



**Actuarial Valuation
of
Other Post Employment Benefits (OPEBs)
and
GASB Statements No. 74 and 75
as of December 31, 2016**

Saginaw County

Report Prepared October 25, 2017

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Saginaw County

Actuarial Valuation as of December 31, 2016

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Saginaw County Actuarial Valuation as of December 31, 2016

Actuarial Certification

We, the undersigned, are consulting actuaries associated with the firm CBIZ Retirement Plan Services. We are members of the American Academy of Actuaries and meet its qualification standards to provide statements of actuarial opinion for actuarial valuations of Other Postemployment Benefits (OPEBs). We have completed an actuarial valuation of the OPEB plan for the Saginaw County as of December 31, 2016. This report contains the results of the valuation.

To the best of our knowledge, the information supplied in this report is complete and accurate. In our opinion, the methods and assumptions used in the valuation comply with the Governmental Accounting Standards Board (GASB), particularly GASB Statements No. 74 and 75, "Accounting and Financial Reporting for Postemployment Benefits Other Than Pension". The assumptions are related reasonably to the past experience of the Plan, and they represent our best estimate of anticipated experience under the Plan. Nevertheless, the actual costs of the plan in the future will differ from the results of the valuation, as the emerging experience varies from the assumptions projected in the valuation.

We have relied on the County for the accuracy and completeness of the benefit plans, assets, claims and premium data, and the employee census. While we have not audited the data, we have reviewed it for reasonableness and consistency. A summary of our understanding of the plan features is provided in this report.

This report has been prepared for the use and benefit of the County in assessing the effect of GASB Statements No. 74 and 75 on accounting for OPEB plans. It should not be relied upon for other purposes, and it is not intended to benefit any other party. It may be shared in its entirety with all auditors and the general public.

Neither CBIZ nor any of the employees working on this engagement has any relationship with the Saginaw County that may impair, or appear to impair, the independence and objectivity of our work.

This actuarial valuation was prepared in accordance with the applicable Statements of the Governmental Accounting Standards Board and the Actuarial Standards of Practice issued by the American Academy of Actuaries.

Frank T. Vedegys, FSA, EA, MAAA
Senior Consulting Actuary

October 25, 2017
Date





Saginaw County Actuarial Valuation as of December 31, 2016

Summary of Valuation Results

Valuation Date	12/31/2016		
Participant Data	<u>Non-MHA</u>	<u>MHA</u>	<u>Total</u>
Active Employees	198	0	198
Retirees and Covered Spouses	682	5	687
Total	880	5	885
Total OPEB Liability (TOL)			
Active Employees	\$ 28,485,570	-	\$ 28,485,570
Retirees and Covered Spouses	+ 72,068,627	587,440	+ 72,656,068
Total OPEB Liability	\$ 100,554,197	587,440	\$ 101,141,637
Fiduciary Net Position (FNP)	-	-	16,008,941
Net OPEB Liability (NOL)	\$ 84,545,256	587,440	\$ 85,132,696
FNP as a Percentage of TOL	15.92%	0.00%	15.83%
Actuarial Determined Contribution (ADC) for Fiscal Year Ending*:			
September 30, 2018	\$ 6,419,951	\$ 37,506	\$ 6,457,457
September 30, 2019	6,419,951	37,506	6,457,457
Estimated OPEB Expense (Income) for Fiscal Year Ending*:			
September 30, 2018	\$ 5,794,773	\$ 33,853	\$ 5,828,626
September 30, 2019	5,793,428	33,845	5,827,273

Discount Rate Sensitivity

A 1 % increase in the discount rate would decrease the Net OPEB Liability by \$11,200,000.
 A 1 % decrease in the discount rate would increase the Net OPEB Liability by \$13,625,000.

Healthcare Trend Sensitivity

A 1 % increase in the healthcare trend would increase the Net OPEB Liability by \$13,610,000
 A 1 % decrease in the healthcare trend would decrease the Net OPEB Liability by \$11,250,000



Saginaw County
Actuarial Valuation as of December 31, 2016

Development of Fiduciary Net Position at Valuation Date

Statement of Changes in Fiduciary Net Position

	12/31/2015 - 12/30/2016		
	OPEB Trust	Pay-as-you-go	Total
Balance as of Beginning of Year	\$ 15,046,896	\$ -	\$ 15,046,896
Employer Contributions	-	6,334,539	6,334,539
Participant Contributions	-	-	-
Implicit Subsidy	-	-	-
Investment Income, net of investment expenses	1,033,481	-	1,033,481
Total Additions	\$ 1,033,481	\$ 6,334,539	\$ 7,368,020
Benefit Payments, including implicit subsidy	-	(6,334,539)	(6,334,539)
Non-Investment Expenses	(71,437)	-	(71,437)
Total Deductions	\$ (71,437)	\$ (6,334,539)	\$ (6,405,976)
Net Change	\$ 962,044	\$ -	\$ 962,044
Balance as of End of Year	\$ 16,008,941	\$ -	\$ 16,008,941
Money-Weighted Rate of Return	6.88%	0.00%	6.88%



