/01/1992 - 11/03/1992)
1/1/1992	8 Year Vesting
4/15/1986	Day of work defined as 4 Hours a Day for All employees.
1/1/1984	Member Contribution Rate 0.00%
12/8/1970	Covered by Act 88
12/1/1970	Benefit C-1 (Old)
12/1/1964	Benefit FAC-5 (5 Year Final Average Compensation)
12/1/1964	10 Year Vesting
12/1/1964	Benefit C (Old)
12/1/1964	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
12/1/1964	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60
	Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 02 - Sheriff/POAM

12/1/2016	Service Credit Purchase Estimates - Yes
10/1/2015	Participant Contribution Rate 12.28%
1/1/2014	Member Contribution Rate 9.57%
1/1/2013	Member Contribution Rate 7.84%
1/1/2012	Member Contribution Rate 7.54%
1/1/2011	Member Contribution Rate 7.72%
1/1/2010	Member Contribution Rate 7.91%
1/1/2009	Member Contribution Rate 5.91%
1/1/2008	Member Contribution Rate 4.77%
1/1/2007	E2 2.5% COLA for future retirees (07/01/2006)
7/1/2006	Member Contribution Rate 4.82%
7/1/2001	Member Contribution Rate 1.33%
10/1/1999	Member Contribution Rate 1.24%
7/1/1999	Member Contribution Rate 0.00%
10/1/1998	Benefit B-4 (80% max)
10/1/1998	Member Contribution Rate 2.88%
1/1/1997	Temporary Benefit B-4 (80% max) (01/01/1997 - 04/03/1997)
1/1/1995	8 Year Vesting
1/1/1995	Benefit B-2
1/1/1990	Blanket Resolution (All Service)
1/1/1988	Benefit C-2/Base C-1 (Old)
1/1/1988	Benefit F50 (With 25 Years of Service)
4/15/1986	Day of work defined as 4 Hours a Day for All employees.
1/1/1984	Member Contribution Rate 0.00%
12/8/1970	Covered by Act 88

## 02 - Sheriff/POAM

12/1/1970	Benefit C-1 (Old)
12/1/1964	Benefit FAC-5 (5 Year Final Average Compensation)
12/1/1964	10 Year Vesting
12/1/1964	Benefit C (Old)
12/1/1964	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
12/1/1964	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 - MCF

4/1/2017	Accelerated to 15-year Amortization
4/1/2017	DC Adoption Date 04-01-2017
12/1/2016	Service Credit Purchase Estimates - Yes
10/1/2016	Participant Contribution Rate 4.85%
10/1/2015	Participant Contribution Rate 4.22%
1/1/2014	Member Contribution Rate 3.24%
1/1/2013	Member Contribution Rate 2.29%
1/1/2012	Member Contribution Rate 2.07%
6/1/2011	Member Contribution Rate 1.79%
4/1/2006	Member Contribution Rate 1.09%
2/1/2006	Benefit B-2
1/1/2001	30 Years & Out
1/1/2001	6 Year Vesting
1/1/2001	Benefit B-1
4/1/1986	Member Contribution Rate 0.00%
12/8/1970	Covered by Act 88
12/1/1970	Benefit C-1 (Old)
12/1/1964	Benefit FAC-5 (5 Year Final Average Compensation)
12/1/1964	10 Year Vesting
12/1/1964	Benefit C (Old)
12/1/1964	Member Contribution Rate 3.00% Under \$4,200.00 - Then 5.00%
12/1/1964	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 - 911 Employees

12/1/2016	Service Credit Purchase Estimates - Yes
7/1/2000	Benefit B-4 (80% max)
7/1/2000	Member Contribution Rate 2.52%
9/1/1997	Benefit B-2
1/1/1992	8 Year Vesting
4/15/1986	Day of work defined as 4 Hours a Day for All employees.
1/1/1984	Member Contribution Rate 0.00%
12/8/1970	Covered by Act 88
12/1/1964	Benefit FAC-5 (5 Year Final Average Compensation)
12/1/1964	10 Year Vesting
12/1/1964	Benefit C-1 (Old)
12/1/1964	Fiscal Month - January
	Defined Benefit Normal Retirement Age - 60

