



GASB 74/75 ACTUARIAL VALUATION

Fiscal Year Ending June 30, 2020

CITY OF MARINE CITY

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January 15, 2021

Megan A. Pearce
City of Marine City
303 S. Water Street
Marine City, MI 48039

This report summarizes the GASB actuarial valuation for the City of Marine City 2019/20 fiscal year. To the best of our knowledge, the report presents a fair position of the funded status of the plan in accordance with GASB Statement No. 74 (Financial Reporting for Post-Employment Benefit Plans Other Than Pension Plans) and GASB Statement No. 75 (Accounting and Financial Reporting by Employers for Post-Employment Benefits Other Than Pensions).

The information presented herein is based on the actuarial assumptions and substantive plan provisions summarized in this report and participant information furnished to us by the Plan Sponsor. We have reviewed the employee census provided by the Plan Sponsor for reasonableness when compared to the prior information provided but have not audited the information at the source, and therefore do not accept responsibility for the accuracy or the completeness of the data on which the information is based. When relevant data may be missing, we may have made assumptions we feel are neutral or conservative to the purpose of the measurement. We are not aware of any significant issues with and have relied on the data provided.

The discount rate, other economic assumptions, and demographic assumptions have been selected by the Plan Sponsor with the concurrence of Nyhart. In our opinion, the actuarial assumptions are individually reasonable and in combination represent our estimate of anticipated experience of the Plan. All calculations have been made in accordance with generally accepted actuarial principles and practice.

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); and
- changes in plan provisions or applicable law.

We did not perform an analysis of the potential range of future measurements due to the limited scope of our engagement.

To our knowledge, there have been no significant events prior to the current year's measurement date or as of the date of this report that could materially affect the results contained herein.

Neither Nyhart nor any of its employees has any relationship with the plan or its sponsor that could impair or appear to impair the objectivity of this report. Our professional work is in full compliance with the American Academy of Actuaries "Code of Professional Conduct" Precept 7 regarding conflict of interest. The undersigned meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Should you have any questions please do not hesitate to contact us.



Suraj M. Datta, ASA, MAAA
Consulting Actuary



Emily Clauss, ASA, MAAA
Valuation Actuary

Executive Summary

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Summary of Results

Presented below is the summary of GASB 75 results for the fiscal year ending June 30, 2020 compared to the prior fiscal year as shown in the City's Notes to Financial Statement.

	As of June 30, 2019		As of June 30, 2020	
Total OPEB Liability	\$	4,239,338	\$	4,013,503
Actuarial Value of Assets	\$	(208,813)	\$	(229,688)
Net OPEB Liability	\$	4,030,525	\$	3,783,815
Funded Ratio		4.9%		5.7%

	FY 2018/19		FY 2019/20	
OPEB Expense	\$	(382,594)	\$	(2,437)
Annual Employer Contributions	\$	255,752	\$	244,634
Actuarially Determined Contribution	\$	331,458	\$	303,118

	As of June 30, 2019		As of June 30, 2020	
Discount Rate		5.90%		5.96%
Expected Return on Assets		6.10%		5.96%

	As of June 30, 2020	
Total Active Participants		3
Total Retiree Participants		21

The active participants' number above may include active employees who currently have no health care coverage. Refer to Summary of Participants section for an accurate breakdown of active employees with and without coverage.

Executive Summary

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Summary of Results

Below is a breakdown of total GASB 75 liabilities allocated to past and current service compared to the prior year. The table below also provides a breakdown of the Total OPEB Liability allocated to pre- and post- Medicare eligibility. The liability shown below includes explicit (if any) and implicit subsidies. Refer to the Substantive Plan Provisions section for complete information on the Plan Sponsor's GASB subsidies.

Present Value of Future Benefits	As of June 30, 2019	As of June 30, 2020
Active Employees	\$ 954,350	\$ 684,324
Retired Employees	3,382,434	3,398,039
Total Present Value of Future Benefits	\$ 4,336,784	\$ 4,082,363

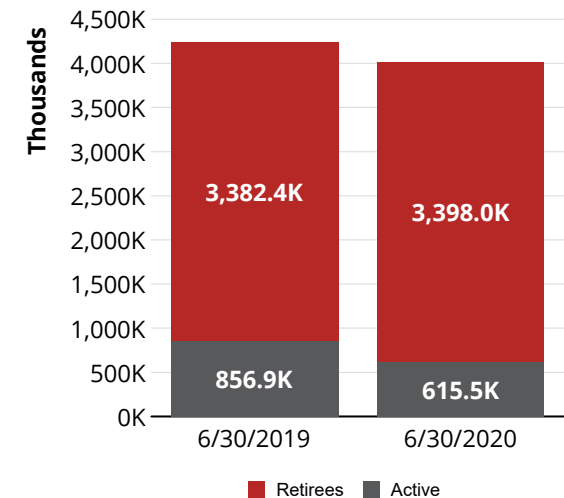
Total OPEB Liability	As of June 30, 2019	As of June 30, 2020
Active Pre-Medicare	\$ 346,274	\$ 274,723
Active Post-Medicare	510,630	340,741
Active Liability	\$ 856,904	\$ 615,464

Retiree Pre-Medicare	\$ 588,111	\$ 587,181
Retiree Post-Medicare	2,794,323	2,810,858
Retiree Liability	\$ 3,382,434	\$ 3,398,039

Total OPEB Liability	\$ 4,239,338	\$ 4,013,503
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	As of June 30, 2019	As of June 30, 2020
Discount Rate	5.90%	5.96%

Changes In Total OPEB Liability



Present Value of Future Benefits (PVFB) is the amount needed as of June 30, 2020 and June 30, 2019, to fully fund the City's retiree health care subsidies for existing and future retirees and their dependents assuming all actuarial assumptions are met.

Total OPEB Liability is the portion of PVFB considered to be accrued or earned as of June 30, 2020 and June 30, 2019. This amount is a required disclosure in the Required Supplementary Information section.

GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Schedule of Changes in Net OPEB Liability and Related Ratios

OPEB Liability	FY 2019/20		FY 2018/19		FY 2017/18
Total OPEB Liability					
Total OPEB Liability - beginning of year	\$	4,239,338	\$	4,271,964	\$ 5,355,404
Service cost		13,914		11,348	18,400
Interest		244,273		287,503	319,964
Change of benefit terms		0		0	0
Changes in assumptions		(26,663)		460,618	151,350
Differences between expected and actual experience		(228,010)		(554,926)	(1,312,300)
Benefit payments		(229,349)		(237,169)	(260,854)
Net change in total OPEB liability	\$	(225,835)	\$	(32,626)	\$ (1,083,440)
Total OPEB Liability - end of year	\$	4,013,503	\$	4,239,338	\$ 4,271,964
Plan Fiduciary Net Position					
Plan fiduciary net position - beginning of year	\$	208,813	\$	186,097	\$ 172,979
Contributions - employer		244,634		255,752	265,663
Contributions - active employees		0		0	0
Net investment income		10,221		10,266	8,309
Benefit payments		(229,349)		(237,169)	(260,854)
Trust administrative expenses		(4,631)		(6,133)	0
Net change in plan fiduciary net position	\$	20,875	\$	22,716	\$ 13,118
Plan fiduciary net position - end of year	\$	229,688	\$	208,813	\$ 186,097
Net OPEB Liability - end of year	\$	3,783,815	\$	4,030,525	\$ 4,085,867
Plan fiduciary net position as % of total OPEB liability		5.7%		4.9%	4.4%
Covered employee payroll	\$	226,609	\$	229,481	\$ 259,705
Net OPEB liability as % of covered payroll		1,669.8%		1,756.4%	1,573.3%

GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Schedule of Employer Contributions

The Actuarially Determined Contributions (ADC) shown below are based on the Annual Required Contribution (ARC) calculated in prior GASB 45 actuarial valuations as shown in the City's financial statements.

	FY 2019/20		FY 2018/19		FY 2017/18		FY 2016/17		FY 2015/16	
Actuarially Determined Contribution (ADC)	\$	303,118	\$	331,458	\$	329,021	\$	569,428	\$	547,526
Contributions in relation to the ADC		244,634		255,752		265,663		256,929		233,279
Contribution deficiency/(excess)	\$	58,484	\$	75,706	\$	63,358	\$	312,499	\$	314,247
Covered employee payroll	\$	226,609	\$	229,481	\$	259,705	\$	300,535	\$	300,535
Contribution as a % of covered payroll		108.0%		111.4%		102.3%		85.5%		77.6%

GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

OPEB Expense

OPEB Expense	FY 2019/20		FY 2018/19	
Discount Rate				
Beginning of year	5.90%		6.90%	
End of year	5.96%		5.90%	
Service cost	\$	13,914	\$	11,348
Interest		244,273		287,503
Change of benefit terms		0		0
Projected earnings on OPEB plan investments		(13,058)		(14,704)
Reduction for contributions from active employees		0		0
OPEB plan administrative expenses		4,631		6,133
Current period recognition of deferred outflows / (inflows) of resources				
Differences between expected and actual experience	\$	(228,010)	\$	(1,211,076)
Changes in assumptions		(26,663)		536,293
Net difference between projected and actual earnings on OPEB plan investments		2,476		1,909
Total current period recognition	\$	(252,197)	\$	(672,874)
Total OPEB expense	\$	(2,437)	\$	(382,594)

GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Deferred Outflows / (Inflows) of Resources

Deferred Outflows / (Inflows) of Resources represents the following items that have not been recognized in the OPEB Expense:

1. Differences between expected and actual experience of the OPEB plan
2. Changes of assumptions
3. Differences between projected and actual earnings in OPEB plan investments (for funded plans only)

The initial amortization period for the first two items noted above is based on expected future service lives while the difference between the projected and actual earnings in OPEB plan investment is amortized over five years. All balances are amortized linearly on a principal only basis and new bases will be created annually for each of the items above.

Differences between expected and actual experience for FYE	Initial Balance	Initial Amortization Period	Annual Recognition	Unamortized Balance as of June 30, 2020
June 30, 2018	\$ (1,312,300)	2	\$ 0	\$ 0
June 30, 2019	\$ (554,926)	1	\$ 0	\$ 0
June 30, 2020	\$ (228,010)	1	\$ (228,010)	\$ 0

Changes in assumptions for FYE	Initial Balance	Initial Amortization Period	Annual Recognition	Unamortized Balance as of June 30, 2020
June 30, 2018	\$ 151,350	2	\$ 0	\$ 0
June 30, 2019	\$ 460,618	1	\$ 0	\$ 0
June 30, 2020	\$ (26,663)	1	\$ (26,663)	\$ 0

Net Difference between projected and actual earnings in OPEB plan investments for FYE	Initial Balance	Initial Amortization Period	Annual Recognition	Unamortized Balance as of June 30, 2020
June 30, 2018	\$ 5,104	5	\$ 1,021	\$ 2,041
June 30, 2019	\$ 4,438	5	\$ 888	\$ 2,662
June 30, 2020	\$ 2,837	5	\$ 567	\$ 2,270

GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Deferred Outflows / (Inflows) of Resources (Continued)

As of fiscal year ending June 30, 2020	Deferred Outflows		Deferred Inflows	
Differences between expected and actual experience	\$	0	\$	0
Changes in assumptions		0		0
Net difference between projected and actual earnings in OPEB plan investments		6,973		0
Total	\$	6,973	\$	0

Annual Amortization of Deferred Outflows / (Inflows)

The balances as of June 30, 2020 of the deferred outflows / (inflows) of resources will be recognized in OPEB expense in the future fiscal years as noted below.

FYE	Balance	
2021	\$	2,476
2022	\$	2,475
2023	\$	1,453
2024	\$	569
2025	\$	0
Thereafter	\$	0

GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Sensitivity Results

The following presents the Net OPEB Liability as of June 30, 2020, calculated using the discount rate assumed and what it would be using a 1% higher and 1% lower discount rate.

- The current discount rate is 5.96%.
- The 1% decrease in discount rate would be 4.96%.
- The 1% increase in discount rate would be 6.96%.

As of June 30, 2020	Net OPEB Liability	
1% Decrease	\$	4,285,583
Current Discount Rate	\$	3,783,815
1% Increase	\$	3,366,835

The following presents the Net OPEB Liability as of June 30, 2020, using the health care trend rates assumed and what it would be using 1% higher and 1% lower health care trend rates.

- The current health care trend rate starts at an initial rate of 8.00%, decreasing to an ultimate rate of 4.50%.
- The 1% decrease in health care trend rates would assume an initial rate of 7.00%, decreasing to an ultimate rate of 3.50%.
- The 1% increase in health care trend rates would assume an initial rate of 9.00%, decreasing to an ultimate rate of 5.50%.

As of June 30, 2020	Net OPEB Liability	
1% Decrease	\$	3,358,531
Current Trend Rates	\$	3,783,815
1% Increase	\$	4,289,629

* In addition to the medical/Rx trend rates mentioned above, the sensitivity of +/- 1% in health care trend for the Net OPEB Liability includes the sensitivity of dental/vision trend. Dental/vision trend rates start at an initial rate of 5.0% in 2020/21, decreasing by 0.5% annually to an ultimate rate of 2.5%.

GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Asset Information

Asset Breakdown	FY 2018/19		FY 2019/20	
Assets				
Cash and deposits	\$	34,919	\$	45,977
Securities lending cash collateral		0		0
Total cash	\$	34,919	\$	45,977
Receivables				
Contributions	\$	0	\$	0
Accrued interest		0		0
Total receivables	\$	0	\$	0
Investments				
Fixed income	\$	0	\$	0
Equities		173,530		183,711
Mutual Funds		0		0
Total investments	\$	173,530	\$	183,711
Total Assets	\$	208,449	\$	229,688
Liabilities				
Payables				
Accounts Payable	\$	(364)	\$	0
Securities lending expense		0		0
Total liabilities	\$	(364)	\$	0
Net Position Restricted to OPEB	\$	208,813	\$	229,688

* Asset Allocation shown as of June 30, 2020 is based on the actual asset class allocations and not target amounts.

GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Asset Information (Continued)

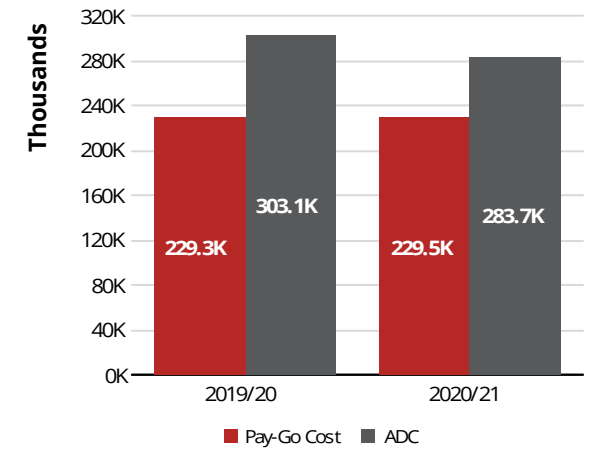
Asset Reconciliation	FY 2018/19		FY 2019/20	
Additions				
Contributions Received				
Employer	\$	255,752	\$	244,634
Active employees		0		0
Total contributions	\$	255,752	\$	244,634
Investment Income				
Net increase in fair value of investments	\$	5,631	\$	5,891
Interest and dividends		4,635		4,330
Investment expense, other than from securities lending		0		0
Securities lending income		0		0
Securities lending expense		0		0
Net investment income	\$	10,266	\$	10,221
Total additions	\$	266,018	\$	254,855
Deductions				
Benefit payments	\$	237,169	\$	229,349
Administrative expenses		6,133		4,631
Other		0		0
Total deductions	\$	243,302	\$	233,980
Net increase in net position	\$	22,716	\$	20,875
Net position restricted to OPEB				
Beginning of year	\$	186,097	\$	208,813
End of year	\$	208,813	\$	229,688

Actuarially Determined Contributions

City of Marine City GASB 74/75 Valuation For Fiscal Year Ending June 30, 2020

	FY 2019/20		FY 2020/21	
Discount rate (Funding)	6.10%		5.96%	
Payroll growth factor used for amortization	N/A		N/A	
Actuarial cost method	Entry Age Normal Level % of Salary		Entry Age Normal Level % of Salary	
Amortization type	Level Dollar		Level Dollar	
Amortization period (years)	30		30	
Actuarial Accrued Liability (AAL) - beginning of year	\$	4,140,118	\$	4,013,503
Actuarial Value of Assets (AVA) - beginning of year		(208,813)		(229,688)
Unfunded AAL - beginning of year	\$	3,931,305	\$	3,783,815
Normal Cost	\$	13,620	\$	9,441
Amortization of Unfunded AAL		272,071		258,319
Total normal cost plus amortization	\$	285,691	\$	267,760
Interest to end of year		17,427		15,958
Actuarially Determined Contribution - Preliminary	\$	303,118	\$	283,718
Expected Benefit Payments		229,349		229,519
Actuarially Determined Contribution - Final	\$	303,118	\$	283,718

Cash Vs Accrual Accounting



Actuarially Determined Contribution (ADC) is the target or recommended contribution to a defined benefit OPEB plan, which if paid on an ongoing basis, will provide sufficient resources to fund future costs for services to be earned and liabilities attributed to past services. This is typically higher than the pay-as-you-go cost because it includes recognition of employer costs expected to be paid in future accounting periods.

Projection of GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

The Total OPEB Liability (TOL) is expected to change on an annual basis as a result of expected and unexpected events. Under normal circumstances, it is generally expected to have a net increase each year. Below is a list of the most common events affecting the total OPEB liability and whether they increase or decrease the liability.

Expected Events

- Increases in TOL due to additional benefit accruals as employees continue to earn service each year
- Increases in TOL due to interest as the employees and retirees age
- Decreases in TOL due to benefit payments

Unexpected Events

- Increases in TOL when actual premium rates increase more than expected. A liability decrease occurs when the reverse happens.
- Increases in TOL when more new retirements occur than expected or fewer terminations occur than anticipated. Liability decreases occur when the opposite outcomes happen.
- Increases or decreases in TOL depending on whether benefits are improved or reduced.

Projection of Total OPEB Liability (TOL)	FY 2019/20	FY 2020/21
TOL as of beginning of year	\$ 4,239,338	\$ 4,013,503
Normal cost as of beginning of year	13,914	9,441
Exp. benefit payments during the year	(229,349)	(229,519)
Interest adjustment to end of year	244,273	233,027
Exp. TOL as of end of year	\$ 4,268,176	\$ 4,026,452
Actuarial Loss / (Gain)	(254,673)	TBD
Actual TOL as of end of year	\$ 4,013,503	\$ TBD

Discount rate as of beginning of year	5.90%	5.96%
Discount rate as of end of year	5.96%	TBD

Projection of Actuarial Value of Assets (AVA)	FY 2019/20	FY 2020/21
AVA as of beginning of year	\$ 208,813	\$ 229,688
Exp. employer contributions during the year	229,349	229,519
Exp. benefit payments during the year	(229,349)	(229,519)
Expected investment income	12,598	13,521
Exp. Trust administrative expenses	(4,631)	(5,742)
Exp. AVA as of end of year	\$ 216,780	\$ 237,467
Differences between expected and actual experience	12,908	TBD

AVA as of end of year	\$ 229,688	\$ TBD
Expected asset return as of beginning of year	6.10%	5.96%
Expected asset return as of end of year	5.96%	TBD

