

City of Kalamazoo Postretirement Welfare Benefits Plan

GASB Statement No. 74, Financial Reporting for
Postemployment Benefit Plans Other Than Pension Plans
December 31, 2017





May 25, 2018

Ms. Melissa Fuller
Deputy Director of Management Services
City of Kalamazoo
241 West South Street
Kalamazoo, Michigan 49007-4796

Dear Ms. Fuller:

This report provides information on behalf of the City of Kalamazoo Postretirement Welfare Benefits Plan in connection with the Governmental Accounting Standards Board (GASB) Statement No. 74 "Financial Reporting for Postemployment Benefit Plans other than Pension Plans."

The calculation of the liability associated with the benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement No. 74. The calculation of the plan's liability for this report is not applicable for funding purposes of the plan. A calculation of the plan's liability for purposes other than satisfying the requirements of GASB Statement No. 74 may produce significantly different results. This report may be provided to parties other than the City of Kalamazoo Postretirement Welfare Benefits Plan only in its entirety and only with the permission of the City of Kalamazoo Postretirement Welfare Benefits Plan. GRS is not responsible for unauthorized use of this report.

This report complements the actuarial valuation report prepared as of January 1, 2017, and information herein should be considered along with the information from that report, especially for additional discussions of the nature of actuarial calculations and for more information related to participant data; economic, demographic, health care trend, and morbidity assumptions; and benefit provisions.

This report is based upon information, furnished to us by the City, concerning other postemployment benefits (OPEB), active members, deferred vested members, retirees and beneficiaries, and financial data. This information was checked for internal consistency, but it was not audited.

Based on the available data, the information contained in this report is accurate and fairly represents the actuarial position of the City of Kalamazoo Postretirement Welfare Benefits Plan as of the reporting date. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as the Actuarial Standards of Practice. If you have reason to believe that the information provided in this report is inaccurate, or is in any way incomplete, or if you need further information in order to make an informed decision on the subject matter of this report, please contact the authors of the report prior to making such decision.

Ms. Melissa Fuller

May 25, 2018

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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; and changes in plan provisions or applicable law.

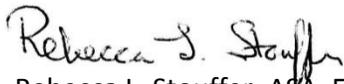
The signing actuaries are independent of the plan sponsor.

James D. Anderson and Rebecca L. Stouffer are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



James D. Anderson, FSA, EA, FCA, MAAA



Rebecca L. Stouffer, ASA, FCA, MAAA

JDA/RLS:bd

Auditor's Note – This information is intended to assist in preparation of the financial statements of the City of Kalamazoo Postretirement Welfare Benefits Plan. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

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SECTION A

EXECUTIVE SUMMARY

Executive Summary as of December 31, 2017

	2017
Actuarial Valuation Date	December 31, 2016
OPEB Plan's Fiscal Year Ending Date (Reporting Date)	December 31, 2017
 Membership	
Number of #	
- Retirees and Beneficiaries	750
- Inactive, Nonretired Members	41
- Active Members	621
- Total	1,412
Covered Payroll [^]	\$ 37,363,784
 Net OPEB Liability	
Total OPEB Liability	\$ 237,505,296
Plan Fiduciary Net Position	104,231,266
Net OPEB Liability	\$ 133,274,030
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	43.89 %
Net OPEB Liability as a Percentage of Covered Payroll	356.69 %
 Development of the Single Discount Rate	
Single Discount Rate	4.60 %
Long-Term Expected Rate of Return	7.50 %
Long-Term Municipal Bond Rate*	3.31 %
Last year ending December 31 in the 2018 to 2117 projection period for which projected benefit payments are fully funded	2035
#	<i>Membership counts are as of the actuarial valuation date, including members eligible for the retiree life insurance benefit and those on waiver.</i>
^	<i>Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date. This payroll may differ from the GASB Statement No. 74 definition of covered-employee payroll.</i>
*Source:	<i>Fixed-income municipal bonds with 20 years to maturity that include only federally tax-exempt municipal bonds as reported in Fidelity Index's "20-Year Municipal GO AA Index" as of December 29, 2017. In describing this index, Fidelity notes that the municipal curves are constructed using option-adjusted analytics of a diverse population of over 10,000 tax-exempt securities.</i>

Discussion

Accounting Standard

For post-employment (OPEB) benefit plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 74, “Financial Reporting for Postemployment Benefit Plans other than Pension Plans,” replaces the requirements of GASB Statement No. 43, “Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans.” GASB Statement No. 74 establishes standards of financial reporting for separately issued financial reports of state and local government OPEB plans.

Reporting under GASB 74 is effective for plan fiscal years commencing after June 15, 2016.

The following discussion provides a summary of the information that is required to be disclosed under this new accounting standard. A number of these disclosure items are provided in this report. However, certain information, such as notes regarding accounting policies and investments, is not included in this report, and internal staff will be responsible for preparing that information to comply with this accounting standard.

Financial Statements

GASB Statement No. 74 requires defined benefit OPEB plans to present two financial statements: a statement of fiduciary net position and a statement of changes in fiduciary net position.

