AMENDED AND RESTATED
COMPREHENSIVE FINANCIAL PLAN
FOR THE COUNTY OF CRAWFORD
RETIREMENT SYSTEM

DATED: JANUARY 14, 2016

Plan Certified by:

PAUL COMPO
ADMINISTRATOR/ CONTROLLER
COUNTY OF CRAWFORD

jra.craw-fp 2015

I. INTRODUCTION

The County of Crawford, in order to fully fund its unfunded pension liability of the Crawford County Employees' Retirement System (the "Unfunded Pension Liability"), intends to issue bonds under Public Act No. 34 of the Public Acts of Michigan of 2001, as amended, ("Public Act 34"), which will be used to achieve the full funding.

II. BONDING FOR PENSION AND OPEB LIABILITIES

The state of Michigan recognized the financial savings potential of allowing local units to issue bonds for pension and/or other post-employment benefit (OPEB) liabilities by enacting Amendments to Public Act 34. The new act controls in legislation:

- Measures to thwart bargaining groups from seeking increases in benefits. Required the defined benefit plan to be closed (with the new hires covered by a defined contribution plan). Defined contribution plans must continue while the debt is outstanding.
- Fiscal and program plan to be submitted to State Treasury for approval and required to demonstrate control over future pension and/or OPEB costs.
- Minimum bond rating required of AA-.

III. CRAWFORD BORROWING

Once the bonds are issued, the bond proceeds will be used to (i) make a deposit to the Municipal Employees' Retirement System of Michigan ("MERS") for the payment of the costs of the Unfunded Pension Liability and (ii) pay costs of issuance of the bonds.

VI. COMPREHENSIVE FINANCAL PLAN

The comprehensive financial plan consists of the following parts:

PART I: An analysis of the current and future obligations of the County with respect to each retirement program and any post-employment health care benefit program of the county.

PART II: Evidence that the issuance of the bonds, together with other funds lawfully available, will be sufficient to eliminate the Unfunded Pension Liability.

PART III: A debt service amortization schedule and a description of actions required to satisfy the debt service amortization schedule.

PART IV: A certification by the Crawford County Administrator/Controller that the comprehensive financial plan is complete and accurate.

V. ANALYSIS OF THE CURRENT AND FUTURE OBLIGATIONS WITH RESPECT TO CRAWFORD COUNTY EMPLOYEES' RETIREMENT SYSTEM AND THE COUNTY'S POST EMPLOYMENT HEALTH CARE BENEFIT PROGRAM

A. Crawford County Pension Financial Status Today

1. December 31, 2014 Actuarial Report

As of December 31, 2014, as reflected in the actuarial report attached hereto as Appendix A:

Estimated Actuarial Accrued Liabilities	$18,294,307
Less - Pension Actuarial Accrued Value of Assets	$12,854,226
Net Estimated Shortfall of Assets Under Liabilities	$ 5,440,081

2. Amounts due to the Municipal Employees Retirement System of Michigan (MERS)

On October 14, 2015 Crawford County was advised that it would be required to make amortization payments related to its Unfunded Pension Liability based on actuarial value in the amount of $7,000,000 as set forth in a letter bearing that date which is attached hereto as Appendix B.

The County is aware that as the value of the assets and liabilities change, the liability could grow, requiring additional contributions.

B. Crawford County Retiree Health Care Financial Status Today

The status of Crawford County's Retirees Health Care Benefits to its retired employees is as follows:

The County's Post Retirement Medical Plan Benefits are funded in a pay-as-you-go basis. The County does not have a VEBA.

The County has received a valuation report which is attached hereto as Appendix C from United Health Actuarial Services. This report shows a total annual OPEB cost a September 30, 2015 of $202,810 and a net OPEB as of the same date of $2,157,684.

VI. EVIDENCE THAT THE ISSUANCE OF THE BONDS TOGETHER WITH OTHER FUNDS LAWFULLY AVAILABLE WILL BE SUFFICIENT TO ELIMINATE THE UNFUNDED PENSION LIABILITY

A. Unfunded Pension Liability

As indicated in V above, the County's Unfunded Pension Liability with actuarial value adjustments through October 14, 2015 is $7,000,000.

B. Sources of Funds to Eliminate the Unfunded Pension Liability

$7,000,000 from Bond Proceeds

When the bonds are delivered, $7,000,000 from bond proceeds will be deposited to pay the costs of the County's Unfunded Pension Liability with MERS.

C. Summary of Sources and Uses

1. Sources	
Bond Proceeds	$7,180,000
2. Uses	
Deposit with MERS	$7,000,000
Bond Issuance Costs	180,000
Total	$7,180,000

VII. DEBT SERVICE AMORTIZATION SCHEDULE AND DESCRIPTION OF ACTIONS REQUIRED TO SATISFY THE DEBT SERVICE AMORTIZATION SCHEDULE

A. Estimated Debt Service Amortization Schedule for $7,180,000 County of Crawford Pension Obligation Bonds

Set forth hereafter is an estimated debt service schedule for the bonds, which schedule is based upon Option B of Appendix B which has an amortization through 2033. As can be seen from this schedule, annual debt service is less than $610,000 per year. The bonds will carry the County's full faith and credit pledge; therefore, the annual debt service will be legally required to be part of the County's budget.

(Please see the schedule on the next page.)

$7,180,000
County of Crawford
Pension Obligation Bonds, Series 2015
(Taxable Obligations)

ESTIMATED DEBT SERVICE SCHEDULE

Date	Principal	Coupon	Interest	Total Debt Service	Annual Total
09/01/16	$200,000.00	2.50%	$144,003.13	$344,003.13	$344,003.13
03/01/17			120,931.25	120,931.25	
09/01/17	200,000.00	2.50%	120,931.25	320,931.25	441,862.50
03/01/18			118,431.25	118,431.25	
09/01/18	275,000.00	2.50%	118,431.25	393,431.25	511,862.50
03/01/19			114,993.75	114,993.75	
09/01/19	350,000.00	3.00%	114,993.75	464,993.75	579,987.50
03/01/20			109,743.75	109,743.75	
09/01/20	360,000.00	3.00%	109,743.75	469,743.75	579,487.50
03/01/21			104,343.75	104,343.75	
09/01/21	370,000.00	3.25%	104,343.75	474,343.75	578,687.50
03/01/22			98,331.25	98,331.25	
09/01/22	385,000.00	3.25%	98,331.25	483,331.25	581,662.50
03/01/23			92,075.00	92,075.00	
09/01/23	400,000.00	3.25%	92,075.00	492,075.00	584,150.00
03/01/24			85,575.00	85,575.00	
09/01/24	410,000.00	3.25%	85,575.00	495,575.00	581,150.00
03/01/25			78,912.50	78,912.50	
09/01/25	425,000.00	3.25%	78,912.50	503,912.50	582,825.00
03/01/26			72,006.25	72,006.25	
09/01/26	440,000.00	3.50%	72,006.25	512,006.25	584,012.50
03/01/27			64,306.25	64,306.25	
09/01/27	480,000.00	3.50%	64,306.25	544,306.25	608,612.50
03/01/28			55,906.25	55,906.25	
09/01/28	490,000.00	3.50%	55,906.25	545,906.25	601,812.50
03/01/29			47,331.25	47,331.25	
09/01/29	500,000.00	3.75%	47,331.25	547,331.25	594,662.50
03/01/30			37,956.25	37,956.25	
09/01/30	500,000.00	3.75%	37,956.25	537,956.25	575,912.50
03/01/31			28,581.25	28,581.25	
09/01/31	425,000.00	4.00%	28,581.25	453,581.25	482,162.50
03/01/32			20,081.25	20,081.25	
09/01/32	425,000.00	4.00%	20,081.25	445,081.25	465,162.50
03/01/33			11,581.25	11,581.25	
09/01/33	545,000.00	4.25%	11,581.25	556,581.25	568,162.50
	$7,180,000.00		$2,666,178.13	$9,846,178.13	$9,846,178.13

Interest Start Date (Dated Date): 02/01/16

B. County Repayment

1. Annual Appropriations Sources

Currently Crawford County pays its retirees' benefits for the pension fund by appropriations from its general fund and other funds sufficient to pay the annual ARC payments.

2. Anticipated Debt Service Payments on Bonds and Repayment Thereof

Set forth below is a comparison of the pension bonds debt service compared to the estimated appropriations in the future. (Please see schedule on the next page.)

$7,180,000
County of Crawford
Pension Obligation Bonds, Series 2015
(Taxable Obligations)

Year	Estimated * Bond Debt Service	7.75% Investment** Assumption Actuarial Value Estimated Payment Without Bonding	County Savings
2016	$344,003.13	$600,000.00	$255,996.88
2017	441,862.50	600,000.00	158,137.50
2018	511,862.50	600,000.00	88,137.50
2019	579,987.50	700,000.00	120,012.50
2020	579,487.50	700,000.00	120,512.50
2021	578,687.50	700,000.00	121,312.50
2022	581,662.50	700,000.00	118,337.50
2023	584,150.00	800,000.00	215,850.00
2024	581,150.00	800,000.00	218,850.00
2025	582,825.00	800,000.00	217,175.00
2026	584,012.50	900,000.00	315,987.50
2027	608,612.50	900,000.00	291,387.50
2028	601,812.50	900,000.00	298,187.50
2029	594,662.50	900,000.00	305,337.50
2030	575,912.50	600,000.00	24,087.50
2031	482,162.50	500,000.00	17,837.50
2032	465,162.50	500,000.00	34,837.50
2033	568,162.50	600,000.00	31,837.50
Total	$9,846,178.13	$12,800,000.00	$2,953,821.88

*Numbers provided by MFCI dated October 28, 2015

**Numbers provided by CIBZ letter dated October 14, 2015, page 6

VII. SAVINGS TO COUNTY BY ISSUANCE OF PENSION BONDS

A. Background

In the past, the County made an annual ARC payment to the Pension Fund to cover its CURRENT LIABILITY and to make up in part its UNFUNDED LIABILITY which for 2015 is $7,000,000 according to the most recent Actuarial Report with the October 14, 2015 update.