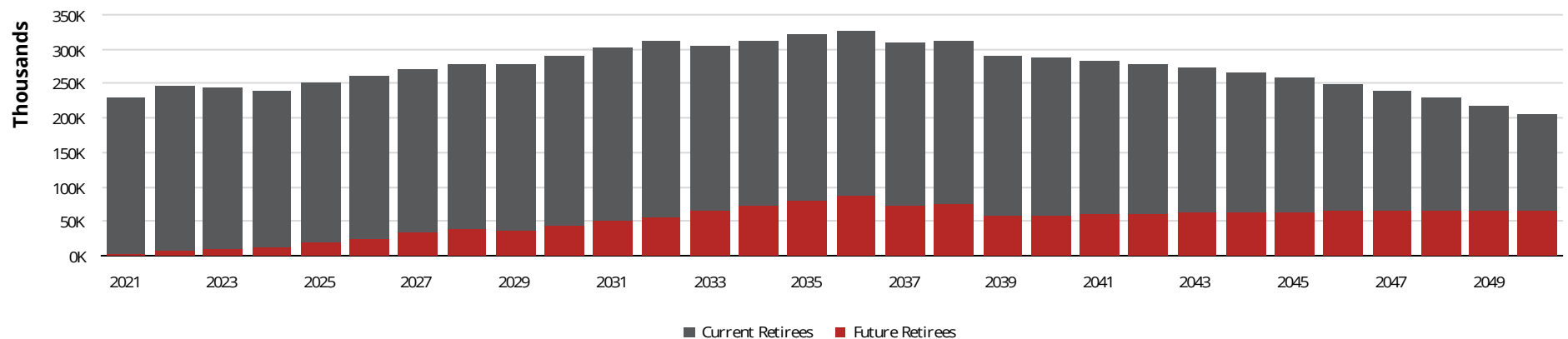
Cash Flow Projections

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

The below projections show the actuarially estimated employer-paid contributions for retiree health benefits for the next thirty years. Results are shown separately for a closed group of current/future retirees. These projections include explicit and implicit subsidies.

FYE	Current Retirees	Future Retirees*	Total	FYE	Current Retirees	Future Retirees*	Total	FYE	Current Retirees	Future Retirees*	Total
2021	\$ 226,153	\$ 3,366	\$ 229,519	2031	\$ 251,170	\$ 49,872	\$ 301,042	2041	\$ 223,884	\$ 59,630	\$ 283,514
2022	\$ 239,881	\$ 6,091	\$ 245,972	2032	\$ 254,460	\$ 56,351	\$ 310,811	2042	\$ 217,863	\$ 60,814	\$ 278,677
2023	\$ 235,035	\$ 9,448	\$ 244,483	2033	\$ 239,214	\$ 64,046	\$ 303,260	2043	\$ 210,887	\$ 61,897	\$ 272,784
2024	\$ 226,433	\$ 12,932	\$ 239,365	2034	\$ 240,156	\$ 72,182	\$ 312,338	2044	\$ 202,985	\$ 62,857	\$ 265,842
2025	\$ 232,256	\$ 18,261	\$ 250,517	2035	\$ 240,377	\$ 79,580	\$ 319,957	2045	\$ 194,204	\$ 63,673	\$ 257,877
2026	\$ 236,584	\$ 24,134	\$ 260,718	2036	\$ 239,822	\$ 86,528	\$ 326,350	2046	\$ 184,615	\$ 64,316	\$ 248,931
2027	\$ 237,681	\$ 32,759	\$ 270,440	2037	\$ 238,441	\$ 71,732	\$ 310,173	2047	\$ 174,322	\$ 64,762	\$ 239,084
2028	\$ 237,618	\$ 39,065	\$ 276,683	2038	\$ 236,191	\$ 74,624	\$ 310,815	2048	\$ 163,451	\$ 64,985	\$ 228,436
2029	\$ 242,689	\$ 35,352	\$ 278,041	2039	\$ 233,035	\$ 57,014	\$ 290,049	2049	\$ 152,150	\$ 64,962	\$ 217,112
2030	\$ 247,066	\$ 43,089	\$ 290,155	2040	\$ 228,939	\$ 58,362	\$ 287,301	2050	\$ 140,580	\$ 64,671	\$ 205,251

Projected Employer Pay-go Cost



* Projections for future retirees do not take into account future new hires.

Discussion of Discount Rates

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Under GASB 74, the discount rate used in valuing OPEB liabilities for funded plans as of the Measurement Date must be based on the long-term expected rate of return on OPEB plan investments that are expected to be used to finance future benefit payments to the extent that (a) they are sufficient to pay for the projected benefit payments and (b) the OPEB plan assets are invested using a strategy that will achieve that return. When the OPEB plan investments are insufficient to cover future benefit payments, a yield 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) must be used.

For the current valuation:

1. The long-term expected rate of return on OPEB plan investment is assumed to be 5.96%. This was determined using a building block method in which expected future rates of return (expected returns, including OPEB plan investment expense and inflation) are developed for each major asset class. These expected future rates of return are then combined to produce the long-term expected rate of return by weighting them based on the target asset allocation percentage. The best estimates of arithmetic real rates of return for each major asset class included in the OPEB Plan's target asset allocation as of June 30, 2020 are summarized below.
2. The discount rate used when the OPEB plan investments are insufficient to pay for future benefit payments are selected from the range of indices as shown in the table below, where the range is given as the spread between the lowest and highest rate shown.

Asset Class	Target Allocation	L/T Expected ROR (includes inflation)
U.S. Large Cap Equity	28.42%	8.07%
U.S. Small/Mid Cap Equity	10.59%	8.80%
Non-U.S. Developed Large Cap Equity Unhedged	5.62%	8.34%
Emerging Markets Equity Unhedged	2.58%	10.94%
U.S. Aggregate FI	12.86%	4.13%
U.S. Short G/C FI	2.14%	3.80%
U.S. High Yield FI	4.54%	6.17%
U.S. Cash	25.05%	2.72%
Non-U.S. Broad FI Unhedged	5.06%	4.06%
U.S. Real Estate - REITS	0.74%	8.29%
Diversified Hedge Funds	2.38%	5.96%
Commodities – Long Only	0.02%	4.46%
Total	100.00%	5.96%

Yield as of	July 1, 2019	June 30, 2020
Bond Buyer Go 20-Bond Municipal Bond Index	3.51%	2.21%
S&P Municipal Bond 20-Year High Grade Rate Index	2.79%	2.66%
Fidelity 20-Year Go Municipal Bond Index	3.13%	2.45%
Bond Index Range	2.79% - 3.51%	2.21% - 2.66%
Actual Discount Rate Used	3.51%	2.66%

3. The final equivalent single discount rates used for this year's valuation are 5.90% as of July 1, 2019 and 5.96% as of June 30, 2020. This is based on the assumption that the City will fund the pay-go costs with no additional pre-funding.

Summary of Plan Participants

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Active Employees

Actives with coverage	Single	Non-Single	Total	Avg. Age	Avg. Svc	Salary
Total actives with coverage		2	2	51.9	28.2	\$ 150,241

Actives without coverage	Total	Avg. Age	Avg. Svc	Salary
Total actives without coverage	1	49.1	25.0	\$ 76,368

Active employees who currently have no coverage are receiving an insurance buy-out amount. They are assumed to elect coverage at retirement and have been included in this valuation.

