

Manchester Employees' Contributory Retirement System

GASB Statement Nos. 74 and 75, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions
December 31, 2019





May 4, 2020

Board of Trustees
City of Manchester Employees'
Contributory Retirement System
1045 Elm Street, Suite 403
Manchester, New Hampshire 03101-1824

Dear Board Members:

This report provides information related to the City of Manchester Employees Contributory Retirement System (MECRS) in connection with the Governmental Accounting Standards Board (GASB) Statement Nos. 74 and 75. GASB Statement No. 74 is the accounting standard, which applies to other postemployment benefits (OPEB) plans that are administered through trusts or equivalent arrangements. GASB Statement No. 75 establishes accounting and financial reporting requirements for State and local government employers that provide their employees with postemployment benefits other than pensions.

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 Nos. 74 and 75. 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 Nos. 74 and 75 may produce significantly different results. This report may be provided to parties other than MECRS and/or the City only in its entirety and only with the permission of MECRS and/or the City. GRS is not responsible for unauthorized use of this report.

This report is based upon information, furnished to us by MECRS, 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.

The data, actuarial assumptions, and benefit provisions used in this report are the same as those used in the December 31, 2019 actuarial valuation unless otherwise noted. Please refer to this valuation for additional discussion regarding the data, assumptions, benefit provisions, and the nature of actuarial calculations.

Based on the available data, the information contained in this report is accurate and fairly represents the actuarial position of the retiree health subsidy provided by the City of Manchester Employees Contributory Retirement System 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.

The benefits provided by MECRS are dollar benefits. Although the City may provide health insurance access, MECRS does not. The liabilities computed herein are based on the dollar benefits, not claims costs or premiums. Therefore, this report comprises only a portion of the City's reporting under GASB Statement No. 75. It is our understanding that liabilities associated with any implicit subsidies are provided from other sources. A review of those liabilities was outside the scope of this engagement.

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.

Section G of the report details the calculation of the single discount rate and is not required to be included in your financial statements. However, this information may be requested by your auditors; therefore, we have included it in this report.

Heidi G. Barry is a Member of the American Academy of Actuaries (MAAA) and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

Respectfully submitted,



Kenneth G. Alberts



Heidi G. Barry, ASA, FCA, MAAA

KGA/HGB:ah



Auditor's Note – This information is intended to assist in preparation of the financial statements of the retiree health subsidy provided by the City of Manchester Employees' Contributory Retirement System. 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, 2019

Actuarial Valuation Date	December 31, 2019
Measurement Date of the Net OPEB Liability	December 31, 2019
Employer's Fiscal Year Ending Date (Reporting Date)	June 30, 2020

Membership

Number of	
- Retirees and Beneficiaries	376
- Inactive, Nonretired Members	110
- Active Members	1,119
- Total	1,605
Covered Payroll [^]	\$ 52,895,992

Net OPEB Liability

Total OPEB Liability	\$ 30,334,669
Plan Fiduciary Net Position	14,772,702
Net OPEB Liability	\$ 15,561,967
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	48.70 %
Net OPEB Liability as a Percentage of Covered Payroll	29.42 %

Development of the Single Discount Rate

Single Discount Rate	7.00 %
Long-Term Expected Rate of Investment Return	7.00 %
Long-Term Municipal Bond Rate*	2.75 %
Last year ending December 31 in the 2020 to 2119 projection period for which projected benefit payments are fully funded	2119

Total OPEB Expense	\$ 1,543,209
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Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future OPEB Expenses#

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 724,027	\$ 78,897
Changes in assumptions	1,239,601	0
Net difference between projected and actual earnings on OPEB plan investments	948,700	1,270,953
Total	\$ 2,912,328	\$ 1,349,850

[^] Based on valuation payroll as of December 31, 2019.

*Source: 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 31, 2019. 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.

The deferred outflows and inflows originating from before 2019 that were used in the City's prior year's financial reports were provided by the City's auditor.



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.” Similarly, GASB Statement No. 75 establishes standards for State and local government employers (as well as non-employer contributing entities) to account for and disclose net OPEB liability, OPEB expense, and other information associated with providing OPEB to their employees (and former employees) on their financial statements.

The following discussion provides a summary of the information that is required to be disclosed under these accounting standards. 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. As a result, the plan sponsor will be responsible for preparing and disclosing the non-actuarial information needed to comply with these accounting standards.

Financial Statements

GASB Statement No. 75 requires State and local government employers to recognize the net OPEB liability and the OPEB expense on their financial statements, along with the related deferred outflows and inflows of resources. The net OPEB liability is the difference between the total OPEB liability and the plan’s fiduciary net position. In traditional actuarial terms, this is analogous to the accrued liability less the market value of assets.

GASB Statement No. 75 states the employer contributions made to the OPEB plan subsequent to the measurement date and before the end of the employer’s reporting period should be reported as a deferred outflow of resources. The information contained in this report does not incorporate any employer contributions made subsequent to the measurement date of December 31, 2019.

The OPEB expense recognized each fiscal year is equal to the change in the net OPEB liability from the beginning of the year to the end of the year, adjusted for deferred recognition of the liability and investment experience.

GASB Statement No. 74 requires defined benefit OPEB plans which are administered as trusts or equivalent arrangements 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 assets and liabilities of the OPEB plan at the end of the OPEB plan’s reporting period. The statement of changes in fiduciary net position presents the additions, such as contributions and investment income, and deductions, such as benefit payments and expense, and net increase or decrease in the fiduciary net position.

Discussion

Notes to Financial Statements

GASB Statement No. 75 requires the notes of the employer's financial statements to disclose the total OPEB expense, the OPEB plan's liabilities and assets, and deferred outflows of resources and inflows of resources related to OPEB.

GASB Statement Nos. 74 and 75 require the notes of the financial statements for employers and OPEB plans to include certain additional information. The list of disclosure items should include:

- 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;
- A description of the benefits provided by the plan;
- A brief description of changes in benefit terms or assumptions that affected the measurement of the total OPEB liability since the prior measurement date;
- The number of plan members by category and if the plan is closed;
- A description of the plan's funding policy, which includes member and employer contribution requirements;
- The OPEB plan's investment policies;
- The OPEB plan's fiduciary net position and the net OPEB liability (if applicable);
- The net OPEB liability using +/- 1% on the discount rate;
- The net OPEB liability using +/- 1% on the healthcare trend rate;
- Significant assumptions and methods used to calculate the total OPEB liability;
- Inputs to the discount rates; and
- Certain information about mortality assumptions and the dates of experience studies.

OPEB plans that are administered through trusts or equivalent arrangements are required to disclose additional information in accordance with GASB Statement No. 74. This information includes:

- The composition of the OPEB plan's Board and the authority under which benefit terms may be amended;
- A description of how fair value is determined;
- Information regarding certain reserves and investments, which include concentrations of investments greater than or equal to 5%, receivables, and insurance contracts excluded from plan assets; and
- Annual money-weighted rate of return.

Discussion

Required Supplementary Information

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.
- For plans with an actuarially determined contribution, the schedule covering each of the 10 most recent fiscal years of the actuarially determined contribution, contributions to the OPEB plan and related ratios.

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. For the employer's financial reporting purposes, the net OPEB liability and OPEB expense should be measured as of the employer's "measurement date," which may not be earlier than the employer's prior fiscal year-end date. If the actuarial valuation used to determine the total OPEB liability is not calculated as of the measurement date, the total OPEB liability is required to be rolled forward from the actuarial valuation date to the measurement date.

The total OPEB liability shown in this report is based on an actuarial valuation performed as of December 31, 2019 and a measurement date of December 31, 2019.