B. Comparison of Estimated Future ARC Payments (without the Full Funding from the Issuance of Bonds) and the Debt Service Payment on the Bonds

By issuing the bonds the County will save more than $2,900,000 over the next 18 years as is shown on the comparison schedule attached hereto as Appendix D.

VIII. CERTIFICATION

The County has prepared this Amended and Restated Comprehensive Financial Plan for the County of Crawford Retirement System as required under Act 34, Public Acts of Michigan, 2001, as amended, for the issuance of pension obligation bonds. In preparing this plan, information has been obtained from the Municipal Employees' Retirement System of Michigan, CBIZ and Municipal Financial Consultants Incorporated. The County believes the information provided by these firms to be reliable.

I certify that this Amended and Restated Comprehensive Financial Plan is complete and accurate.

____
Paul Compo, Administrator/Controller
County of Crawford

Dated: January 14, 2016

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Appendix A

ANNUAL ACTUARIAL VALUATION REPORT

[attach here]

MUNICIPAL EMPLOYEES' RETIREMENT SYSTEM OF MICHIGAN
ANNUAL ACTUARIAL VALUATION REPORT DECEMBER 31, 2014
CRAWFORD CO (2001)

CBIZ

Spring, 2015

Crawford Co

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

This report presents the results of the Annual Actuarial Valuation, prepared as of December 31, 2014. The report includes the determination of liabilities and contribution rates resulting from the participation of Crawford Co (2001) in the Municipal Employees' Retirement System of Michigan ("MERS"). MERS is a nonprofit organization, independent from the State, that has provided retirement plans for municipal employees for more than 65 years. Crawford Co is responsible for the employer contributions needed to provide MERS benefits for its employees and former employees under the Michigan Constitution and the MERS Plan Document.

The purpose of the December 31, 2014 annual actuarial valuation is to:

- Measure funding progress
- Establish contribution requirements for the fiscal year beginning October 1, 2016
- Provide actuarial information in connection with applicable Governmental Accounting Standards Board (GASB) statements

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

The valuation uses financial data, plan provision data, and participant data as of December 31, 2014 furnished by MERS. In accordance with Actuarial Standards of Practice No. 23, the data was checked for internal and year to year consistency as well as general reasonableness, but was not otherwise audited. CBIZ Retirement Plan Services does not assume responsibility for the accuracy or completeness of the data used in this valuation.

The actuarial assumptions and methods are adopted by the MERS Retirement Board, and are reviewed every five years in an Experience Study, which will be completed in 2015. Please refer to the division-specific assumptions described in table(s) in this report, and to the Appendix on the MERS website at:
www.mersofmich.com/Portals/0/Assets/Resources/AAV-Appendix/MERS-2014AnnualActuarialValuation-Appendix.pdf.

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

To the best of our knowledge, this report is complete and accurate, was prepared in conformity with generally recognized actuarial principles and practices, with the Actuarial Standards of Practice issued by the Actuarial Standards Board, and is in compliance with Act No. 220 of the Public Acts of 1996, as amended, and the MERS Plan Document as revised. All of the undersigned are members of the American Academy of Actuaries (MAAA), and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The Retirement Board of the Municipal Employees' Retirement System of Michigan confirms that the System provides for payment of the required employer contribution as described in Section 20m of Act No. 314 of 1965 (MCL 38.1140m).

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

This report was prepared at the request of the Retirement Board and may be provided only in its entirety by the municipality to other interested parties (MERS customarily provides the full report on request to associated third parties such as the auditor for the municipality). CBIZ Retirement Plan Services is not responsible for the consequences of any unauthorized use.

You should notify MERS if you disagree with anything contained in the report or are aware of any information that would affect the results of the report that have not been communicated to us. If you have reason to believe that the plan provisions are incorrectly described, that important plan provisions relevant to this valuation are not described, that conditions have changed since the calculations were made, that the information provided in this report is inaccurate or is in anyway incomplete, or if you need further information in order to make an informed decision on the subject matter in this report, please contact your Regional Manager at 1.800.767.MERS(6377).

Sincerely,

Alan Sonnanstine, MAAA, ASA
Cathy Nagy, MAAA, FSA
Jim Koss, MAAA, ASA

TABLE OF CONTENTS

Executive Summary

Funded Ratio and Required Employer Contributions

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

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

Your Funded Ratio:

	12/31/2014	12/31/2013
Funded Ratio	70%	71%

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

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

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

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

Your Required Employer Contributions:

Your minimum required employer contributions are shown in the following table. Employee contributions, if any, are in addition to the required employer contributions.

	Percentage of Payroll		Monthly $ Based on Valuation Payroll	
Valuation Date:	12/31/2014	12/31/2013	12/31/2014	12/31/2013
Fiscal Year Beginning:	October 1, 2016	October 1, 2015	October 1, 2016	October 1, 2015
Division				
01 - Gnrl	-	-	$ 16,568	$ 14,904
02 - COAM	-	-	11,754	11,245
10 - General Comm	-	-	0	0
11 - Gnrl/AFSCME	-	-	7,661	7,353
14 - AFSCME District Court	-	-	501	473
20 - POAM	-	-	14,755	13,395
21 - Dispatch	-	-	4,246	3,751
Municipality Total			**$ 55,485**	**$ 51,121**

Employee contribution rates reflected in the valuations are shown below:

	Employee Contribution Rate	
Valuation Date:	12/31/2014	12/31/2013
Division		
01 - Gnrl	5.29%	5.29%
02 - COAM	4.00%	4.00%
10 - General Comm	0.00%	0.00%
11 - Gnrl/AFSCME	2.00%	2.00%
14 - AFSCME District Court	2.00%	2.00%
20 - POAM	3.50%	3.50%
21 - Dispatch	3.00%	3.00%

For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate.

You may contribute more than the minimum required contributions, as these additional contributions will earn investment income, and later you may have to contribute less than otherwise. **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 entire employer would be $ 74,275, instead of $ 55,485.

- To accelerate to a 100% funding ratio in 20 years, estimated monthly employer contributions for the entire employer would be $ 56,149, instead of $ 55,485.

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

How and Why Do These Numbers Change?

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

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

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

Comments on the Investment Markets

At this time, MERS maintains the 8% annual return assumption on investments in the belief that over the long-term this is achievable. For example, MERS' 30 year return was 9.17% on December 31, 2014. The MERS portfolio returned 6.49% in 2014; the two year (10.54%), three year (10.73%), four year (8.48%), and five year (9.59%) returns all exceed the 8% annual return assumption. When comparing these actual returns to the 8% net return assumption, deduct roughly .25% from these actual returns to reflect administrative expenses. It has now been seven years since the peak of the financial crisis and the stock market decline still weighs down MERS' medium term returns. This was a one in fifty year event comparable only to the Stock Market Crash of 1929 during the Great Depression. The stock market and economy have stabilized since 2008 and are on the long road to recovery. MERS regularly monitors the investment return assumption to make sure it is reasonable compared to long term expectations.

The actuarial value of assets, used to determine both your funded ratio and your required employer contribution, is based on a 10-year smoothed value of assets. Only a portion (seven-tenths, for 2008 through 2014) of the 2008 investment market losses was recognized in this actuarial valuation report. This reduces the volatility of the valuation results, which affects your required employer contribution and funded ratio. The smoothed actuarial rate of return for 2014 was 5.90%.

As of December 31, 2014 the actuarial value of assets is 106% of market value. This means that meeting the actuarial assumption in the next few years will require average annual market returns that exceed the 8% investment return assumption.

If the December 31, 2014 valuation results were based on market value on that date instead of 10-year smoothed funding value: i) the funded percent of your entire municipality would be 66% (instead of 70%); and ii) your total employer contribution requirement for the fiscal year starting October 1, 2016 would be $ 733,608 (instead of $ 665,820).

The asset smoothing method is a powerful tool for reducing the volatility of your required employer contributions. **However, if the current 6% difference between the smoothed value and the market value of assets is not made up, the result would be gradual increases in your employer contribution requirement over the next few years (to around the levels described above).**

Risk Characteristics of Defined Benefit Plans

It is important to understand that retirement plans, by their nature, are exposed to certain risks. While risks cannot be eliminated entirely, they can be mitigated through various strategies. Below are a few examples of risk (this is not an all-inclusive list):

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

The MERS Retirement Board adopts certain assumptions and methods to mitigate the economic and demographic risks, and the contribution volatility risks. For example, the investment risk is the largest economic risk and is mitigated by having a balanced portfolio and a clearly defined investment strategy. Demographic risks vary based on the age of the workforce and are mitigated by preparing special studies called experience studies on a regular basis to determine if the assumptions used are reasonable compared to the experience. Risk may be mitigated through a plan design that provides benefits that are sustainable in the long run. An Experience Study is completed every five years to review the assumptions and methods. The next Experience Study will be completed in 2015.

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

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

- Open divisions that have substantial assets compared to their active employee payroll will have more volatile employer contribution rates due to investment return fluctuations.