Active Age-Service Distribution

Age	Years of 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 & up	
Under 25											0
25 to 29											0
30 to 34											0
35 to 39											0
40 to 44											0
45 to 49					1	1					2
50 to 54											0
55 to 59									1		1
60 to 64											0
65 to 69											0
70 & up											0
Total	0	0	0	0	1	1	0	0	1	0	3

Summary of Plan Participants

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Retirees

Retirees with coverage	Single ¹	Non-Single	Total	Avg. Age
BCBS Plan	1	5	6	63.8
BCN Advantage	7	8	15	70.3
Total retirees with coverage	8	13	21	68.4

In addition to the above, there were 3 terminated vested employees that are not eligible for retiree health coverage according to their respective contracts. They have been excluded from this valuation.

Retiree Age Distribution

Age	Retirees
< 45	
45 to 49	
50 to 54	
55 to 59	1
60 to 64	6
65 to 69	7
70 to 74	3
75 to 79	3
80 to 84	1
85 to 89	
90 & up	
Total	21

¹ Includes employee and employee and child(ren) coverage levels.

Substantive Plan Provisions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Eligibility

Employees hired prior to December 31, 2007 are eligible for lifetime health benefits (medical/Rx, dental, and vision) at the earlier of the following eligibility requirements:

- Age 55 with 25 years of service
- Age 60 with 10 years of service

Spouse Benefit

Spousal coverage continues upon the death of retirees at the same cost share as an eligible retiree. For active employees that have met retirement eligibility requirements, spousal coverage continues upon the death of the employee at the same cost share as an eligible retiree, if electing pension benefits rather than a lump sum payout.

Disability

There is no age or service requirement for disability health coverage in the line of duty. An employee must have 10 years of service for non-duty disability health coverage.

Medical Benefits

Same benefits are available to retirees as active employees. All health plans are fully-insured and community-rated. Sample age-based monthly premium rates (per person) for the BCBS pre-65 medical/Rx and vision plans effective on April 1, 2020 are as shown below.

Age	Medical/Rx	Vision
25	\$ 262.88	\$ 5.53
30	\$ 297.18	\$ 5.55
35	\$ 319.96	\$ 5.79
40	\$ 334.62	\$ 6.17
45	\$ 378.08	\$ 6.58
50	\$ 467.63	\$ 6.93
55	\$ 583.88	\$ 7.15
60	\$ 710.61	\$ 7.13
64	\$ 785.49	\$ 6.88

Premium rates effective on January 1, 2020 are as shown below.

Plans	EE	EE + Sp
BCN Advantage (post-65 plan) ²	\$ 376.96	\$ 753.92
Dental	\$ 50.00	\$ 104.00

² Includes premium for vision coverage.

Substantive Plan Provisions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Retiree Cost Sharing

Hired on/before 12/31/2007

Retirees contribute the following amounts:

Plans	EE	EE + Sp
Pre/post-65	\$ 50.00	\$ 75.00

The above amounts are not assumed to increase in the future.

For Teamsters and IUOE retirees, post-Medicare insurance premiums are provided as follows:

- For members with 20 years of service or more on 12/31/2007, 100% of the post-Medicare insurance premium is provided.
- For member with 10 to 20 years of service on 12/31/2007, the member contributes 10% of the post-65 health insurance premium.
- For members with less than 10 years of service on 12/31/2007, the member contributes 20% of the post-65 health insurance premium.

Hired after 12/31/2007

Members contribute 100% for both pre and post-Medicare insurance premiums. The member will contribute \$1,500 on an annual basis to a retiree health savings plan. The City will match the member contribution to the established retiree health savings plan dollar for dollar, up to \$1,500. The City match is assumed to be incorporated in a separate accounting entry and is not included in this valuation. There is no implicit subsidy for health coverage as the premiums are assumed to represent the full cost of coverage. This group has been excluded from the valuation.

Actuarial Methods and Assumptions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

The actuarial assumptions used in this report represent a reasonable long-term expectation of future OPEB outcomes. As national economic and City experience change over time, the assumptions will be tested for ongoing reasonableness and, if necessary, updated.

There are changes to the actuarial methods and assumptions since the last GASB valuation, which was for the fiscal year ending June 30, 2015. Refer to Actuary's Notes section for complete information on these changes. For the current year GASB valuation, we have also updated the per capita costs. We expect to update discount rate, health care trend rates, mortality table, and per capita costs again in the next full GASB valuation, which will be for the fiscal year ending June 30, 2020.

Measurement Date	For fiscal year ending June 30, 2020, June 30, 2020 measurement date was used.
Actuarial Valuation Date	June 30, 2020 with no adjustments to get to the June 30, 2020 measurement date. Liabilities as of July 1, 2019 are based on an actuarial valuation date of July 1, 2018 projected to July 1, 2019 on a "no loss / no gain" basis.
Discount Rate	5.90% as of July 1, 2019 and 5.96% as of June 30, 2020 for accounting disclosure purposes 6.10% as of July 1, 2019 and 5.96% as of June 30, 2020 for funding disclosure purposes (in calculating the Actuarially Determined Contribution) Refer to the Discussion of Discount Rates section for more information on selection of the discount rate.
Payroll Growth	2.00% per year
Inflation Rate	2.50% per year
Employer Funding Policy	The City will fund pay-as-you-go costs into the OPEB Trust. No additional pre-funding is expected.
Cost Method	Allocation of Actuarial Present Value of Future Benefits for services prior and after the Measurement Date was determined using Entry Age Normal Level % of Salary method where: <ul style="list-style-type: none">• Service Cost for each individual participant, payable from date of employment to date of retirement, is sufficient to pay for the participant's benefit at retirement; and• Annual Service Cost is a constant percentage of the participant's salary that is assumed to increase according to the Payroll Growth.
Census Data	Census information was provided by the City as of June 30, 2020. We have reviewed it for reasonableness and no material modifications were made to the census data.

Actuarial Methods and Assumptions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Health Care Coverage Election Rate

Active employees with current coverage: 100%

Active employees with no coverage: 100%

Inactive employees with current coverage: 100%

Inactive employees with no coverage: N/A

Spousal Coverage

Spousal coverage and age for current retirees is based on actual data.

For future retirees, 100% of spouses are assumed to elect coverage under the retiree group health plan. Husbands are assumed to be the same age as wives.

Retirement Rate

Retirement rates are based on the City's GASB 45 actuarial valuation for fiscal year ending June 30, 2015. Annual retirement rates are as shown below.

Age	Rates
55	30%
56	25%
57	20%
58	15%
59 – 60	20%
61	40%
62	70%
63 – 64	50%
65	80%
66	70%
67 – 68	60%
69	70%
70	100%

Actuarial Methods and Assumptions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Disability

Disability rates are based on the City's GASB 45 actuarial valuation for fiscal year ending June 30, 2015. Sample annual disability rates are as shown below.

