

**Actuarial Valuation
of
Other Post Employment Benefits (OPEBs)
as of September 30, 2018
and
GASB Statements No. 74 and 75
Saginaw County**

Report Prepared February 18, 2019

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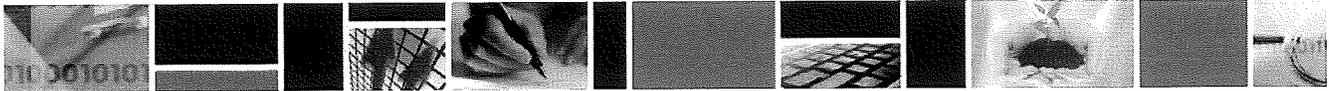


Saginaw County

Actuarial Valuation as of September 30, 2018

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Saginaw County Actuarial Valuation as of September 30, 2018

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 September 30, 2018. 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

February 18, 2019

Date



Saginaw County Actuarial Valuation as of September 30, 2018

Summary of Valuation Results

Valuation Date	September 30, 2018
Participant Data	
Active Employees	156
Retirees and Covered Spouses	678
Total	834
Present Value of Future Benefits (PVFB)	
Active Employees	\$ 28,383,272
Retirees and Covered Spouses	68,852,202
Present Value of Future Benefits	\$ 97,235,474
Total OPEB Liability (TOL)	
Active Employees	\$ 24,384,921
Retirees and Covered Spouses	68,852,202
Total OPEB Liability	\$ 93,237,123
Fiduciary Net Position (FNP)	(25,834,878)
Net OPEB Liability (NOL)	\$ 67,402,245
FNP as a Percentage of TOL	27.71%
Actuarial Determined Contribution (ADC) for Year Ending:	
September 30, 2019	\$ 5,506,394
September 30, 2020	5,506,394

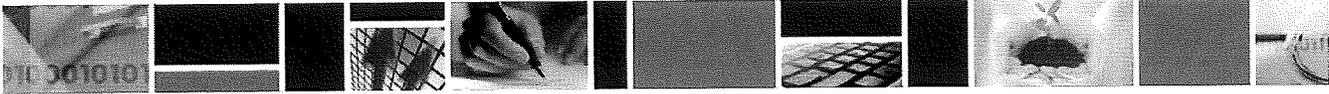


Saginaw County
Actuarial Valuation as of September 30, 2018

Development of Fiduciary Net Position at Valuation Date

Statement of Changes in Fiduciary Net Position

	<u>10/1/2017 - 9/30/2018</u>		
	<u>OPEB Trust</u>	<u>Pay-as-you-go</u>	<u>Total</u>
Balance as of Beginning of Year	\$ 19,873,325	\$ -	\$ 19,873,325
Employer Contributions	9,045,802	-	9,045,802
Participant Contributions	-	-	-
Implicit Subsidy	-	-	-
Investment Income, net of investment expenses	<u>1,055,299</u>	<u>-</u>	<u>1,055,299</u>
Total Additions	\$ 10,101,101	\$ -	\$ 10,101,101
Benefit Payments, including implicit subsidy	(4,006,144)	-	(4,006,144)
Non-Investment Expenses	<u>(133,404)</u>	<u>-</u>	<u>(133,404)</u>
Total Deductions	\$ (4,139,548)	\$ -	\$ (4,139,548)
Net Change	<u>\$ 5,961,553</u>	<u>\$ -</u>	<u>\$ 5,961,553</u>
Balance as of End of Year	<u>\$ 25,834,878</u>	<u>\$ -</u>	<u>\$ 25,834,878</u>
Money-Weighted Rate of Return	4.73%	0.00%	4.73%



Saginaw County Actuarial Valuation as of September 30, 2018

Development of Actuarially Determined Contribution (ADC)

The Actuarially Determined Contribution (ADC) is calculated in accordance with the Employer's funding and investment policy. Under GASB Nos. 74 and 75, if the Employer does not have a formal, written funding policy, the ADC is calculated based on the 5-year average historical contributions as a percentage of either the ADC or the Covered Payroll.

The employer has committed to annually contribute at least a level dollar amount that is actuarially determined to ensure the projected value of plan assets is sufficient to finance the projected benefits of the current plan members. This amount will be contributed over a closed 28-year period, and will be re-evaluated upon each actuarial valuation. As of the actuarial valuation dated September 30, 2018, the minimum contribution is 5,506,394.

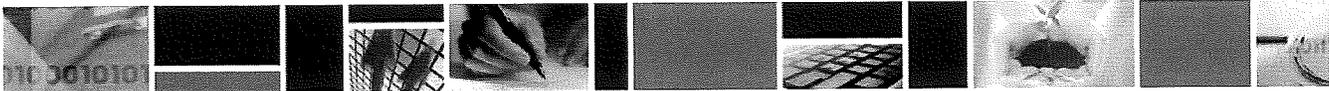
Actuarially Determined Contribution for Year Ending September 30, 2019	\$ 5,506,394
Expected Covered Payroll for Year Ending September 30, 2019	8,418,944
ADC as a % of Covered Payroll	65%
Actuarially Determined Contribution for Year Ending September 30, 2020	\$ 5,506,394
Expected Covered Payroll for Year Ending September 30, 2020	7,700,149
ADC as a % of Covered Payroll	72%