The *statement of fiduciary net position* presents the following items as of the end of the OPEB plan’s reporting period:

- Assets;
- Receivables (deferred inflows and outflows of resources);
- Investments;
- Liabilities; and
- Fiduciary net position (assets, plus deferred outflows, minus liabilities, minus deferred inflows).

The *statement of changes in fiduciary net position* presents the following for the plan’s reporting period:

- Additions, such as contributions and investment income;
- Deductions, such as benefit payments and expenses; and
- Net increase or decrease in the fiduciary net position (the difference between additions and deductions).

Notes to Financial Statements

GASB Statement No. 74 also requires the notes of the plan's financial statements to include additional disclosure information. This disclosure information should include:

- **Plan Description:**
 - The name of the OPEB plan, the administrator of the OPEB plan, and the identification of whether the OPEB plan is a single-employer, agent, or cost-sharing OPEB plan.
 - The number of participating employers (if agent or cost-sharing OPEB plan) and the number of nonemployer contributing entities.
 - The composition of the OPEB plan's Board and the authority under which benefit terms may be amended.
 - The number of plan members by category and if the plan is closed.
 - The authority under which benefit terms are established or may be changed, the types of benefit provided and the classes of plan members covered. A brief description of the benefits and the description of automatic postemployment benefit changes and the sharing of benefit-related costs with inactive plan members.
 - A brief description of contribution requirements, including (a) identification of the authority under which contribution requirements of employers, nonemployer contributing entities, and plan members are established or may be amended; (b) the contribution rates of the employer, nonemployer contributing entities, and plan members; and (c) legal or contractual maximum contribution rates. If the OPEB plan of the entity that administers the OPEB plan has the authority to establish or amend contribution requirements, disclose the basis for determining contributions.
- **Plan Investments:**
 - A description of investment policies, including procedures for making and amending investment decisions; policies for asset allocation; and description of any significant changes in investment policy occurring during the reporting period.
 - Identification of investments that represent 5% or more of the fiduciary net position.
 - The annual money-weighted rate of return on the OPEB plan investments.
- **Receivables:**
 - The terms of any long-term contracts for contributions to the OPEB plan and the outstanding balance on any such long-term contracts.
- **Allocated insurance contracts excluded from OPEB plan assets**
- **Reserves:**
 - A description of the policy related to reserves;
 - The authority for the reserve policy;
 - The conditions under which the reserves can be used; and
 - The balances of the reserves.

In addition, Single-Employer and Cost-Sharing OPEB plans should disclose the following information in notes to financial statements:

- The components of the net OPEB liability:
 - The total OPEB liability;
 - The fiduciary net position;
 - The net OPEB liability; and
 - The OPEB plan's fiduciary net position as a percentage of the total OPEB liability.
- Significant assumptions and other inputs used to measure the total OPEB liability:
 - Significant assumptions include inflation, healthcare cost trend rates, salary changes, ad hoc postemployment benefit changes, and the sharing of benefit-related costs with inactive plan members.
 - If applicable, the patterns of practice relied upon for projecting the sharing of benefit-related costs with inactive plan members.
 - The source of the assumptions for mortality.
 - The dates of experience studies on which assumption are based.
- Measure of the net OPEB liability using +/- 1% on the healthcare trend rate.
- On the discount rate:
 - The discount rate used and the change in the discount rate since the prior fiscal year-end.
 - Assumptions about projected cash flows.
 - The long-term expected rate of return on OPEB investments and a description of how it was determined.
 - The municipal bond rate used and the source of that rate.
 - The periods of projected benefit payments to which the long-term expected rate of return are used.
 - The assumed asset allocation of the portfolio and the long-term expected real rate of return for each major asset class, and whether the returns are arithmetic or geometric.
 - Measure of the net OPEB liability using +/- 1% on the discount rate.
- The date of the valuation and, if applicable, the fact that update procedures were used to roll forward the total OPEB liability.

Required Supplementary Information

For Single-Employer and Cost-Sharing OPEB Plans, GASB Statement No. 74 requires a 10-year fiscal history of:

- Sources of changes in the net OPEB liability;
- Information about the components of the net OPEB liability and related ratios, including the OPEB plan's fiduciary net position as a percentage of the total OPEB liability, and the net OPEB liability as a percent of covered-employee payroll;
- Comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy along with the significant methods and assumptions used in calculating the actuarially determined contributions; and
- The annual money-weighted rate of return on OPEB plan investments for each year.

For Agent OPEB Plans, GASB Statement No. 74 requires a 10-year history of the annual money-weighted rate of return on OPEB plan investments.

Notes to the required schedules should include factors that significantly affect trends in the amounts reported (for example, changes of benefit terms, changes in the size or composition of the population covered, or the use of different assumptions). Information about investment-related factors that significantly affect trends in the amounts reported should be limited to those factors over which the OPEB plan or the participating governments have influence.

Measurement of the Net OPEB Liability

The net OPEB liability is to be measured as the total OPEB liability, less the amount of the OPEB plan's fiduciary net position. In actuarial terms, this will be the accrued liability less the market value of assets (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement). The net OPEB liability should be measured as of the OPEB plan's most recent fiscal year end.