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

The analysis in this section is intended to review the potential volatility of the actuarial valuation results. It is important to note that calculations in this report are mathematical estimates based upon assumptions regarding future events, which may or may not materialize. Actuarial calculations can and do vary from one valuation to the next, sometimes significantly depending on the group's size.

Many assumptions are important in determining the required employer contributions.

For example:

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

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

The relative impact of each investment return scenario below will vary from year to year, as the participant demographics change. The impact of each scenario should be analyzed for a given year, not from year to year. The results in the table are based on the December 31, 2014 valuation, and are for the municipality in total, not by division.

	Assumed Future Annual Smoothed Rate of Investment Return			
	Lower Future Annual Returns		Valuation Assumption	Higher Returns
12/31/2014 Valuation Results	6%	7%	8%	9%
Accrued Liability	$ 22,551,902	$ 20,248,808	$ 18,294,307	$ 16,626,824
Valuation Assets	$ 12,854,226	$ 12,854,226	$ 12,854,226	$ 12,854,226
Unfunded Accrued Liability	$ 9,697,676	$ 7,394,582	$ 5,440,081	$ 3,772,598
Funded Ratio	57%	64%	70%	77%
Monthly Normal Cost	$ 27,481	$ 20,657	$ 15,398	$ 11,342
Monthly Amortization Payment	$ 61,344	$ 48,655	$ 36,205	$ 23,689
Total Employer Contribution[1]	$ 90,839	$ 72,277	$ 55,485	$ 40,126

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

Five Year Projection Scenarios

The following table illustrates the plan's projected liabilities and required employer contributions for the next five fiscal years, under three actuarial assumptions and future economic scenarios. All three scenarios take into account the 2008 financial losses that will continue to affect the smoothed rate of return for the next three years.

Valuation Year Ending 12/31	Fiscal Year Beginning 10/1	Actuarial Accrued Liability	Valuation Assets	Funded Percentage	Required Annual Employer Contribution[1]
8% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
2014	2016	$ 18,294,307	$ 12,854,226	70%	$ 665,820
2015	2017	18,999,000	13,272,000	70%	728,760
2016	2018	19,612,000	13,593,000	69%	819,988
2017	2019	20,134,000	13,820,000	69%	962,080
2018	2020	20,568,000	14,429,000	70%	1,008,032
7% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
2014	2016	$ 20,248,808	$ 12,854,226	64%	$ 867,324
2015	2017	20,989,000	13,260,000	63%	930,212
2016	2018	21,633,000	13,614,000	63%	1,024,934
2017	2019	22,164,000	14,061,000	63%	1,167,618
2018	2020	22,587,000	14,799,000	66%	1,223,238
6% Assumed Interest Discount Rate and Future Annual Market Rate of Return					
2014	2016	$ 22,551,902	$ 12,854,226	57%	$ 1,090,068
2015	2017	23,322,000	13,258,000	57%	1,155,494
2016	2018	23,996,000	13,625,000	57%	1,257,088
2017	2019	24,526,000	14,297,000	58%	1,410,868
2018	2020	24,977,000	15,238,000	61%	1,464,604

[1] For an employer with any open divisions, this column will include the impact of projected increases in total payroll from 2014 to the applicable fiscal year. This will cause the projected contribution for the fiscal year beginning in 2016 to be higher than the Estimated Annual Contribution shown in Table 1.

The first scenario provides an estimate of required employer contributions based on current actuarial assumptions, and a projected 8% market return. The other scenarios may be useful if the municipality chooses to budget more conservatively, and make contributions in addition to the minimum requirements. The 7% and 6% projections provide an indication of the potential required employer contribution if MERS were to realize investment returns of 7% and 6% over the long-term.

Employer Contribution Details
For the Fiscal Year Beginning October 1, 2016

Table 1

Division	Amort. Period for Unfund. Liab.[4,5]	Employer Contributions[1] Normal Cost	Employer Contributions[1] Unfunded Accrued Liability	Employer Contributions[1] Total Required Employer Contribut.	Blended Employer Contribut.[7]	Employee Contribution Rate[6]	Employee Contribut. Conversion Factor[2]
Percentage of Payroll							
01 - Gnrl	12	-	-	-		5.29%	
02 - COAM	21	-	-	-		4.00%	
10 - General Comm	12	-	-	-		0.00%	
11 - Gnrl/AFSCME	14	-	-	-		2.00%	
14 - AFSCME District Co	21	-	-	-		2.00%	
20 - POAM	21	-	-	-		3.50%	
21 - Dispatch	11	-	-	-		3.00%	
Estimated Monthly Contribution[3]							
01 - Gnrl	12	$ 2,862	$ 13,706	$ 16,568			
02 - COAM	21	1,307	10,447	11,754			
10 - General Comm	12	90	(3,972)	0			
11 - Gnrl/AFSCME	14	3,213	4,448	7,661			
14 - AFSCME District Co	21	563	(62)	501			
20 - POAM	21	6,081	8,674	14,755			
21 - Dispatch	11	1,282	2,964	4,246			
Total Municipality		**$ 15,398**	**$ 36,205**	**$ 55,485**			
Estimated Annual Contribution[3]		**$ 184,776**	**$ 434,460**	**$ 665,820**			

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

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

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

4 If projected assets exceed projected liabilities as of the beginning of the October 1, 2016 fiscal year, the negative unfunded accrued liability is amortized (spread) over 10 years. This amortization is used to reduce the employer contribution rate. Note that if the overfunding credit is larger than the normal cost, the full credit is shown above but the total contribution requirement is zero. This will cause the displayed normal cost and unfunded accrued liability contributions to not add across.

5 If the division is closed to new hires, with new hires not covered by MERS Defined Benefit Plan or Hybrid Plan provisions, the amortization period will decrease as follows: Under Amortization Option A, the period will decrease by 2 years each valuation year, until it reaches 6 or 5 years. Then it decreases by 1 year each valuation year until the UAL is paid off. Under Amortization Option B, the period will decrease by 2 years each valuation year, until it reaches 16 or 15 years. Thereafter, the period will reduce by 1 year each valuation year, until the UAL is paid off. This will result in amortization payments that increase faster than the usual 4.5% each year. If the division is closed to new hires, with new hires (and transfers) covered by MERS Defined Benefit Plan or Hybrid Plan provisions, the standard open division amortization period will apply.

6 For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate.

7 For linked divisions, the employer will be invoiced the Total Required Employer Contribution rate shown above for each linked division (a contribution rate for the open division; a contribution dollar for the closed-but-linked division), unless the employer elects to contribute the Blended Employer Contribution rate shown above, by contacting MERS at 800-767-2308.

Please see the Comments on the Investment Markets.

Benefit Provisions

Table 2

01 - Gnrl: Closed to new hires

	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	5.29%	5.29%
DC Plan for New Hires:	5/1/2007	5/1/2007
Act 88:	No	No

02 - COAM: Closed to new hires

	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	50/25 55/15	50/25 55/15
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	4%	4%
DC Plan for New Hires:	4/1/2013	4/1/2013
Act 88:	No	No

10 - General Comm: Closed to new hires

	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.00% Multiplier (no max)	2.00% Multiplier (no max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	0%	0%
DC Plan for New Hires:	5/1/2007	5/1/2007
Act 88:	No	No

Table 2 (continued)

11 - Gnrl/AFSCME: Closed to new hires	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	2%	2%
DC Plan for New Hires:	10/1/2007	10/1/2007
Act 88:	No	No

14 - AFSCME District Court: Closed to new hires	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.25% Multiplier (80% max)	2.25% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	55/15	55/15
Early Retirement (Reduced):	50/25	50/25
Final Average Compensation:	5 years	5 years
Employee Contributions:	2%	2%
DC Plan for New Hires:	4/1/2013	4/1/2013
Act 88:	No	No

20 - POAM: Closed to new hires	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	50/25 55/15	50/25 55/15
Early Retirement (Reduced):	-	-
Final Average Compensation:	3 years	3 years
COLA for Current Retirees:	2.50% (Non-Compound)	2.50% (Non-Compound)
Employee Contributions:	3.50%	3.50%
DC Plan for New Hires:	1/1/2010	1/1/2010
Act 88:	No	No

Table 2 (continued)

21 - Dispatch: Closed to new hires	2014 Valuation	2013 Valuation
Benefit Multiplier:	2.50% Multiplier (80% max)	2.50% Multiplier (80% max)
Normal Retirement Age:	60	60
Vesting:	6 years	6 years
Early Retirement (Unreduced):	50/25 55/15	50/25 55/15
Early Retirement (Reduced):	-	-
Final Average Compensation:	5 years	5 years
Employee Contributions:	3%	3%
DC Plan for New Hires:	7/1/2005	7/1/2005
Act 88:	No	No