## 10 - 911 Employees

Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 11 - Exec Employees

12/1/2016 Service Credit Purchase Estimates - Yes  
10/1/1998 Benefit FAC-5 (5 Year Final Average Compensation)  
10/1/1998 8 Year Vesting  
10/1/1998 Benefit B-4 (80% max)  
10/1/1998 Benefit F55 (With 20 Years of Service)  
10/1/1998 Member Contribution Rate 2.44%  
12/8/1970 Covered by Act 88  
12/1/1964 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 - Elected Officials

12/1/2016 Service Credit Purchase Estimates - Yes  
10/1/1998 Benefit FAC-5 (5 Year Final Average Compensation)  
10/1/1998 8 Year Vesting  
10/1/1998 Benefit B-4 (80% max)  
10/1/1998 Benefit F55 (With 20 Years of Service)  
10/1/1998 Member Contribution Rate 4.53%  
12/8/1970 Covered by Act 88  
12/1/1964 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 - GEA & TPOAM

10/1/2018 Participant Contribution Rate 15%  
10/1/2017 Participant Contribution Rate 12.31%  
12/1/2016 Service Credit Purchase Estimates - Yes  
10/1/2016 Participant Contribution Rate 7.87%  
10/1/2015 Participant Contribution Rate 5.99%  
1/1/2012 Member Contribution Rate 4.71%  
7/1/1999 Benefit FAC-5 (5 Year Final Average Compensation)  
7/1/1999 8 Year Vesting  
7/1/1999 Benefit B-4 (80% max)  
7/1/1999 Benefit F55 (With 20 Years of Service)  
7/1/1999 Member Contribution Rate 3.56%  
12/8/1970 Covered by Act 88  
12/1/1964 Fiscal Month - January  
Defined Benefit Normal Retirement Age - 60  
Early Reduced (.5%) at Age 50 with 25 Years or Age 55 with 15 Years

## 14 - Crt EEs, Exec EEs & Elctd

12/1/2016 Service Credit Purchase Estimates - Yes  
7/1/2000 Benefit FAC-5 (5 Year Final Average Compensation)  
7/1/2000 8 Year Vesting  
7/1/2000 Benefit B-4 (80% max)  
7/1/2000 Benefit F55 (With 20 Years of Service)

#### 14 - Crt EEs, Exec EEs & Elctd

7/1/2000 Member Contribution Rate 3.28%  
12/8/1970 Covered by Act 88  
12/1/1964 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 - Sheriff/Adm

12/1/2016 Service Credit Purchase Estimates - Yes  
1/1/1999 Benefit FAC-5 (5 Year Final Average Compensation)  
1/1/1999 8 Year Vesting  
1/1/1999 Benefit B-4 (80% max)  
1/1/1999 Benefit F50 (With 25 Years of Service)  
1/1/1999 Member Contribution Rate 2.88%  
12/8/1970 Covered by Act 88  
12/1/1964 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 - AFSCME hired aft 10/01/2011

10/1/2011 Benefit FAC-3 (3 Year Final Average Compensation)  
10/1/2011 6 Year Vesting  
10/1/2011 1.5% Multiplier  
12/8/1970 Covered by ACT 88  
12/1/1964 Fiscal Month - January  
Defined Benefit Normal Retirement Age - 60  
No Early Reduced Conditions

#### HB - Sheriff POAM (POLC) af 10/1/12

10/1/2012 Benefit FAC-3 (3 Year Final Average Compensation)  
10/1/2012 6 Year Vesting  
10/1/2012 Day of work defined as 4 Hours a Day for All employees.  
10/1/2012 1.5% Multiplier  
10/1/2012 Benefit F55 (With 25 Years of Service)  
12/8/1970 Covered by ACT 88  
12/1/1964 Fiscal Month - January  
Defined Benefit Normal Retirement Age - 60  
No Early Reduced Conditions