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 7.00%; the municipal bond rate is 2.75% (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 7.00%.

Analysis of any implicit rate subsidy that may exist was outside the scope of this engagement. In particular we have not analyzed whether or not the implicit subsidy would affect the calculation of the SDR; nor have we been provided the data to perform such an analysis.

Discussion

Actuarial Assumptions

The actuarial assumptions used to value the liabilities are outlined in detail in Section F.

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;
 - 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 Nos. 74 and 75 are effective for fiscal years beginning after June 15, 2016, and June 15, 2017, respectively.

SECTION B

FINANCIAL STATEMENTS

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Manchester Employees' Contributory Retirement System. 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 OPEB Expense under GASB Statement No. 75

Fiscal Year Ended December 31, 2019

A. Expense

1. Service Cost	\$	722,950
2. Interest on the Total OPEB Liability		1,993,098
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(682,470)
5. Projected Earnings on Plan Investments (made negative for addition here)		(876,539)
6. OPEB Plan Administrative Expense		47,490
7. Other Changes in Plan Fiduciary Net Position		2,239
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		431,550
9. Recognition of Outflow (Inflow) of Resources due to Assets		(95,109)
10. Total OPEB Expense	\$	1,543,209

Recognition of Deferred Outflows and Inflows of Resources

Differences between expected and actual experience and changes in assumptions are recognized in OPEB expense using a systematic and rational method over a closed period equal to the average of the expected remaining service lives of all employees that are provided with OPEB through the OPEB plan (active employees and inactive employees) determined as of the beginning of the measurement period.

At the beginning of the current measurement period, the expected remaining service lives of all active employees in the plan was approximately 11,136 years. Additionally, the total plan membership (active employees and inactive employees) was 1,605. As a result, the average of the expected remaining service lives for purposes of recognizing the applicable deferred outflows and inflows of resources established in the current measurement period is 6.9381 years.

Additionally, differences between projected and actual earnings on OPEB plan investments should be recognized in OPEB expense using a systematic and rational method over a closed five-year period. For this purpose, the deferred outflows and inflows of resources are recognized in the OPEB expense as a level dollar amount over the closed period identified above.

Statement of Outflows and Inflows Arising from Current Reporting Period Fiscal Year Ended December 31, 2019

A. Outflows (Inflows) of Resources due to Liabilities

1. Difference between expected and actual experience of the Total OPEB Liability (gains) or losses	\$	108,038
2. Assumption Changes (gains) or losses	\$	0
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		6.9381
4. Outflow (Inflow) of Resources to be recognized in the current OPEB expense for the difference between expected and actual experience of the Total OPEB Liability	\$	15,572
5. Outflow (Inflow) of Resources to be recognized in the current OPEB expense for assumption changes	\$	0
6. Outflow (Inflow) of Resources to be recognized in the current OPEB expense due to Liabilities	\$	15,572
7. Deferred Outflow (Inflow) of Resources to be recognized in future OPEB expenses for the difference between expected and actual experience of the Total OPEB Liability	\$	92,466
8. Deferred Outflow (Inflow) of Resources to be recognized in future OPEB expenses for assumption changes	\$	0
9. Deferred Outflow (Inflow) of Resources to be recognized in future OPEB expenses due to Liabilities	\$	92,466

B. Outflows (Inflows) of Resources due to Assets

1. Net difference between projected and actual earnings on OPEB plan investments (gains) or losses	\$	(1,120,662)
2. Recognition period for Assets {in years}		5.0000
3. Outflow (Inflow) of Resources to be recognized in the current OPEB expense due to Assets	\$	(224,132)
4. Deferred Outflow (Inflow) of Resources to be recognized in future OPEB expenses due to Assets	\$	(896,530)

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods

Fiscal Year Ended December 31, 2019

A. Outflows and Inflows of Resources by Source to be Recognized in Current OPEB Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 135,452	\$ 20,127	\$ 115,325
2. Assumption changes	316,225	0	316,225
3. Net difference between projected and actual earnings on OPEB plan investments	316,234	411,343	(95,109)
4. Total	\$ 767,911	\$ 431,470	\$ 336,441

B. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future OPEB Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 724,027	\$ 78,897	\$ 645,130
2. Assumption changes	1,239,601	0	1,239,601
3. Net difference between projected and actual earnings on OPEB plan investments	948,700	1,270,953	(322,253)
4. Total	\$ 2,912,328	\$ 1,349,850	\$ 1,562,478

C. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future OPEB Expenses

Year Ending June 30	Net Deferred Outflows of Resources
2021	\$ 336,441
2022	336,440
2023	523,650
2024	183,728
2025	135,452
Thereafter	46,767
Total	\$ 1,562,478

Employer contributions that were made subsequent to the measurement date of the net OPEB liability and prior to the end of the employer's reporting period should be reported by the employer as a deferred outflow of resources related to OPEB. The information contained in this report does not incorporate any contributions made subsequent to the measurement date.

See paragraph 44 of GASB 75 for single and agent employers with trusted plans.

Also, Question 4.32 of Implementation Guide No. 2017-1 provides additional guidance for trusted plans.



Recognition of Deferred Outflows and Inflows of Resources Fiscal Year Ended December 31, 2019

(Reporting) Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
Deferred Outflow (Inflow) due to Differences Between Expected and Actual Experience on Liabilities					
2018	\$ (139,278)	6.9200#	\$ (20,127)	\$ (78,897)	3.9200
2019	871,321	7.2683	119,880	631,561	5.2683
2020	108,038	6.9381	15,572	92,466	5.9381
Total			\$ 115,325	\$ 645,130	
Deferred Outflow (Inflow) due to Assumption Changes					
2018	\$ 2,188,276	6.9200#	\$ 316,225	\$ 1,239,601	3.9200
2019	-	7.2683	-	-	5.2683
2020	-	6.9381	-	-	5.9381
Total			\$ 316,225	\$ 1,239,601	
Deferred Outflow (Inflow) due to Differences Between Projected and Actual Earnings on Plan Investments					
2018	\$ (936,056)	5.0000	\$ (187,211)	\$ (374,423)	2.0000
2019	1,581,168	5.0000	316,234	948,700	3.0000
2020	(1,120,662)	5.0000	(224,132)	(896,530)	4.0000
Total			\$ (95,109)	\$ (322,253)	

Provided to GRS by City auditor.

Statement of Fiduciary Net Position as of December 31, 2019

Assets

Cash and Deposits \$ 11,081,397

Receivables

Accounts Receivable - Sale of Investments \$ 312,074

Accrued Interest and Other Dividends 36,675

Additional Contribution Account 974,001

Property, Plant, Equipment 10,805

Total Receivables \$ 1,333,555

Investments \$ 237,109,959

Total Assets \$ 249,524,911

Liabilities

Payables

Accounts Payable and Accrued Expenses \$ 302,935

Payable for Investments Purchased -

Benefits Payable 1,659,888

Total Liabilities \$ 1,962,823

Assets Held for Pensions \$ 232,789,386

Net Position Restricted for OPEB \$ 14,772,702

Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2019

Additions

Contributions	
Employer	\$ 1,075,844
Nonemployer contributing entities	0
Active Employees	682,470
Other	0
Total Contributions	<u>\$ 1,758,314</u>
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 1,872,607
Interest and Dividends	172,049
Less Investment Expense	(42,140)
Net Investment Income	<u>\$ 2,002,516</u>
Other	<u>\$ 0</u>
Total Additions	<u>\$ 3,760,830</u>

Deductions

Benefit Payments	\$ 1,201,543
OPEB Plan Administrative Expense	47,490
Other	2,239
Total Deductions	<u>\$ 1,251,272</u>
Net Increase in Net Position	\$ 2,509,558