Saginaw County
Actuarial Valuation as of December 31, 2016

10-Year Schedule of Funding Progress

Required Supplementary Information						
Actuarial Valuation Date	Fiduciary Net Position (a)	Total OPEB Liability (b)	Net OPEB Liability (Asset) (b - a)	Funded Ratio (a / b)	Annual Covered Payroll (c)	Net OPEB Liability as a Percent of Payroll (b - a) / c
12/31/2008	\$ 9,274,988	\$ 92,765,308	\$ 83,490,320	10.0%	\$ 17,582,701	474.8%
12/31/2010	13,065,654	131,957,659	118,892,005	9.9%	15,678,759	758.3%
12/31/2011	11,913,064	136,884,482	124,971,418	8.7%	15,109,758	827.1%
12/31/2012	12,794,484	148,984,488	136,190,004	8.6%	15,639,762	870.8%
12/31/2014	14,898,591	143,075,530	128,176,939	10.4%	11,565,492	1108.3%
12/31/2016	16,008,941	101,141,637	85,132,696	15.8%	9,793,458	869.3%



Saginaw County Actuarial Valuation as of December 31, 2016

10-Year Schedule of Employer Contributions

Required Supplementary Information					
Fiscal Year Ended September 30,	Actuarially Determined Contribution (a)	Actual Contribution (b)	Contribution Deficiency (Excess) (a) - (b)	Covered Payroll* (c)	Contributions as a Percentage of Covered Payroll (b) / (c)
2010	\$ 8,525,660	\$ 4,697,863	\$ 3,827,797	\$ 15,678,759	29.96%
2011	9,025,077	4,897,420	4,127,657	15,678,759	31.24%
2012	10,749,801	4,057,775	6,692,026	15,109,758	26.86%
2013	11,249,743	4,727,520	6,522,223	15,109,758	31.29%
2014	11,924,504	5,442,607	6,481,897	15,639,762	34.80%
2015	11,820,988	7,375,569	4,445,419	15,639,762	47.16%
2016	10,967,556	6,389,785	4,577,771	11,565,492	55.25%
2017	11,412,510	TBD		11,565,492	TBD
2018	6,457,457	6,457,457	-	9,793,458	65.94%
2019	6,457,457	6,457,457	-	9,793,458	65.94%

Beginning Fiscal Year Ending 2018, the ADC is calculated in accordance with the Employer's funding policy, if one exists. Prior to Fiscal Year Ending 2018, the ADC is equal to the Annual Required Contribution (ARC) as calculated under GASB No. 45.

Estimated: TBD at end of fiscal year

*Covered Payroll based on payroll used in most recent actuarial valuation



Saginaw County Actuarial Valuation as of December 31, 2016

Projected Retiree Benefit Payments

Exhibit A is a graph that shows the projection of expected benefit payments under the OPEB plan. These payments only reflect those participants who have already been hired or who are retired. Expected benefit payments are equal to the number of retirees each year times the per retiree cost to the employer. The first year's projected benefit payments total \$4,821,855. As the last participants retire and then reach the end of their benefit period, the benefit payments decline and eventually would reach zero. Exhibit B is a table showing the first 10 years of expected benefit payments.

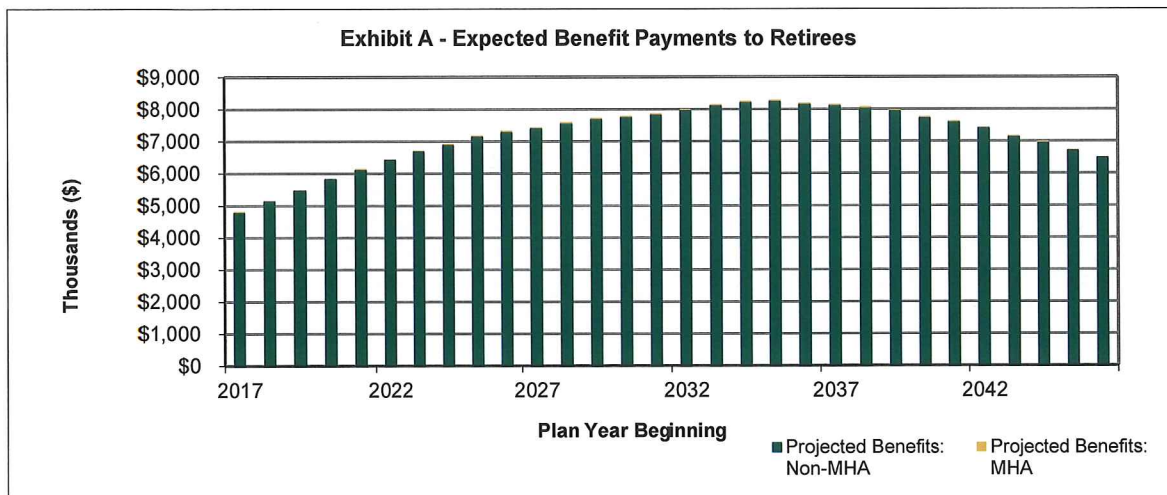


Exhibit B: First 10 Years of Expected Benefit Payments

Plan Year Beginning January 1,	Projected Benefits: Non-MHA	Projected Benefits: MHA	Projected Benefits: All Members
2017	\$ 4,790,465	\$ 31,390	\$ 4,821,855
2018	5,143,297	34,997	5,178,294
2019	5,470,248	38,858	5,509,106
2020	5,826,868	42,927	5,869,796
2021	6,115,756	47,146	6,162,902
2022	6,423,639	30,644	6,454,283
2023	6,688,482	32,923	6,721,404
2024	6,891,578	35,172	6,926,751
2025	7,153,905	37,265	7,191,170
2026	7,296,802	39,084	7,335,886