Frequency and Timing of the Actuarial Valuation

An actuarial valuation to determine the total OPEB liability is required to be performed at least every two years. If the actuarial valuation is not calculated as of the plan's fiscal year end, the total OPEB liability is required to be rolled forward from the actuarial valuation date to the OPEB plan's fiscal year end. If update procedures are used to roll forward the total OPEB liability, the date of the actuarial valuation must be no more than 24 months earlier than the OPEB plan's most recent fiscal year-end.

The total OPEB liability shown in this report is based on an actuarial valuation performed as of December 31, 2016 and a measurement date of December 31, 2017.

Single Discount Rate

Projected benefit payments are required to be discounted to their actuarial present values using a Single Discount Rate that reflects (1) a long-term expected rate of return on OPEB plan investments (to the extent that the plan's fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on OPEB plan investments is 7.50%; the municipal bond rate is 3.31% (based on the daily rate closest to but not later than the measurement date of the Fidelity "20-Year Municipal GO AA Index"); and the resulting Single Discount Rate is 4.60%.

Actuarial Assumptions

The actuarial assumptions used to value the liabilities are outlined in detail in Section H. The assumptions include details on the healthcare trend assumption, the aging factors, as well as the cost method used to develop the OPEB expense.

Future Uncertainty or Risk

Future results may differ from those anticipated in this valuation. Reasons include, but are not limited to:

- Actual medical trend differing from expected;
- Changes in the healthcare plan designs offered to active and retired members; and
- Participant behavior differing from expected, e.g.,
 - Elections at retirement;
 - One-person versus two-person coverage elections; and
 - Time of retirement or termination.

Benefits Valued

The benefit provisions that were valued are described in Section E. The valuation is required to be performed on the current benefit terms and existing legal agreements. Consideration is to be given to the written plan document as well as other communications between the employer and plan members and an established pattern of practice for cost sharing. The summary of major plan provisions is designed to outline principal plan benefits. If the plan summary is not in accordance with the actual provisions, please alert the actuaries immediately, so they can both be sure the proper provisions are valued.

Effective Date and Transition

GASB Statement No. 74 is effective for an OPEB plan's fiscal years beginning after June 15, 2016.

SECTION B

FINANCIAL STATEMENTS

Auditor's Note – This information is intended to assist in preparation of the financial statements of the City of Kalamazoo Postretirement Welfare Benefits Plan. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Statement of Fiduciary Net Position as of December 31, 2017

	2017
Assets	
Cash and Deposits	\$ 31,705
Receivables	
Accounts Receivable - Sale of Investments	\$ 858,507
Accrued Interest and Other Dividends	167,030
Contributions	0
Accounts Receivable - Other	404
Total Receivables	\$ 1,025,941
Investments	
Fixed Income	\$ 27,212,155
Domestic Equities	52,673,885
International Equities	21,869,707
Real Estate	5,082,853
Other - Mutual Funds	0
Total Investments	\$ 106,838,600
Total Assets	\$ 107,896,246
Liabilities	
Payables	
Accounts Payable - Purchase of Investments	\$ 2,695,139
Accrued Expenses	931,169
Accounts Payable - Other	38,672
Total Liabilities	\$ 3,664,980
Net Position Restricted for OPEB	\$ 104,231,266

Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2017

	2017
Additions	
Contributions	
Employer	\$ 3,500,000
Nonemployer contributing entities	0
Active Employees	0
Other	0
Total Contributions	\$ 3,500,000
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 11,967,187
Interest and Dividends	3,076,127
Less Investment Expense	(331,545)
Net Investment Income	\$ 14,711,769
Other	\$ 0
Total Additions	\$ 18,211,769
 Deductions	
Benefit Payments	\$ 9,258,659
OPEB Plan Administrative Expense	100,922
Other	0
Total Deductions	\$ 9,359,581
Net Increase in Net Position	\$ 8,852,188
 Net Position Restricted for OPEB	
Beginning of Year	\$ 95,379,078
End of Year	\$ 104,231,266

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Auditor's Note – This information is intended to assist in preparation of the financial statements of the City of Kalamazoo Postretirement Welfare Benefits Plan. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Schedules of Required Supplementary Information

Schedule of Changes in Net OPEB Liability and Related Ratios Multiyear

Last 10 Fiscal Years (which may be built prospectively)