Participant Summary

Table 3

Division	2014 Valuation		2013 Valuation		2014 Valuation		
	Number	Annual Payroll[1]	Number	Annual Payroll[1]	Average Age	Average Benefit Service[2]	Average Eligibility Service[2]
01 - Gnrl							
Active Employees	14	$ 638,166	17	$ 765,947	56.5	20.8	20.8
Vested Former Employees	6	30,207	5	16,987	53.0	7.4	9.3
Retirees and Beneficiaries	29	370,637	28	303,104	71.6		
02 - COAM							
Active Employees	4	$ 244,984	4	$ 245,147	49.8	25.5	28.5
Vested Former Employees	1	3,193	1	3,193	51.3	7.3	7.3
Retirees and Beneficiaries	9	194,262	9	194,111	62.7		
10 - General Comm							
Active Employees	2	$ 27,520	2	$ 26,445	64.1	14.0	14.0
Vested Former Employees	6	16,399	7	32,800	55.4	9.3	11.1
Retirees and Beneficiaries	10	40,763	8	27,393	70.1		
11 - Gnrl/AFSCME							
Active Employees	13	$ 495,149	14	$ 523,696	49.4	16.1	16.1
Vested Former Employees	4	26,033	3	16,714	52.4	10.0	10.0
Retirees and Beneficiaries	10	94,266	10	94,153	76.5		
14 - AFSCME District Cour							
Active Employees	3	$ 100,375	3	$ 99,489	54.7	26.9	26.9
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	0	0	0	0	0.0		
20 - POAM							
Active Employees	14	$ 749,242	14	$ 738,165	42.9	11.2	11.9
Vested Former Employees	5	46,950	6	50,064	46.5	8.9	10.5
Retirees and Beneficiaries	13	220,064	12	217,491	64.0		
21 - Dispatch							
Active Employees	5	$ 211,370	5	$ 205,830	54.5	19.0	19.0
Vested Former Employees	0	0	0	0	0.0	0.0	0.0
Retirees and Beneficiaries	2	38,318	2	38,318	61.6		
Total Municipality							
Active Employees	**55**	**$ 2,466,806**	**59**	**$ 2,604,719**	**50.9**	**17.5**	**17.9**
Vested Former Employees	**22**	**122,782**	**22**	**119,758**	**52.0**	**8.7**	**10.1**
Retirees and Beneficiaries	**73**	**958,310**	**69**	**874,570**	**69.3**		
Total Participants	**150**		**150**				

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

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

Reported Assets (Market Value)

Table 4

Division	2014 Valuation		2013 Valuation	
	Employer and Retiree[1]	Employee[2]	Employer and Retiree[1]	Employee[2]
01 - Gnrl	$ 3,920,887	$ 366,834	$ 3,792,272	$ 373,786
02 - COAM	1,277,553	355,478	1,259,396	273,771
10 - General Comm	892,302	4,071	868,337	4,062
11 - Gnrl/AFSCME	1,497,113	116,996	1,416,272	117,195
14 - AFSCME District Court	460,764	23,667	427,557	21,612
20 - POAM	2,129,486	287,003	2,068,198	260,207
21 - Dispatch	717,949	77,246	674,251	70,749
Municipality Total	**$ 10,896,054**	**$ 1,231,295**	**$ 10,506,283**	**$ 1,121,382**
Combined Reserves	**$ 12,127,349**		**$ 11,627,665**	

1 Reserve for Employer Contributions and Benefit Payments

2 Reserve for Employee Contributions

The December 31, 2014 valuation assets are equal to 1.059937 times the reported market value of assets (compared to 1.061840 as of December 31, 2013). The derivation of valuation assets is described, and detailed calculations of valuation assets are shown, in the Appendix.

Flow of Valuation Assets

Table 5

Year Ended 12/31	Employer Contributions Required	Employer Contributions Additional	Employee Contributions	Investment Income	Benefit Payments	Employee Contribution Refunds	Net Transfers	Valuation Asset Balance
2004	$ 310,533		$ 48,796	$ 392,707	$ (352,405)	$ (1,086)	$ 0	$ 6,122,077
2005	361,133		94,090	404,586	(357,544)	(308)	0	6,624,034
2006	428,527		106,733	523,679	(378,066)	(3,060)	1,448,667	8,750,514
2007	528,364		132,501	592,084	(407,419)	0	0	9,596,044
2008	492,682		120,318	472,954	(442,961)	(2,379)	19,986	10,256,644
2009	479,997		113,257	526,699	(635,977)	0	0	10,740,620
2010	467,738		103,566	580,651	(769,627)	(14,546)	0	11,108,402
2011	471,449	$ 0	96,672	567,649	(827,746)	(10,902)	0	11,405,524
2012	506,260	0	98,232	520,007	(840,364)	0	0	11,689,659
2013	508,147	0	97,565	730,977	(848,676)	0	169,049	12,346,721
2014	532,861	0	93,724	716,236	(902,036)	(4,585)	71,305	12,854,226

Notes:

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

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

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

Actuarial Accrued Liabilities and Valuation Assets
As of December 31, 2014

Table 6

Division	Actuarial Accrued Liability	Valuation Assets[1]	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
01 - Gnrl				
Active Employees	$ 2,558,930	$ 945,572	37.0%	$ 1,613,358
Vested Former Employees	184,624	184,624	100.0%	0
Retirees And Beneficiaries	3,414,518	3,414,518	100.0%	0
Pending Refunds	0	0	0.0%	0
Total	**$ 6,158,072**	**$ 4,544,714**	**73.8%**	**$ 1,613,358**
02 - COAM				
Active Employees	$ 1,517,145	$ 355,478	23.4%	$ 1,161,667
Vested Former Employees	16,393	0	0.0%	16,393
Retirees And Beneficiaries	2,005,136	1,375,432	68.6%	629,704
Pending Refunds	0	0	0.0%	0
Total	**$ 3,538,674**	**$ 1,730,910**	**48.9%**	**$ 1,807,764**
10 - General Comm				
Active Employees	$ 55,793	$ 406,508	728.6%	$ (350,715)
Vested Former Employees	99,027	99,027	100.0%	0
Retirees And Beneficiaries	443,316	443,316	100.0%	0
Pending Refunds	1,248	1,248	100.0%	0
Total	**$ 599,384**	**$ 950,099**	**158.5%**	**$ (350,715)**
11 - Gnrl/AFSCME				
Active Employees	$ 1,447,383	$ 867,096	59.9%	$ 580,287
Vested Former Employees	150,982	150,982	100.0%	0
Retirees And Beneficiaries	691,587	691,587	100.0%	0
Pending Refunds	1,189	1,189	100.0%	0
Total	**$ 2,291,141**	**$ 1,710,854**	**74.7%**	**$ 580,287**
14 - AFSCME District Court				
Active Employees	$ 504,733	$ 513,466	101.7%	$ (8,733)
Vested Former Employees	0	0	0.0%	0
Retirees And Beneficiaries	0	0	0.0%	0
Pending Refunds	0	0	0.0%	0
Total	**$ 504,733**	**$ 513,466**	**101.7%**	**$ (8,733)**
20 - POAM				
Active Employees	$ 1,656,221	$ 238,693	14.4%	$ 1,417,528
Vested Former Employees	135,762	75,851	55.9%	59,911
Retirees And Beneficiaries	2,245,610	2,245,610	100.0%	0
Pending Refunds	1,172	1,172	100.0%	0
Total	**$ 4,038,765**	**$ 2,561,326**	**63.4%**	**$ 1,477,439**

Table 6 (continued)

Division	Actuarial Accrued Liability	Valuation Assets[1]	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
21 - Dispatch				
Active Employees	$ 784,022	$ 463,341	59.1%	$ 320,681
Vested Former Employees	0	0	0.0%	0
Retirees And Beneficiaries	379,516	379,516	100.0%	0
Pending Refunds	0	0	0.0%	0
Total	**$ 1,163,538**	**$ 842,857**	**72.4%**	**$ 320,681**
Total Municipality				
Active Employees	**$ 8,524,227**	**$ 3,790,154**	**44.5%**	**$ 4,734,073**
Vested Former Employees	**586,788**	**510,484**	**87.0%**	**76,304**
Retirees and Beneficiaries	**9,179,683**	**8,549,979**	**93.1%**	**629,704**
Pending Refunds	**3,609**	**3,609**	**100.0%**	**0**
Total Participants	**$ 18,294,307**	**$ 12,854,226**	**70.3%**	**$ 5,440,081**

[1] Includes both employer and employee assets.

Please see the Comments on the Investment Markets.

See the MERS Fiscal Responsibility Policy on the MERS website at:
http://www.mersofmich.com/Portals/0/Assets/PageResources/MERS/PlanDocument/Pension/sec_43c.pdf.

Actuarial Accrued Liabilities - Comparative Schedule

Table 7

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2000	$ 6,270,245	$ 4,776,497	76%	$ 1,493,748
2001	7,117,246	5,038,429	71%	2,078,817
2002	8,013,842	5,298,995	66%	2,714,847
2003	8,773,218	5,723,532	65%	3,049,686
2004	9,979,001	6,122,077	61%	3,856,924
2005	10,333,498	6,624,034	64%	3,709,464
2006	12,683,692	8,750,514	69%	3,933,178
2007	13,396,445	9,596,044	72%	3,800,401
2008	14,400,079	10,256,644	71%	4,143,435
2009	15,224,760	10,740,620	71%	4,484,140
2010	15,584,989	11,108,402	71%	4,476,587
2011	16,123,521	11,405,524	71%	4,717,997
2012	16,631,819	11,689,659	70%	4,942,160
2013	17,503,191	12,346,721	71%	5,156,470
2014	18,294,307	12,854,226	70%	5,440,081

Notes: Actuarial assumptions were revised for the 2000, 2004, 2008, 2009, 2010, 2011, and 2012 actuarial valuations.