Saginaw County Actuarial Valuation as of September 30, 2018

10-Year Schedule of Funding Progress

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%
9/30/2018	25,834,878	93,237,123	67,402,245	27.7%	8,073,230	834.9%



Saginaw County Actuarial Valuation as of September 30, 2018

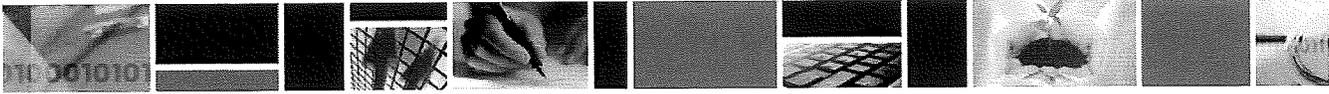
10-Year Schedule of Employer Contributions

Fiscal Year Ended	Actuarially Determined Contribution (a)	Historical Contribution (b)	Contribution Deficiency (Excess) (a) - (b)	Covered Payroll (c)	Contributions as a Percentage of Covered Payroll (b) / (c)
9/30/2010	\$ 8,545,861	\$ 4,697,863	\$ 3,847,998	\$ 17,582,701	26.72%
9/30/2011	9,074,989	4,897,420	4,177,569	15,678,759	31.24%
9/30/2012	10,901,234	4,057,775	6,843,459	15,109,758	26.86%
9/30/2013	11,512,586	4,727,520	6,785,066	15,639,762	30.23%
9/30/2014	12,314,498	5,442,607	6,871,891	15,639,762	34.80%
9/30/2015	12,314,498	7,375,569	4,938,929	11,565,492	63.77%
9/30/2016	11,532,059	6,389,785	5,142,274	11,565,492	55.25%
9/30/2017	12,051,002	8,331,754	3,719,248	9,793,458	85.07%
9/30/2018	6,457,457	9,045,802	(2,588,345)	8,073,230	112.05%
9/30/2019	5,506,394	5,506,394	-	8,418,944	65.40%

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.

Covered Payroll reflects amounts disclosed as of most recent actuarial valuation

To be determined



Saginaw County Actuarial Valuation as of September 30, 2018

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 \$4,466,949. 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.

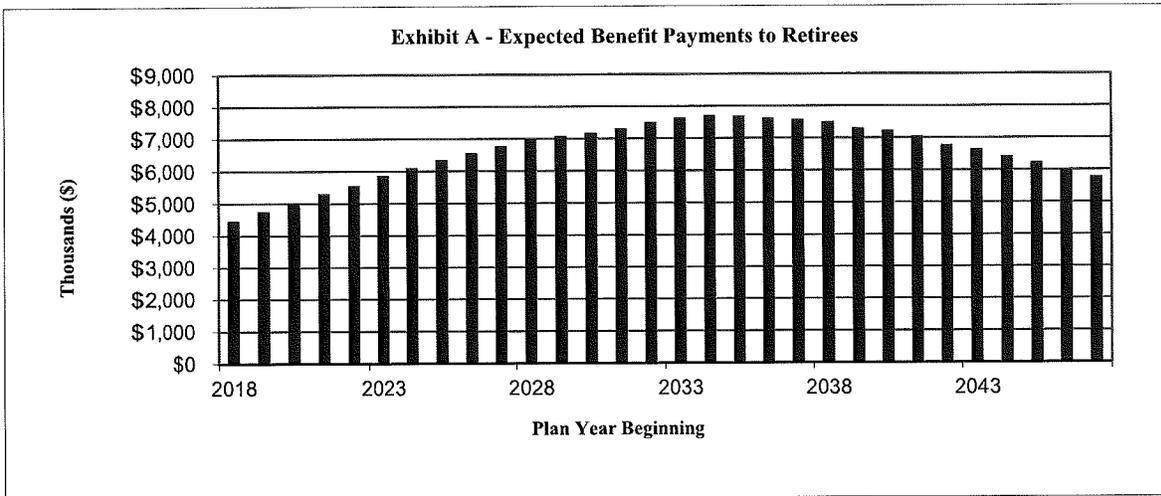


Exhibit B: First 10 Years of Expected Benefit Payments

Plan Year Beginning October 1,	Projected Benefits: All Members
2018	\$ 4,466,949
2019	4,768,883
2020	5,023,823
2021	5,313,323
2022	5,563,135
2023	5,879,765
2024	6,105,784
2025	6,350,550
2026	6,561,110
2027	6,791,953



Saginaw County GASB Statements No. 74 and 75

OPEB Expense (Income)

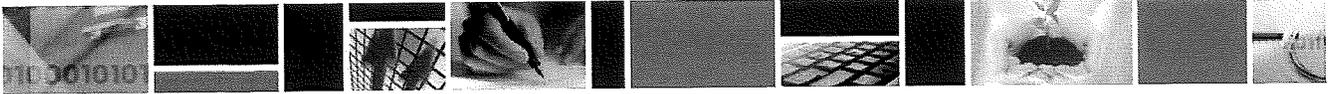
	Fiscal Year Ending	
	9/30/2019	9/30/2018
OPEB Expense (Income)	<i>Estimate</i>	<i>Actual</i>
1. Service Cost	\$ 751,637	\$ 941,815
2. Interest Cost	5,482,768	5,969,257
3. Non-Investment Administrative Expenses	193,762	133,404
4. Employee Contributions	0	0
5. Projected Earnings on Fiduciary Net Position	(1,575,464)	(1,339,588)
6. Recognition of Deferred Outflows/(Inflows) related to:		
Net difference between projected and actual earnings	56,858	56,858
Differences between expected and actual experience	513,900	815,714
Changes in assumptions	(4,644,683)	(7,372,512)
Contributions subsequent to measurement date	0	0
7. Ad Hoc Postemployment Benefit Changes	0	0
8. OPEB Expense (Income)	<u>\$ 778,778</u>	<u>\$ (795,052)</u>