Fiscal year ending December 31,	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Total OPEB liability										
Service cost	\$ 1,490,221									
Interest on the total OPEB liability	\$ 12,162,956									
Changes of benefit terms	\$ 0									
Difference between expected and actual experience*	\$ (45,814)									
Changes of assumptions	\$ 67,099,621									
Benefit payments, including refunds of employee contributions	\$ (9,258,659)									
Net change in total OPEB liability	\$ 71,448,325									
Total OPEB liability - beginning	\$ 166,056,971									
Total OPEB liability - ending (a)	\$ 237,505,296									
Plan fiduciary net position										
Employer contributions	\$ 3,500,000									
Nonemployer contributing entities contributions	\$ 0									
Employee contributions	\$ 0									
OPEB plan net investment income	\$ 14,711,769									
Benefit payments, including refunds of employee contributions	\$ (9,258,659)									
OPEB plan administrative expense	\$ (100,922)									
Other	\$ 0									
Net change in plan fiduciary net position	\$ 8,852,188									
Plan fiduciary net position - beginning	\$ 95,379,078									
Plan fiduciary net position - ending (b)	\$ 104,231,266									
Net OPEB liability - ending (a) - (b)	\$ 133,274,030									
Plan fiduciary net position as a percentage of total OPEB liability	43.89%									
Covered-employee payroll[^]	\$ 37,363,784									
Net OPEB liability as a percentage of covered-employee payroll	356.69%									

Notes to Schedule:

* Due to difference between actual and expected benefit payments.

[^] Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date. This payroll may differ from the GASB Statement No. 74 definition of covered-employee payroll.

Schedules of Required Supplementary Information

Schedule of the Net OPEB Liability Multiyear

Last 10 Fiscal Years (which may be built prospectively)

FY Ending December 31,	Total OPEB Liability	Plan Net Position	Net OPEB Liability	Plan Net Position as a % of Total OPEB Liability	Covered Payroll [^]	Net OPEB Liability as a % of Covered Payroll
2008						
2009						
2010						
2011						
2012						
2013						
2014						
2015						
2016						
2017	\$ 237,505,296	\$ 104,231,266	\$ 133,274,030	43.89 %	\$ 37,363,784	356.69 %

[^] Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date. This payroll may differ from the GASB Statement No. 74 definition of covered-employee payroll.

Schedule of Contributions Multiyear Last 10 Fiscal Years

FY Ending December 31,	Actuarially Determined Contribution	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll [^]	Actual Contribution as a % of Covered Payroll
2008					
2009					
2010					
2011					
2012					
2013					
2014					
2015					
2016					
2017	\$ 7,610,636	\$ 3,500,000	\$ 4,110,636	\$ 37,363,784	9.37 %

[^] Reflects payroll as of the actuarial valuation date that is one year prior to the measurement date.
This payroll may differ from the GASB Statement No. 74 definition of covered-employee payroll.

Notes to Schedule of Contributions

Valuation Date: January 1, 2017
Notes Actuarially determined contribution amounts are calculated as of January 1 every year.

Methods and Assumptions Used to Determine Contribution Amounts for the Fiscal Year Ending December 31, 2017*:

Actuarial Cost Method	Individual Entry Age Normal
Amortization Method	Level Dollar, Closed
Remaining Amortization Period	25 years
Asset Valuation Method	5-Year Smoothed Market
Inflation	3.5% (which includes price inflation of 2.75%)
Salary Increases	3.5% to 15.5%, including inflation
Investment Rate of Return	7.5%, net of OPEB plan investment expense
Retirement Age	Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	RP-2000 Mortality Table, projected 20 years with U.S. Projection Scale BB, rates set-forward 7 years for disabled members
Health Care Trend Rates	9.0% trend for the first year, gradually decreasing to 3.5% in year 10
Aging factors	Based on the 2013 SOA Study "Health Care Costs - From Birth to Death"

Other Information:

Notes N/A

** Based on valuation assumptions used in the January 1, 2017 valuation.*

Schedule of Investment Returns Multiyear Last 10 Fiscal Years

<u>FY Ending December 31,</u>	<u>Annual Return^{1,2}</u>
2008	
2009	
2010	
2011	
2012	
2013	
2014	
2015	
2016	
2017	15.81 %

¹ Annual money-weighted rate of return, net of investment expenses.

² Based upon cash flows and beginning and ending balance of OPEB Plan Investments as provided by the City.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Auditor's Note – This information is intended to assist in preparation of the financial statements of the City of Kalamazoo Postretirement Welfare Benefits Plan. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Long-Term Expected Return on Plan Assets

The assumed rate of investment return was adopted by the plan's trustees after considering input from the plan's investment consultant and Actuary. Additional information about the assumed rate of investment return is included in our actuarial valuation report as of January 1, 2017. The assumed rate of investment return falls within a reasonable range of the long-term expected rate of return.

The long-term expected rate of return on pension plan investments was determined using a building-block method in which expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These real rates of return are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. For each major asset class that is included in the pension plan's target asset allocation as of December 31, 2017, these best estimates are summarized in the following table:

<u>Asset Class</u>	<u>Target Allocation</u>	<u>Long-Term Expected Real Rate of Return*</u>
US Small Cap (Manager 1)	5.00 %	4.60 %
US Small Cap (Manager 2)	10.00 %	4.60 %
Int'l Developed Equity	10.00 %	4.10 %
US Large Cap (Manager 1)	30.00 %	4.10 %
US Large Cap (Manager 2)	5.00 %	4.20 %
Emerging Markets	10.00 %	6.60 %
Domestic Fixed Income	25.00 %	1.00 %
Real Estate (Manager 1)	2.50 %	2.90 %
Real Estate (Manager 2)	2.50 %	2.90 %
Total	100.00 %	

** Real rate of return is based on investment manager inflation assumption of 2.00%.*

The figures in the above table were supplied by the City of Kalamazoo. Gabriel, Roeder, Smith & Company does not provide investment advice.