Division 01 - Gnrl

Table 8-01: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2004	$ 3,909,942	$ 2,439,047	62%	$ 1,470,895
2005	3,981,531	2,618,887	66%	1,362,644
2006	5,123,104	3,339,896	65%	1,783,208
2007	5,406,330	3,712,293	69%	1,694,037
2008	5,222,761	3,816,934	73%	1,405,827
2009	5,397,779	3,897,708	72%	1,500,071
2010	5,521,510	4,048,264	73%	1,473,246
2011	5,666,093	4,166,666	74%	1,499,427
2012	5,824,052	4,264,340	73%	1,559,712
2013	5,948,114	4,423,687	74%	1,524,427
2014	6,158,072	4,544,714	74%	1,613,358

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

Table 9-01: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2004	21	$ 809,105	15.98%	5.29%
2005	23	846,609	15.06%	5.29%
2006	35	1,295,316	13.63%	5.29%
2007	36	1,354,597	$ 14,949	5.29%
2008	23	896,196	$ 11,831	5.29%
2009	21	859,178	$ 12,481	5.29%
2010	21	860,969	$ 12,731	5.29%
2011	19	786,630	$ 12,869	5.29%
2012	18	813,438	$ 14,361	5.29%
2013	17	765,947	$ 14,904	5.29%
2014	14	638,166	$ 16,568	5.29%

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

[2] For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

Division 02 - COAM

Table 8-02: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2004	$ 2,222,218	$ 1,076,078	48%	$ 1,146,140
2005	2,018,946	1,002,932	50%	1,016,014
2006	2,190,841	1,100,405	50%	1,090,436
2007	2,322,772	1,216,970	52%	1,105,802
2008	2,384,022	1,309,593	55%	1,074,429
2009	2,991,705	1,558,458	52%	1,433,247
2010	3,040,755	1,494,048	49%	1,546,707
2011	3,125,555	1,446,425	46%	1,679,130
2012	3,209,018	1,426,335	44%	1,782,683
2013	3,419,100	1,627,978	48%	1,791,122
2014	3,538,674	1,730,910	49%	1,807,764

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

Table 9-02: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2004	4	$ 224,061	32.88%	4.00%
2005	5	266,367	25.18%	4.00%
2006	5	274,669	26.58%	4.00%
2007	5	287,370	26.57%	4.00%
2008	5	291,918	27.42%	4.00%
2009	4	224,602	44.36%	4.00%
2010	4	232,376	45.03%	4.00%
2011	4	236,539	47.85%	4.00%
2012	4	241,501	54.12%	4.00%
2013	4	245,147	$ 11,245	4.00%
2014	4	244,984	$ 11,754	4.00%

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

[2] For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

Division 10 - General Comm

Table 8-10: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2004	$ 107,580	$ 54,235	50%	$ 53,345
2005	120,493	63,728	53%	56,765
2006	435,582	722,027	166%	(286,445)
2007	460,162	738,643	161%	(278,481)
2008	498,374	793,619	159%	(295,245)
2009	542,299	837,096	154%	(294,797)
2010	504,844	866,354	172%	(361,510)
2011	523,857	884,651	169%	(360,794)
2012	548,426	899,919	164%	(351,493)
2013	574,078	926,348	161%	(352,270)
2014	599,384	950,099	159%	(350,715)

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

Table 9-10: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2004	5	$ 36,345	18.11%	0.00%
2005	7	52,643	15.92%	0.00%
2006	7	53,774	0.00%	0.00%
2007	7	55,370	$ 0	0.00%
2008	7	57,053	$ 0	0.00%
2009	7	59,330	$ 0	0.00%
2010	7	61,117	$ 0	0.00%
2011	6	52,550	$ 0	0.00%
2012	4	34,965	$ 0	0.00%
2013	2	26,445	$ 0	0.00%
2014	2	27,520	$ 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 employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

Division 11 - Gnrl/AFSCME

Table 8-11: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2004	$ 841,901	$ 750,890	89%	$ 91,011
2005	923,161	785,525	85%	137,636
2006	1,202,232	1,175,028	98%	27,204
2007	1,296,956	1,229,377	95%	67,579
2008	1,657,176	1,126,234	68%	530,942
2009	1,691,037	1,229,950	73%	461,087
2010	1,824,238	1,341,539	74%	482,699
2011	1,877,478	1,431,881	76%	445,597
2012	1,987,911	1,521,274	77%	466,637
2013	2,179,554	1,628,297	75%	551,257
2014	2,291,141	1,710,854	75%	580,287

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

Table 9-11: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2004	10	$ 238,749	11.20%	2.00%
2005	10	267,231	12.02%	2.00%
2006	13	345,373	8.64%	2.00%
2007	13	363,403	9.37%	2.00%
2008	20	644,219	$ 7,845	2.00%
2009	20	663,448	$ 7,274	2.00%
2010	17	593,866	$ 6,738	2.00%
2011	15	536,053	$ 6,214	2.00%
2012	15	541,130	$ 6,573	2.00%
2013	14	523,696	$ 7,353	2.00%
2014	13	495,149	$ 7,661	2.00%

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

2 For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

Division 14 - AFSCME District Court

Table 8-14: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2008	$ 312,255	$ 323,211	104%	$ (10,956)
2009	328,133	351,191	107%	(23,058)
2010	353,193	382,228	108%	(29,035)
2011	389,147	412,613	106%	(23,466)
2012	422,446	441,371	105%	(18,925)
2013	460,736	476,946	104%	(16,210)
2014	504,733	513,466	102%	(8,733)

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

Table 9-14: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2008	3	$ 91,470	6.14%	2.00%
2009	3	93,517	5.01%	2.00%
2010	3	95,892	4.46%	2.00%
2011	3	97,653	5.57%	2.00%
2012	3	99,258	5.91%	2.00%
2013	3	99,489	$ 473	2.00%
2014	3	100,375	$ 501	2.00%

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

[2] For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

Division 20 - POAM

Table 8-20: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2004	$ 2,262,356	$ 1,419,111	63%	$ 843,245
2005	2,575,185	1,710,481	66%	864,704
2006	2,963,393	1,918,583	65%	1,044,810
2007	3,082,413	2,145,044	70%	937,369
2008	3,415,916	2,292,922	67%	1,122,994
2009	3,361,056	2,237,055	67%	1,124,001
2010	3,400,556	2,308,119	68%	1,092,437
2011	3,556,967	2,355,874	66%	1,201,093
2012	3,609,156	2,393,799	66%	1,215,357
2013	3,822,713	2,472,394	65%	1,350,319
2014	4,038,765	2,561,326	63%	1,477,439

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

Table 9-20: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2004	18	$ 795,616	13.52%	3.50%
2005	19	803,733	13.64%	3.50%
2006	19	886,960	14.24%	3.50%
2007	19	891,263	13.62%	3.50%
2008	19	881,681	15.93%	3.50%
2009	18	830,496	16.60%	3.50%
2010	15	742,481	17.42%	3.50%
2011	15	737,492	18.54%	3.50%
2012	14	723,796	19.99%	3.50%
2013	14	738,165	$ 13,395	3.50%
2014	14	749,242	$ 14,755	3.50%

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

2 For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

Division 21 - Dispatch

Table 8-21: Actuarial Accrued Liabilities - Comparative Schedule

Valuation Date December 31	Actuarial Accrued Liability	Valuation Assets	Percent Funded	Unfunded (Overfunded) Accrued Liabilities
2004	$ 635,004	$ 382,716	60%	$ 252,288
2005	714,182	442,481	62%	271,701
2006	768,540	494,575	64%	273,965
2007	827,812	553,717	67%	274,095
2008	909,575	594,131	65%	315,444
2009	912,751	629,162	69%	283,589
2010	939,893	667,850	71%	272,043
2011	984,424	707,414	72%	277,010
2012	1,030,810	742,621	72%	288,189
2013	1,098,896	791,071	72%	307,825
2014	1,163,538	842,857	72%	320,681

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

Table 9-21: Required Employer Contributions - Comparative Schedule

Valuation Date December 31	Active Employees		Required Employer Contribution[1]	Employee Contribution Rate[2]
	Number	Annual Payroll		
2004	7	$ 245,037	14.53%	3.00%
2005	7	220,246	15.93%	3.00%
2006	6	208,093	$ 3,026	3.00%
2007	6	217,418	$ 2,797	3.00%
2008	5	180,558	$ 2,926	3.00%
2009	5	179,978	$ 2,712	3.00%
2010	5	183,301	$ 2,746	3.00%
2011	5	188,031	$ 2,966	3.00%
2012	5	195,435	$ 3,272	3.00%
2013	5	205,830	$ 3,751	3.00%
2014	5	211,370	$ 4,246	3.00%

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

[2] For employee contribution rates that are not flat percentages, the rate shown is a weighted average flat employee contribution rate. For each valuation year, the required employer contribution is based on the employee rate. If the employee rate changes during the applicable fiscal year, the required employer contribution will be adjusted.