Development of Interest Cost on:	% of Period			
1. Beginning Total OPEB Liability	100%	\$ 5,594,227	\$ 6,061,187	
2. Service Cost	50%	22,549	28,254	
3. Benefit Payments	50%	(134,008)	(120,184)	
4. Total Interest Cost on Total OPEB Liability		<u>\$ 5,482,768</u>	<u>\$ 5,969,257</u>	

Development of Projected Earnings on:	% of Period			
1. Beginning Fiduciary Net Position	100%	\$ 1,550,093	\$ 1,192,400	
2. Employer Contributions	50%	165,192	271,374	
3. Employee Contributions	50%	0	0	
4. Benefit Payments	50%	(134,008)	(120,184)	
5. Non-Investment Administrative Expenses	50%	(5,813)	(4,002)	
6. Total Projected Earnings on Fiduciary Net Position		<u>\$ 1,575,464</u>	<u>\$ 1,339,588</u>	

Key Assumptions for OPEB Expense (Income)

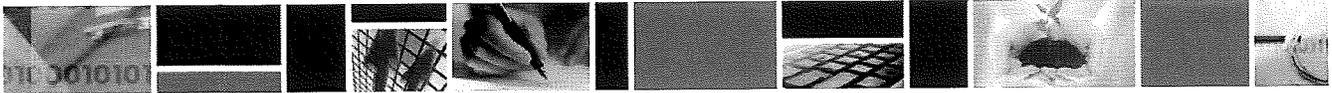
Discount Rate	6.00%	6.00%
Salary Scale	3.75%	3.75%
Expected Return on Assets	6.00%	6.00%



Saginaw County GASB Statements No. 74 and 75

Net OPEB Liability

	Fiscal Year Ending	
	9/30/2019 <i>Estimate</i>	9/30/2018 <i>Actual</i>
Reconciliation of Total OPEB Liability		
1. Total OPEB Liability at Beginning of Year	\$ 93,237,123	\$ 101,019,776
2. Service Cost	751,637	941,815
3. Interest Cost	5,482,768	5,969,257
4. Net Benefits Paid by Employer	(4,466,949)	(4,006,144)
5. Ad Hoc Postemployment Benefit Changes	0	0
6. Differences between expected and actual experience	0	1,329,614
7. Changes in assumptions	0	(12,017,195)
8. Total OPEB Liability at End of Year	<u>\$ 95,004,579</u>	<u>\$ 93,237,123</u>
Reconciliation of Fiduciary Net Position		
1. Fiduciary Net Position at Beginning of Year	\$ 25,834,878	\$ 19,873,325
2. Projected Earnings on Fiduciary Net Position	1,575,464	1,339,588
3. Net Difference Between Projected and Actual Earnings	0	(284,289)
4. Employer Contributions	5,506,394	9,045,802
5. Total Benefits Paid	(4,466,949)	(4,006,144)
6. Non-Investment Administrative Expenses	(193,762)	(133,404)
7. Employee Contributions	0	0
8. Fiduciary Net Position at End of Year	<u>\$ 28,256,025</u>	<u>\$ 25,834,878</u>
Money-Weighted Rate of Return	6.00%	4.73%
Net OPEB Liability (Asset)		
1. Total OPEB Liability	\$ 95,004,579	\$ 93,237,123
2. Fiduciary Net Position	<u>(28,256,025)</u>	<u>(25,834,878)</u>
3. Net OPEB Liability (Asset)	\$ 66,748,554	\$ 67,402,245
Fiduciary Net Position as % of Total OPEB Liability	29.74%	27.71%
Net OPEB Liability: 1% increase in the discount rate	\$ 55,609,302	\$ 57,068,951
Net OPEB Liability: 1% decrease in the discount rate	80,319,566	79,966,258
Net OPEB Liability: 1% increase in healthcare trend	80,131,218	79,890,945
Net OPEB Liability: 1% decrease in healthcare trend	55,672,401	57,061,044
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 Statements No. 74 and 75

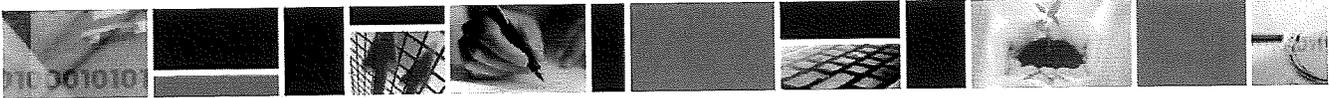
Deferred Outflows (Inflows)