Net Position Restricted for OPEB

Beginning of Year	\$ 12,268,459
Prior Year Adjustment	(5,315)
End of Year	<u><u>\$ 14,772,702</u></u>

Schedule of Proportionate Employer Share for Year Ended December 31, 2019

		Deferred Outflows of Resources						
Covered Payroll	Employer	Prop. Share End of Year	Prop. Share Beginning of Year#	Net OPEB Liability	Differences Between Expected and Actual Experience	Changes of Assum.	Changes in Proportion and Differences Between Employer Cont. and Share of Cont.	Total Deferred Outflows of Resources
\$ 5,078,124	Airport	9.60%	8.85%	\$ 1,493,949	\$ 69,507	\$ 119,002	\$ 327,944	\$ 516,453
577,038	Parking Control	1.09%	1.14%	169,625	7,892	13,512	50,661	72,065
2,266,077	Environmental Protection	4.28%	4.17%	666,052	30,988	53,055	223,062	307,105
8,989,476	School District	16.99%	18.60%	2,643,978	123,012	210,608	-	333,620
5,017,429	Water Works	9.49%	9.20%	1,476,831	68,710	117,638	399,359	585,707
30,967,848	General Fund City Departments	58.55%	58.04%	9,111,532	423,918	725,786	115,178	1,264,882
\$ 52,895,992	Total for All Employers	100.00%	100.00%	\$ 15,561,967	\$ 724,027	\$ 1,239,601	\$ 1,116,204	\$ 3,079,832

Schedule of Proportionate Employer Share for Year Ended December 31, 2019 (Concluded)

Deferred Inflows of Resources					OPEB Expense			
Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on OPEB Plan Investments*	Changes of Assum.	Changes in Proportion and Differences Between Employer Cont. and Share of Cont.	Total Deferred Inflows of Resources	Prop. Share of Plan OPEB Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Employer OPEB Expense	
\$ 7,574	\$ 30,936	\$ -	\$ 768	\$ 39,278	\$ 148,148	\$ 55,097	\$ 203,245	
860	3,513	-	9,132	13,505	16,821	6,994	23,815	
3,377	13,792	-	-	17,169	66,049	37,565	103,614	
13,405	54,751	-	660,614	728,770	262,191	(111,251)	150,940	
7,487	30,582	-	-	38,069	146,451	67,255	213,706	
46,194	188,679	-	445,690	680,563	903,549	(55,660)	847,889	
\$ 78,897	\$ 322,253	\$ -	\$ 1,116,204	\$ 1,517,354	\$ 1,543,209	\$ -	\$ 1,543,209	

* We understand that the recommendation of the American Institute of Certified Public Accountants (AICPA) is for the deferred inflows resulting from the net difference between projected and actual investment earnings on pension plan investments to be shown net of the respective outflows resulting from this difference. Effective for 2019, only the net amount is shown.



SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Manchester Employees Contributory Retirement System. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Schedule of Changes in Net OPEB Liability and Related Ratios

Current Reporting Period

Fiscal Year Ended December 31, 2019

A. Total OPEB liability	
1. Service cost	\$ 722,950
2. Interest on the total OPEB liability	1,993,098
3. Changes of benefit terms	0
4. Difference between expected and actual experience of the total OPEB liability	108,038
5. Changes of assumptions	0
6. Benefit payments, including refunds of employee contributions	(1,201,543)
7. Net change in total OPEB liability	<u>1,622,543</u>
8. Total OPEB liability – beginning	<u>28,712,126</u>
9. Total OPEB liability – ending	<u><u>\$ 30,334,669</u></u>
B. Plan fiduciary net position	
1. Contributions – employer	\$ 1,075,844
2. Contributions – nonemployer contributing entities	0
3. Contributions – employee	682,470
4. Net investment income	2,002,516
5. Benefit payments, including refunds of employee contributions	(1,201,543)
6. OPEB plan administrative expense	(47,490)
7. Other	(2,239)
8. Net change in plan fiduciary net position	<u>2,509,558</u>
9. Plan fiduciary net position – beginning*	<u>12,263,144</u>
10. Plan fiduciary net position – ending	<u><u>\$ 14,772,702</u></u>
C. Net OPEB liability	<u><u>\$ 15,561,967</u></u>
D. Plan fiduciary net position as a percentage of the total OPEB liability	48.70 %
E. Covered-employee payroll	\$ 52,895,992
F. Net OPEB liability as a percentage of covered-employee payroll	29.42 %

* Net of post-valuation adjustment (if any).



Schedules of Required Supplementary Information

Schedule of Changes in Net OPEB Liability and Related Ratios Multiyear

Ultimately 10 Fiscal Years will be displayed (which may be built prospectively)

Fiscal year ending June 30,	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Total OPEB liability										
Service cost	\$ 722,950	\$ 667,057								
Interest on the total OPEB liability	1,993,098	1,834,405								
Changes of benefit terms	0	0								
Difference between expected and actual experience	108,038	871,321								
Changes of assumptions	0	0								
Benefit payments, including refunds of employee contributions	(1,201,543)	(1,065,835)								
Net change in total OPEB liability	1,622,543	2,306,948								
Total OPEB liability - beginning	28,712,126	26,405,178								
Total OPEB liability - ending (a)	\$ 30,334,669	\$ 28,712,126								
Plan fiduciary net position										
Employer contributions	\$ 1,075,844	\$ 856,677								
Nonemployer contributing entities contributions	0	0								
Employee contributions	682,470	674,011								
OPEB plan net investment income	2,002,516	(688,995)								
Benefit payments, including refunds of employee contributions	(1,201,543)	(1,065,835)								
OPEB plan administrative expense	(47,490)	(37,111)								
Other	(2,239)	(3,484)								
Net change in plan fiduciary net position	2,509,558	(264,737)								
Plan fiduciary net position - beginning	12,268,459	12,535,536								
Adjustment	(5,315)	(2,340)								
Plan fiduciary net position - ending (b)	\$ 14,772,702	\$ 12,268,459								
Net OPEB liability - ending (a) - (b)	\$ 15,561,967	\$ 16,443,667								
Plan fiduciary net position as a percentage of total OPEB liability	48.70 %	42.73 %								
Covered-employee payroll	\$ 52,895,992	\$ 51,787,265								
Net OPEB liability as a percentage of covered-employee payroll	29.42 %	31.75 %								
Notes to Schedule:										
N/A										



Schedules of Required Supplementary Information

Schedule of the Net OPEB Liability Multiyear

(Ultimately 10 Years Will Be Displayed)

Plan Year 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
2017	\$ 26,405,178	\$ 12,535,536	\$ 13,869,642	47.47 %	\$ 53,364,536	25.99 %
2018	28,712,126	12,268,459	16,443,667	42.73 %	51,787,265	31.75 %
2019	30,334,669	14,772,702	15,561,967	48.70 %	52,895,992	29.42 %

**Based on valuation payroll as of plan year ending December 31.*

Schedule of Contributions Multiyear Last 10 Years

Plan Year Ending June 30,	Actuarially Determined Contribution (ADC) [#]	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
2018	\$ 715,870	\$ 715,870	\$ 0	\$ 53,364,536	1.34 %
2019	856,677	856,677	0	51,787,265	1.65 %
2020	1,075,844	1,075,844	0	52,895,992	2.03 %

* Based on valuation payroll as of plan year ending December 31.

Employer contributions based on percent of payroll. Employer pays ADC percentage.

