



# **GASB 74/75 ACTUARIAL VALUATION**

## **Fiscal Year Ending June 30, 2018**

# **CITY OF MARINE CITY**

### **CONTACT**

**Emily Clauss, ASA, MAAA**  
emily.clauss@nyhart.com

### **ADDRESS**

**Nyhart**  
8415 Allison Pointe Blvd. Suite 300  
Indianapolis, IN 46250

### **PHONE**

General (317) 845-3500  
Toll-Free (800) 428-7106  
Fax (317) 845-3654

# Table of Contents

---

|  | <b>Page</b> |
|--|-------------|
| Certification  | 1           |
| Executive Summary  | 3           |
| GASB Disclosures   |             |
| Schedule of Changes in Net OPEB Liability and Related Ratios | 5           |
| Schedule of Employer Contributions                           | 6           |
| OPEB Expense   | 7           |
| Deferred Outflows / (Inflows) of Resources                   | 8           |
| Sensitivity Results  | 10          |
| Asset Information  | 11          |
| Actuarially Determined Contributions                         | 12          |
| Projection of GASB Disclosures                               | 13          |
| Cash Flow Projections  | 14          |
| Discussion of Discount Rates                                 | 15          |
| Summary of Plan Participants                                 | 16          |
| Substantive Plan Provisions                                  | 18          |
| Actuarial Methods and Assumptions                            | 20          |
| Appendix   | 25          |
| Comparison of Participant Demographic Information            | 26          |
| Detailed Actuary's Notes                                     | 27          |
| Summary of Medical Benefits                                  | 28          |
| Glossary   | 29          |
| Decrements Exhibit   | 30          |
| Retirement Rates Exhibit                                     | 31          |
| Definitions  | 32          |



**October 15, 2018**

**Mary Ellen McDonald  
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 2017/18 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.

A handwritten signature in black ink that reads "Randy Gomez".

Randy Gomez, FSA, MAAA  
Consulting Actuary

A handwritten signature in black ink that reads "Emily Clauss".

Emily Clauss, ASA, MAAA  
Valuation Actuary

# Executive Summary

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

## Summary of Results

Presented below is the summary of GASB 75 results for the fiscal year ending June 30, 2018.

|                                  | As of June 30, 2018 |
|----------------------------------|---------------------|
| <b>Total OPEB Liability</b>      | \$ 4,271,964        |
| <b>Actuarial Value of Assets</b> | \$ (186,097)        |
| <b>Net OPEB Liability</b>        | \$ 4,085,867        |
| <b>Funded Ratio</b>              | 4.4%                |

|  | FY 2017/18   |
|--|--------------|
| <b>OPEB Expense</b>                        | \$ (254,503) |
| <b>Annual Employer Contributions</b>       | \$ 265,663   |
| <b>Actuarially Determined Contribution</b> | \$ 329,021   |

|                                  | As of June 30, 2018 |
|----------------------------------|---------------------|
| <b>Discount Rate</b>             | 6.90%               |
| <b>Expected Return on Assets</b> | 7.65%               |

|                                   | As of June 30, 2018 |
|-----------------------------------|---------------------|
| <b>Total Active Participants</b>  | 5                   |
| <b>Total Retiree Participants</b> | 19                  |

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, 2018

## Summary of Results

Below is a breakdown of total GASB 75 liabilities allocated to past and current service. 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.

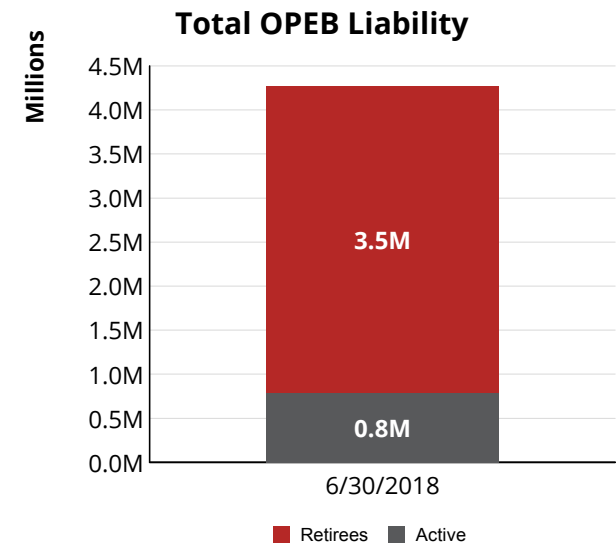
| Present Value of Future Benefits              | As of June 30, 2018 |
|---|---------------------|
| Active Employees                              | \$ 861,233          |
| Retired Employees                             | 3,483,836           |
| <b>Total Present Value of Future Benefits</b> | <b>\$ 4,345,069</b> |

| Total OPEB Liability | As of June 30, 2018 |
|----------------------|---------------------|
| Active Pre-Medicare  | \$ 342,847          |
| Active Post-Medicare | 445,281             |
| Active Liability     | \$ 788,128          |

|                       |              |
|-----------------------|--------------|
| Retiree Pre-Medicare  | \$ 721,752   |
| Retiree Post-Medicare | 2,762,084    |
| Retiree Liability     | \$ 3,483,836 |

|                             |                     |
|-----------------------------|---------------------|
| <b>Total OPEB Liability</b> | <b>\$ 4,271,964</b> |
|-----------------------------|---------------------|

| As of June 30, 2018 |       |
|---------------------|-------|
| Discount Rate       | 6.90% |