Single Discount Rate

A Single Discount Rate of 4.60% was used to measure the total OPEB liability. This Single Discount Rate was based on an expected rate of return on OPEB plan investments of 7.50% and a municipal bond rate of 3.31%. The projection of cash flows used to determine this Single Discount Rate assumed that employer contributions will be made at rates equal to \$3,500,000 per year. Based on these assumptions, the OPEB plan's fiduciary net position and future contributions were sufficient to finance the benefit payments through the year 2035. As a result, the long-term expected rate of return on OPEB plan investments was applied to projected benefit payments through the year 2035, and the municipal bond rate was applied to all benefit payments after that date.

Summary of Membership Information

The following table provides a summary of the number of participants in the plan:

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	750
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	41
Active Plan Members	<u>621</u>
Total Plan Members	1,412

Sensitivity of Net OPEB Liability

Regarding the sensitivity of the net OPEB liability to changes in the Single Discount Rate, the following presents the plan's net OPEB liability, calculated using a Single Discount Rate of 4.60%, as well as what the plan's net OPEB liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net OPEB Liability to the Single Discount Rate Assumption

1% Decrease	Current Single Discount Rate Assumption	1% Increase
3.60%	4.60%	5.60%
\$ 166,677,465	\$ 133,274,030	\$ 105,929,527

Regarding the sensitivity of the net OPEB liability to changes in the healthcare cost trend rates, the following presents the plan's net OPEB liability, calculated using the assumed trend rates as well as what the plan's net OPEB liability would be if it were calculated using a trend rate that is one percent lower or one percent higher:

Sensitivity of Net OPEB Liability to the Healthcare Cost Trend Rate Assumption

1% Decrease	Current Healthcare Cost Trend Rate Assumption	1% Increase
\$ 101,786,181	\$ 133,274,030	\$ 172,016,816

SECTION E

SUMMARY OF BENEFITS

Summary of Benefits

This report complements the actuarial valuation prepared as of January 1, 2017, and information herein should be considered along with the information from that report, especially for additional discussions of the nature of actuarial calculations and for more information related to benefit provisions.

SECTION F

DEVELOPMENT OF BASELINE CLAIMS COSTS

Development of Baseline Claims Cost

This report complements the actuarial valuation prepared as of January 1, 2017, and information herein should be considered along with the information from that report, especially for additional discussions of the nature of actuarial calculations and for more information related to baseline claims costs.

SECTION G

SUMMARY OF PARTICIPANT DATA

Summary of Participant Data

This report complements the actuarial valuation prepared as of January 1, 2017, and information herein should be considered along with the information from that report, especially for additional discussions of the nature of actuarial calculations and for more information related to participant data.

SECTION H

VALUATION METHODS AND ACTUARIAL ASSUMPTIONS

Miscellaneous and Technical Assumptions

This report complements the actuarial valuation report prepared as of January 1, 2017, and information herein should be considered along with the information from that report, especially for additional discussions of the nature of actuarial calculations and for more information related to miscellaneous and technical assumptions. Differences from the actuarial report are noted below:

Roll-Forward Disclosure The total OPEB liability shown in this report is based on an actuarial valuation performed as of January 1, 2017 and a measurement date of December 31, 2017. The roll-forward procedure increases the January 1, 2017 actuarial accrued liability with normal cost and interest and decreases it with expected benefit payments.

SECTION I

CALCULATION OF THE SINGLE DISCOUNT RATE

Calculation of the Single Discount Rate

GASB Statement No. 74 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total OPEB Liability. This rate considers the ability of the fund to meet benefit obligations in the future. To make this determination, employer contributions, employee contributions, benefit payments, expenses and investment returns are projected into the future. The Plan Net Position (assets) in future years can then be determined and compared to its obligation to make benefit payments in those years. As long as assets are projected to be on hand in a future year, the assumed valuation discount rate is used. In years where assets are not projected to be sufficient to meet benefit payments, the use of a municipal bond rate is required, as described in the following paragraph.

The Single Discount Rate (SDR) is equivalent to applying these two rates to the benefits that are projected to be paid during the different time periods. The SDR reflects (1) the long-term expected rate of return on OPEB plan investments (during the period in which the fiduciary net position is projected to be sufficient to pay benefits) and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate of return are not met).

For the purpose of this valuation, the expected rate of return on OPEB plan investments is 7.50%; the municipal bond rate is 3.31%; and the resulting Single Discount Rate is 4.60%.

The tables in this section provide background for the development of the Single Discount Rate.

- The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels in future years. Included in this is a projection of total contributions which represent the expected contributions in future years.
- The **Present Values of Projected Benefit Payments** table shows the development of the Single Discount Rate (SDR). It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

The projections in this report are strictly for the purpose of determining the GASB single discount rate and are different from a funding projection for the ongoing plan. There may be cases when schedules do not add or where they do not exactly balance to other related schedules due to rounding.