Saginaw County GASB Statement No. 75

OPEB Expense (Income)

	Fiscal Year Ending	
	9/30/2019	9/30/2018
OPEB Expense (Income)		
1. Service Cost	\$ 1,006,447	\$ 970,069
2. Interest Cost	6,135,044	6,015,891
3. Expected Return On Plan Assets	(1,314,218)	(1,157,335)
4. Recognition of Deferred Outflows/(Inflows) related to:		
Net difference between projected and actual earnings	0	0
Differences between expected and actual experience	0	0
Changes in assumptions	0	0
5. OPEB Expense (Income)	\$ 5,827,273	\$ 5,828,626

Key Assumptions for OPEB Expense (Income)

Discount Rate	6.00%	6.00%
Salary Scale	3.75%	3.75%
Expected Return on Assets	6.00%	6.00%

Deferred Outflows/(Inflows) - Amortization Schedules

Fiscal Year Established	Original Amount	Amortization Amount	Original Amortization Period	Outstanding Balance at End of Year	Outstanding Balance at End of Year
<u>Net difference between projected and actual earnings</u>					
2019	\$ 0	\$ 0	5.00	\$ 0	N/A
2018	0	0	5.00	0	0
<u>Differences between expected and actual experience</u>					
2019	\$ 0	\$ 0	1.63	\$ 0	N/A
2018	0	0	1.63	0	0
<u>Changes in assumptions</u>					
2019	\$ 0	\$ 0	1.63	\$ 0	N/A
2018	0	0	1.63	0	0



Saginaw County GASB Statement No. 75

Net OPEB Liability

	Fiscal Year Ending	
	9/30/2019	9/30/2018
Reconciliation of Total OPEB Liability		
1. Total OPEB Liability at Beginning of Year	\$ 104,839,883	\$ 102,675,777
2. Service Cost	1,006,447	970,069
3. Interest Cost	6,135,044	6,015,891
4. Net Benefits Paid by Employer	(5,178,294)	(4,821,855)
5. Differences between expected and actual experience	0	0
6. Changes in assumptions	0	0
7. Total OPEB Liability at End of Year	<u>\$ 106,803,080</u>	<u>\$ 104,839,883</u>
Reconciliation of Fiduciary Net Position		
1. Fiduciary Net Position at Beginning of Year	\$ 21,264,046	\$ 18,471,109
2. Projected Earnings on Fiduciary Net Position	1,314,218	1,157,335
3. Net Difference Between Projected and Actual Earnings	0	0
4. Employer Contributions	6,457,457	6,457,457
5. Total Benefits Paid	(5,178,294)	(4,821,855)
6. Expenses	0	0
7. Participant Contributions	0	0
8. Fiduciary Net Position at End of Year	<u>\$ 23,857,426</u>	<u>\$ 21,264,046</u>
Money-Weighted Rate of Return	6.00%	6.00%
Net OPEB Liability (Asset)		
1. Total OPEB Liability	\$ 106,803,080	\$ 104,839,883
2. Fiduciary Net Position	<u>(23,857,426)</u>	<u>(21,264,046)</u>
3. Net OPEB Liability (Asset)	<u>\$ 82,945,653</u>	<u>\$ 83,575,837</u>
Fiduciary Net Position as % of Total OPEB Liability	22.34%	20.28%
Key Assumptions for Net OPEB Liability		
Discount Rate	6.00%	6.00%
Salary Scale	3.75%	3.75%
Expected Return on Assets	6.00%	6.00%



Saginaw County GASB Statement No. 75

Deferred Outflows (Inflows)

	Fiscal Year Ending	
	9/30/2019	9/30/2018
Deferred Inflows of Resources Related to OPEB		
1. Net difference between projected and actual earnings	\$ 0	\$ 0
2. Differences between expected and actual experience	0	0
3. Changes in assumptions	0	0
4. Total	\$ 0	\$ 0
Deferred Outflows of Resources Related to OPEB		
1. Net difference between projected and actual earnings	\$ 0	\$ 0
2. Differences between expected and actual experience	0	0
3. Changes in assumptions	0	0
4. Total	\$ 0	\$ 0

Schedule of Deferred Outflows (Inflows)

Amounts reported as deferred outflows or deferred inflows of resources related to OPEBs will be recognized in OPEB expense as follows:

FYE			
2019	\$	N/A	\$ -
2020		-	-
2021		-	-
2022		-	-
2023		-	-
2024(+)		-	-
2025+		-	N/A



Saginaw County Actuarial Valuation as of December 31, 2016

Plan Provisions and Participant Summary

Retiree Benefits and Eligibility

The Employer provides medical, pharmacy, dental, vision and life insurance benefits for eligible union and non-union retirees hired prior to March 1, 2005. This plan was established through employees' union contracts and through a Board resolution for non-union employees. Medical and pharmacy benefits are provided through self-insured plans administered by Blue Cross Blue Shield of Michigan. Dental and vision benefits are provided through fully-insured plans administered by MetLife and VSP, respectively.