**Present Value of Future Benefits (PVFB)** is the amount needed as of June 30, 2018 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, 2018. 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, 2018

## Schedule of Changes in Net OPEB Liability and Related Ratios

| OPEB Liability   | FY 2017/18          |
|--|---------------------|
| <b>Total OPEB Liability</b>                              |                     |
| Total OPEB Liability - beginning of year                 | \$ 5,355,404        |
| Service cost   | 18,400              |
| Interest   | 319,964             |
| Change of benefit terms                                  | 0                   |
| Changes in assumptions                                   | 151,350             |
| Differences between expected and actual experience       | (1,312,300)         |
| Benefit payments   | (260,854)           |
| Net change in total OPEB liability                       | \$ (1,083,440)      |
| Total OPEB Liability - end of year                       | \$ 4,271,964        |
| <b>Plan Fiduciary Net Position</b>                       |                     |
| Plan fiduciary net position - beginning of year          | \$ 172,979          |
| Contributions - employer                                 | 265,663             |
| Contributions - active employees                         | 0                   |
| Net investment income                                    | 8,309               |
| Benefit payments   | (260,854)           |
| Trust administrative expenses                            | 0                   |
| Net change in plan fiduciary net position                | \$ 13,118           |
| Plan fiduciary net position - end of year                | \$ 186,097          |
| <b>Net OPEB Liability - end of year</b>                  | <b>\$ 4,085,867</b> |
| Plan fiduciary net position as % of total OPEB liability | 4.4%                |
| Covered employee payroll                                 | \$ 259,705          |
| Net OPEB liability as % of covered payroll               | 1,573.3%            |

# GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

## 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 2017/18 | FY 2016/17 | FY 2015/16 |
|---|------------|------------|------------|
| Actuarially Determined Contribution (ADC) | \$ 329,021 | \$ 569,428 | \$ 547,526 |
| Contributions in relation to the ADC      | 265,663    | 256,929    | 233,279    |
| Contribution deficiency/(excess)          | \$ 63,358  | \$ 312,499 | \$ 314,247 |
| Covered employee payroll                  | \$ 259,705 | \$ 300,535 | \$ 300,535 |
| Contribution as a % of covered payroll    | 102.3%     | 85.5%      | 77.6%      |



# GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

## OPEB Expense

| OPEB Expense  |    | FY 2017/18 |
|---|----|------------|
| Discount Rate   |    |            |
| Beginning of year   |    | 6.10%      |
| End of year   |    | 6.90%      |
| Service cost  | \$ | 18,400     |
| Interest  |    | 319,964    |
| Change of benefit terms   |    | 0          |
| Projected earnings on OPEB plan investments                                   |    | (13,413)   |
| Reduction for contributions from active employees                             |    | 0          |
| OPEB plan administrative expenses   |    | 0          |
| Current period recognition of deferred outflows / (inflows) of resources      |    |            |
| Differences between expected and actual experience                            | \$ | (656,150)  |
| Changes in assumptions  |    | 75,675     |
| Net difference between projected and actual earnings on OPEB plan investments |    | 1,021      |
| Total current period recognition  | \$ | (579,454)  |
| Total OPEB expense  | \$ | (254,503)  |

# GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

## 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 item above.

| Differences between expected and actual experience for FYE | Initial Balance | Initial Amortization Period | Annual Recognition | Unamortized Balance as of June 30, 2018 |
|--|-----------------|-----------------------------|--------------------|---|
| June 30, 2018  | \$ (1,312,300)  | 2                           | \$ (656,150)       | \$ (656,150)                            |

| Changes in assumptions for FYE | Initial Balance | Initial Amortization Period | Annual Recognition | Unamortized Balance as of June 30, 2018 |
|--------------------------------|-----------------|-----------------------------|--------------------|---|
| June 30, 2018                  | \$ 151,350      | 2                           | \$ 75,675          | \$ 75,675                               |

| 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, 2018 |
|---|-----------------|-----------------------------|--------------------|---|
| June 30, 2018   | \$ 5,104        | 5                           | \$ 1,021           | \$ 4,083                                |

# GASB Disclosures

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

## Deferred Outflows / (Inflows) of Resources (Continued)

| As of fiscal year ending June 30, 2018  | Deferred Outflows | Deferred Inflows    |
|---|-------------------|---------------------|
| Differences between expected and actual experience                            | \$ 0              | \$ (656,150)        |
| Changes in assumptions  | 75,675            | 0                   |
| Net difference between projected and actual earnings in OPEB plan investments | 4,083             | 0                   |
| <b>Total</b>  | <b>\$ 79,758</b>  | <b>\$ (656,150)</b> |

## Annual Amortization of Deferred Outflows / (Inflows)

The balances of June 30, 2018 of the deferred outflows / (inflows) of resources will be recognized in OPEB expense in the future fiscal years as noted below.