The projection of cash flows used to determine this SDR assumed the following:

- Contributions will continue at a rate equal to \$3,500,000 per year.
- Contributions, benefit payments, service costs, and administrative expenses occur halfway through the year.
- The Plan remains open only for retiree life insurance benefits. Life insurance benefits have marginal value when compared to retiree health benefits. As such, the Plan is treated as closed for purposes of the enclosed projections.

Single Discount Rate Development

Projection of Plan Net Position Ending December 31 for 2018 to 2117

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.500%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	\$ 104,231,266	\$ 3,500,000	\$ 10,116,036	\$ 0	\$ 7,573,729	\$ 105,188,959
2	105,188,959	3,500,000	10,841,983	0	7,618,825	105,465,802
3	105,465,802	3,500,000	11,619,159	0	7,610,971	104,957,614
4	104,957,614	3,500,000	12,304,443	0	7,547,623	103,700,794
5	103,700,794	3,500,000	12,870,161	0	7,432,531	101,763,164
6	101,763,164	3,500,000	13,366,088	0	7,268,948	99,166,024
7	99,166,024	3,500,000	14,034,943	0	7,049,533	95,680,614
8	95,680,614	3,500,000	14,574,905	0	6,768,245	91,373,954
9	91,373,954	3,500,000	14,885,950	0	6,433,792	86,421,796
10	86,421,796	3,500,000	15,053,574	0	6,056,208	80,924,430
11	80,924,430	3,500,000	15,309,358	0	5,634,487	74,749,559
12	74,749,559	3,500,000	15,661,205	0	5,158,416	67,746,771
13	67,746,771	3,500,000	16,007,281	0	4,620,464	59,859,954
14	59,859,954	3,500,000	16,220,741	0	4,021,093	51,160,305
15	51,160,305	3,500,000	16,412,703	0	3,361,550	41,609,153
16	41,609,153	3,500,000	16,376,476	0	2,646,548	31,379,226
17	31,379,226	3,500,000	16,344,277	0	1,880,489	20,415,438
18	20,415,438	3,500,000	16,280,760	0	1,060,544	8,695,222
19	8,695,222	3,500,000	16,211,516	0	184,077	0
20	0	3,500,000	15,998,233	0	0	0
30	0	3,500,000	12,225,933	0	0	0
40	0	3,500,000	6,968,074	0	0	0
50	0	3,500,000	3,085,803	0	15,252	0
60	0	3,500,000	757,089	0	101,000	0
70	0	3,500,000	54,055	0	126,887	0
80	0	3,500,000	1,169	0	128,834	0
90	0	3,500,000	3	0	128,877	0
100	0	3,500,000	0	0	128,877	0