GASB 68 Information

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

Actuarial Valuation Date:		12/31/2014
Measurement Date of Total Pension Liability (TPL):		12/31/2014
At 12/31/2014, the following employees were covered by the benefit terms:		
Inactive employees or beneficiaries currently receiving benefits:		73
Inactive employees entitled to but not yet receiving benefits:		22
Active employees:		55
		150
Covered employee payroll: (Needed for Required Supplementary Information)	$	2,466,806
Total Pension Liability as of 12/31/2013 measurement date:	$	17,082,035
Total Pension Liability as of 12/31/2014 measurement date:	$	17,852,568
Service Cost for the year ending on the 12/31/2014 measurement date:	$	293,190
Change in the Total Pension Liability due to:		
- Benefit changes[1]:	$	0
- Differences between expected and actual experience[2]:	$	0
- Changes in assumptions[2]:	$	0
Average expected remaining service lives of all employees (active and inactive):		3

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

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

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

	1% Decrease (7.25%)	Current Discount Rate (8.25%)	1% Increase (9.25%)
Change in Net Pension Liability as of 12/31/2014:	$ 1,877,499	-	$ (1,603,709)

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

Benefit Provision History

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

01 - Gnrl

5/1/2007	DC Adoption Date 05-01-2007
1/1/2005	Benefit B-4 (80% max)
1/1/2005	Member Contribution Rate 5.29%
12/15/2001	Temporary 20 Years & Out (12/15/2001 - 03/03/2002)
12/15/2001	Temporary Benefit FAC-3 (3 Year Final Average Compensation) (12/15/2001 - 03/03/2002)
12/15/2001	Temporary Benefit B-4 (80% max) (12/15/2001 - 03/03/2002)
1/1/1995	Flexible E 2% COLA Adopted (01/01/1995)
1/1/1993	Benefit B-2
1/1/1992	E2 2.5% Window COLA for future retirees (01/01/1991) to (07/01/1991)
1/1/1992	E1 2.5% COLA for past retirees (07/01/1991)
7/1/1990	6 Year Vesting
1/1/1990	E1 2.5% COLA for past retirees (01/01/1990)
1/1/1989	Flexible E 2% COLA Adopted (01/01/1989)
1/1/1988	Flexible E 2% COLA Adopted (01/01/1988)
1/1/1987	Flexible E 2% COLA Adopted (01/01/1987)
7/1/1986	Benefit C-1 (New)
6/1/1985	Benefit F55 (With 15 Years of Service)
4/1/1985	Benefit F55 (With 25 Years of Service)
1/1/1983	Member Contribution Rate 0.00%
1/1/1981	Member Contribution Rate 4.00%
8/14/1978	Exclude Temporary Employees
12/1/1972	Benefit FAC-5 (5 Year Final Average Compensation)
12/1/1972	10 Year Vesting
12/1/1972	Benefit C (Old)
12/1/1972	Member Contribution Rate 3.00% Under $4,200.00 - Then 5.00%
	Fiscal Month - October

02 - COAM

4/1/2013	DC Adoption Date 04-01-2013
4/1/2002	Benefit FAC-3 (3 Year Final Average Compensation)
4/1/2002	Benefit B-4 (80% max)
4/1/2002	Member Contribution Rate 4.00%
1/1/2001	Benefit F50 (With 25 Years of Service)
1/1/1999	Benefit B-3 (80% max)
1/1/1999	Member Contribution Rate 2.00%
1/1/1995	Flexible E 2% COLA Adopted (01/01/1995)
1/1/1993	Benefit B-2
1/1/1992	6 Year Vesting
1/1/1992	E2 2.5% Window COLA for future retirees (01/01/1991) to (07/01/1991)
1/1/1990	E1 2.5% COLA for past retirees (01/01/1990)

02 - COAM

1/1/1989	Flexible E 2% COLA Adopted (01/01/1989)
1/1/1988	Flexible E 2% COLA Adopted (01/01/1988)
1/1/1987	Flexible E 2% COLA Adopted (01/01/1987)
7/1/1986	Benefit C-1 (New)
6/1/1985	Benefit F55 (With 15 Years of Service)
4/1/1985	Benefit F55 (With 25 Years of Service)
1/1/1981	Member Contribution Rate 0.00%
8/14/1978	Exclude Temporary Employees
12/1/1972	Benefit FAC-5 (5 Year Final Average Compensation)
12/1/1972	10 Year Vesting
12/1/1972	Benefit C (Old)
12/1/1972	Member Contribution Rate 3.00% Under $4,200.00 - Then 5.00%
	Fiscal Month - October

10 - General Comm

5/1/2007	DC Adoption Date 05-01-2007
1/1/1995	Flexible E 2% COLA Adopted (01/01/1995)
1/1/1993	Benefit B-2
1/1/1992	E2 2.5% Window COLA for future retirees (01/01/1991) to (07/01/1991)
7/1/1990	6 Year Vesting
1/1/1990	E1 2.5% COLA for past retirees (01/01/1990)
1/1/1989	Flexible E 2% COLA Adopted (01/01/1989)
1/1/1988	Flexible E 2% COLA Adopted (01/01/1988)
1/1/1987	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/1987	10 Year Vesting
1/1/1987	Benefit C-1 (New)
1/1/1987	Member Contribution Rate 0.00%
1/1/1987	Flexible E 2% COLA Adopted (01/01/1987)
6/1/1985	Benefit F55 (With 15 Years of Service)
4/1/1985	Benefit F55 (With 25 Years of Service)
	Fiscal Month - October

11 - Gnrl/AFSCME

10/1/2007	DC Adoption Date 10-01-2007
12/15/2001	Temporary Benefit FAC-3 (3 Year Final Average Compensation) (12/15/2001 - 03/03/2002)
12/15/2001	Temporary Benefit B-4 (80% max) (12/15/2001 - 03/03/2002)
4/1/2000	Benefit B-3 (80% max)
4/1/2000	Member Contribution Rate 2.00%
6/1/1997	Benefit F55 (With 15 Years of Service)
1/1/1995	Flexible E 2% COLA Adopted (01/01/1995)
1/1/1993	Benefit B-2
7/1/1990	6 Year Vesting
1/1/1990	E1 2.5% COLA for past retirees (01/01/1990)
1/1/1989	Flexible E 2% COLA Adopted (01/01/1989)
7/1/1986	Benefit FAC-5 (5 Year Final Average Compensation)

11 - Gnrl/AFSCME

7/1/1986	10 Year Vesting
7/1/1986	Benefit C-1 (New)
7/1/1986	Benefit F55 (With 25 Years of Service)
7/1/1986	Member Contribution Rate 0.00%
	Fiscal Month - October

14 - AFSCME District Court

4/1/2013	DC Adoption Date 04-01-2013
7/1/2008	Benefit FAC-5 (5 Year Final Average Compensation)
7/1/2008	6 Year Vesting
7/1/2008	Benefit B-3 (80% max)
7/1/2008	Benefit F55 (With 15 Years of Service)
7/1/2008	Member Contribution Rate 2.00%
	Fiscal Month - October

20 - POAM

1/1/2010	DC Adoption Date 01-01-2010
1/1/2002	Benefit FAC-3 (3 Year Final Average Compensation)
1/1/2002	Benefit B-4 (80% max)
1/1/2002	Member Contribution Rate 3.50%
1/1/2002	Flexible E 2% COLA Adopted (01/01/2002)
1/1/2001	Benefit F50 (With 25 Years of Service)
1/1/1999	Benefit B-3 (80% max)
1/1/1999	Member Contribution Rate 2.00%
1/1/1995	Flexible E 2% COLA Adopted (01/01/1995)
1/1/1993	Benefit B-2
1/1/1992	6 Year Vesting
1/1/1992	E2 2.5% Window COLA for future retirees (01/01/1991) to (07/01/1991)
1/1/1990	E1 2.5% COLA for past retirees (01/01/1990)
1/1/1989	Flexible E 2% COLA Adopted (01/01/1989)
1/1/1988	Flexible E 2% COLA Adopted (01/01/1988)
1/1/1987	Flexible E 2% COLA Adopted (01/01/1987)
4/1/1985	Benefit FAC-5 (5 Year Final Average Compensation)
4/1/1985	Benefit C-1 (New)
4/1/1985	Benefit F55 (With 15 Years of Service)
4/1/1985	Member Contribution Rate 0.00%
	Fiscal Month - October
	10 Year Vesting

21 - Dispatch

7/1/2005	DC Adoption Date 07-01-2005
1/1/2004	Benefit B-4 (80% max)
1/1/2004	Member Contribution Rate 3.00%
1/1/2002	Benefit FAC-5 (5 Year Final Average Compensation)
1/1/2002	6 Year Vesting

21 - Dispatch

1/1/2002	Benefit B-3 (80% max)
1/1/2002	Benefit F55 (With 15 Years of Service)
1/1/2002	Benefit F50 (With 25 Years of Service)
1/1/2002	Member Contribution Rate 2.00%
	Fiscal Month - October

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	0.00%

Withdrawal Rate Scaling Factor

Division	Withdrawal Rate Scaling Factor
All Divisions	100%

Miscellaneous and Technical Assumptions

Loads – None.

Amortization Policy for Closed Divisions

Closed Division	Amortization Option
All Closed Divisions	Option A

Appendix B

CRAWFORD CO (2001) – ALL DIVISIONS – AMORTIZATION PAYMENT PROJECTIONS OF UNFUNDED ACCRUED LIABILITY

[attach here]

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17187 N. Laurel Park Dr. Ste. 250
Livonia, MI 48152
http://retirement.cbiz.com

October 14, 2015

Crawford County

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

Re: Crawford Co (2001) – All Divisions – Amortization Payment Projections of Unfunded Accrued Liability

As requested by Crawford Co (2001), we have updated the previously issued projection letter dated June 30, 2015 to illustrate the series of amortization payments scheduled to fund the unfunded accrued liability (UAL) calculated as of December 31, 2014, using the data and benefit provisions as found in the December 31, 2014 annual actuarial valuation but based on the actuarial assumptions that will be used in the December 31, 2015 actuarial valuation. We also illustrate the effect on contribution requirements of the two amortization policies available to defined benefit (DB) divisions that are closed to new hires.

The purpose of this letter is to show the pattern in the annual amortization payment under the two amortization policies for closed divisions (Option A and Option B) and to show the amortization payments of the UAL calculated using both the actuarial value and market value of assets, based on the revised assumptions that will first be used in the 2015 valuations.

The estimates from this study should not be used for short term budgeting purposes because the assumptions are designed to be a long term expectation of future events. These estimates illustrate the long term pattern of amortization payments under different funding policies. A projection of contribution rates for budgeting purposes would require additional analysis, which is beyond the scope of this study.

Please note this letter should be distributed to any interested parties only in its entirety.