| FYE        | Balance      |
|------------|--------------|
| 2019       | \$ (579,454) |
| 2020       | \$ 1,021     |
| 2021       | \$ 1,021     |
| 2022       | \$ 1,020     |
| 2023       | \$ 0         |
| Thereafter | \$ 0         |

# GASB Disclosures

## City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

### Sensitivity Results

The following presents the net OPEB liability as of June 30, 2018, 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 6.90%.
- The 1% decrease in discount rate would be 5.90%.
- The 1% increase in discount rate would be 7.90%.

| As of June 30, 2018   | Net OPEB Liability |
|-----------------------|--------------------|
| 1% Decrease           | \$ 4,622,365       |
| Current Discount Rate | \$ 4,085,867       |
| 1% Increase           | \$ 3,640,749       |

The following presents the net OPEB liability as of June 30, 2018, 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 9.00%, decreasing to an ultimate rate of 4.50%.
- The 1% decrease in health care trend rates would assume an initial rate of 8.00%, decreasing to an ultimate rate of 3.50%.
- The 1% increase in health care trend rates would assume an initial rate of 10.00%, decreasing to an ultimate rate of 5.50%.

| As of June 30, 2018 | Net OPEB Liability |
|---------------------|--------------------|
| 1% Decrease         | \$ 3,632,027       |
| Current Trend Rates | \$ 4,085,867       |
| 1% Increase         | \$ 4,626,991       |

\* Trend rate sensitivity also includes +/- 1% of the dental/vision trend rates, which are an initial rate of 5.0% 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, 2018

## Asset Information

| Asset Breakdown                        | FY 2017/18 |                |
|--|------------|----------------|
| <b>Assets</b>                          |            |                |
| Cash and cash equivalents              | \$         | 0              |
| Securities lending cash collateral     |            | 0              |
| Total cash                             | \$         | 0              |
| Receivables                            |            |                |
| Contributions                          | \$         | 0              |
| Accrued interest                       |            | 0              |
| Total receivables                      | \$         | 0              |
| Investments                            |            |                |
| Fixed income                           | \$         | 93,048         |
| Equities                               |            | 93,049         |
| Mutual Funds                           |            | 0              |
| Total investments                      | \$         | 186,097        |
| Total Assets                           | \$         | 186,097        |
| <b>Liabilities</b>                     |            |                |
| Payables                               |            |                |
| Investment management fees             | \$         | 0              |
| Securities lending expense             |            | 0              |
| Total liabilities                      | \$         | 0              |
| <b>Net Position Restricted to OPEB</b> | <b>\$</b>  | <b>186,097</b> |

| Asset Reconciliation                                   | FY 2017/18 |         |
|--|------------|---------|
| <b>Additions</b>                                       |            |         |
| Contributions Received                                 |            |         |
| Employer   | \$         | 265,663 |
| Employee   |            | 0       |
| Total contributions                                    | \$         | 265,663 |
| Investment Income                                      |            |         |
| Net increase in fair value of investments              | \$         | 9,576   |
| Interest and Dividends                                 |            | (1,267) |
| Investment expense, other than from securities lending |            | 0       |
| Securities lending income                              |            | 0       |
| Securities lending expense                             |            | 0       |
| Net investment income                                  | \$         | 8,309   |
| Total additions  | \$         | 273,972 |
| <b>Deductions</b>                                      |            |         |
| Benefit payments                                       | \$         | 260,854 |
| Administrative expenses                                |            | 0       |
| Other  |            | 0       |
| Total deductions                                       | \$         | 260,854 |
| Net increase in net position                           | \$         | 13,118  |
| Net position restricted to OPEB                        |            |         |
| Beginning of year                                      | \$         | 172,979 |
| End of year  | \$         | 186,097 |

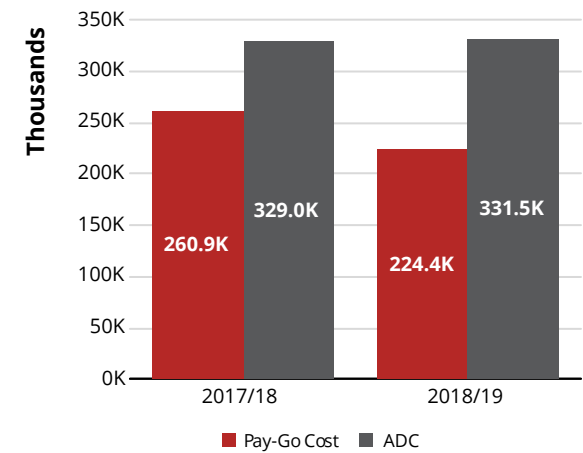
\* Asset investment mix is based on the target allocation for equity vs. fixed income and does not represent actual figures.