	Fiscal Year Ending	
	9/30/2019 <i>Estimate</i>	9/30/2018 <i>Actual</i>
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	4,644,683
4. Total	\$ 0	\$ 4,644,683
Deferred Outflows of Resources Related to OPEB		
1. Net difference between projected and actual earnings	\$ 170,573	\$ 227,431
2. Differences between expected and actual experience	0	513,900
3. Changes in assumptions	0	0
4. Total	\$ 170,573	\$ 741,331

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 9/30/2019		FYE 9/30/2018	
2020	\$ 56,858	2019	\$ (4,073,925)
2021	56,858	2020	56,858
2022	56,857	2021	56,858
2023	-	2022	56,857
2024	-	2023	-
2025+	-	2024+	-

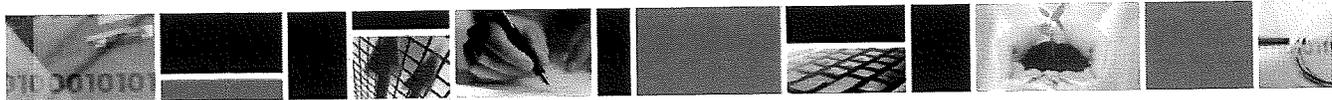


Saginaw County GASB Statements No. 74 and 75

Deferred Outflows (Inflows) (cont.)

Deferred Outflows/(Inflows) - Historical Amortization Schedules

Fiscal Year Established	Original Amount	Amortization Amount	Original Amortization Period		Outstanding Balance at 9/30/2019	Outstanding Balance at 9/30/2018
<u>Net difference between projected and actual earnings</u>						
2019	\$ 0	\$ 0	5.00	\$	0	\$ N/A
2018	284,289	56,858	5.00		170,573	227,431
<u>Differences between expected and actual experience</u>						
2019	\$ 0	\$ 0	1.26	\$	0	\$ N/A
2018	1,329,614	815,714	1.63		0	513,900
<u>Changes in assumptions</u>						
2019	\$ 0	\$ 0	1.26	\$	0	\$ N/A
2018	(12,017,195)	(7,372,512)	1.63		0	(4,644,683)



Saginaw County Actuarial Valuation as of September 30, 2018

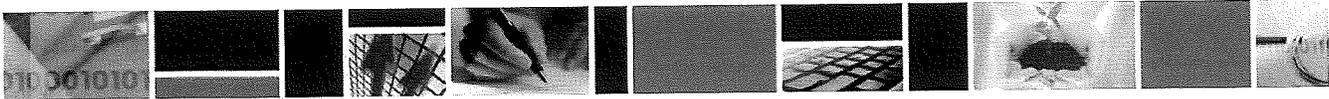
Participant Summary

**Participant
Summary**

Metric	Active Employees	Retirees and Spouses
Covered Participants	156	678
Average Age	52.6	69.7
Average Service	21.6	N/A
Percentage Male	41.0	39.7

**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	0	0	0	0	0	0	0	0
35 to 39	0	0	0	5	1	0	0	0	0	0	6
40 to 44	0	0	0	1	12	9	0	0	0	0	22
45 to 49	0	0	0	1	6	26	4	0	0	0	37
50 to 54	0	0	0	1	11	11	4	1	0	0	28
55 to 59	0	0	0	1	15	8	5	3	1	0	33
60 to 64	0	0	0	0	7	7	3	2	1	1	21
65 to 70	0	0	0	0	3	4	1	0	0	0	8
70+	0	0	0	0	0	0	0	0	1	0	1
Total	0	0	0	9	55	65	17	6	3	1	156



Saginaw County Actuarial Valuation as of September 30, 2018

Plan Provisions

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. Upon attainment of Medicare eligibility (age 65), participants are insured through Medicare Advantage Plans with Drugs (MAPDs) through 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):

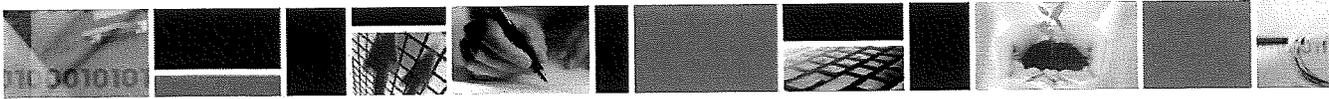
Age 50 with 25 years of service, or
Age 55 with 15 years of service, or
Age 60 with 6 years of service

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 September 30, 2018

Plan Provisions

**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

Retiree : Life

Spouse : Subsidized retiree healthcare coverage is provided to the spouses of retirees hired prior to the dates shown below for life.

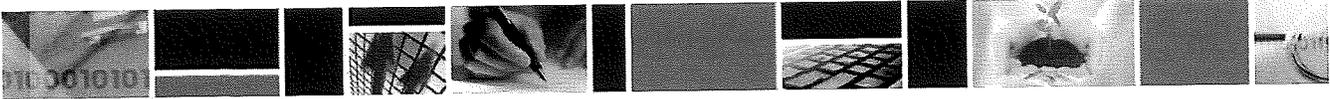
Spouses of retirees hired on or after the dates below are not eligible for retiree health care coverage:

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)

Life Insurance

Future Retirees : \$4,000 upon normal or early (unreduced) retirement, payable at death

Current Retirees : Amounts payable at death vary as provided in data



Saginaw County Actuarial Valuation as of September 30, 2018

Plan Provisions

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

% of Premium Pd by Employer		% of Premium Pd by Employer	
Years of Service		Years of Service	
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