Disability Retirement (Duty or Non-Duty)

Any age with 6 years of service

Normal or Early Unreduced Retirement

OPEIU (A), SCDPH COA (D), Pub. H. Nurses (E), Animal (J), TPOAM (O), and Pros (R):

Age 50 with 25 years of service, or
Age 55 with 20 years of service, or
Age 60 with 6 years of service

POLC Unit II Sgt's (C), POAM Unit III Cpt & Lt's (F), UAW Mgr's (U), Non-Union (blank), Upper Mgmt. (blank), Elect., and Judges (blank):

Age 55 with 15 years of service, or
Age 60 with 6 years of service, or
Any age with 25 years of service

POAM Unit I (G), and POAM Non-312 (Y):

Age 60 with 6 years of service, or
Any age with 25 years of service

Juv. Dent. & Supr. (I & T):

Age 50 with 25 years of service, or
Age 55 with 15 years of service, or
Age 60 with 6 years of service

Juv. Prob. (P), and Dist. Ct. Prob. Office (Q):

Age 55 with 20 years of service, or
Age 60 with 6 years of service, or
Any age with 25 years of service

UAW Prof. (V), and UAW Tech's (W):

Age 50 with 25 years of service, or
Age 55 with 15 years of service, or
Age 60 with 6 years of service



Saginaw County Actuarial Valuation as of December 31, 2016

Plan Provisions and Participant Summary

Retiree Benefits and Eligibility (cont.)	A vested employee, who leaves employment before attaining age and service required to receive an unreduced pension, shall not be eligible for subsidized retiree healthcare. Surviving spouses of active employees who die while in active employment with the County are not eligible for subsidized retiree healthcare.																
Length of Benefits	<p><i>Retiree</i> : Life</p> <p><i>Spouse</i> : Subsidized retiree healthcare coverage is provided to the spouses of retirees hired prior to the dates shown below for life. Spouses of retirees hired on or after the dates below are not eligible for retiree health care coverage:</p> <table border="0" style="margin-left: 40px;"> <tr> <td style="padding-right: 20px;">3/31/1996</td> <td>OPEIU (A)</td> </tr> <tr> <td>1/1/1999</td> <td>POLC Unit II (C), Pub. H. Nurses (E), POAM Unit I (G), TPOAM (O), Dist. Ct. Prob. Office (Q), and POAM Non-312 (Y)</td> </tr> <tr> <td>1/1/1998</td> <td>SCDPH COA (D)</td> </tr> <tr> <td>1/1/2001</td> <td>POAM Unit III Cpt & Lt's (F)</td> </tr> <tr> <td>1/1/1996</td> <td>Juv. Dent. & Supr. (I & T)</td> </tr> <tr> <td>1/1/1997</td> <td>Animal (J)</td> </tr> <tr> <td>10/1/1999</td> <td>Juv. Prob. (P), and Pros. (R)</td> </tr> <tr> <td>1/1/1993</td> <td>UAW Mgr's (U), UAW Prof. (V), UAW Tech's (W), Non-Union (blank), Upper Mgmt. (blank), Elec. (blank), and Judges (blank)</td> </tr> </table>	3/31/1996	OPEIU (A)	1/1/1999	POLC Unit II (C), Pub. H. Nurses (E), POAM Unit I (G), TPOAM (O), Dist. Ct. Prob. Office (Q), and POAM Non-312 (Y)	1/1/1998	SCDPH COA (D)	1/1/2001	POAM Unit III Cpt & Lt's (F)	1/1/1996	Juv. Dent. & Supr. (I & T)	1/1/1997	Animal (J)	10/1/1999	Juv. Prob. (P), and Pros. (R)	1/1/1993	UAW Mgr's (U), UAW Prof. (V), UAW Tech's (W), Non-Union (blank), Upper Mgmt. (blank), Elec. (blank), and Judges (blank)
3/31/1996	OPEIU (A)																
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1/1/1997	Animal (J)																
10/1/1999	Juv. Prob. (P), and Pros. (R)																
1/1/1993	UAW Mgr's (U), UAW Prof. (V), UAW Tech's (W), Non-Union (blank), Upper Mgmt. (blank), Elec. (blank), and Judges (blank)																
Medicare Coordination	The Employer provides complementary retiree healthcare benefits for retirees and covered spouses at age 65 when a member becomes Medicare eligible. Participants are required to enroll in Medicare parts A and B when eligible. Member is responsible for payment of Medicare B premiums.																
Life Insurance	<p><i>Future Retirees</i> : \$4,000 upon normal or early (unreduced) retirement, payable at death</p> <p><i>Current Retirees</i> : Amounts payable at death vary as provided in data</p>																



Saginaw County Actuarial Valuation as of December 31, 2016

Plan Provisions and Participant Summary

**Retiree Premium
Cost Sharing**

Retired prior to January 1, 1991 : No premium contribution required
Pub. H. Nurses retired prior to October 1, 2013 : varies by retirement date
OPEIU hired prior to March 29, 1986 : contributes percentage of funding premium according to table below, except that members with 20+ years of service pay 0% of funding premium.
All others retiring on or after October 1, 2013 : contributes percentage of funding premium according to table below