# Actuarially Determined Contributions

City of Marine City GASB 74/75 Valuation For Fiscal Year Ending June 30, 2018

|   | FY 2017/18 |                                       | FY 2018/19 |                                       |
|---|------------|---------------------------------------|------------|---------------------------------------|
| Discount rate (Funding)                               |            | 7.65%                                 |            | 7.65%                                 |
| Payroll growth factor used for amortization           |            | N/A                                   |            | N/A                                   |
| Actuarial cost method                                 |            | Entry Age Normal<br>Level % of Salary |            | Entry Age Normal<br>Level % of Salary |
| Amortization type                                     |            | Level Dollar                          |            | Level Dollar                          |
| Amortization period (years)                           |            | 30                                    |            | 30                                    |
| Actuarial Accrued Liability (AAL) - beginning of year | \$         | 3,894,101                             | \$         | 3,930,688                             |
| Actuarial Value of Assets (AVA) - beginning of year   |            | (172,979)                             |            | (186,097)                             |
| Unfunded AAL - beginning of year                      | \$         | 3,721,122                             | \$         | 3,744,591                             |
| Normal Cost   | \$         | 8,673                                 | \$         | 9,063                                 |
| Amortization of Unfunded AAL                          |            | 296,967                               |            | 298,840                               |
| Total normal cost plus amortization                   | \$         | 305,640                               | \$         | 307,903                               |
| Interest to end of year                               |            | 23,381                                |            | 23,555                                |
| Actuarially Determined Contribution - Preliminary     | \$         | 329,021                               | \$         | 331,458                               |
| Expected Benefit Payments                             |            | 260,854                               |            | 224,371                               |
| <b>Actuarially Determined Contribution - Final</b>    | <b>\$</b>  | <b>329,021</b>                        | <b>\$</b>  | <b>331,458</b>                        |

## 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, 2018

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 2017/18          | FY 2018/19    |
|--|---------------------|---------------|
| TOL as of beginning of year              | \$ 5,355,404        | \$ 4,271,964  |
| Normal cost as of beginning of year      | 18,400              | 11,348        |
| Exp. benefit payments during the year    | (260,854)           | (224,371)     |
| Interest adjustment to end of year       | 319,964             | 287,937       |
| Exp. TOL as of end of year               | \$ 5,432,914        | \$ 4,346,878  |
| Actuarial Loss / (Gain)                  | (1,160,950)         | TBD           |
| <b>Actual TOL as of end of year</b>      | <b>\$ 4,271,964</b> | <b>\$ TBD</b> |

|                                       |       |       |
|---------------------------------------|-------|-------|
| Discount rate as of beginning of year | 6.10% | 6.90% |
| Discount rate as of end of year       | 6.90% | TBD   |

| Projection of Actuarial Value of Assets (AVA)      | FY 2017/18        | FY 2018/19    |
|--|-------------------|---------------|
| AVA as of beginning of year                        | \$ 172,979        | \$ 186,097    |
| Exp. employer contributions during the year        | 265,663           | 224,371       |
| Exp. benefit payments during the year              | (260,854)         | (224,371)     |
| Expected investment income                         | 13,413            | 14,167        |
| Exp. Trust administrative expenses                 | 0                 | (1,861)       |
| Exp. AVA as of end of year                         | \$ 191,201        | \$ 198,403    |
| Differences between expected and actual experience | (5,104)           | TBD           |
| <b>AVA as of end of year</b>                       | <b>\$ 186,097</b> | <b>\$ TBD</b> |

|   |       |       |
|---|-------|-------|
| Expected asset return as of beginning of year | 7.65% | 7.65% |
| Expected asset return as of end of year       | 7.65% | TBD   |