Annual Medical/Rx Premiums

BCBS of Michigan Division	Pre-65		Post-65	
	Single Coverage	Double Coverage	Single Coverage	Double Coverage
0013 (Retired)	\$ 9,427	\$ 22,625	\$ 4,579	\$ 9,158
0016 (Retired)	8,634	20,722	5,835	11,670
0017 (Retired)	8,247	19,793	5,663	11,326
0020 (Retired)	7,782	18,684	N/A	N/A
0021 (Retired)	8,094	19,426	5,259	10,517
0024 (Retired)	7,999	19,197	4,955	9,910
0026* (Retired)	7,780	18,672	5,364	10,728
0027* (Retired)	7,199	17,277	3,216	6,432

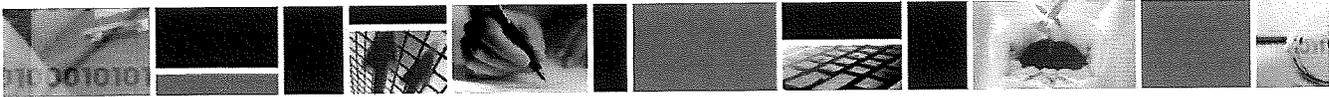
* Future retirees are only eligible for these plans.

Annual Dental & Vision Premiums

Plan	Single Coverage	Double Coverage
MetLife Dental	\$ 467	\$ 858
VSP Vision	43	86

Changes Since Prior Valuation

1. A High Deductible Health Plan (HDHP) option was added. Division 0027 reflects this new plan.



Saginaw County Actuarial Valuation as of September 30, 2018

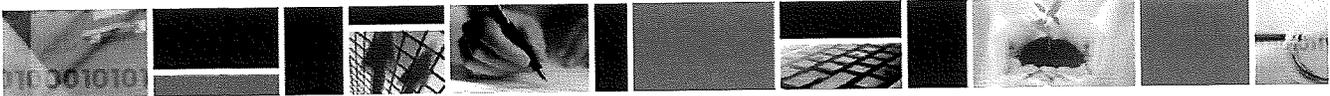
Actuarial Methods and Assumptions

Actuarial Valuation Date	September 30, 2018
Actuarial Cost Method	Individual Entry Age Normal as a level percentage of payroll
Discount Rate	6.00%
Annual Wage Increases	3.75%
Price Inflation	2.50%
Investment Rate of Return	6.00%
Actuarial Value of Assets	Market Value

Annual Healthcare Cost Trend

Years after Valuation	Medical/Pharmacy Baseline		Medical/Pharmacy Adj. for Excise Tax		Dental / Vision
	Pre-65	Post-65	Pre-65	Post-65	
1	8.50%	7.00%	8.50%	7.00%	4.50%
2	8.25	6.75	8.25	6.75	4.50
3	8.00	6.50	8.00	6.50	4.50
4	7.75	6.25	7.75	6.25	4.50
5	7.50	6.00	7.50	6.00	4.50
6	7.25	5.75	7.25	5.75	4.50
7	7.00	5.50	7.00	5.50	4.50
8	6.75	5.25	6.75	5.25	4.50
9	6.50	5.00	6.50	5.00	4.50
10	6.25	4.75	6.25	4.75	4.50
11	6.00	4.50	6.00	4.50	4.50
12	5.75	4.50	5.75	4.50	4.50
13	5.50	4.50	5.50	4.50	4.50
14	5.25	4.50	5.25	4.50	4.50
15	5.00	4.50	5.25	4.50	4.50
16	4.75	4.50	5.25	4.50	4.50
17+	4.50	4.50	5.25	4.50	4.50

Fixed Costs/Fees are assumed to increase annually with the assumed inflation rate.



Saginaw County Actuarial Valuation as of September 30, 2018

Actuarial Methods and Assumptions

Annual Per-Capita Claims Costs

Age	BCBS of Michigan Division							
	0013	0016	0017	0020*	0021	0024	0026	0027
40	\$ 4,608	\$ 4,122	\$ 3,885	\$ 3,600	\$ 3,791	\$ 3,733	\$ 3,599	\$ 3,242
45	5,769	5,186	4,900	4,558	4,788	4,718	4,557	4,129
50	7,216	6,511	6,166	5,752	6,030	5,945	5,751	5,234
55	9,019	8,162	7,743	7,241	7,578	7,475	7,239	6,610
60	11,265	10,219	9,709	9,095	9,507	9,381	9,093	8,326
64	13,455	12,225	11,624	10,903	11,387	11,239	10,900	9,998
65	3,610	5,826	5,579	4,822	4,696	4,845	4,822	2,857
70	4,185	6,754	6,468	5,590	5,443	5,616	5,590	3,312
75	4,735	7,641	7,318	6,324	6,159	6,354	6,324	3,748
80	5,101	8,232	7,884	6,813	6,635	6,846	6,813	4,037
85+	5,495	8,868	8,493	7,339	7,148	7,375	7,339	4,349

Starting pre-Medicare per-capita costs were developed using paid retiree claims and enrollment data from November 1, 2017 through October 31, 2018. Medical and Pharmacy experience were analyzed separately, and projected to the current claims year using current projected trend, based on the most recent Segal Survey. 80% of costs were blended with 20% of the "manual" retiree premium provided by the insurer 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 the morbidity rates below to reflect 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 and similarly disaggregated into age-specific starting costs.