Age	Rates
20	0.05%
25	0.07%
30	0.08%
35	0.10%
40	0.16%
45	0.24%
50	0.39%
55	0.69%
60	1.15%
65	1.15%

Turnover Rate

Assumption used to project terminations (voluntary and involuntary) prior to meeting minimum retirement eligibility for retiree health coverage. The rates represent the probability of termination in the next 12 months. The termination rates are based on the City's GASB 45 actuarial valuation for fiscal year ending June 30, 2015. Sample annual turnover rates are shown below:

Age	YOS	Rates
All	0	30.00%
	1	20.00%
	2	15.0%
	3	10.00%
	4	7.00%
25	5+	6.00%
30		5.50%
35		4.40%
40		1.85%
45+		1.25%

Actuarial Methods and Assumptions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Mortality

General Employees & Healthy Retirees: SOA Pub-2010 General Headcount Weighted Mortality Table fully generational using Scale MP-2020
Police Employees & Healthy Retirees: SOA Pub-2010 Public Safety Headcount Weighted Mortality Table fully generational using Scale MP-2020
Surviving Spouses: SOA Pub-2010 Contingent Survivor Headcount Weighted Mortality Table fully generational using Scale MP-2020
Disabled General Retirees: SOA Pub-2010 Non-Safety Disabled Retiree Headcount Weighted Mortality Table fully generational using Scale MP-2020
Disabled Police Retirees: SOA Pub-2010 Public Safety Disabled Retiree Headcount Weighted Mortality Table fully generational using Scale MP-2020

Health Care Trend Rates

FYE	Medical/Rx	Dental/Vision
2021	8.0%	5.0%
2022	7.5%	4.5%
2023	7.0%	4.0%
2024	6.5%	3.5%
2025	6.0%	3.0%
2026	5.5%	2.5%
2027	5.0%	2.5%
2028+	4.5%	2.5%

The initial trend rate was based on a combination of employer history, national trend surveys, and professional judgment.

The ultimate trend rate was selected based on historical medical CPI information.

Retiree Contributions

Retiree contributions that are a % of premium are assumed to increase according to health care trend rates. Flat dollar contributions are not expected to increase in the future.

Per Capita Costs

Annual per capita costs are assumed to equal the age-based premium rates for pre-65 coverage and the flat premiums for Medicare Advantage coverage post-65. Per capita costs for dental and vision are also assumed to equal the premium rates both pre and post-65.

All future and current pre-65 retirees are assumed to be on the BCBS plan and all future and current post-65 retirees are assumed to be on the BCN Advantage plan. All retirees are assumed to elect vision and dental coverage.

Actuarial Methods and Assumptions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Explicit Subsidy

The difference between (a) the premium rate and (b) the retiree contribution. Below is an example of the monthly explicit subsidies for a future Police retiree age 64 enrolled in the BCBS plan with dental and vision.

	Premium Rate	Retiree Contribution	Explicit Subsidy
	A	B	C = A - B
Retiree	\$ 842.37	\$ 50.00	\$ 792.37
Spouse	\$ 846.37	\$ 25.00	\$ 821.37

Implicit Subsidy

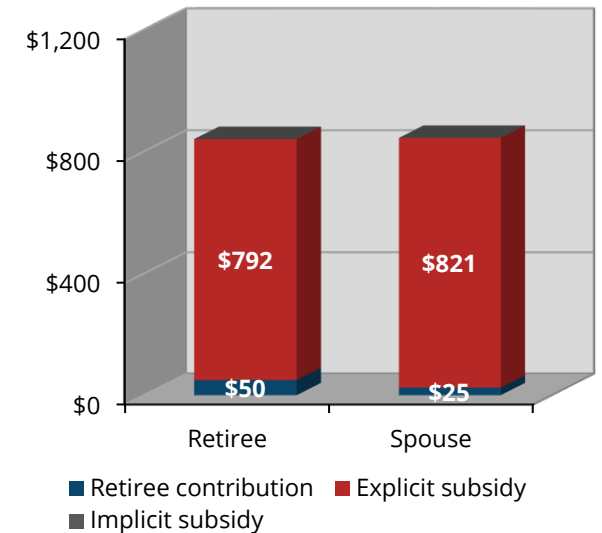
None

GASB Subsidy Breakdown

Below is a breakdown of the GASB 75 monthly total cost for a future Police retiree age 64 enrolled in the BCBS plan with dental and vision.

	Retiree		Spouse	
Retiree contribution	\$	50.00	\$	25.00
Explicit subsidy	\$	792.37	\$	799.98
Implicit subsidy	\$	0.00	\$	0.00
Total monthly cost	\$	842.37	\$	846.37

GASB Subsidy Breakdown



APPENDIX

The background of the slide is composed of several overlapping geometric shapes, primarily triangles. The top half is a solid dark gray. Below this, there are lighter gray and white triangular shapes that overlap each other, creating a sense of depth. A large, vibrant red triangle is positioned in the bottom right corner, extending towards the center. The overall design is minimalist and modern.

Appendix

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Comparison of Participant Demographic Information

The active participants' number below may include active employees who currently have no health care coverage. Refer to Summary of Participants section for an accurate breakdown of active employees with and without coverage.

	As of June 30, 2018	As of June 30, 2020
Active Participants	4	3
Retired Participants	20	21
Averages for Active		
Age	51.3	51.0
Service	25.0	27.1
Averages for Inactive		
Age	66.8	68.4

Appendix

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

Detailed Actuary's Notes

There have been no substantive plan provision changes since the last full GASB 45 valuation, which was for the fiscal year ending June 30, 2018.

Additionally, the following assumptions have also been updated:

1. Discount rate as of the Measurement Date has been updated based on a yield 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). The current full valuation uses a discount rate of 5.90% as of July 1, 2019 and 5.96% as of June 30, 2020 for accounting purposes and 6.10% as of July 1, 2019 and 5.96% as of June 30, 2020 for funding purposes. The accounting discount rate change caused a slight decrease in liabilities.

The accounting discount rate will be updated annually to reflect market conditions as of the Measurement Date.

2. Mortality table has been updated to:
 - General Employees & Healthy Retirees: SOA Pub-2010 General Headcount Weighted Mortality Table fully generational using Scale MP-2020
 - Police Employees & Healthy Retirees: SOA Pub-2010 Public Safety Headcount Weighted Mortality Table fully generational using Scale MP-2020
 - Surviving Spouses: SOA Pub-2010 Contingent Survivor Headcount Weighted Mortality Table fully generational using Scale MP-2020
 - Disabled General Retirees: SOA Pub-2010 Non-Safety Disabled Retiree Headcount Weighted Mortality Table fully generational using Scale MP-2020
 - Disabled Police Retirees: SOA Pub-2010 Public Safety Disabled Retiree Headcount Weighted Mortality Table fully generational using Scale MP-2020

The prior GASB 74/75 actuarial valuation as of June 30, 2019 used the SOA RPH-2017 Total Dataset Mortality Table fully generational using Scale MP-2017. The impact of this change is a slight decrease in liabilities.

3. Medical/Rx trend rates have been reset to an initial rate of 8.0% decreasing by 0.5% annually to an ultimate rate of 4.5%. Dental and vision trend rates have been set to an initial rate of 5.0% decreasing by 0.5% annually to an ultimate rate of 2.5%. There is no trend applied to flat retiree contributions. The updates caused a slight increase in liabilities.