Notes to Schedule of Contributions

Valuation Date: December 31, 2017 and December 31, 2018
Notes Actuarially determined contribution rates are calculated as of December 31 for the contribution period starting 6 months later. Actual contributions reported during the plan year are therefore based on two consecutive ADCs.

Methods and Assumptions Used to Determine Fiscal Year 2019 Contribution Rate:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	22 years
Asset Valuation Method	5-Year smoothed market; 20% corridor
Wage Inflation	2.75%
Salary Increases	3.75% to 7.43%, including inflation
Investment Rate of Return	7.00% (net of investment expenses)
Retirement Age	Age and Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	RP-2014 Mortality Table projected to 2026 for males and females using projection scale MP-2017.
Expense Load	None.
Increases	Annual health subsidy amounts are assumed to increase by 4% annually.
Health Care Trend Rates	Not applicable, given that the benefits are fixed stipends.
Aging Factors	Not applicable, given that the benefits are fixed stipends.

Other Information:

Notes Economic and demographic assumptions were updated in accordance with an experience study for the 5-year period ended December 31, 2016.

Methods and Assumptions Used to Determine Fiscal Year 2020 Contribution Rate:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	21 years
Asset Valuation Method	5-Year smoothed market; 20% corridor
Wage Inflation	2.75%
Salary Increases	3.75% to 7.43%, including inflation
Investment Rate of Return	7.00% (net of investment expenses)
Retirement Age	Age and Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	RP-2014 Mortality Table projected to 2026 for males and females using projection scale MP-2017.
Expense Load	None.
Increases	Annual health subsidy amounts are assumed to increase by 4% annually.
Health Care Trend Rates	Not applicable, given that the benefits are fixed stipends.
Aging Factors	Not applicable, given that the benefits are fixed stipends.

Other Information:

Notes None.



SECTION D

NOTES TO FINANCIAL STATEMENTS

Auditor's Note – This information is intended to assist in preparation of the financial statements of the Manchester Employees Contributory Retirement System. Financial statements are the responsibility of management, subject to the auditor's review. Please let us know if the auditor recommends any changes.

Single Discount Rate

A Single Discount Rate of 7.00% was used to measure the total OPEB liability. This Single Discount Rate was based on the expected rate of return on OPEB plan investments of 7.00%. The projection of cash flows used to determine this Single Discount Rate assumed that employer contributions will be made at rates equal to the actuarially determined contribution rate. Based on these assumptions, the OPEB plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on OPEB plan investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	376
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	110
Active Plan Members	<u>1,119</u>
Total Plan Members	1,605

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 7.00%, 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 6.00%	Current Single Discount Rate Assumption 7.00%	1% Increase 8.00%
Total OPEB Liability (TOL)	\$ 34,250,034	\$ 30,334,669	\$ 27,054,671
Net Position Restricted for OPEB	14,772,702	14,772,702	14,772,702
Net OPEB Liability	\$ 19,477,332	\$ 15,561,967	\$ 12,281,969

SECTION E

SUMMARY OF BENEFITS

Summary of Health Subsidy Benefits

Current and future retired members who are in receipt of an annuity benefit may elect to participate in a monthly health insurance subsidy. Spouses, dependents, and/or beneficiaries are not eligible for any subsidy. The full amount of the monthly health insurance subsidy is \$200 as of January 1, 2006 and increases by 4% annually beginning January 1, 2007. The full \$200 is prorated based on the member's service at retirement, as shown in the schedule below. Members who were already retired as of March 2006 are entitled to 50% of the subsidy available to members retired after March 2006. Active members must contribute 1.25% of pay. Member contributions for the health subsidy are non-refundable.

Service at Retirement	% of Full Subsidy Payable	
	Active on or after March 1, 2006	Terminated Vested or Retired on March 1, 2006
Less than 10 years	25.0%	12.5%
10 years or more, but less than 15 years	50.0%	25.0%
15 years or more, but less than 20 years	75.0%	37.5%
20 years or more	100.0%	50.0%

As of January 1, 2020, the subsidy amount is \$346.34 per month.

SECTION F

ACTUARIAL COST METHOD AND ACTUARIAL ASSUMPTIONS

Actuarial Cost Method

Normal cost and the allocation of benefit values between service rendered before and after the valuation date was determined using the *individual entry-age actuarial cost method*. GASB Statement Nos. 74 and 75 require the use of this method having the following characteristics:

- the annual normal cost for each individual active member, payable from the date of employment to the date of retirement, are sufficient to accumulate the value of the member's benefit at the time of retirement;
- each annual normal cost is a constant percentage of the member's year-by-year projected covered pay; and
- the use of Market Value of Assets for the Net Position Restricted for OPEB.

Actuarial Assumptions Used for the Valuation

The contribution requirements and benefit values of the System are calculated by applying actuarial assumptions to the benefit provisions and member information furnished, using the actuarial cost method described on the previous page.

The principal areas of financial risk which require assumptions about future experience are:

- long-term rates of investment return to be generated by the assets of the System,
- patterns of pay increases to members,
- rates of mortality among members, retirees and beneficiaries,
- rates of withdrawal of active members,
- rates of disability among members, and
- the age patterns of actual retirement.

In a valuation, the monetary effect of each assumption is calculated for as long as a present covered person survives - - - a period of time which can be as long as a century.

Actual experience of the System will not coincide exactly with assumed experience, regardless of the accuracy of the assumptions, or the skill of the actuary and the precision of the many calculations made. Each valuation provides a complete recalculation of assumed future experience and takes into account all past differences between assumed and actual experience. The result is a continual series of adjustments (usually small) to the computed contribution rate.

From time to time it becomes appropriate to modify one or more of the assumptions, to reflect experience trends (but not random year-to-year fluctuations). The Board has established a policy of performing an Experience Study every 3-5 years to evaluate/modify valuation assumptions. Assumptions used in this report are based on the January 1, 2012 – December 31, 2016 experience study of the MECRS and were adopted by the Board. These assumptions were first used in the December 31, 2017 actuarial valuation. We believe the assumptions are reasonable individually and in the aggregate.

Valuation Assumptions

The rate of investment return was 7.00% per year, compounded annually (net of investment expenses). This assumption is used to make money payable at one point in time equal in value to a different amount of money payable at another point in time. The assumed real rate of return (the net return in excess of the wage inflation rate) is 4.25%. Experience over the last 5 years has been as follows:

	Year Ended December 31					5-Year Average
	2019	2018	2017	2016	2015	
1) Nominal rate of return#	5.6 %	3.4 %	7.4 %	6.3 %	4.8 %	5.5 %
2) Increase in CPI	2.3 %	1.9 %	2.1 %	2.1 %	0.7 %	1.8 %
3) Average Salary Increase (ASI)	4.2 %	(0.1)%	1.2 %	1.1 %	(2.0)%	0.9 %
4) Real Return						
- Total: CPI (1) - (2)						3.7 %
- Total: ASI (1) - (3)						4.6 %
- Assumption	4.25 %	4.25 %	4.25 %	4.25 %	4.25 %	4.3 %

The nominal rate of return was computed using the approximate formula: $i = I$ divided by $\frac{1}{2}(A+B-I)$, where I is realized investment income net of expenses, A is the beginning of year asset funding value and B is the end of year funding asset value.

The rate of assumed price inflation was 2.25% per year. This results in a real rate of return over price inflation of 4.75%.

These economic assumptions were updated for the December 31, 2017 valuation.

Valuation Assumptions (Continued)

The rates of salary increase used for individual members are in accordance with the following table. This assumption is used to project a member's current salary to the salaries upon which benefit amounts will be based.