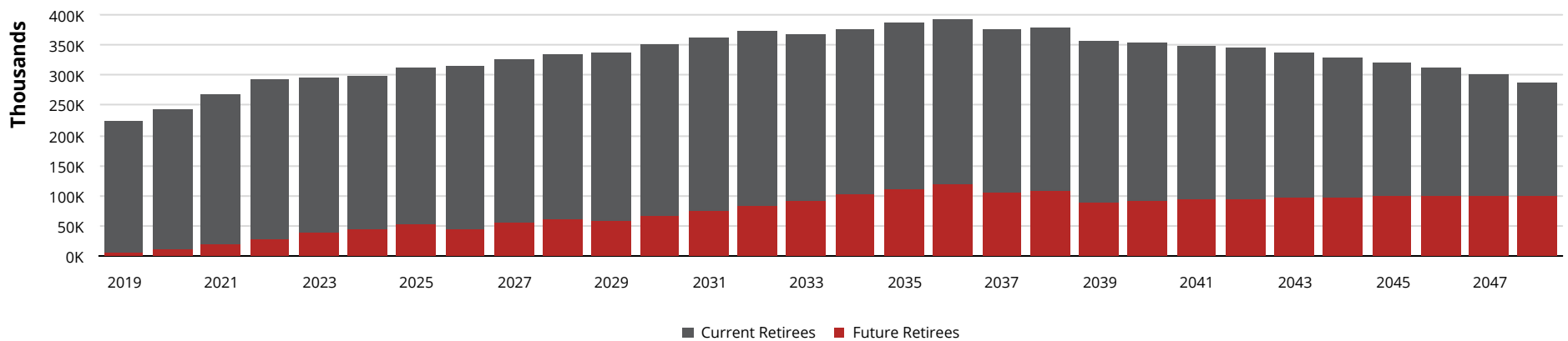
# Cash Flow Projections

## City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

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      |
|------|------------------|------------------|------------|------|------------------|------------------|------------|------|------------------|------------------|------------|
| 2019 | \$ 219,830       | \$ 4,541         | \$ 224,371 | 2029 | \$ 277,702       | \$ 58,014        | \$ 335,716 | 2039 | \$ 266,399       | \$ 89,096        | \$ 355,495 |
| 2020 | \$ 230,277       | \$ 11,718        | \$ 241,995 | 2030 | \$ 282,582       | \$ 67,119        | \$ 349,701 | 2040 | \$ 261,720       | \$ 91,057        | \$ 352,777 |
| 2021 | \$ 249,796       | \$ 18,438        | \$ 268,234 | 2031 | \$ 287,160       | \$ 75,166        | \$ 362,326 | 2041 | \$ 255,962       | \$ 92,871        | \$ 348,833 |
| 2022 | \$ 263,736       | \$ 27,516        | \$ 291,252 | 2032 | \$ 290,813       | \$ 82,862        | \$ 373,675 | 2042 | \$ 249,129       | \$ 94,524        | \$ 343,653 |
| 2023 | \$ 257,630       | \$ 37,828        | \$ 295,458 | 2033 | \$ 273,842       | \$ 91,855        | \$ 365,697 | 2043 | \$ 241,249       | \$ 95,986        | \$ 337,235 |
| 2024 | \$ 253,459       | \$ 44,377        | \$ 297,836 | 2034 | \$ 274,811       | \$ 101,298       | \$ 376,109 | 2044 | \$ 232,366       | \$ 97,221        | \$ 329,587 |
| 2025 | \$ 259,301       | \$ 51,192        | \$ 310,493 | 2035 | \$ 274,970       | \$ 109,930       | \$ 384,900 | 2045 | \$ 222,541       | \$ 98,189        | \$ 320,730 |
| 2026 | \$ 270,409       | \$ 44,102        | \$ 314,511 | 2036 | \$ 274,259       | \$ 118,031       | \$ 392,290 | 2046 | \$ 211,874       | \$ 98,848        | \$ 310,722 |
| 2027 | \$ 271,998       | \$ 53,952        | \$ 325,950 | 2037 | \$ 272,626       | \$ 103,492       | \$ 376,118 | 2047 | \$ 200,495       | \$ 99,157        | \$ 299,652 |
| 2028 | \$ 272,033       | \$ 61,332        | \$ 333,365 | 2038 | \$ 270,021       | \$ 107,192       | \$ 377,213 | 2048 | \$ 188,553       | \$ 99,070        | \$ 287,623 |

### 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, 2018

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 7.65%. This was determined using a building block method in which expected future real rates of return (expected returns, net of OPEB plan investment expense and inflation) are developed for each major asset class. These expected future real 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 and adding in expected inflation (2.00%). 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, 2018 are summarized in the following table.

| Asset Class                                  | Target Allocation | L/T Expected Real ROR |
|--|-------------------|-----------------------|
| U.S. All Cap Equity                          | 35.00%            | 7.22%                 |
| Non-U.S. Developed Large Cap Equity Unhedged | 15.00%            | 8.81%                 |
| U.S. Aggregate Fixed Income                  | 50.00%            | 3.60%                 |
| Total  | 100.00%           | 5.65%                 |

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.

| Yield as of                                      | July 1, 2017  | June 30, 2018 |
|--|---------------|---------------|
| Bond Buyer Go 20-Bond Municipal Bond Index       | 3.58%         | 3.87%         |
| S&P Municipal Bond 20-Year High Grade Rate Index | 3.13%         | 2.98%         |
| Fidelity 20-Year Go Municipal Bond Index         | 3.56%         | 3.62%         |
| Bond Index Range                                 | 3.13% - 3.58% | 2.98% - 3.87% |

3. The final equivalent single discount rates used for this year's valuation are 6.10% as of July 1, 2017 and 6.90% as of June 30, 2018. 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, 2018

## Active Employees

| Actives with coverage              | Single | Non-Single | Total    | Avg. Age    | Avg. Svc    | Salary            |
|------------------------------------|--------|------------|----------|-------------|-------------|-------------------|
| <b>Total actives with coverage</b> |        | <b>3</b>   | <b>3</b> | <b>52.7</b> | <b>25.7</b> | <b>\$ 189,172</b> |

| Actives without coverage              | Total    | Avg. Age    | Avg. Svc    | Salary           |
|---------------------------------------|----------|-------------|-------------|------------------|
| <b>Total actives without coverage</b> | <b>1</b> | <b>47.1</b> | <b>23.0</b> | <b>\$ 70,533</b> |

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     |                  |          |          |          |          |          |          | 1        |          |          | 1        |
| 55 to 59     |                  |          |          |          |          | 1        |          |          |          |          | 1        |
| 60 to 64     |                  |          |          |          |          |          |          |          |          |          | 0        |
| 65 to 69     |                  |          |          |          |          |          |          |          |          |          | 0        |
| 70 & up      |                  |          |          |          |          |          |          |          |          |          | 0        |
| <b>Total</b> | <b>0</b>         | <b>0</b> | <b>0</b> | <b>0</b> | <b>1</b> | <b>2</b> | <b>0</b> | <b>1</b> | <b>0</b> | <b>0</b> | <b>4</b> |