Years of Service	% of Premium Pd by Employer	Years of Service	% of Premium Pd by Employer
0 - 5	0%	13	45%
6	10	14	50
7	15	15	55
8	20	16	60
9	25	17	65
10	30	18	70
11	35	19	75
12	40	20+	80

**2017 Annual
Medical/Rx
Premiums**

BCBS of Michigan Division	Pre-65		Post-65	
	Single Coverage	Double Coverage	Single Coverage	Double Coverage
0013 (Retired)	\$ 8,237	\$ 19,769	\$ 5,066	\$ 10,132
0016 (Retired)	7,358	17,659	6,447	12,894
0017 (Retired)	7,159	17,181	6,239	12,478
0020 (Retired)	6,480	15,552	N/A	N/A
0021 (Retired)	6,450	15,480	5,593	11,186
0024 (Retired)	6,396	15,336	5,270	10,540
0026* (Retired)	6,240	14,976	5,705	11,410

* Future retirees are only eligible for this plan.

**2017 Annual
Dental & Vision
Premiums**

Plan	Single Coverage	Double Coverage
MetLife Dental	\$ 384	\$ 924
VSP Vision	48	84

**Changes Since
Prior Valuation**

1. Premium equivalent rates were updated reflect newest rates under the new prescription drug tier structure and fully-insured Medicare Advantage Plans (MAPDs).



Saginaw County Actuarial Valuation as of December 31, 2016

Plan Provisions and Participant Summary

Participant Summary

Metric	Actives	Inactives and Spouses
Count	198	687
Average Age	52.4	69.7
Average Service	21.1	N/A
Percentage Male	41.4	40.3

Age and Service Chart

Attained Age	Years of Credited Service										Total
	<1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40+	
Under 25	0	0	0	0	0	0	0	0	0	0	0
25 to 29	0	0	0	0	0	0	0	0	0	0	0
30 to 34	0	0	0	1	0	0	0	0	0	0	1
35 to 39	0	0	0	6	6	0	0	0	0	0	12
40 to 44	0	0	0	3	18	5	0	0	0	0	26
45 to 49	0	0	0	1	13	20	2	0	0	0	36
50 to 54	0	0	0	5	21	12	5	2	0	0	45
55 to 59	0	0	0	4	10	6	11	6	1	1	39
60 to 64	0	0	0	1	11	8	3	3	1	1	28
65 to 70	0	0	0	1	4	0	1	1	2	1	10
70+	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	22	83	51	22	12	4	4	198



Saginaw County Actuarial Valuation as of December 31, 2016

Actuarial Methods and Assumptions

Actuarial Valuation Date December 31, 2016

Actuarial Cost Method Individual Entry Age Normal as a level percentage of payroll

Discount Rate 6.00%

**Annual Wage
Increases**

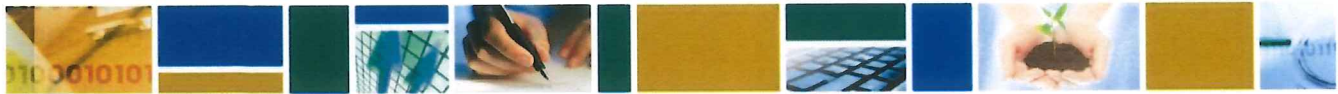
Age	Base Increase	Merit & Longevity	Total % Increase
20	3.75%	11.00%	14.75%
25	3.75	7.20	10.95
30	3.75	3.10	6.85
35	3.75	1.90	5.65
40	3.75	1.20	4.95
45	3.75	0.81	4.56
50	3.75	0.52	4.27
55	3.75	0.30	4.05
60	3.75	0.00	3.75

Price Inflation 2.50%

**Investment Rate of
Return** 6.00%

Actuarial Value of Assets Market Value

**Actuarially Determined
Contribution** The County has committed to contribute a 30-year level-dollar contribution that is actuarially determined to ensure that the Fiduciary Net Position will be sufficient to pay projected net benefits for the life of the plan. This amount will be adjusted, as necessary, upon each biennial actuarial valuation.



Saginaw County Actuarial Valuation as of December 31, 2016

Actuarial Methods and Assumptions

Annual Per-Capita Claims Costs

Age	BCBS of Michigan Division						
	0013	0016	0017	0020	0021	0024	0026
40	\$5,153	\$4,656	\$4,521	\$3,866	\$3,849	\$3,735	\$3,654
50	8,003	7,230	7,021	6,004	5,978	5,800	5,674
60	12,428	11,229	10,903	9,324	9,284	9,007	8,812
64	14,821	13,390	13,002	11,118	11,071	10,741	10,508
65	3,863	4,915	4,757	4,556	4,264	4,018	4,350
70	4,478	5,698	5,514	5,282	4,943	4,658	5,043
75	5,066	6,447	6,239	5,976	5,593	5,270	5,705
80	5,458	6,945	6,721	6,438	6,025	5,677	6,146
85+	5,880	7,482	7,241	6,935	6,491	6,116	6,621

Starting pre-Medicare per-capita costs were developed using paid retired and active employee claims and enrollment data from January 1, 2015 through December 31, 2016. Non-Drug Medical and Pharmacy were analyzed separately, and projected to the current claims year using current projected trend, based on the most recent Segal Survey. 60% of costs were blended with 40% of the expected costs to reduce volatility. The resulting costs were then adjusted for differences in plan design and disaggregated into age-specific starting costs based on average ages and assumptions on the relationship between costs and increasing age. Fixed costs and fees are not included in these costs.