Service	Salary Increase Assumptions for an Individual Member		
	Merit & Seniority	Base (Economic)	Increase Next Year
1	3.71%	2.75%	6.46%
2	4.68%	2.75%	7.43%
3	4.47%	2.75%	7.22%
4	3.95%	2.75%	6.70%
5	3.63%	2.75%	6.38%
6	3.18%	2.75%	5.93%
7	2.80%	2.75%	5.55%
8	2.51%	2.75%	5.26%
9	2.31%	2.75%	5.06%
10	2.10%	2.75%	4.85%
15	1.33%	2.75%	4.08%
20	1.02%	2.75%	3.77%
25	1.00%	2.75%	3.75%
30	1.00%	2.75%	3.75%
35	1.00%	2.75%	3.75%
40	1.00%	2.75%	3.75%
Ref:	733		

If the number of active members remains constant, then the total active member payroll will increase 2.75% annually, the base portion of the individual salary increase assumptions. This increasing payroll was recognized in amortizing unfunded actuarial accrued liabilities.

Rates of salary increase were updated for the December 31, 2017 valuation.

Valuation Assumptions (Continued)

The rates of retirement used to measure the probability of eligible members retiring during the next year were updated for the December 31, 2017 valuation and are as follows:

Active Members Retiring Next Year Under Normal Retirement			Active Members Retiring Next Year Under Early Retirement			
Ages	% Retiring		Ages	% Retiring		
	Men	Women		Age and Service		Rule of 80
				Men	Women	
60	10%	10%	50			10%
61	13%	15%	51			4%
62	25%	25%	52			7%
63	15%	12%	53			5%
64	16%	12%	54			5%
65	22%	20%	55	5%	10%	5%
66	30%	25%	56	5%	15%	4%
67	18%	27%	57	5%	8%	8%
68	20%	13%	58	5%	7%	8%
69	20%	20%	59	5%	7%	10%
70	20%	22%				
71	60%	23%				
72	50%	23%				
73	50%	23%				
74	50%	23%				
75	100%	23%				
76	100%	23%				
77	100%	23%				
78	100%	23%				
79	100%	23%				
80	100%	100%				
Ref.	2757	2756		2357	2754	2755

A member was assumed to be eligible for normal retirement after attaining age 60 regardless of service. A member was assumed to be eligible for early retirement after attaining age 55 with at least 20 years of service or if the sum of age and service is at least 80.

Valuation Assumptions (Continued)

The post-retirement healthy mortality table was the RP-2014 Mortality Table projected to 2026 using projection scale MP-2017.

Sample Attained Ages	Single Life Retirement Values					
	Present Value of \$1 Monthly for Life		Percent Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women	Men	Women
50	\$149.92	\$154.27	0.3826%	0.2596%	32.69	35.16
55	142.66	147.56	0.5366%	0.3600%	28.37	30.64
60	133.71	139.15	0.7607%	0.5462%	24.18	26.24
65	122.87	128.86	1.1113%	0.8176%	20.16	22.02
70	109.93	116.34	1.6572%	1.2451%	16.35	17.99
75	94.86	101.49	2.6043%	2.0005%	12.80	14.21
80	78.14	84.66	4.3403%	3.4148%	9.61	10.76
Ref:	2135 x 1.00 sb 0	2136 x 1.00 sb 0				

This assumption is used to measure the probabilities of members dying after retirement. The projection to 2026 is the margin for mortality improvement.

Post-retirement disabled mortality table is the RP-2014 Disabled Retiree Annuitant Table projected to 2026 using projection scale MP-2017.

Pre-retirement mortality is modeled using the RP-2014 Employee Mortality Table projected to 2026 using projection scale MP-2017 and multiplied by a factor of 80%.

These tables were updated for the December 31, 2017 valuation in accordance with an experience study for the System of the 5-year period ended December 31, 2016.

Valuation Assumptions (Concluded)

Rates of separation from active membership are shown below (rates do not apply to members eligible to retire and do not include separation on account of death or disability). This assumption measures the probabilities of members remaining in employment. These rates were updated for the December 31, 2017 valuation.

Sample Ages	Service	% of Active Members Separating within Next Year	
		Men	Women
	0-1	22.00%	32.00%
	1-2	17.00%	20.00%
	2-3	12.00%	15.00%
	3-4	8.00%	12.00%
	4-5	8.00%	11.00%
	5-6	n/a	9.00%
30	5 & Up (Men)		
35	6 & Up (Women)	4.88%	5.57%
40		3.61%	4.67%
45		2.85%	4.04%
50		2.45%	3.57%
		2.28%	3.10%
Ref.		1106 77 x 0.4275	1105 37 x 1.05

Rates of disability are divided two-thirds toward duty and one-third toward non-duty disability and are as follows:

Sample Ages	% of Active Members Becoming Disabled within Next Year	
	Male	Female
20	0.002%	0.002%
25	0.002%	0.002%
30	0.002%	0.002%
35	0.011%	0.011%
40	0.043%	0.043%
45	0.088%	0.088%
50	0.144%	0.144%
55	0.214%	0.214%
60	0.318%	0.318%
Ref.	37 x 0.30	37 x 0.30

Miscellaneous and Technical Assumptions December 31, 2019

Decrement Timing:	Decrements of all types are assumed to occur mid-year.
Eligibility Testing:	Eligibility for benefits is determined based upon the age nearest birthday and exact fractional service on the date the decrement is assumed to occur.
Decrement Relativity:	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
Decrement Operation:	Disability and withdrawal decrements do not operate after member reaches retirement eligibility.
Benefit Service:	Exact fractional service as of the valuation date is used to determine the amount of benefit payable.
Incidence of Contributions:	Contributions are assumed to be received continuously throughout the year based upon the actual payroll payable at the time contributions are made.
Subsidy COLA Assumption:	The only increases in subsidy benefits valued are the 4% annual increases called for in the plan provisions.
Utilization:	55% of current actives and 25% of current terminated vested members were assumed to elect to receive the post-retirement health subsidy upon retirement. Current retirees were assumed not to alter their initial election after retirement.

SECTION G

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 7.00%; the municipal bond rate is 2.75%; and the resulting Single Discount Rate is 7.00%.

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

The **Projection of Contributions** table shows the development of expected contributions in future years. Normal Cost contributions for future hires are not included (nor are their liabilities).

The **Projection of Plan Fiduciary Net Position** table shows the development of expected asset levels 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. Contribution amounts shown are strictly for the purpose of testing for a GASB depletion date and may differ from those determined by a funding valuation.

This analysis was performed without regard to any implicit rate subsidy that might exist. An analysis of how the implicit rate subsidy (if any) affects this calculation was outside the scope of this engagement.