Appendix

City of Marine City Interim GASB 74/75 Valuation for Fiscal Year Ending June 30, 2019

PA 202 Uniform Assumption Disclosures

The information presented below is for the purposes of filing Form No. 5572 under PA 202 uniform assumption requirements. Per regulation, Form No. 5572 must be filed no later than six months after the end of the fiscal year. Governmental fund revenues are not shown below and should be determined by the City. Refer to the Michigan Department of Treasury website for additional information.

Form 5572 Line	Description	City of Marine City
Line 28	Actuarial Value of Assets	\$ 229,688
Line 29	Actuarial Accrued Liability	\$ 3,961,890
Line 31	Actuarially Determined Contribution for FY 2019/20	\$ 326,756

Line 31 (Actuarially Determined Contribution) was calculated using level dollar amortization with a 6.10% discount rate. The amortization period is a closed, 30-year period with 29 years remaining for FY 2019/20.

Under PA 202 requirements, uniform assumption setting is mandated in reporting of liabilities, assets, and ADC. The following is a description of the PA 202 uniform assumption guidance and final assumption used for the City for purposes of calculating the figures above.

Assumption	Uniform Assumption Guidance	City Assumption
Investment Rate of Return	Maximum of 7.00%	6.10% as of July 1, 2019 and 5.96% as of June 30, 2020 (for funding/ADC purposes)
Discount Rate	Blended discount rate calculated per GASB 74/75: <ul style="list-style-type: none">• Maximum of 7.0% where plan assets are sufficient to make projected benefit payments• 3.5% for periods where assets are insufficient to make projected benefit payments	5.94% (for calculation of the OPEB liability as of June 30, 2020)
Salary Increase	Minimum of 3.50% or based on actuarial experience study within the past 5 years	3.50%
Mortality Table	A version of the Pub-2010 mortality tables with future mortality improvement projected generationally using Scale MP-2018 or based on an actuarial experience study conducted within the last five years	Same base tables as the GASB 74/75 valuation using MP-2018 improvement scale
Amortization Period	Maximum closed period of 30 years for Retiree Health Systems	For FY 2019/20, 29 years on a closed period basis
Asset Valuation	Market Value as reported on Financial Statements	Same as the GASB 74/75 valuation
Healthcare Inflation	Non-Medicare: 8.25% decreasing 0.25% per year to a 4.50% long-term rate Medicare: 6.50% decreasing 0.25% per year to 4.50% long-term rate	Same as PA 202 uniform assumption

GLOSSARY

The background of the slide is composed of several overlapping geometric shapes, primarily triangles. The top half is a solid dark gray. The bottom half is divided into several sections: a large white triangle on the left, a medium gray triangle in the center, and a large red triangle on the right. There are also some lighter gray and white triangular shapes that overlap the others, creating a layered effect. The word "GLOSSARY" is centered in the upper half of the slide.

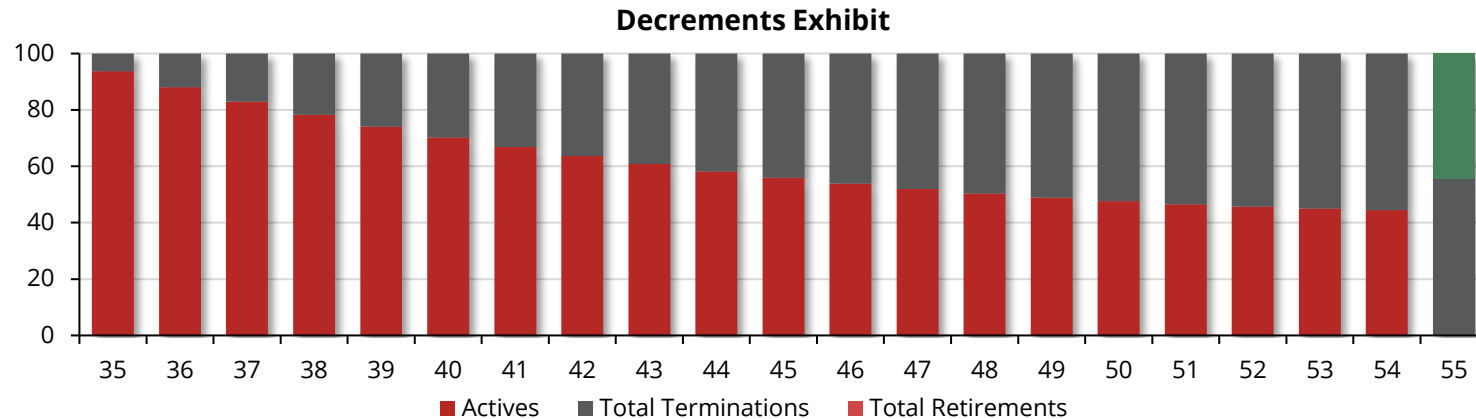
Glossary – Decrements Exhibit

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. Starting with 100 employees at age 35, the illustrated actuarial assumptions show that 44.43 employees out of the original 100 are expected to retire and could elect retiree health benefits at age 55.

Age	# Remaining Employees	# of Terminations per Year ³	# of Retirements per Year	Total Decrements
35	100.000	6.276	0.000	6.276
36	93.724	5.677	0.000	5.677
37	88.047	5.136	0.000	5.136
38	82.911	4.648	0.000	4.648
39	78.262	4.209	0.000	4.209
40	74.053	3.814	0.000	3.814
41	70.239	3.456	0.000	3.456
42	66.783	3.131	0.000	3.131
43	63.652	2.835	0.000	2.835
44	60.817	2.564	0.000	2.564
45	58.253	2.316	0.000	2.316

Age	# Remaining Employees	# of Terminations per Year	# of Retirements per Year	Total Decrements
46	55.938	2.085	0.000	2.085
47	53.853	1.866	0.000	1.866
48	51.987	1.656	0.000	1.656
49	50.331	1.452	0.000	1.452
50	48.880	1.253	0.000	1.253
51	47.627	1.060	0.000	1.060
52	46.567	0.877	0.000	0.877
53	45.690	0.707	0.000	0.707
54	44.983	0.553	0.000	0.553
55	44.430	0.000	44.430	44.430