Fixed Costs and fees are not included in these rates, but shown separately, below.

*Division 0020 does not have a corresponding MAPD. Based on the pre-Medicare benefits offered, it is assumed that this division will have similar costs to Division 0026.

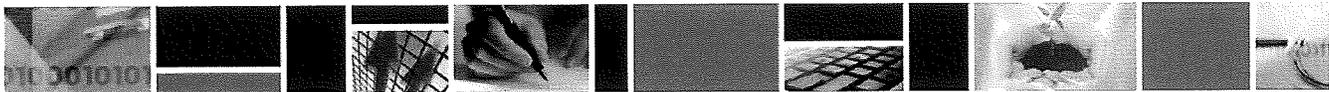
Annual Per-Capita Fixed Costs

\$ 1,170

Includes administrative and online visit fees, as well as stop-loss premiums for specific (\$300,000 deductible) and aggregate (125% attachment point) coverage.

Morbidity

Age	Rate
< 65	4.50%
65-69	3.00
70-74	2.50
75-79	1.50
80-84	1.50
85+	0.00



Saginaw County Actuarial Valuation as of September 30, 2018

Actuarial Methods and Assumptions

Participation

Future Retirees: 100% of eligible 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.

Mortality

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
3. The RP-2014 Juvenile Mortality Tables

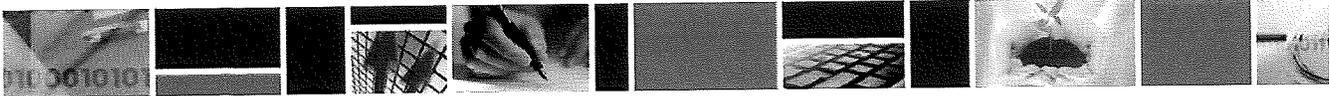
For ages 0-17 use the rates in Table 3, for ages 18-49 use the rates in Table 2, for ages 70 and older use the rates in Table 1, and for ages 50-69 blend Table 2 and Table 1 as follows:

- 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.



Saginaw County Actuarial Valuation as of September 30, 2018

Actuarial Methods and Assumptions

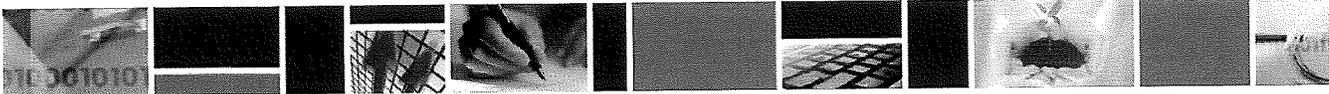
Retirement

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

Service	Rate
6	16.0%
7	18.0
8	19.0
9	19.0
10	19.5
11	19.5
12	19.5
13	19.5
14	19.5
15	19.5
16	20.0
17	20.0
18	21.0
19	21.0
20	21.0
21	21.0
22	21.0
23	22.0
24	24.0
25	24.0
26	24.0
27	24.0
28	25.0
29	26.0
30	28.0
31	30.0
32	33.0
33	33.0
34	36.0
35	38.0
36	41.0
37	43.0
38	46.0
39	48.0
40+	50.0

100% Retirement at age 70





Saginaw County Actuarial Valuation as of September 30, 2018

Actuarial Methods and Assumptions

Withdrawal

Participants are assumed to terminate employment for reasons other than death, disability or retirement in accordance with annual rates varying by service. 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

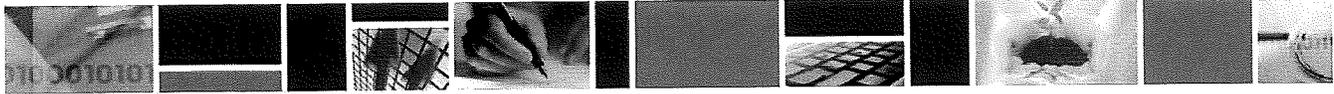
Disability

Participants are assumed to become disabled in accordance with annual rates varying by age. 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

Changes Since Prior Valuation

1. Per-capita claims and fixed cost rates were updated to reflect experience since the previous valuation.
2. Per the Michigan Department of Treasury's *Uniform Assumptions*, healthcare cost trend is now separate for pre-65 and post-65 costs. Pre-65 healthcare trend rates decrease 0.25% per year rather than 0.5%. The post-65 immediate healthcare trend decreased from 8.50% to 7.00% and now decreases 0.25% per year rather than 0.5%.
3. Pre-65 healthcare cost trend assumption was adjusted to account for potential excise taxes on "Cadillac" plan benefits. Adjustment included a 0.5% increase in the ultimate trend rate.