Single Discount Rate Development

Projection of Contributions Ending December 31 for 2020 to 2069

Year	Projected Payroll for Current Employees	Projected Contributions from Current Employees	Projected Service Cost and Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2019	\$ 52,895,992				
2020	55,452,261	\$ 693,153	\$ 98,559	\$ 1,151,195	\$ 1,942,907
2021	52,253,004	653,163	67,377	1,182,853	1,903,393
2022	49,697,009	621,213	50,081	1,215,381	1,886,675
2023	47,474,636	593,433	35,356	1,248,804	1,877,593
2024	45,170,744	564,634	25,673	1,283,147	1,873,454
2025	43,074,479	538,431	15,191	1,318,433	1,872,055
2026	40,986,004	512,325	6,939	1,354,690	1,873,954
2027	38,838,930	485,487	355	1,391,944	1,877,785
2028	36,728,092	459,101	0	1,430,222	1,889,324
2029	34,586,426	432,330	0	1,469,554	1,901,884
2030	32,540,898	406,761	0	1,509,966	1,916,727
2031	30,558,277	381,978	0	1,551,490	1,933,469
2032	28,721,712	359,021	0	1,594,156	1,953,178
2033	26,938,768	336,735	0	1,637,996	1,974,730
2034	25,292,394	316,155	0	1,683,040	1,999,195
2035	23,732,489	296,656	0	1,729,324	2,025,980
2036	22,190,389	277,380	0	1,776,880	2,054,260
2037	20,791,309	259,891	0	1,825,745	2,085,636
2038	19,426,320	242,829	0	1,875,953	2,118,782
2039	18,206,380	227,580	0	1,927,541	2,155,121
2040	16,952,369	211,905	0	0	211,905
2041	15,820,470	197,756	0	0	197,756
2042	14,788,941	184,862	0	0	184,862
2043	13,752,744	171,909	0	0	171,909
2044	12,775,444	159,693	0	0	159,693
2045	11,769,695	147,121	0	0	147,121
2046	10,866,875	135,836	0	0	135,836
2047	9,943,489	124,294	0	0	124,294
2048	9,054,360	113,180	0	0	113,180
2049	8,170,132	102,127	0	0	102,127
2050	7,349,789	91,872	0	0	91,872
2051	6,574,652	82,183	0	0	82,183
2052	5,842,541	73,032	0	0	73,032
2053	5,143,713	64,296	0	0	64,296
2054	4,457,049	55,713	0	0	55,713
2055	3,838,464	47,981	0	0	47,981
2056	3,229,159	40,364	0	0	40,364
2057	2,690,393	33,630	0	0	33,630
2058	2,216,427	27,705	0	0	27,705
2059	1,785,151	22,314	0	0	22,314
2060	1,397,268	17,466	0	0	17,466
2061	1,096,529	13,707	0	0	13,707
2062	862,462	10,781	0	0	10,781
2063	661,164	8,265	0	0	8,265
2064	500,059	6,251	0	0	6,251
2065	358,586	4,482	0	0	4,482
2066	251,757	3,147	0	0	3,147
2067	175,384	2,192	0	0	2,192
2068	118,459	1,481	0	0	1,481
2069	76,791	960	0	0	960



Single Discount Rate Development

Projection of Contributions Ending December 31 for 2070 to 2119

Year	Projected Payroll for Current Employees	Projected Contributions from Current Employees	Projected Service Cost and Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2070	48,093	\$ 601	\$ 0	\$ 0	601
2071	31,642	396	0	0	396
2072	20,416	255	0	0	255
2073	13,684	171	0	0	171
2074	8,206	103	0	0	103
2075	5,305	66	0	0	66
2076	3,172	40	0	0	40
2077	2,342	29	8	0	37
2078	947	12	3	0	15
2079	252	3	0	0	3
2080	0	0	0	0	0
2081	0	0	0	0	0
2082	0	0	0	0	0
2083	0	0	0	0	0
2084	0	0	0	0	0
2085	0	0	0	0	0
2086	0	0	0	0	0
2087	0	0	0	0	0
2088	0	0	0	0	0
2089	0	0	0	0	0
2090	0	0	0	0	0
2091	0	0	0	0	0
2092	0	0	0	0	0
2093	0	0	0	0	0
2094	0	0	0	0	0
2095	0	0	0	0	0
2096	0	0	0	0	0
2097	0	0	0	0	0
2098	0	0	0	0	0
2099	0	0	0	0	0
2100	0	0	0	0	0
2101	0	0	0	0	0
2102	0	0	0	0	0
2103	0	0	0	0	0
2104	0	0	0	0	0
2105	0	0	0	0	0
2106	0	0	0	0	0
2107	0	0	0	0	0
2108	0	0	0	0	0
2109	0	0	0	0	0
2110	0	0	0	0	0
2111	0	0	0	0	0
2112	0	0	0	0	0
2113	0	0	0	0	0
2114	0	0	0	0	0
2115	0	0	0	0	0
2116	0	0	0	0	0
2117	0	0	0	0	0
2118	0	0	0	0	0
2119	0	0	0	0	0

Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2020 to 2069

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.00%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2020	\$ 14,772,702	\$ 1,942,907	\$ 1,322,279	\$ 0	\$ 1,055,444	\$ 16,448,774
2021	16,448,774	1,903,393	1,448,313	0	1,167,073	18,070,926
2022	18,070,926	1,886,675	1,577,348	0	1,275,608	19,655,861
2023	19,655,861	1,877,593	1,711,529	0	1,381,624	21,203,550
2024	21,203,550	1,873,454	1,845,377	0	1,485,215	22,716,841
2025	22,716,841	1,872,055	1,980,602	0	1,586,444	24,194,738
2026	24,194,738	1,873,954	2,120,356	0	1,685,153	25,633,489
2027	25,633,489	1,877,785	2,260,904	0	1,781,162	27,031,532
2028	27,031,532	1,889,324	2,399,909	0	1,874,639	28,395,586
2029	28,395,586	1,901,884	2,537,776	0	1,965,811	29,725,505
2030	29,725,505	1,916,727	2,670,524	0	2,054,849	31,026,557
2031	31,026,557	1,933,469	2,798,019	0	2,142,112	32,304,119
2032	32,304,119	1,953,178	2,916,767	0	2,228,133	33,568,663
2033	33,568,663	1,974,730	3,027,619	0	2,313,579	34,829,353
2034	34,829,353	1,999,195	3,132,353	0	2,399,065	36,095,261
2035	36,095,261	2,025,980	3,227,863	0	2,485,314	37,378,691
2036	37,378,691	2,054,260	3,313,485	0	2,573,181	38,692,648
2037	38,692,648	2,085,636	3,391,806	0	2,663,543	40,050,020
2038	40,050,020	2,118,782	3,462,453	0	2,757,268	41,463,618
2039	41,463,618	2,155,121	3,518,948	0	2,855,527	42,955,317
2040	42,955,317	211,905	3,565,729	0	2,891,474	42,492,967
2041	42,492,967	197,756	3,601,546	0	2,857,390	41,946,566
2042	41,946,566	184,862	3,626,815	0	2,817,829	41,322,442
2043	41,322,442	171,909	3,642,206	0	2,773,165	40,625,310
2044	40,625,310	159,693	3,645,537	0	2,723,831	39,863,297
2045	39,863,297	147,121	3,639,612	0	2,670,261	39,041,067
2046	39,041,067	135,836	3,624,659	0	2,612,831	38,165,075
2047	38,165,075	124,294	3,603,460	0	2,551,844	37,237,753
2048	37,237,753	113,180	3,575,383	0	2,487,515	36,263,064
2049	36,263,064	102,127	3,539,607	0	2,420,138	35,245,722
2050	35,245,722	91,872	3,494,372	0	2,350,127	34,193,349
2051	34,193,349	82,183	3,442,056	0	2,277,928	33,111,404
2052	33,111,404	73,032	3,383,573	0	2,203,889	32,004,752
2053	32,004,752	64,296	3,323,405	0	2,128,193	30,873,836
2054	30,873,836	55,713	3,261,577	0	2,050,861	29,718,833
2055	29,718,833	47,981	3,191,014	0	1,972,173	28,547,973
2056	28,547,973	40,364	3,113,400	0	1,892,621	27,367,559
2057	27,367,559	33,630	3,031,613	0	1,812,574	26,182,150
2058	26,182,150	27,705	2,946,324	0	1,732,327	24,995,858
2059	24,995,858	22,314	2,857,147	0	1,652,169	23,813,194
2060	23,813,194	17,466	2,764,384	0	1,572,408	22,638,684
2061	22,638,684	13,707	2,668,467	0	1,493,363	21,477,286
2062	21,477,286	10,781	2,571,661	0	1,415,295	20,331,701
2063	20,331,701	8,265	2,474,947	0	1,338,345	19,203,364
2064	19,203,364	6,251	2,378,738	0	1,262,603	18,093,479
2065	18,093,479	4,482	2,283,259	0	1,188,135	17,002,838
2066	17,002,838	3,147	2,187,956	0	1,115,024	15,933,053
2067	15,933,053	2,192	2,092,948	0	1,043,375	14,885,672
2068	14,885,672	1,481	1,998,419	0	973,286	13,862,021
2069	13,862,021	960	1,904,326	0	904,850	12,863,505



Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2070 to 2119

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.00%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2070	12,863,505	601	1,810,507	0	838,170	11,891,769
2071	11,891,769	396	1,716,917	0	773,362	10,948,609
2072	10,948,609	255	1,623,614	0	710,546	10,035,797
2073	10,035,797	171	1,530,573	0	649,848	9,155,242
2074	9,155,242	103	1,437,789	0	591,399	8,308,955
2075	8,308,955	66	1,345,340	0	535,339	7,499,019
2076	7,499,019	40	1,253,387	0	481,806	6,727,478
2077	6,727,478	37	1,162,141	0	430,938	5,996,312
2078	5,996,312	15	1,071,836	0	382,863	5,307,354
2079	5,307,354	3	982,728	0	337,701	4,662,331
2080	4,662,331	0	895,186	0	295,562	4,062,707
2081	4,062,707	0	809,633	0	256,532	3,509,605
2082	3,509,605	0	726,544	0	220,673	3,003,735
2083	3,003,735	0	646,408	0	188,020	2,545,347
2084	2,545,347	0	569,733	0	158,571	2,134,185
2085	2,134,185	0	497,045	0	132,291	1,769,431
2086	1,769,431	0	428,880	0	109,103	1,449,654
2087	1,449,654	0	365,728	0	88,892	1,172,817
2088	1,172,817	0	307,991	0	71,500	936,326
2089	936,326	0	255,945	0	56,736	737,117
2090	737,117	0	209,716	0	44,382	571,784
2091	571,784	0	169,283	0	34,200	436,700
2092	436,700	0	134,504	0	25,941	328,137
2093	328,137	0	105,108	0	19,353	242,382
2094	242,382	0	80,710	0	14,190	175,862
2095	175,862	0	60,844	0	10,217	125,235
2096	125,235	0	44,990	0	7,218	87,464
2097	87,464	0	32,601	0	5,001	59,863
2098	59,863	0	23,132	0	3,394	40,126
2099	40,126	0	16,059	0	2,256	26,323
2100	26,323	0	10,900	0	1,468	16,890
2101	16,890	0	7,228	0	934	10,596
2102	10,596	0	4,680	0	581	6,497
2103	6,497	0	2,957	0	353	3,892
2104	3,892	0	1,823	0	210	2,279
2105	2,279	0	1,096	0	122	1,305
2106	1,305	0	643	0	69	730
2107	730	0	368	0	38	400
2108	400	0	206	0	21	215
2109	215	0	113	0	11	114
2110	114	0	61	0	6	59
2111	59	0	32	0	3	30
2112	30	0	17	0	2	15
2113	15	0	8	0	1	7
2114	7	0	4	0	0	3
2115	3	0	2	0	0	2
2116	2	0	1	0	0	1
2117	1	0	0	0	0	0
2118	0	0	0	0	0	0
2119	0	0	0	0	0	0



Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2020 to 2069

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}
2020	\$ 14,772,702	\$ 1,322,279	\$ 1,322,279	\$ 0	\$ 1,278,296	\$ 0	\$ 1,278,296
2021	16,448,774	1,448,313	1,448,313	0	1,308,539	0	1,308,539
2022	18,070,926	1,577,348	1,577,348	0	1,331,889	0	1,331,889
2023	19,655,861	1,711,529	1,711,529	0	1,350,645	0	1,350,645
2024	21,203,550	1,845,377	1,845,377	0	1,361,000	0	1,361,000
2025	22,716,841	1,980,602	1,980,602	0	1,365,169	0	1,365,169
2026	24,194,738	2,120,356	2,120,356	0	1,365,885	0	1,365,885
2027	25,633,489	2,260,904	2,260,904	0	1,361,143	0	1,361,143
2028	27,031,532	2,399,909	2,399,909	0	1,350,307	0	1,350,307
2029	28,395,586	2,537,776	2,537,776	0	1,334,466	0	1,334,466
2030	29,725,505	2,670,524	2,670,524	0	1,312,402	0	1,312,402
2031	31,026,557	2,798,019	2,798,019	0	1,285,101	0	1,285,101
2032	32,304,119	2,916,767	2,916,767	0	1,252,000	0	1,252,000
2033	33,568,663	3,027,619	3,027,619	0	1,214,563	0	1,214,563
2034	34,829,353	3,132,353	3,132,353	0	1,174,373	0	1,174,373
2035	36,095,261	3,227,863	3,227,863	0	1,131,010	0	1,131,010
2036	37,378,691	3,313,485	3,313,485	0	1,085,057	0	1,085,057
2037	38,692,648	3,391,806	3,391,806	0	1,038,042	0	1,038,042
2038	40,050,020	3,462,453	3,462,453	0	990,339	0	990,339
2039	41,463,618	3,518,948	3,518,948	0	940,652	0	940,652
2040	42,955,317	3,565,729	3,565,729	0	890,801	0	890,801
2041	42,492,967	3,601,546	3,601,546	0	840,887	0	840,887
2042	41,946,566	3,626,815	3,626,815	0	791,390	0	791,390
2043	41,322,442	3,642,206	3,642,206	0	742,755	0	742,755
2044	40,625,310	3,645,537	3,645,537	0	694,799	0	694,799
2045	39,863,297	3,639,612	3,639,612	0	648,289	0	648,289
2046	39,041,067	3,624,659	3,624,659	0	603,388	0	603,388
2047	38,165,075	3,603,460	3,603,460	0	560,616	0	560,616
2048	37,237,753	3,575,383	3,575,383	0	519,858	0	519,858
2049	36,263,064	3,539,607	3,539,607	0	480,987	0	480,987
2050	35,245,722	3,494,372	3,494,372	0	443,776	0	443,776
2051	34,193,349	3,442,056	3,442,056	0	408,535	0	408,535
2052	33,111,404	3,383,573	3,383,573	0	375,321	0	375,321
2053	32,004,752	3,323,405	3,323,405	0	344,530	0	344,530
2054	30,873,836	3,261,577	3,261,577	0	316,000	0	316,000
2055	29,718,833	3,191,014	3,191,014	0	288,938	0	288,938
2056	28,547,973	3,113,400	3,113,400	0	263,467	0	263,467
2057	27,367,559	3,031,613	3,031,613	0	239,763	0	239,763
2058	26,182,150	2,946,324	2,946,324	0	217,774	0	217,774
2059	24,995,858	2,857,147	2,857,147	0	197,366	0	197,366
2060	23,813,194	2,764,384	2,764,384	0	178,466	0	178,466
2061	22,638,684	2,668,467	2,668,467	0	161,003	0	161,003
2062	21,477,286	2,571,661	2,571,661	0	145,012	0	145,012
2063	20,331,701	2,474,947	2,474,947	0	130,428	0	130,428
2064	19,203,364	2,378,738	2,378,738	0	117,157	0	117,157
2065	18,093,479	2,283,259	2,283,259	0	105,098	0	105,098
2066	17,002,838	2,187,956	2,187,956	0	94,122	0	94,122
2067	15,933,053	2,092,948	2,092,948	0	84,145	0	84,145
2068	14,885,672	1,998,419	1,998,419	0	75,088	0	75,088
2069	13,862,021	1,904,326	1,904,326	0	66,872	0	66,872