Medicare-eligible per-capita costs were developed using fully-insured MAPD premiums disaggregated into age-specific starting costs based on average ages and assumptions on the relationship between costs and increasing age.

Annual Per-Capita Fixed Costs

\$830 per member
includes administration, and specific & aggregate stop-loss premiums

Annual Healthcare Trend

Years after	Medical & Pharmacy	Dental	Vision
1	9.00%	4.50%	4.50%
2	8.50	4.50	4.50
3	8.00	4.50	4.50
4	7.50	4.50	4.50
5	7.00	4.50	4.50
6	6.50	4.50	4.50
7	6.00	4.50	4.50
8	5.50	4.50	4.50
9	5.00	4.50	4.50
10+	4.50	4.50	4.50

Fixed costs and fees are assumed to increase with inflation.



Saginaw County Actuarial Valuation as of December 31, 2016

Actuarial Methods and Assumptions

- Healthcare Reform** Excise taxes on Cadillac plan benefits, if any, were not included in this valuation due to significant uncertainties regarding the tax. Other legislative changes related to the Affordable Care Act were included in the valuation only to the extent they have already been implemented in the plan.
- Participation** *Future Retirees:* 100% of future retirees are assumed to elect coverage at retirement. It is assumed that no one will opt in or opt out of coverage once initial retirement election is made.
Current Retirees: Based on current coverage election. It is assumed that no one will opt in or opt out of coverage once initial retirement election is made.
- Spousal Participation** *Future Retirees:* 70% of participating retirees are assumed to be married and cover their spouse.
Current Retirees: Based on current coverage election.
- Spouse Age** Male spouses are assumed to be 3 years older, and female spouses are assumed to be 3 years younger. Actual age is used for spouses of current retirees, if provided.
- Withdrawal** Participants are assumed to terminate employment for reasons other than death, disability or retirement in accordance with annual rates varying by service. Rates are based on 80% of Withdrawal rates in the 12/31/2015 MERS pension valuation. Sample rates are as follows:

Service	Rate
0	15.68%
1	13.04
2	10.64
3	8.40
4	6.88
5	5.52
10	3.68
15	2.72
20	2.08
25	1.76
30	1.76
35+	1.76



Saginaw County Actuarial Valuation as of December 31, 2016

Actuarial Methods and Assumptions

Disability

Participants are assumed to become disabled in accordance with annual rates varying by age. Rates are based the Disability rates used in the 12/31/2015 MERS pension valuation. Sample rates are as follows:

Age	Rate
25	0.02%
30	0.02
35	0.05
40	0.08
45	0.21
50	0.29
55	0.38
60+	0.39

Retirement

Participants are assumed to retire in accordance with annual rates varying by service. Rates are based the Retirement rates used in the 12/31/2015 MERS pension valuation. Sample rates are as follows:

Service	Rate	Service	Rate
0	5%	24 - 27	24%
1	5.0	28	25.0
2	8.0	29	26.0
3	10.0	30	28.0
4	12.0	31	30.0
5	15.0	32 - 33	33.0
6	16.0	34	36.0
7	18.0	35	38.0
8 - 9	19.0	5-Feb	41.0
10 - 15	19.5	37	43.0
16 - 17	20.0	38	46.0
18 - 22	21.0	39	48.0
23	22.0	40+	50.0



Saginaw County Actuarial Valuation as of December 31, 2016

Actuarial Methods and Assumptions

Mortality

MERS mortality assumption used for the 12/31/2015 pension valuation

Healthy:

50% Male-50% Female blend of the following tables:

1. The RP-2014 Health Annuitant Mortality Tables, with rates multiplied by 105%
2. The RP-2014 Employee Mortality Tables
2. The RP-2014 Juvenile Mortality Tables

For ages 0-17 use the rates in Table 3, for ages 18-49 use the rates in Table 2, for ages 70 and older use the rates in Table 1, and for ages 50-69 blend Table 2 and Table 1 as follows:

- a. Age 50, use 60% of Table 2 and 40% of Table 1
- b. Age 51, use 57% of Table 2 and 43% of Table 1
- c. Etc. ...
- d. Age 69, use 3% of Table 2 and 97% of Table 1

Disabled:

50% Male-50% Female blend of the RP-2014 Disabled Retiree Mortality Tables.

The mortality assumptions include a 10% margin for future mortality improvements, relative to the actual mortality experience seen in the 2000-2013 Experience Study.

Changes Since Prior Valuation

1. Per-capita costs were updated to reflect experience since the previous valuation and changes to the prescription drug tier structure and change to the fully-insured MAPDs for post-65 coverage.
2. Demographic assumptions: Annual Wage Increase, Mortality, Retirement, Withdrawal, and Disability were updated to match current MERS assumptions.
3. The actuarial cost method was changed to Entry Age Normal (EAN) as a level percentage of payroll, per GASB No. 75 requirements.
4. Healthcare trend was shifted to maintain the same immediate rate.