# Summary of Plan Participants

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

## Retirees

| Retirees with coverage              | Single <sup>1</sup> | Non-Single | Total     | Avg. Age    |
|-------------------------------------|---------------------|------------|-----------|-------------|
| BCBS Plan                           | 2                   | 5          | 7         | 62.2        |
| BCN Advantage                       | 4                   | 9          | 13        | 69.3        |
| <b>Total retirees with coverage</b> | <b>6</b>            | <b>14</b>  | <b>20</b> | <b>66.8</b> |

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     | 8         |
| 65 to 69     | 5         |
| 70 to 74     | 3         |
| 75 to 79     | 2         |
| 80 to 84     | 1         |
| 85 to 89     |           |
| 90 & up      |           |
| <b>Total</b> | <b>20</b> |

<sup>1</sup> 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, 2018

### 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, 2018 are as shown below.

| Age | Medical/Rx | Vision   |
|-----|------------|----------|
| 25  | \$ 252.70  | \$ 4.07  |
| 30  | \$ 285.67  | \$ 4.59  |
| 35  | \$ 307.57  | \$ 4.94  |
| 40  | \$ 321.66  | \$ 5.18  |
| 45  | \$ 363.44  | \$ 5.85  |
| 50  | \$ 449.52  | \$ 7.24  |
| 55  | \$ 561.27  | \$ 9.03  |
| 60  | \$ 683.09  | \$ 10.99 |
| 64  | \$ 755.07  | \$ 12.15 |

Premium rates effective on January 1, 2018 are as shown below.

| Plans                                     | EE        | EE + Sp   |
|---|-----------|-----------|
| BCN Advantage (post-65 plan) <sup>2</sup> | \$ 383.74 | \$ 767.48 |
| Dental                                    | \$ 55.52  | \$ 113.28 |

<sup>2</sup> Includes \$5.94 premium/per person for vision coverage.

# Substantive Plan Provisions

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

## Retiree Cost Sharing

Hired on/before 12/31/2007

Retirees contribute the following amounts:

| <u>Plans</u> | <u>EE</u> | <u>EE + Sp</u> |
|--------------|-----------|----------------|
| 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.

## Excise Tax

ACA Excise Tax liability is not included in this GASB valuation due to the uncertainty of its implementation. Nyhart has estimated that if the Excise Tax Liability were included, the Total OPEB Liability as of June 30, 2018 would increase by 0.3%.

# Actuarial Methods and Assumptions

---

## City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

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.

|                                 |   |
|---------------------------------|---|
| <b>Measurement Date</b>         | For fiscal year ending June 30, 2018, June 30, 2018 measurement date was used.  |
| <b>Actuarial Valuation Date</b> | June 30, 2018 with no adjustments to get to the June 30, 2018 measurement date. Liabilities as of July 1, 2017 are based on an actuarial valuation date of July 1, 2015 projected to July 1, 2017 on a "no loss / no gain" basis.   |
| <b>Discount Rate</b>            | 6.10% as of July 1, 2017 and 6.90% as of June 30, 2018 for accounting disclosure purposes<br>7.65% for funding disclosure purposes (in calculating the Actuarially Determined Contribution)<br>Refer to the Discussion of Discount Rates section for more information on selection of the discount rate.  |
| <b>Payroll Growth</b>           | 2.00% per year  |
| <b>Inflation Rate</b>           | 2.50% per year  |
| <b>Employer Funding Policy</b>  | The City will fund pay-as-you-go costs into the OPEB Trust. No additional pre-funding is expected.  |
| <b>Cost Method</b>              | 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"><li>• 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</li><li>• Annual Service Cost is a constant percentage of the participant's salary that is assumed to increase according to the Payroll Growth.</li></ul> |
| <b>Census Data</b>              | Census information was provided by the City as of June 30, 2018. 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, 2018

### 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.

### Mortality

Healthy Retirees: RPH-2017 Total Dataset Mortality Table fully generational using Scale MP-2017

Disabled Retirees: RPH-2017 Disabled Mortality Table fully generational using Scale MP-2017

### Retirement Rate

Retirement rates are based on the City's prior 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, 2018

### Disability

Disability rates are based on the City's prior 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 prior 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, 2018

## Health Care Trend Rates

| FYE   | Medical/Rx | Dental/Vision |
|-------|------------|---------------|
| 2019  | 9.0%       | 5.0%          |
| 2020  | 8.5%       | 4.5%          |
| 2021  | 8.0%       | 4.0%          |
| 2022  | 7.5%       | 3.5%          |
| 2023  | 7.0%       | 3.0%          |
| 2024  | 6.5%       | 2.5%          |
| 2025  | 6.0%       | 2.5%          |
| 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.