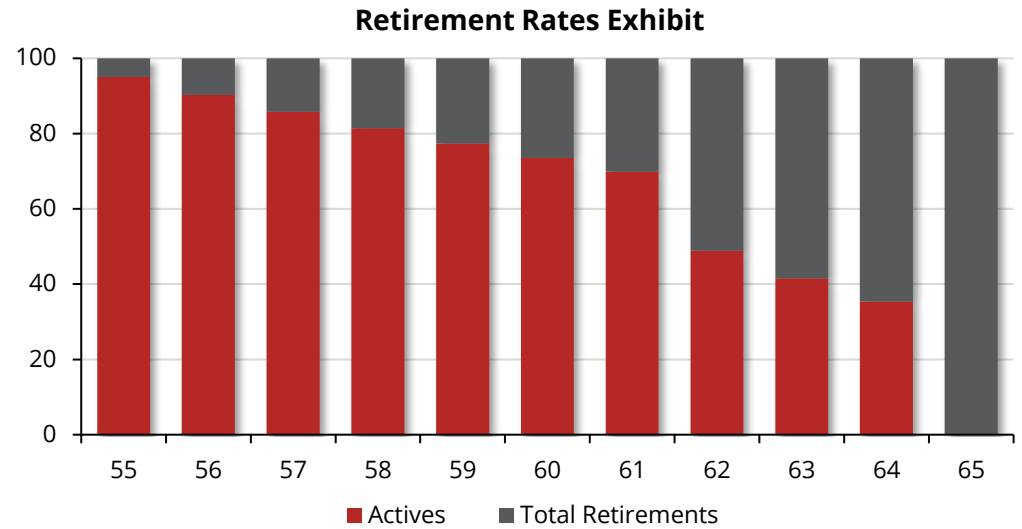
³ The above rates are illustrative rates and are not used in our GASB calculations.

Glossary – Retirement Rates Exhibit

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

The table below illustrates how actuarial assumptions can affect a long-term projection of future liabilities. The illustrated retirement rates show the number of employees who are assumed to retire annually based on 100 employees age 55 who are eligible for retiree health care coverage. The average age at retirement is 62.0.

Age	Active Employees BOY	Annual Retirement Rates*	# Retirements per Year	Active Employees EOY
55	100.000	5.0%	5.000	95.000
56	95.000	5.0%	4.750	90.250
57	90.250	5.0%	4.513	85.738
58	85.738	5.0%	4.287	81.451
59	81.451	5.0%	4.073	77.378
60	77.378	5.0%	3.869	73.509
61	73.509	5.0%	3.675	69.834
62	69.834	30.0%	20.950	48.884
63	48.884	15.0%	7.333	41.551
64	41.551	15.0%	6.233	35.318
65	35.318	100.0%	35.318	0.000



* The above rates are illustrative rates and are not used in our GASB calculations.

Glossary – Definitions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

GASB 75 defines several unique terms not commonly employed in the funding of pension and retiree health plans. The definitions of the terms used in the GASB actuarial valuations are noted below.

1. **Actuarial Assumptions** – Assumptions as to the occurrence of future events affecting health care costs, such as: mortality, withdrawal, disablement and retirement; changes in compensation and Government provided health care benefits; rates of investment earnings and asset appreciation or depreciation; procedures used to determine the Actuarial Value of Assets; characteristics of future entrants for Open Group Actuarial Cost Methods; and other relevant items.
2. **Actuarial Cost Method** – A procedure for determining the Actuarial Present Value of Future Benefits and expenses and for developing an actuarially equivalent allocation of such value to time periods, usually in the form of a Service Cost and a Total OPEB Liability.
3. **Actuarially Determined Contribution** - A target or recommended contribution to a defined benefit OPEB plan for the reporting period, determined in accordance with the parameters and in conformity with Actuarial Standards of Practice.
4. **Actuarial Present Value** – The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. For purposes of this standard, each such amount or series of amounts is:
 - a. adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, Social Security, marital status, etc.);
 - b. multiplied by the probability of the occurrence of an event (such as survival, death, disability, termination of employment, etc.) on which the payment is conditioned; and
 - c. discounted according to an assumed rate (or rates) of return to reflect the time value of money.
5. **Deferred Outflow / (Inflow) of Resources** – represents the following items that have not been recognized in the OPEB Expense:
 - a. Differences between expected and actual experience of the OPEB plan
 - b. Changes in assumptions
 - c. Differences between projected and actual earnings in OPEB plan investments (for funded plans only)
6. **Explicit Subsidy** – The difference between (a) the amounts required to be contributed by the retirees based on the premium rates and (b) actual cash contribution made by the employer.
7. **Funded Ratio** – The actuarial value of assets expressed as a percentage of the Total OPEB Liability.

Glossary – Definitions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

8. **Healthcare Cost Trend Rate** – The rate of change in the 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.
9. **Implicit Subsidy** – In an experience-rated healthcare plan that includes both active employees and retirees with blended premium rates for all plan members, the difference between (a) the age-adjusted premiums approximating claim costs for retirees in the group (which, because of the effect of age on claim costs, generally will be higher than the blended premium rates for all group members) and (b) the amounts required to be contributed by the retirees.
10. **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.
11. **OPEB Expense** – Changes in the Net OPEB Liability in the current reporting period, which includes Service Cost, interest cost, changes of benefit terms, expected earnings on OPEB Plan investments, reduction of active employees' contributions, OPEB plan administrative expenses, and current period recognition of Deferred Outflows / (Inflows) of Resources.
12. **Pay-as-you-go** – A method of financing a benefit plan under which the contributions to the plan are generally made at about the same time and in about the same amount as benefit payments and expenses becoming due.
13. **Per Capita Costs** – The current cost of providing postretirement health care benefits for one year at each age from the youngest age to the oldest age at which plan participants are expected to receive benefits under the plan.
14. **Present Value of Future Benefits** – Total projected benefits include all benefits estimated to be payable to plan members (retirees and beneficiaries, terminated employees entitled to benefits but not yet receiving them, and current active members) as a result of their service through the valuation date and their expected future service. The actuarial present value of total projected benefits as of the valuation date is the present value of the cost to finance benefits payable in the future, discounted to reflect the expected effects of the time value (present value) of money and the probabilities of payment. Expressed another way, it is the amount that would have to be invested on the valuation date so that the amount invested plus investment earnings will provide sufficient assets to pay total projected benefits when due.
15. **Real Rate of Return** – the rate of return on an investment after adjustment to eliminate inflation.

Glossary – Definitions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2020

16. **Select and Ultimate Rates** – Actuarial assumptions that contemplate different rates for successive years. Instead of a single assumed rate with respect to, for example, the investment return assumption, the actuary may apply different rates for the early years of a projection and a single rate for all subsequent years. For example, if an actuary applies an assumed investment return of 8% for year 20W0, then 7.5% for 20W1, and 7% for 20W2 and thereafter, then 8% and 7.5% select rates, and 7% is the ultimate rate.
17. **Service Cost** – The portion of the Actuarial Present Value of projected benefit payments that are attributed to a valuation year by the Actuarial Cost Method.
18. **Substantive Plan** – The terms of an OPEB plan as understood by the employer(s) and plan members.
19. **Total OPEB Liability** – That portion, as determined by a particular Actuarial Cost Method, of the Actuarial Present Value of Future Benefits which is attributed to past periods of employee service (or not provided for by the future Service Costs).