Saginaw County Actuarial Valuation as of December 31, 2016

Rationale for Key Assumptions

Discount Rate

The discount rate is the single rate that reflects (1) the long-term expected rate of return on OPEB plan investments that are expected to be used to finance the payment of benefits, to the extent that the OPEB plan's fiduciary net position is projected to be sufficient to make projected benefit payments and OPEB plan assets are expected to be invested using a strategy to achieve that return, and (2) a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another scale), to the extent that the conditions for use of the long-term expected rate of return are not met.

Single Equivalent Interest Rate (SEIR)

Long-Term Expected Rate of Return	6.00%
Municipal Bond Index Rate*	3.00%
Fiscal Year in which Fiduciary Net Position is Projected to be Depleted	2104
Single Equivalent Interest Rate	6.00%

* Source: S&P Municipal Bond 20 Year High Grade Rate Index

Expected Long-Term Rate of Return on Assets Selection

The investment policy of the Company is determined based on the goals and objectives of the Plan and the risk tolerance of the Company. As new information regarding the economic environment becomes available the investment policy may need to be revised. Asset allocations fluctuate due to market performance, however, the targeted OPEB asset allocation is as described below. The Company's objective in selecting the Expected Long-Term rate of return on Assets is to estimate the single rate of return that reflects the historical returns, future expectations for each asset class, and the asset mix of the plan assets.

Asset Classes	Actual Allocation (a)	Target Allocation (b)	Expected Return (c)	Arithmetic Mean (b) x (c)
Domestic Fixed Income	40%	40%	3.5%	1.4%
International Fixed Income	0%	0%	4.0%	0.0%
Domestic Equity	46%	50%	8.0%	4.0%
International Equity	9%	5%	9.0%	0.5%
Private Equity	0%	0%	8.0%	0.0%
Real Estate	0%	0%	3.0%	0.0%
Cash	2%	0%	1.0%	0.0%
Other	4%	5%	2.0%	0.1%
				6.0%



Saginaw County Actuarial Valuation as of December 31, 2016

Rationale for Key Assumptions

Annual Healthcare Trend

Trend rates are based on plan experience, historical trends, and industry norms. The immediate trend rates are assumed to decrease to an ultimate trend rate over a period of 5 to 10 years. Healthcare costs are currently approximately 17% of the Gross Domestic Product (GDP). The ultimate rate is decreased over time to maintain this relationship.

Withdrawal, Disability, & Retirement

Because the Employer does not have enough data to conduct a fully credible experience analysis with respect to these decrements, the current assumption has been selected based on the assumptions used in the participants' corresponding pension plan under MERS.

Mortality

Because the Employer does not have enough data to conduct a fully credible experience analysis with respect to these mortality, the current assumption has been selected based on the assumption used in the participants' corresponding pension plan under MERS.

Participation

The assumed rate of participation incorporated into these measurements is based on an experience analysis of the plan's past experience, the actuary's experience with plans of a similar size, plan design and retiree contribution level.

Spousal Participation and Age

Because the employer does not have enough data to conduct a fully credible experience analysis with respect to spousal information, the current assumption has been selected based on observations of the past experience, the actuary's experience with plans of a similar size and plan design.



Saginaw County Actuarial Valuation as of December 31, 2016

Public Act 530 of 2016 - Compliance Guide

Sec. 13(1)(d):

(i)	Name of system	Saginaw County
(ii)	Names Investment fiduciaries	Not Provided
(iii)	System's service providers	Blue Cross Blue Shield of Michigan - Insurer Brown & Brown of Central Michigan, Inc. - TPA
(iv)	System's assets and liabilities	See Summary of Valuation Results, page 2
(v)	System's funded ratio	See Summary of Valuation Results, page 2
(vi)	Investment performance, net of fees	Most recent year is provided on page 3. For historical performance, contact investment advisors.
(vii)	System admin & invest expenses	Non-investment expenses = 0.25% For investment expenses, contact investment advisors
(viii)	System's budget	Not applicable
(ix)	(A) Number of actives	See Participant Summary, page 13
	(B) Number of retirees/beneficiaries	See Participant Summary, page 13
	(C) Average annual retirement allowance	See Projected Retiree Benefit Payments, page 6 <i>Divide by number of retirees and spouses in Participant Summary</i>
	(D) Total annual retirement allowance	See Projected Retiree Benefit Payments, page 6
	(E) Valuation Payroll at Valuation Date	\$9,793,458
	(F) Normal Cost as a % of payroll	9.09%
	(G) ADC as a % of payroll	65.94%
	(H) Weighted average member contributions	Member premium cost sharing is described in the Plan Provisions beginning on page 10
	(I) Actuarial expected investment return	6.00%
	(J) Actuarial long-term inflation rate	2.50%
	(K) Asset smoothing method	None
	(L) Amortization Method	Not applicable
	(M) Actuarial Cost Method	Individual Entry Age Normal as a level percentage of payroll
	(N) Open or Closed membership	Closed
	(O) Healthcare inflation	See Actuarial Methods and Assumptions, beginning on page 14
(x)	Travel report	Not applicable

Sec. 20(h)(1):