Crawford Co

Please note that Division 10 is overfunded and we have excluded it from this study, as requested. We have included Division 14 (this division is also overfunded in the 2014 annual valuation) because after the assumption changes are reflected, it is no longer expected to be overfunded. We projected the annual amortization payments, starting with the amortization periods applicable to the calendar year beginning January 1, 2015, under both the Option A and Option B amortization policies. The 2015 and 2016 amortization payments shown in this analysis will not match the amortization portion of the projected employer contributions from the 2012, 2013 and 2014 annual valuations because these annual valuations determine the

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contributions for a particular fiscal year, not a calendar year, and the underlying actuarial assumptions are different. **Note that the tables only show the amortization payments. Any normal cost payments are in addition to the amortization payment, and are not affected by the amortization policy used.**

These results are for illustration purposes only. Actual amortization payments will depend on the results of future annual actuarial valuations.

Comments on Pension Obligation Bonds

A discussion of pension obligation bonds is beyond the scope of this letter. It is important for the County to understand and acknowledge the following implications of funding the UAL using pension obligation bonds:

1. **The County will continue to be responsible for funding the employer normal cost as long as there are active members in the plan, and**
2. **If future financial or demographic experience is less favorable than assumed, additional UAL may emerge which would require additional County contributions.**
3. **Fully funding the current UAL does not guarantee that there will be no employer contribution requirements in the future.**

Our calculations were based on the following:

- Demographic information, financial information, benefit provisions and funding methods provided by MERS for the December 31, 2014 annual actuarial valuation.
- The actuarial assumptions that will be used in the December 31, 2015 annual actuarial valuation, except for any phase-in of the impact of assumption changes.

As always, the MERS actuaries will closely watch the funding progress of all closed divisions. While not currently anticipated, the actuaries may recommend changes to the amortization policy in the future if they deem it necessary for the financial security of benefits provided by the municipality, which could result in more accelerated employer contributions than those shown in this report.

The undersigned are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. Please see page 3 of this document for additional disclosures required by the Actuarial Standards of Practice.

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If you have any questions or need additional information, please contact the MERS Office of Marketing and Employer Services at (800) 767-6377.

Sincerely,

Cathy Nagy

Cathy Nagy, FSA, MAAA
Actuary

Curt Powell

Curt Powell, EA, MAAA
Senior Analyst

CBIZ

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Additional Disclosures Required by Actuarial Standards of Practice No. 41

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; 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. Due to the limited scope of the actuary's assignment, the actuary did not perform an analysis of the potential range of such future measurements.

This report should not be relied on for any purpose other than the purpose described in the primary communication. Determination of the financial results associated with the benefits described in this report in a manner other than the intended purpose may produce significantly different results.

The calculation was based upon information furnished by the Employer and MERS staff, concerning Retirement System benefits and member information. CBIZ Retirement Plan Services is not responsible for the accuracy or completeness of the information provided to us for these calculations.

The developed findings included in this report consider data or other information through December 31, 2014, except that the findings are based on actuarial assumptions which will be first used in the December 31, 2015 actuarial valuations.

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Crawford Co (2001) - Total of All Divisions
Projected Amortization Payments Based on December 31, 2014 Actuarial Valuation Data
Closed Amortization Policy Option A - Using Revised Assumptions*

	Based on the Actuarial Value of Assets		Based on the Market Value of Assets	
Calendar Year Beginning January 1	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment
2015	7,000,000	500,000	7,700,000	600,000
2016	7,000,000	600,000	7,600,000	700,000
2017	6,900,000	700,000	7,600,000	700,000
2018	6,800,000	700,000	7,400,000	800,000
2019	6,500,000	800,000	7,100,000	900,000
2020	6,200,000	900,000	6,700,000	1,000,000
2021	5,700,000	1,000,000	6,200,000	1,100,000
2022	5,100,000	1,000,000	5,600,000	1,100,000
2023	4,500,000	1,100,000	4,800,000	1,300,000
2024	3,600,000	1,200,000	3,900,000	1,300,000
2025	2,700,000	800,000	2,900,000	900,000
2026	2,000,000	700,000	2,100,000	800,000
2027	1,400,000	700,000	1,500,000	800,000
2028	700,000	800,000	800,000	800,000
2029	-	-	-	-
2030	-	-	-	-
2031	-	-	-	-
2032	-	-	-	-
2033	-	-	-	-
2034	-	-	-	-

** Revised assumptions adopted by MERS Retirement Board, first effective with December 31, 2015 annual valuations.*

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Crawford Co (2001) - Total of All Divisions
Projected Amortization Payments Based on December 31, 2014 Actuarial Valuation Data
Closed Amortization Policy Option B - Using Revised Assumptions*

	Based on the Actuarial Value of Assets		Based on the Market Value of Assets	
Calendar Year Beginning January 1	Beginning of Year UAL Balance	Amortization Payment	Beginning of Year UAL Balance	Amortization Payment
2015	7,000,000	500,000	7,700,000	600,000
2016	7,000,000	600,000	7,700,000	600,000
2017	6,900,000	600,000	7,600,000	700,000
2018	6,900,000	600,000	7,500,000	700,000
2019	6,700,000	700,000	7,400,000	700,000
2020	6,600,000	700,000	7,200,000	800,000
2021	6,400,000	700,000	7,000,000	800,000
2022	6,100,000	700,000	6,700,000	800,000
2023	5,800,000	800,000	6,300,000	900,000
2024	5,500,000	800,000	6,000,000	900,000
2025	5,000,000	800,000	5,500,000	900,000
2026	4,600,000	900,000	5,000,000	1,000,000
2027	4,000,000	900,000	4,400,000	1,000,000
2028	3,400,000	900,000	3,700,000	1,000,000
2029	2,700,000	900,000	2,900,000	1,000,000
2030	2,000,000	600,000	2,100,000	700,000
2031	1,500,000	500,000	1,600,000	600,000
2032	1,000,000	500,000	1,100,000	600,000
2033	500,000	600,000	600,000	600,000
2034	-	-	-	-

** Revised assumptions adopted by MERS Retirement Board, first effective with December 31, 2015 annual valuations.*

Appendix C

POSTRETIREMENT BENEFIT VALUATION REPORT UNDER GASB STATEMENT NO.45 EXPENSE FOR FISCAL YEAR ENDING SEPTEMBER 30, 2015

COUNTY OF CRAWFORD

[attach here]

Report Highlights

United Health Actuarial Services ("UHAS") has prepared this report for Crawford County ("Crawford") to provide reporting and disclosure information for Crawford's financial statements pursuant to Governmental Accounting Standards Board Statement No. 45 relating to Crawford's postretirement medical insurance benefits.

Summary of GASB Statement No. 45

In June 2004 the Governmental Accounting Standards Board (GASB) issued Statement No. 45: *Accounting and Financial Reporting by Employers for Postemployment Benefits Other Than Pensions,* which established new accounting standards for Postretirement Benefits Other Than Pensions (OPEB).

The requirements apply to any state or local government employer that provides OPEB. The primary type of OPEB covered by the statement will be postretirement health benefits. OPEB may also include life insurance, legal benefits, and other benefits.

Most governmental employers have been accounting for OPEB on a pay-as-you-go basis. The new standard will require accrual based accounting. In general, GASB followed the accounting standards already in place for governmental pension plans in Statement No. 27.

The standard does not require funding of OPEB expense, but any differences between the annual expense and the amount funded in a year are recorded in the employer's financial statement as an increase (or decrease) in the net OPEB obligation. The funded status of the actuarial accrued liability is shown as part of Required Supplementary Information

Calculation Details

Funding Methods

Any of six actuarial cost methods can be used. These are the same methods that are permitted by GASB 27 for calculating employer pension expense. There appears to be no requirement that the same method be used for both the pension plan and the OPEB plan.

We have shown the cost calculations using the projected unit credit method, which is the same method used in the private sector for determining retiree medical liabilities.

The unfunded actuarial accrued liability must be amortized over a period not greater than 15 years. The amortization amount may be computed as a level dollar amount or as a level percentage of payroll. For purposes of this report, the level dollar open basis with a 15 year amortization period has been used.

Assumptions

The investment return assumption (or discount rate) is to be selected as the estimated long-term return on the investments that are expected to be used to finance the payment of benefits. For funded plans, the considerations in selecting this rate would be similar to selecting the funding interest rate for a pension plan. However, for unfunded plans, the discount rate should be determined with reference to the employer's general assets. In most instances, governmental unrestricted general assets are invested in very short-term fixed instruments, such as money market funds. This asset allocation could lead to a very low discount rate. If the plan is partially funded, a blended discount rate may be used.

Crawford's plan is unfunded. We have shown the calculations at a 4.0% discount rate, which generally reflects a common value used for unfunded plans.

All actuarial assumptions and plan provisions are summarized in this report.

Expense Calculation

The basic annual expense recognized under GASB 45 is called the "annual required contribution" or ARC, even though there is no requirement to fund this amount. The ARC depends on the actuarial cost method selected and consists of the normal cost plus amortization of the unfunded actuarial accrued liability (UAAL, or the excess of the past service liability over the actuarial value of assets). The net OPEB obligation that is created by an unfunded ARC will also cause an adjustment to the ARC to determine the expense for subsequent years. This adjustment will not apply in the first year of implementation, provided the statement is applied prospectively.

The ARC, calculated in accordance with GASB 45 for the fiscal year ending September 30, 2015, is $289,293. The expected pay-as-you-go cost of the retiree medical benefits provided by Crawford for the fiscal year ending September 30, 2015, including benefits for those expected to retire during the year, is $154,653.