## 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 | \$ 822.74    | \$ 50.00             | \$ 772.74        |
| Spouse  | \$ 824.98    | \$ 25.00             | \$ 799.98        |

# Actuarial Methods and Assumptions

## City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

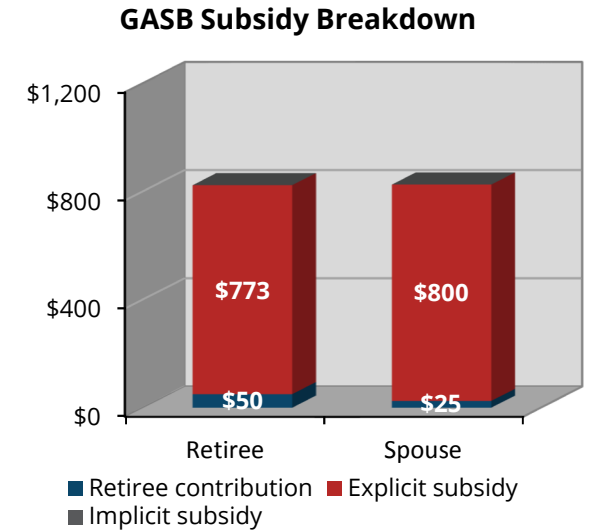
### Implicit Subsidy

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     | \$      | 772.74 | \$     | 799.98 |
| Implicit subsidy     | \$      | 0.00   | \$     | 0.00   |
| Total monthly cost   | \$      | 822.74 | \$     | 824.98 |



# APPENDIX

The background features a complex geometric design. It consists of several overlapping, semi-transparent shapes. A large, solid red shape is prominent in the lower right quadrant. To its left, there are various shades of gray and white shapes, some of which are semi-transparent, creating a layered effect. The overall composition is clean and modern, with sharp lines and a limited color palette.

# Appendix

## City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

### 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, 2015 | As of June 30, 2018 |
|-----------------------|---------------------|---------------------|
| Active Participants   | 5                   | 4                   |
| Retired Participants  | 23 <sup>3</sup>     | 20                  |
| Averages for Active   |                     |                     |
| Age                   | 49.0                | 51.3                |
| Service               | 21.0                | 25.0                |
| Averages for Inactive |                     |                     |
| Age                   | 61.9                | 66.8                |

<sup>3</sup> Included 4 terminated vested participants that were eligible for coverage. There are no current terminated vested participants as of June 30, 2018 that are eligible for future coverage.

# Appendix

---

## City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

### 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, 2015.

The City will disclose OPEB liabilities under GASB 75 for the current valuation. The prior valuation was disclosed under GASB 45. The following assumptions have been updated in accordance with GASB 75.

Discount rate as of the Measurement Date has been updated to be 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) tax-exempt, high quality 20-year municipal bonds. The prior full valuation used a discount rate of 4.00% for GASB 45 as of June 30, 2015 and 3.13% for GASB 74 as of June 30, 2017, as disclosed by the prior actuary. The current full valuation uses a discount rate of 6.10% as of July 1, 2017 and 6.90% as of June 30, 2018 for accounting purposes and 7.65% for funding purposes. This change has caused a significant decrease in liabilities.

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

Additionally, the following assumptions have also been updated:

1. Mortality table has been updated to SOA RPH-2017 Total Dataset Mortality Table fully generational using Scale MP-2017 for healthy retirees and SOA RPH-2017 Disability Mortality Table fully generational using Scale MP-2017 for disabled retirees. As disclosed by the prior actuary, the prior GASB 45 actuarial valuation as of June 30, 2015 used the RP-2000 Combined Healthy mortality table projected to 2015 and the prior GASB 74 actuarial valuation as of June 30, 2017 used the RP-2000 Combined Healthy mortality table projected to 2010. The impact of this change is a increase in liabilities.
2. The salary scale has been updated to be 2.00% per year based on recent City experience. The prior GASB 45 actuarial valuation report as of June 30, 2015 used a salary scale assumption of 3.75% and the prior GASB 74 actuarial valuation report as of June 30, 2017 did not have a salary scale assumption. This change has caused a slight decrease in liabilities.
3. Medical/Rx trend rates have been reset to an initial rate of 9.0% 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 prior GASB 45 actuarial valuation report as of June 30, 2015 was using an initial rate of 9.0% graded down to 4.0% in 0.5% increments and then 3.75% thereafter for all benefits. The prior GASB 74 valuation as of June 30, 2017 (based on the fiscal year ending June 30, 2015 GASB 45 valuation) was using an initial rate of 6.0% decreasing by 0.1% annually to an ultimate rate of 5.0%. The updates caused an increase in liabilities.

# Appendix

## City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

### Summary of Medical Benefits

A brief summary of all health plans offered by the City as of April 1, 2018 (BCBS plan) and January 1, 2018 (BCN Advantage) are as shown below. The out-of-pocket maximum includes the deductible, coinsurance, and copayments.

| City plans                           | BCBS Plan                           | BCN Advantage                       |
|--------------------------------------|-------------------------------------|-------------------------------------|
| Deductible (EE / EE + Sp)            | \$ 2,700 / \$ 5,400                 | \$0                                 |
| Coinsurance                          | 100%                                | 100%                                |
| Out-of-Pocket Maximum (EE / EE + Sp) | \$ 5,000 / \$ 10,000                | \$ 6,700 (per person)               |
| Co-pay / co-insurances for:          |                                     |                                     |
| Office Visit / Urgent Care           | Ded/coins                           | \$10                                |
| Emergency Room                       | Ded/coins                           | \$50                                |
| Prescription drugs <sup>4</sup>      |                                     |                                     |
|                                      | \$15                                | \$5                                 |
|                                      | \$50                                | \$5                                 |
| Retail (Tier 1 / 2 / 3/ 4 / 5)       | Greater of \$70 or 50% (max. \$100) | \$30                                |
|                                      | 20% (max. \$200)                    | \$30                                |
|                                      | 25% (max. \$300)                    | \$30                                |
| Mail Order (Tier 1 / 2 / 3/ 4 / 5)   | Same as retail for 30-day supply    | 1x retail copay up to 90-day supply |

<sup>4</sup> Copayments apply after the global deductible is met. Up to 30-day supply shown above for BCBS plan and 34-day supply for BCN Advantage. Separate copays apply to other supply amounts for BCBS plan.