(7)	If below 60% funded, actions taken to reduce the system's Unfunded Liability	<ul style="list-style-type: none"> - Participation has been closed to new hires as of 3/1/2005. - An irrevocable OPEB trust has been established and a funding policy has been developed as described in the actuarial assumptions - Prescription drug cost sharing was restructured and post-65 retirees were moved to fully-insured Medicare Advantage Plans (MAPDs).
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Saginaw County Actuarial Valuation as of December 31, 2016

Definitions

Actuarial Present Value of Projected Benefits	Projected benefit payments discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.
Actuarial Valuation Date	The date as of which the service cost, total OPEB liability, and related actuarial present value of projected benefit payments is determined in conformity with Actuarial Standards of Practice unless otherwise specified by the GASB.
Actuarially Determined Contribution (ADC)	A target or recommended contribution to a defined benefit plan for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.
Closed Period	A specific number of years that is counted from one date and declines to zero with the passage of time. For example, if the recognition period initially is five years on a closed basis, four years remain after the first year, three years after the second year, and so forth.
Contributions	Additions to a OPEB plan's fiduciary net position for amounts from employers, nonemployer contributing entities (for example, state government contributions to a local government plan), or employees. Contributions can result from cash receipts by the OPEB plan or from recognition by the OPEB plan of a receivable from one of these sources.
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Covered Employee Payroll	The payroll of employees that are provided with OPEBs through the OPEB plan.
Deferred Outflows and Inflows of Resources Related to OPEBs	Deferred outflows of resources and deferred inflows of resources related to OPEBs arising from certain changes in the net OPEB liability.



Saginaw County Actuarial Valuation as of December 31, 2016

Definitions

Defined Benefit OPEB	OPEB for which the benefits that the employee will receive at or after separation from employment are defined by the benefit terms. The OPEB may be stated as (a) a specified dollar amount; (b) an amount that is calculated based on one or more factors such as age, years of service, and compensation; or (c) a type or level of coverage such as prescription drug coverage or a percentage of health insurance premiums.
Defined Contribution OPEB	OPEB having terms that (a) provide an individual account for each employee; (b) define the contributions that an employer or nonemployer contributing entity is required to make (or the credits that it is required to provide) to an active employee's account for periods in which that employee renders service; and (c) provide that the OPEB an employee will receive will depend only on the contributions (or credits) to the employee's account, actual earnings on investments of those contributions (or credits), and the effects of forfeitures of contributions (or credits) made for other employees, as well as OPEB plan administrative costs, that are allocated to the employee's account.
Discount Rate	<p>The single rate of return that, when applied to all projected benefit payments, results in an actuarial present value of projected benefit payments equal to the total of the following:</p> <ol style="list-style-type: none">1. The actuarial present value of benefit payments projected to be made in future periods in which (1) the amount of the OPEB plan's fiduciary net position is projected (under the requirements of Statement 75) to be greater than the benefit payments that are projected to be made in that period and (2) OPEB plan assets up to that point are expected to be invested using a strategy to achieve the long-term expected rate of return, calculated using the long-term expected rate of return on OPEB plan investments.2. The actuarial present value of projected benefit payments not included in (a), calculated using a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale).



Saginaw County

Actuarial Valuation as of December 31, 2016

Definitions

Entry Age Actuarial Cost Method	A method under which the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings or service of the individual between entry age and assumed exit age(s). The portion of this actuarial present value allocated to a valuation year is called the <i>normal cost</i> . The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is called the <i>actuarial accrued liability</i> .
Healthcare Cost Trend Rates	The rates of change in per capita health claims costs over time as a result of factors such as medical inflation, utilization of healthcare services, plan design, and technological developments.
Money-Weighted Rate of Return	A method of calculating period-by-period returns on OPEB plan investments that adjusts for the changing amounts actually invested. For purposes of Statement 74, money-weighted rate of return is calculated as the internal rate of return on OPEB plan investments, net of OPEB plan investment expense.
Net OPEB Liability	The liability of employers and nonemployer contributing entities to employees for benefits provided through a defined benefit OPEB
OPEB Expense	OPEB expense arising from certain changes in the net OPEB liability.
Other Postemployment Benefits (OPEB)	Benefits (such as death benefits, life insurance, disability, and long-term care) that are paid in the period after employment and that are provided separately from a pension plan, as well as healthcare benefits paid in the period after employment, regardless of the manner in which they are provided. OPEB does not include termination benefits or termination payments for sick leave.
Postemployment Healthcare Benefits	Medical, dental, vision, and other health-related benefits paid subsequent to the termination of employment.
Projected Benefit Payments	All benefits (including refunds of employee contributions) estimated to be payable through the OPEB plan (including amounts to be paid by employers or nonemployer contributing entities as the benefits come due) to current active and inactive employees as a result of their past service and their expected future service.



Saginaw County Actuarial Valuation as of December 31, 2016

Definitions

Real Rate of Return	The rate of return on an investment after adjustment to eliminate inflation.
Service Costs	The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.
Termination Benefits	Inducements offered by employers to active employees to hasten the termination of services, or payments made in consequence of the early termination of services. Termination benefits include early-retirement incentives, severance benefits, and other termination-
Total OPEB Liability	The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of Statement 75. The total OPEB liability is the liability of employers and nonemployer contributing entities to employees for benefits provided through a defined benefit OPEB plan that is not administered through a trust that meets the criteria of paragraph 4 of Statement 75.