The differences between the amounts required to be recognized and the amounts funded (including benefits paid from general assets) are accumulated as the "net OPEB obligation." The annual OPEB cost, which consists of the ARC, the ARC adjustment and interest on the net OPEB obligation, must be reported in the employer's financial statements as an expense item.

Certification

I have prepared an actuarial valuation of the Crawford postretirement benefits plan as of October 1, 2014 to determine the expense for the fiscal year ending September 30, 2015. The results of the valuation set forth in this report reflect the benefit provisions as of October 1, 2014.

The valuation is based on participant and financial data provided by Crawford.

All costs, liabilities and other factors under the plan were determined in accordance with generally accepted actuarial principles and procedures. The calculations reported herein are consistent with our understanding of the provisions of GASB No. 45.

Actuarial computations under Statements of Governmental Accounting Standards are for purposes of fulfilling governmental employer accounting requirements Computations for other purposes may differ significantly from the results shown in this report.

I am available to answer any questions on this material, or to provide explanations or further details, as may be appropriate. The undersigned credentialed actuary meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Ben Brandon

Ben S. Brandon, FSA, MAAA
United Health Actuarial Services, Inc.
11 South Street
Old Bridge, New Jersey 08857

December 30, 2015
Date

The information contained in this document (including any attachments) is not intended by UHAS to be used, and it cannot be used, for the purpose of avoiding penalties under the Internal Revenue Code that may be imposed on the taxpayer.

Valuation Results

Calculation of Annual Requ red Contribution (ARC) and Annual Expense for Cr w ord's Postretirement Medical Benefits

Benefit Obligations and Normal Cost		**Fiscal Year Ending September 30, 2015**
Actuarial Accrued Liability at beginning of year[1]		
Retired employees	$	2 0 283
Active employees		637,84
Total	$	3,345,130
nfunded actuarial accrued liability (AAL)		3 345,130
Normal cost at beginning of year		0
Amortization factor based on 15 years		11 56

Level Dollar Amortization
Calculation of ARC under Projected Unit Credit Method

U interest to end of year		
Normal cost with interest to end of year		0
Annual Required Contribution	$	289,293
Benefit payments[2]	$	154,653

Covered Participants	October 1, 2014
Active employees	2
Retired employees and widows	15
Spouses of retired employees	9
Total	26

[1] *The breakdown of the liability between retired and active employees is based on employees' status as of the measurement date of October 1, 2014 for fiscal year ending September 30, 2015.*
[2] *Amount shown for fiscal year ending September 30, 2015 is projected.*

Valuation Results (Discount Rate @ 4.0%)

OPEB Liability at October 1, 2014

Unfunded Actuarial Accrued Liability	(3,345,130)

ARC and annual OPEB cost for fiscal year ending September 30, 2015

ARC Normal Cost	0
ARC Amortization of Unfunded	300,865
ARC Total	300,865
Interest on Net OPEB obligation	84,381
Adjustment to ARC	(182,436)
Total annual OPEB cost	**202,810**

Estimated Net OPEB Obligation at September 30, 2015

Total annual OPEB cost	202,810
Estimated contributions	(154,653)
Net OPEB September 30, 2014	2,109,527
Net OPEB at September 30, 2015	**2,157,684**

Supplemental Information

The remainder of the report includes information supporting the results presented in the previous section.

- **Participant data** describes the participant data used in the valuation.
- **Actuarial basis** describes the plan provisions, as well as the methods and assumptions used to value the plan. The valuation is based on the premise that the plan is ongoing.

Participant Data – As of October 1, 2014

Distribution of Active Participants

Years of Service

	Number	Average Age	Average Service
As of October 1, 2014	2	51.0	26.0

Distribution Inactive Participants

Actuarial Basis

Accounting Actuarial Cost Method and Policies

Actuarial cost method: Liabilities shown in this report are computed using the projected unit credit method.

Unfunded Actuarial Accrued Liability amortization method: UAAL is amortized on a level dollar open basis over 15 years. Gains and losses that arise are also amortized on the same basis.

Census data: We have used participant data as supplied by the plan sponsor. A plan's actuary would not customarily verify this information. We have reviewed the information for internal consistency and we have no reason to doubt its substantial accuracy.

Funding policy: The postretirement medical plan's benefits are funded on a pay-as-you-go basis. Crawford funds on a cash basis as benefits are paid. No assets have been segregated and restricted to provide postretirement benefits.

Actuarial valuation date: The valuation date was October 1, 2014.

Actuarial Basis

Summary of Actuarial Assumptions

The following assumptions were used in valuing the liabilities under the plan for the fiscal year ending September 30, 2015.

Investment return 4% per annum.

Measurement date October 1, 2014.

Health care cost trend rates The trend rates represent the expected rate of increase in employer claim payments and employee contributions from the prior year:

Year	Rate
2015	7.00%
2016	6.50%
2017	6.00%
2018	5.50%
2019	5.00%
2020+	4.50%

Summary of Actuarial Assumptions (continued)

Medical annual per capita claim costs

United Health Care POS Plan

Pre-Medicare	Retiree $7,963 (age 57)	Spouse $7,963 (age 57)
Post Medicare	Retiree $3,781 (age 79)	Spouse $3,781 (age 79)

Administrative Expenses Included in above costs as claims based on insurance premiums

Aging 3.5% per year for ages under 65. 1.5% per year for ages over 65.

Medical retiree contributions

Pre-Medicare None

Post Medicare None

Mortality RP-2000 with improvement to 2015

Withdrawal Rates See below:

Age	Rate
<=24	5.00%
25-29	5.00%
30-34	4.50%
35-39	3.55%
40-44	1.45%
45-60	0.75%

Retirement Rates See below:

Age	Rate
50-54	5.00%
55-61	15.00%
62	30.00%
63-64	15.00%
65	90.00%
66	30.00%
67	40.00%
68	50.00%
69	90.00%
70	100.00%

Summary of Actuarial Assumptions (continued)

Marital Status

• Percentage married at retirement	Used actual marital status for current actives.
• Age difference of spouse	Used actual age of spouses.
Plan Participation	Future retirees assumed to participate at 100%.

Actuarial Basis

Development of Healthcare Costs

Crawford pays a premium that varies for active employees, pre-65 retirees and post 65 retirees. Claim costs were developed from these fully insured rates for the pre-65 and post-65 retiree populations.

Development of Healthcare Cost Trend Rates

The trend assumptions are comprised of three elements the initial trend rate, the ultimate trend rate, and the grade-down period. Trend rates exclude the expected impact of aging since this impact is explicitly reflected elsewhere in the valuation. The initial trend rate is the expected increase in health care costs into the second year of the valuation (i.e., the first assumed annual increase in starting per capita rates).

Actuarial Basis

Plan Provisions

Eligibility	Age 55 plus 15 years of service, 50 plus 25 years of service.
Medical Plan	POS Plan – See next page for details. Stipend – Some COAM retirees get a stipend of $500 per month or $1,000 per month in lieu of insurance after age 65.
Per capita retiree contributions	None.
Dependent coverage and survivor benefit continuance	Spouses and dependents are covered .Surviving spouses are covered.

Actuarial Basis

Plan Provisions – Pre 65

Priority Health POS Plan

Medical plan design

	Deductible	$0 In-Network $250/$500 Out-of-Network
	Coinsurance	100% In 80%/20% Out
	Copayments	
	Office visits	In: $10 PCP, $10 SCP
	Out-of-Pocket Maximum	N/A In $2,500/$5,000 Out
	Lifetime Maximum	None

Prescription drug plan design

	Generic	$15 copayment
	Brand Drug	$30 copayment

Plan Provisions – Post 65

Priority Health HMO-POS Plan

Medical plan design

	Deductible	$0 In-Network $250 Out-of-Network
	Coinsurance	100% In 80%/20% Out
	Copayments	
	Office visits	In: $10 PCP, $25 SCP
	Out-of-Pocket Maximum	$6,700 In/Out
	Lifetime Maximum	None

Prescription drug plan design

	Generic	$10 copayment
	Brand Drug	$40 copayment

Appendix D

$7,180,000

COUNTY OF CRAWFORD

PENSION OBLIGATION BONDS, SERIES 2015

[attach here]

Appendix D

$7,180,000
County of Crawford
Pension Obligation Bonds, Series 2015
(Taxable Obligations)

Year	Estimated * Bond Debt Service	7.75% Investment** Assumption Actuarial Value Estimated Payment Without Bonding	County Savings
2016	$344,003.13	$600,000.00	$255,996.88
2017	441,862.50	600,000.00	158,137.50
2018	511,862.50	600,000.00	88,137.50
2019	579,987.50	700,000.00	120,012.50
2020	579,487.50	700,000.00	120,512.50
2021	578,687.50	700,000.00	121,312.50
2022	581,662.50	700,000.00	118,337.50
2023	584,150.00	800,000.00	215,850.00
2024	581,150.00	800,000.00	218,850.00
2025	582,825.00	800,000.00	217,175.00
2026	584,012.50	900,000.00	315,987.50
2027	608,612.50	900,000.00	291,387.50
2028	601,812.50	900,000.00	298,187.50
2029	594,662.50	900,000.00	305,337.50
2030	575,912.50	600,000.00	24,087.50
2031	482,162.50	500,000.00	17,837.50
2032	465,162.50	500,000.00	34,837.50
2033	568,162.50	600,000.00	31,837.50
Total	$9,846,178.13	$12,800,000.00	$2,953,821.88

*Numbers provided by MFCI dated October 28, 2015

**Numbers provided by CIBZ letter dated October 14, 2015, page 6