#### HC - Executive after 10/1/2012

10/1/2012 Benefit FAC-3 (3 Year Final Average Compensation)  
10/1/2012 6 Year Vesting  
10/1/2012 1.5% Multiplier  
12/8/1970 Covered by ACT 88  
12/1/1964 Fiscal Month - January  
Defined Benefit Normal Retirement Age - 60  
No Early Reduced Conditions

#### HE - Court EEs hired af 11/1/2012

11/1/2012 Benefit FAC-3 (3 Year Final Average Compensation)

## HE - Court EEs hired af 11/1/2012

11/1/2012	6 Year Vesting
11/1/2012	1.5% Multiplier
12/8/1970	Covered by ACT 88
12/1/1964	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	1.00%

### Withdrawal Rate Scaling Factor

Division	Withdrawal Rate Scaling Factor
All Divisions	113%

## Miscellaneous and Technical Assumptions

Loads – None.

### Amortization Policy for Closed Divisions

Closed Division	Amortization Option
04 - MCF	Accelerated to 15-Year Amortization

Please see Appendix on MERS website for a detailed description of the amortization options available for closed divisions within an open municipality.

## Risk Commentary

Determination of the accrued liability, the employer contribution, and the funded ratio requires the use of assumptions regarding future economic and demographic experience. Risk measures, as illustrated in this report, are intended to aid in the understanding of the effects of future experience differing from the assumptions used in the course of the actuarial valuation. Risk measures may also help with illustrating the potential volatility in the accrued liability, the actuarially determined contribution and the funded ratio that result from the differences between actual experience and the actuarial assumptions.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions due to changing conditions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period, or additional cost or contribution requirements based on the Plan's funded status); and changes in plan provisions or applicable law. The scope of an actuarial valuation does not include an analysis of the potential range of such future measurements.

Examples of risk that may reasonably be anticipated to significantly affect the plan's future financial condition include:

- **Investment Risk** – actual investment returns may differ from the expected returns;
- **Asset/Liability Mismatch** – changes in asset values may not match changes in liabilities, thereby altering the gap between the accrued liability and assets and consequently altering the funded status and contribution requirements;
- **Salary and Payroll Risk** – actual salaries and total payroll may differ from expected, resulting in actual future accrued liability and contributions differing from expected;
- **Longevity Risk** – members may live longer or shorter than expected and receive pensions for a period of time other than assumed; and
- **Other Demographic Risks** – members may terminate, retire or become disabled at times or with benefits other than assumed resulting in actual future accrued liability and contributions differing from expected.

The effects of certain trends in experience can generally be anticipated. For example, if the investment return since the most recent actuarial valuation is less (or more) than the assumed rate, the cost of the plan can be expected to increase (or decrease). Likewise if longevity is improving (or worsening), increases (or decreases) in cost can be anticipated.

## PLAN MATURITY MEASURES

Risks facing a pension plan evolve over time. A young plan with virtually no investments and paying few benefits may experience little investment risk. An older plan with a large number of members in pay status and a significant trust may be much more exposed to investment risk. Generally accepted plan maturity measures include the following:

1. Ratio of the market value of assets to total payroll	4.0
2. Ratio of actuarial accrued liability to payroll	6.1
3. Ratio of actives to retirees and beneficiaries	1.0
4. Ratio of market value of assets to benefit payments	11.6
5. Ratio of net cash flow to market value of assets (boy)	-2.0%

### **RATIO OF MARKET VALUE OF ASSETS TO TOTAL PAYROLL**

The relationship between assets and payroll is a useful indicator of the potential volatility of contributions. For example, if the market value of assets is 2.0 times the payroll, a return on assets 5% different than assumed would equal 10% of payroll. A higher (lower) or increasing (decreasing) level of this maturity measure generally indicates a higher (lower) or increasing (decreasing) volatility in plan sponsor contributions as a percentage of payroll.