Single Discount Rate Development

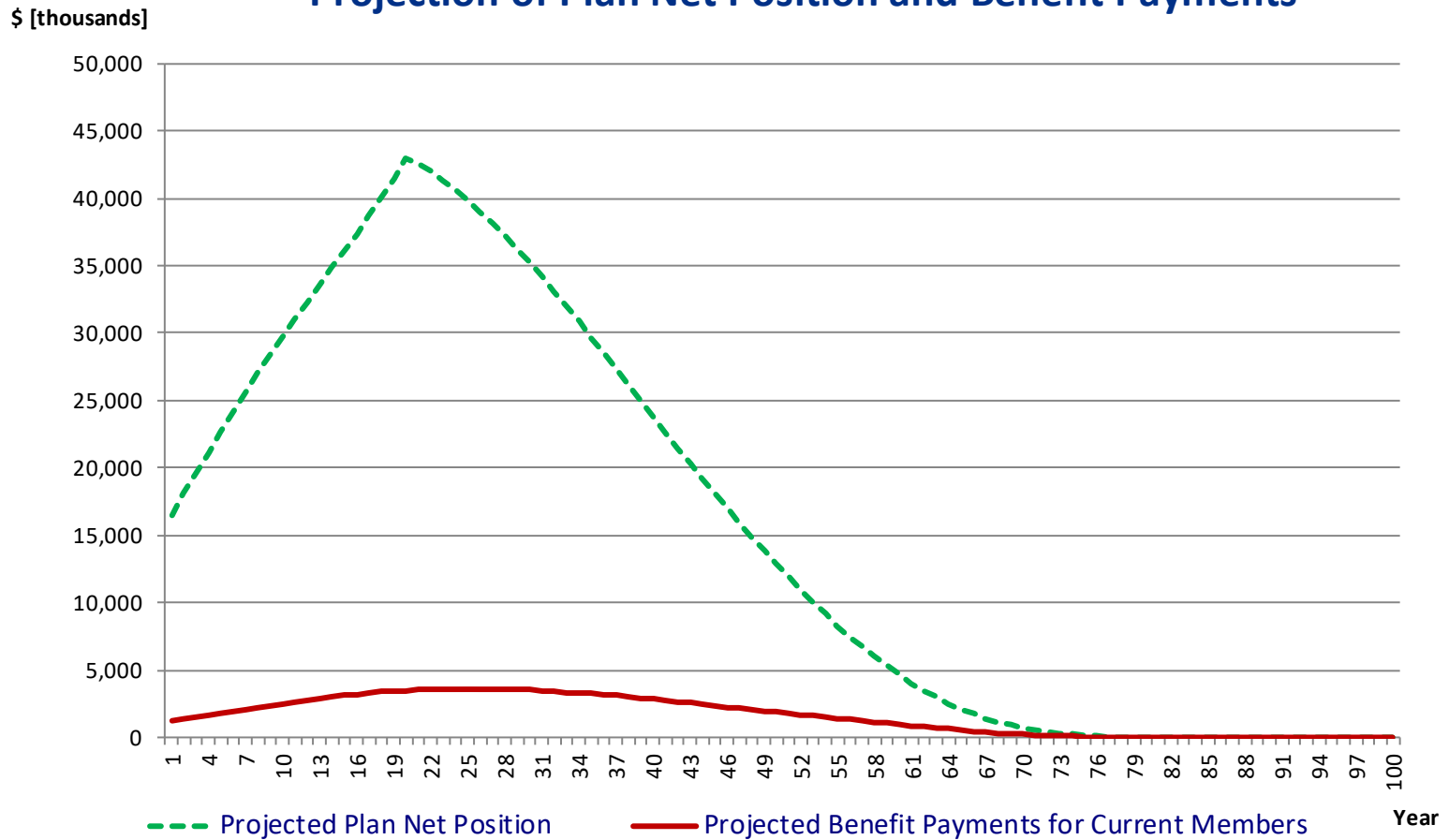
Present Values of Projected Benefits

Ending December 31 for 2070 to 2119

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}
2070	\$ 12,863,505	\$ 1,810,507	\$ 1,810,507	\$ 0	\$ 59,418	\$ 0	\$ 59,418
2071	11,891,769	1,716,917	1,716,917	0	52,660	0	52,660
2072	10,948,609	1,623,614	1,623,614	0	46,541	0	46,541
2073	10,035,797	1,530,573	1,530,573	0	41,004	0	41,004
2074	9,155,242	1,437,789	1,437,789	0	35,998	0	35,998
2075	8,308,955	1,345,340	1,345,340	0	31,480	0	31,480
2076	7,499,019	1,253,387	1,253,387	0	27,410	0	27,410
2077	6,727,478	1,162,141	1,162,141	0	23,752	0	23,752
2078	5,996,312	1,071,836	1,071,836	0	20,473	0	20,473
2079	5,307,354	982,728	982,728	0	17,543	0	17,543
2080	4,662,331	895,186	895,186	0	14,935	0	14,935
2081	4,062,707	809,633	809,633	0	12,624	0	12,624
2082	3,509,605	726,544	726,544	0	10,587	0	10,587
2083	3,003,735	646,408	646,408	0	8,803	0	8,803
2084	2,545,347	569,733	569,733	0	7,251	0	7,251
2085	2,134,185	497,045	497,045	0	5,912	0	5,912
2086	1,769,431	428,880	428,880	0	4,768	0	4,768
2087	1,449,654	365,728	365,728	0	3,800	0	3,800
2088	1,172,817	307,991	307,991	0	2,991	0	2,991
2089	936,326	255,945	255,945	0	2,323	0	2,323
2090	737,117	209,716	209,716	0	1,779	0	1,779
2091	571,784	169,283	169,283	0	1,342	0	1,342
2092	436,700	134,504	134,504	0	996	0	996
2093	328,137	105,108	105,108	0	728	0	728
2094	242,382	80,710	80,710	0	522	0	522
2095	175,862	60,844	60,844	0	368	0	368
2096	125,235	44,990	44,990	0	254	0	254
2097	87,464	32,601	32,601	0	172	0	172
2098	59,863	23,132	23,132	0	114	0	114
2099	40,126	16,059	16,059	0	74	0	74
2100	26,323	10,900	10,900	0	47	0	47
2101	16,890	7,228	7,228	0	29	0	29
2102	10,596	4,680	4,680	0	18	0	18
2103	6,497	2,957	2,957	0	10	0	10
2104	3,892	1,823	1,823	0	6	0	6
2105	2,279	1,096	1,096	0	3	0	3
2106	1,305	643	643	0	2	0	2
2107	730	368	368	0	1	0	1
2108	400	206	206	0	1	0	1
2109	215	113	113	0	0	0	0
2110	114	61	61	0	0	0	0
2111	59	32	32	0	0	0	0
2112	30	17	17	0	0	0	0
2113	15	8	8	0	0	0	0
2114	7	4	4	0	0	0	0
2115	3	2	2	0	0	0	0
2116	2	1	1	0	0	0	0
2117	1	0	0	0	0	0	0
2118	0	0	0	0	0	0	0
2119	0	0	0	0	0	0	0
Totals	\$				\$ 36,294,250	\$ 0	\$ 36,294,250



Projection of Plan Net Position and Benefit Payments



SECTION H

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 age(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.