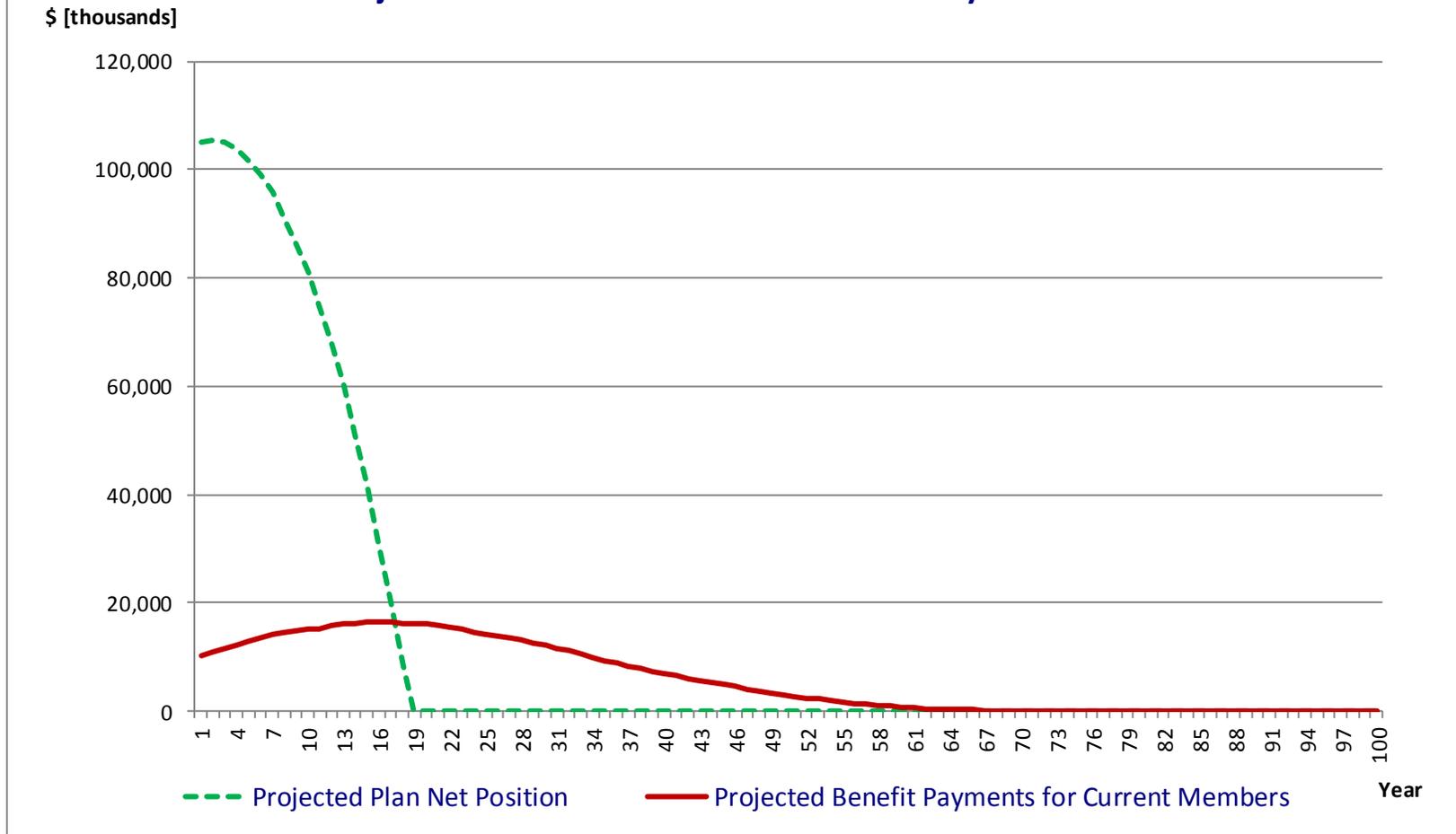
Single Discount Rate Development

Present Values of Projected Benefits Ending December 31 for 2018 to 2117

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Projected Benefit Payments	Unfunded Portion of Projected Benefit Payments	Present Value of Funded Benefit Payments using Expected Return Rate (v)	Present Value of Unfunded Benefit Payments using Municipal Bond Rate (vf)	Present Value of All Benefit Payments using Single Discount Rate (SDR)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^{(a)-.5}	(g)=(e)*vf ^{(a)-.5}	(h)=(c)/(1+SDR) ^{(a)-.5}
1	\$ 104,231,266	\$ 10,116,036	\$ 10,116,036	\$ -	\$ 9,756,771	\$ -	\$ 9,891,064
2	105,188,959	10,841,983	10,841,983	-	9,727,383	-	10,134,602
3	105,465,802	11,619,159	11,619,159	-	9,697,360	-	10,383,363
4	104,957,614	12,304,443	12,304,443	-	9,552,837	-	10,512,129
5	103,700,794	12,870,161	12,870,161	-	9,294,925	-	10,511,822
6	101,763,164	13,366,088	13,366,088	-	8,979,616	-	10,436,711
7	99,166,024	14,034,943	14,034,943	-	8,771,132	-	10,476,962
8	95,680,614	14,574,905	14,574,905	-	8,473,098	-	10,401,496
9	91,373,954	14,885,950	14,885,950	-	8,050,162	-	10,156,217
10	86,421,796	15,053,574	15,053,574	-	7,572,847	-	9,818,844
20	-	15,998,233	-	15,998,233	-	8,478,050	6,654,971
30	-	12,225,933	-	12,225,933	-	4,678,239	3,243,468
40	-	6,968,074	-	6,968,074	-	1,925,260	1,178,945
50	-	3,085,803	-	3,085,803	-	615,632	332,968
60	-	757,089	-	757,089	-	109,063	52,100
70	-	54,055	-	54,055	-	5,623	2,372
80	-	1,169	-	1,169	-	88	33
90	-	3	-	3	-	0	0
100	-	-	-	-	-	-	-
Totals¹					\$ 139,369,171	\$ 120,056,933	\$ 259,426,104

¹ These totals are values that are summed over a period of 100 years. However, only select values from this 100-year period are shown above.

Projection of Plan Net Position and Benefit Payments



SECTION J

GLOSSARY OF TERMS

Glossary of Terms

Accrued Service	Service credited under the system that was rendered before the date of the actuarial valuation.
Actuarial Accrued Liability (AAL)	The AAL is the difference between the actuarial present value of all benefits and the actuarial value of future normal costs. The definition comes from the fundamental equation of funding which states that the present value of all benefits is the sum of the Actuarial Accrued Liability and the present value of future normal costs. The AAL may also be referred to as "accrued liability" or "actuarial liability."
Actuarial Assumptions	These assumptions are estimates of future experience with respect to rates of mortality, disability, turnover, retirement, rate or rates of investment income and compensation increases. Actuarial assumptions are generally based on past experience, often modified for projected changes in conditions. Economic assumptions (compensation increases, payroll growth, inflation and investment return) consist of an underlying real rate of return plus an assumption for a long-term average rate of inflation.
Actuarial Cost Method	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the OPEB trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
Actuarial Equivalent	A single amount or series of amounts of equal actuarial value to another single amount or series of amounts, computed on the basis of appropriate actuarial assumptions.
Actuarial Gain (Loss)	The difference in liabilities between actual experience and expected experience during the period between two actuarial valuations is the gain (loss) on the accrued liabilities.
Actuarial Present Value (APV)	The amount of funds currently required to provide a payment or series of payments in the future. The present value is determined by discounting future payments at predetermined rates of interest and probabilities of payment.
Actuarial Valuation	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, total OPEB liability, and related actuarial present value of projected benefit payments for OPEB.
Actuarial Valuation Date	The date as of which an actuarial valuation is performed.