### **RATIO OF ACTUARIAL ACCRUED LIABILITY TO PAYROLL**

The relationship between actuarial accrued liability and payroll is a useful indicator of the potential volatility of contributions for a fully funded plan. A funding policy that targets a funded ratio of 100% is expected to result in the ratio of assets to payroll and the ratio of liability to payroll converging over time.

### **RATIO OF ACTIVES TO RETIREES AND BENEFICIARIES**

A young plan with many active members and few retirees will have a high ratio of active to retirees. A mature open plan may have close to the same number of actives to retirees resulting in a ratio near 1.0. A super-mature or closed plan may have significantly more retirees than actives resulting in a ratio below 1.0.

### **RATIO OF MARKET VALUE OF ASSETS TO BENEFIT PAYMENTS**

The MERS' Actuarial Policy requires a total minimum contribution equal to the excess (if any) of three times the expected annual benefit payments over the projected market value of assets as of the participating municipality or court's Fiscal Year for which the contribution applies. The ratio of market value of assets to benefit payments as of the valuation date provides an indication of whether the division is at risk for triggering the minimum contribution rule in the near term. If the division triggers this minimum contribution rule, the required employer contributions could increase dramatically relative to previous valuations.

### **RATIO OF NET CASH FLOW TO MARKET VALUE OF ASSETS**

A positive net cash flow means contributions exceed benefits and expenses. A negative cash flow means existing funds are being used to make payments. A certain amount of negative net cash flow is generally expected to occur when benefits are prefunded through a qualified trust. Large negative net cash flows as a percent of assets may indicate a super-mature plan or a need for additional contributions.

## State Reporting

The following information has been prepared to provide some of the information necessary to complete the pension reporting requirements for the State of Michigan’s Local Government Retirement System Annual Report (Form No. 5572). Additional resources are available at [www.mersofmich.com](http://www.mersofmich.com) and on the State [website](#).

Form 5572		
Line Reference	Description	Result
<b>10 Membership as of December 31, 2018</b>		
11	Indicate number of active members	212
12	Indicate number of inactive members	76
13	Indicate number of retirees and beneficiaries	216
<b>14 Investment Performance for Calendar Year Ending December 31, 2018<sup>1</sup></b>		
15	Enter actual rate of return - prior 1-year period	-3.64%
16	Enter actual rate of return - prior 5-year period	4.94%
17	Enter actual rate of return - prior 10-year period	8.25%
<b>18 Actuarial Assumptions</b>		
19	Actuarial assumed rate of investment return <sup>2</sup>	7.75%
20	Amortization method utilized for funding the system's unfunded actuarial accrued liability, if any	Level Percent
21	Amortization period utilized for funding the system's unfunded actuarial accrued liability, if any <sup>3</sup>	20
22	Is each division within the system closed to new employees? <sup>4</sup>	No
<b>23 Uniform Assumptions</b>		
24	Enter retirement pension system's actuarial value of assets using uniform assumptions	\$40,319,436
25	Enter retirement pension system's actuarial accrued liabilities using uniform assumptions	\$60,202,106
27	Actuarially Determined Contribution (ADC) using uniform assumptions, Fiscal Year Ending September 30, 2019	\$2,282,616

1. The Municipal Employees’ Retirement System’s investment performance has been provided to GRS from MERS Investment Staff and included here for reporting purposes. This investment performance figures reported are net of fees on a rolling calendar-year basis for the previous 1-, 5-, and 10-year periods as required under PA 530.
2. Net of administrative and investment expenses.
3. Populated with the longest amortization period remaining in the amortization schedule, across all divisions in the plan. This is when each division and the plan in total is expected to reach 100% funded if all assumptions are met.
4. If all divisions within the employer are closed, “yes.” If at least one division is open (including shadow divisions) indicate “no.”