Saginaw County Actuarial Valuation as of September 30, 2018

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*	3.64%
Fiscal Year in which Fiduciary Net Position is Projected to be Depleted	2093
Single Equivalent Interest Rate	6.00%

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

Investment Rate of Return

The investment policy of the Employer is determined based on the goals and objectives of the Plan and the risk tolerance of the Employer. 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 Employer'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	Target Allocation (a)	Inflation (b)	Real Rate of Return (c)	Arithmetic Mean (a) x [(b) + (c)]
Domestic Fixed Income	40%	2.50%	1.00%	1.40%
International Fixed Income	0%	2.50%	1.50%	0.00%
Domestic Equity	50%	2.50%	5.50%	4.00%
International Equity	5%	2.50%	6.50%	0.50%
Private Equity	0%	2.50%	5.50%	0.00%
Real Estate	0%	2.50%	0.50%	0.00%
Cash	0%	2.50%	-1.50%	0.00%
Other	5%	2.50%	-0.50%	0.10%
Total	100%	2.50%	3.50%	6.00%



Saginaw County Actuarial Valuation as of September 30, 2018

Rationale for Key Assumptions

Annual Healthcare Trend

The assumption matches the *Uniform Assumption* per the Michigan Department of Treasury. The *Uniform Assumption* is based on a survey of over 100 health insurers, managed care organizations, pharmacy benefit managers, and third-party administrators about forecasted health plan cost trends. Respondents included the five largest health insurance payers in the U.S., the five largest pharmacy benefits managers in the U.S., and the largest health insurance plan in the State of Michigan. The healthcare trend survey was published by Segal Consulting in Fall 2017.

Healthcare Reform

The impact of the 40% excise tax on high cost, or 'Cadillac,' plans under the Patient Protection and Affordable Care Act (PPACA) was estimated and reflected in the plan liabilities. Our analysis included the following parameters and assumptions:

Premium Equivalent Rates from the actuarial valuation were used for all retirees and assumed to increase with valuation trend.

The 2022 single cost threshold is assumed to be \$11,850 for pre-Medicare retirees and \$10,200 for Medicare-eligible retirees. The 2022 family cost threshold is assumed to be \$30,950 for pre-Medicare retirees and \$27,500 for Medicare-eligible retirees.

The 2022 thresholds are adjusted by the amount that the accumulated cost increases for the FEHBP 'Standard' Plan from Blue Cross Blue Shield from 2010 - 2022, exceeds 55%.

After 2022, the cost thresholds are indexed by CPI (CPI+1 in 2023). CPI is assumed to be a constant 3.0%.

For fully-insured plans, the excise tax is grossed-up by 35% to reflect the 'add-on' in the premium rate. This reflects the fact that the excise tax paid by the insurer is not tax deductible to the insurer. Our analysis determined the additional loads to be applied to our baseline valuation healthcare trend assumption. These adjusted healthcare trend rates are shown in this report.

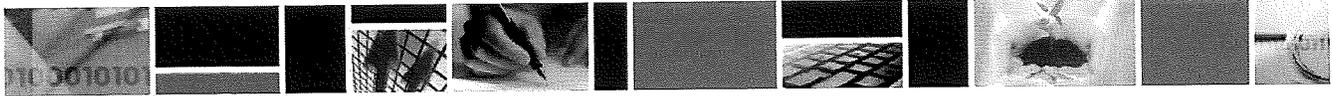
Other legislative changes related to the Affordable Care Act were included in the valuation only to the extent they have already been implemented in the plan.

Mortality, Withdrawal, Disability, Retirement

Because the Employer does not have enough data to conduct a fully credible experience analysis with respect to these assumptions, the current assumptions are based on those used in the most recent actuarial valuation of pension benefits through MERS. Said assumptions are based on an experience study conducted using actual MERS experience from 2009 - 2013.

The Employer's withdrawal rates are based on 80% of the MERS base rates.

MERS retirement rates are based on pension replacement ratio; for purposes of this valuation, they have been converted to service-related rates to reflect similar expectations.



Saginaw County

Actuarial Valuation as of September 30, 2018

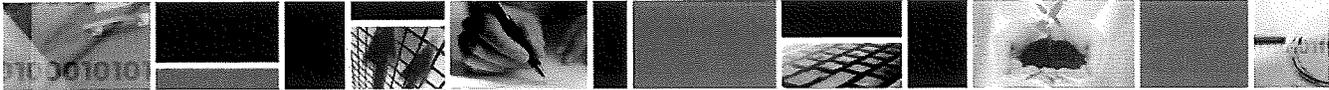
Rationale for Key Assumptions

Participation

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

PA 202 of 2017 Assumption

All assumptions disclosed for measurements related to Public Act 202 of 2017 reporting adhere to the *Public Act 202: Selection of the Uniform Assumptions* memo published September 25, 2018. In all cases, assumptions for GASB 75 financial reporting purposes are the same. For further information and rationale for the assumptions selected for PA 202, please see the aforementioned memo from the State of Michigan Department of Treasury.



Saginaw County Actuarial Valuation as of September 30, 2018

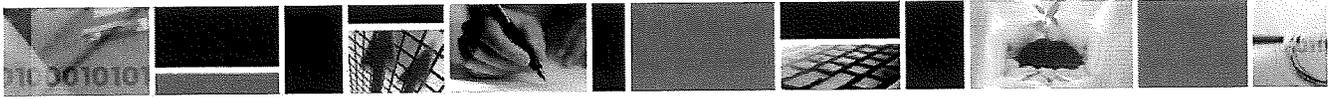
Public Act 530 of 2016 - Compliance Guide

Sec. 13(1)(d):