Glossary of Terms

Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)	A calculated contribution into an OPEB plan for the reporting period, most often determined based on the funding policy of the plan. Typically the Actuarially Determined Contribution has a normal cost payment and an amortization payment.
Amortization Method	The method used to determine the periodic amortization payment may be a level dollar amount, or a level percent of pay amount. The period will typically be expressed in years, and the method will either be “open” (meaning, reset each year) or “closed” (the number of years remaining will decline each year).
Amortization Payment	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
Cost-of-Living Adjustments	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
Cost-Sharing Multiple-Employer Defined Benefit OPEB Plan (cost-sharing OPEB plan)	A multiple-employer defined benefit OPEB plan in which the OPEB obligations to the employees of more than one employer are pooled and OPEB plan assets can be used to pay the benefits of the employees of any employer that provides benefits through the OPEB plan.
Covered-Employee Payroll	The payroll of employees that are provided with benefits through the OPEB plan.
Deferred Inflows and Outflows	The deferred inflows and outflows of OPEB resources are amounts used under GASB Statement No. 75 in developing the annual OPEB expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in the OPEB expense should be included in the deferred inflows or outflows of resources.
Discount Rate	For GASB purposes, the discount rate is the single rate of return that results in the present value of all projected benefit payments to be equal to the sum of the funded and unfunded projected benefit payments, specifically: <ol style="list-style-type: none">1. The benefit payments to be made while the OPEB plans’ fiduciary net position is projected to be greater than the benefit payments that are projected to be made in the period; and2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.

Glossary of Terms

Entry Age Actuarial Cost Method (EAN)	The EAN is a cost method for allocating the costs of the plan between the normal cost and the accrued liability. The actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis (either level dollar or level percent of pay) over the earnings or service of the individual between entry age and assumed exit ages(s). The portion of the actuarial present value allocated to a valuation year is the normal cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future normal costs is the actuarial accrued liability. The sum of the accrued liability plus the present value of all future normal costs is the present value of all benefits.
Fiduciary Net Position	The fiduciary net position is the market value of the assets of the trust dedicated to the defined benefit provisions.
GASB	The Governmental Accounting Standards Board is an organization that exists in order to promulgate accounting standards for governmental entities.
Long-Term Expected Rate of Return	The long-term rate of return is the expected return to be earned over the entire trust portfolio based on the asset allocation of the portfolio.
Money-Weighted Rate of Return	The money-weighted rate of return is a method of calculating the returns that adjusts for the changing amounts actually invested. For purposes of GASB Statement No. 74, the money-weighted rate of return is calculated as the internal rate of return on OPEB plan investments, net of OPEB plan investment expense.
Multiple-Employer Defined Benefit OPEB Plan	A multiple-employer plan is a defined benefit OPEB plan that is used to provide OPEB payments to the employees of more than one employer.
Municipal Bond Rate	The Municipal Bond Rate is the discount rate to be used for those benefit payments that occur after the assets of the trust have been depleted.
Net OPEB Liability (NOL)	The NOL is the liability of employers and non-employer contributing entities to plan members for benefits provided through a defined benefit OPEB plan.
Non-Employer Contributing Entities	Non-employer contributing entities are entities that make contributions to an OPEB plan that is used to provide OPEB payments to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contributing entities.

Glossary of Terms

Normal Cost	The portion of the actuarial present value allocated to a valuation year is called the normal cost. For purposes of application to the requirements of this Statement, the term normal cost is the equivalent of service cost.
Other Postemployment Benefits (OPEB)	All postemployment benefits other than retirement income (such as death benefits, life insurance, disability, and long-term care) that are provided separately from a pension plan, as well as postemployment healthcare benefits regardless of the manner in which they are provided. Other post-employment benefits do not include termination benefits.
Real Rate of Return	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
Service Cost	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year.
Total OPEB Expense	The total OPEB expense is the sum of the following items that are recognized at the end of the employer's fiscal year: <ol style="list-style-type: none">1. Service Cost2. Interest on the Total OPEB Liability3. Current-Period Benefit Changes4. Employee Contributions (made negative for addition here)5. Projected Earnings on Plan Investments (made negative for addition here)6. OPEB Plan Administrative Expense7. Other Changes in Plan Fiduciary Net Position8. Recognition of Outflow (Inflow) of Resources due to Liabilities9. Recognition of Outflow (Inflow) of Resources due to Assets
Total OPEB Liability (TOL)	The TOL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
Unfunded Actuarial Accrued Liability (UAAL)	The UAAL is the difference between actuarial accrued liability and valuation assets.
Valuation Assets	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 74 and 75, the valuation assets are equal to the market value of assets.