# GLOSSARY

The background features a complex geometric design. The top half is a solid dark gray. Below this, there are several overlapping, semi-transparent shapes in various shades of gray and white, creating a layered effect. A prominent feature is a large, solid red shape that starts from the bottom right and extends upwards and to the left, partially overlapping the other elements.

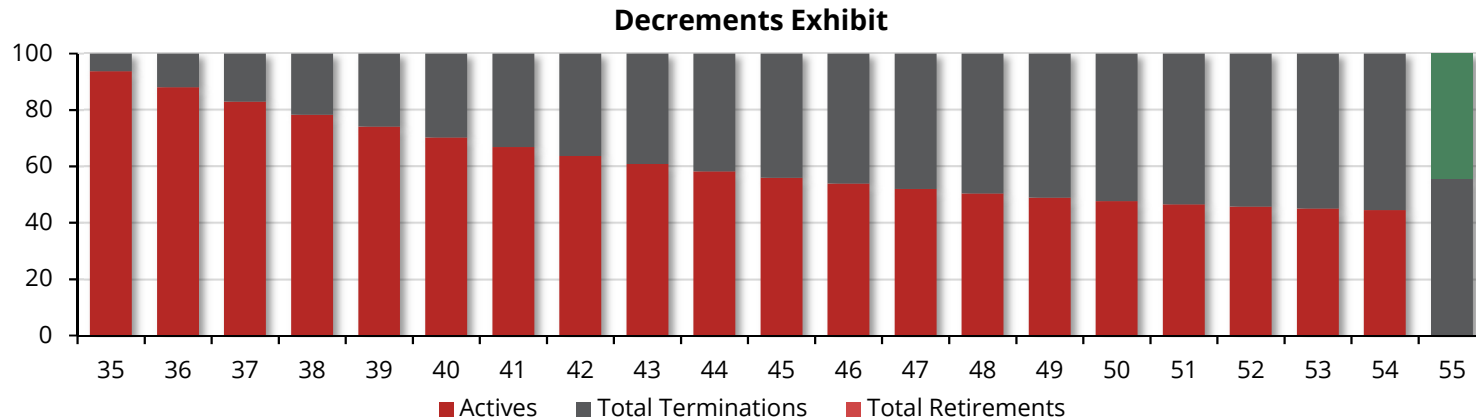
# Glossary – Decrements Exhibit

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

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 <sup>5</sup> | # 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           |



<sup>5</sup> The above rates are illustrative rates and are not used in our GASB calculations.

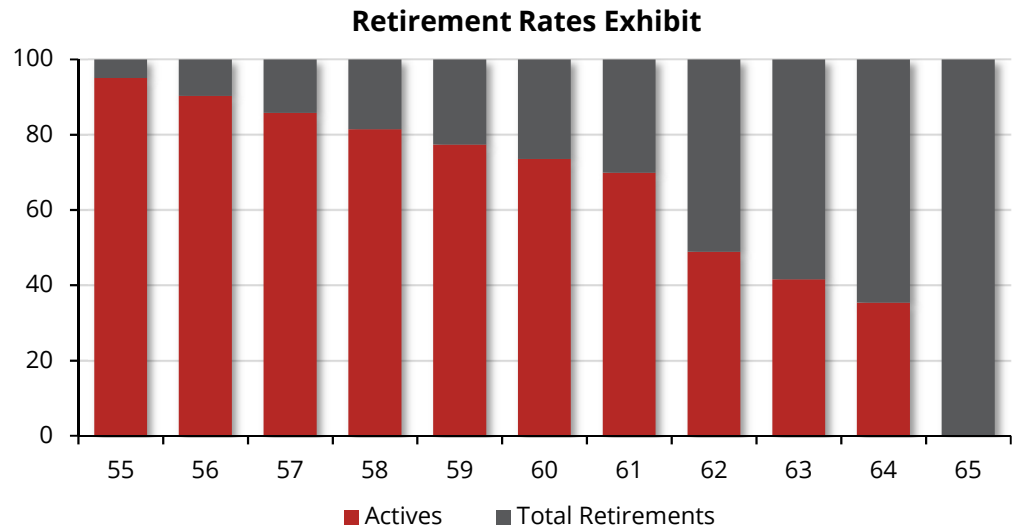


# Glossary – Retirement Rates Exhibit

City of Marine City GASB 74/75 Valuation for Fiscal Year Ending June 30, 2018

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, 2018

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, 2018

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, 2018

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).