(i)	Name of system	Saginaw County
(ii)	Names Investment fiduciaries	Graczyk-Dijak Financial Group
(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 = 0.75% For investment expenses, contact investment advisors
(viii)	System's budget	Not applicable
(ix)	(A) Number of actives	See Participant Summary, page 15
	(B) Number of retirees/beneficiaries	See Participant Summary, page 15
	(C) Average annual retirement allowance	See Projected Retiree Benefit Payments, page 7 <i>Divide by number of retirees and spouses in Participant Summary</i>
	(D) Total annual retirement allowance	See Projected Retiree Benefit Payments, page 7
	(E) Valuation Payroll at Valuation Date	\$8,073,230
	(F) Normal Cost as a % of payroll	8.68%
	(G) ADC as a % of payroll	65.40%
	(H) Weighted average member contributions	Member premium cost sharing is described in the Plan Provisions beginning on page 12
	(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 16
(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). - A High Deductible Health Plan (HDHP) option was added
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Saginaw County Actuarial Valuation as of September 30, 2018

Public Act 202 of 2017 - Compliance Guide

Line Description	Valuation Information
1 Name of Retirement Health Care System	Saginaw County
2 Actuarial Value of Assets (AVA)	\$25,834,878
3 Actuarial Accrued Liability (AAL)	\$93,237,123
4 Valuation Date for AVA and AAL	September 30, 2018
5 Annual Required Contribution (ARC) ¹	\$5,473,482
6 Governmental Fund Revenues*	\$107,502,095
7 Primary Unit (County, Twp, City, Village)?	Yes
8 Funded Ratio: (2)/(3)	27.71%
9 ARC as % of Governmental Revenues: (5)/(6)	5.09%

10 Does Plan Trigger "Underfunded Status"	No
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Primary Units: Yes, if Funded Ratio is less than 40% AND ARC is greater than 12% of Governmental Fund Revenues

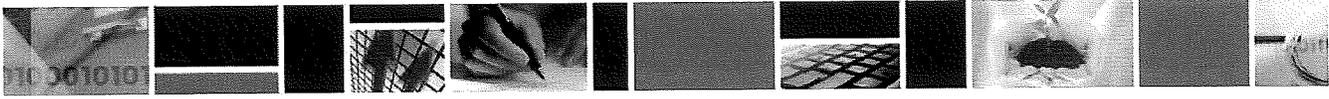
Non-Primary Units: Yes, if Funded Ratio is less than 40%

**Amount reflects most recently available Governmental Fund Revenues for fiscal year ending 9/30/2017*

¹Development of Annual Required Contribution (ARC)

<u>Normal Cost Component</u>	
Normal Cost	\$ 730,364
Interest to End of Year	-
Total Normal Cost	\$ 730,364
<u>Amortization Component</u>	
Actuarial Accrued Liability	\$ 93,237,123
Less Assets	25,834,878
Unfunded Actuarial Accrued Liability	\$ 67,402,245
Amortization Factor	14.21053
Amortization Payment	\$ 4,743,118
Interest on Amortization Payment to End of Year	-
Total Amortization Payment	\$ 4,743,118
Total Annual Required Contribution (ARC) at Measurement Date	\$ 5,473,482

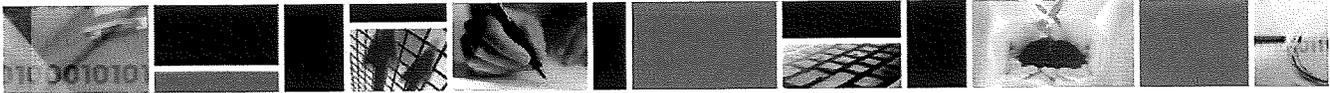
Actuarial Cost Method:	Entry Age Normal as a Percentage of Payroll
Discount Rate:	6.00%
Wage Increase Rate:	3.75%
Amortization Period (years):	28
Amortization Method:	Level Dollar Closed



Saginaw County Actuarial Valuation as of September 30, 2018

Definitions

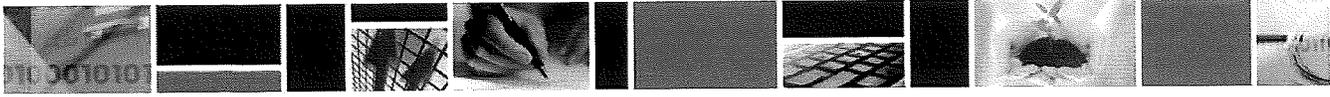
Actuarial Present Value of Projected Benefits	Projected benefit payments discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment.
Actuarial Valuation Date	The date as of which the service cost, total OPEB liability, and related actuarial 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 September 30, 2018

Definitions

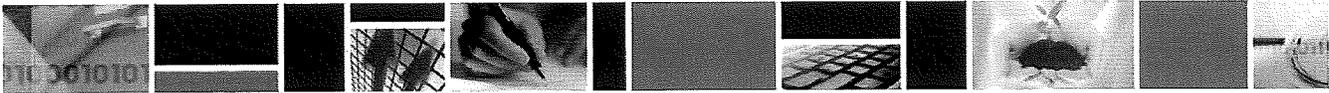
Defined Benefit OPEB	OPEB for which the benefits that the employee will receive at or after separation from employment are defined by the benefit terms. The OPEB may be stated as (a) a specified dollar amount; (b) an amount that is calculated based on one or more factors such as age, years of service, 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 earning 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 September 30, 2018

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 plan.
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.



Saginaw County Actuarial Valuation as of September 30, 2018

Definitions

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.
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-related benefits.
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.