

City of Manchester Employees' Contributory Retirement System

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



May 18, 2018

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 on behalf of the City of Manchester Employees' Contributory Retirement System (MECRS) in connection with the Governmental Accounting Standards Board (GASB) Statement No. 74. GASB Statement No. 74 is the accounting standard, which applies to Other Postemployment Benefits (OPEB) plans that are administered through trusts or equivalent arrangements.

The calculation of the liability associated with the post-retirement health subsidy benefits described in this report was performed for the purpose of satisfying the requirements of GASB Statement No. 74. The calculation of the System'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 MECRS only in its entirety and only with the permission of the MECRS. 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, 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, 2017 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.

Board of Trustees

May 18, 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.

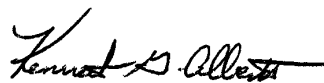
Section G of the report details the calculation of the single discount rate and is not required to be included in your financial statements. However, this information may be requested by your auditors, therefore, we have included it in this report.

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 may not be suitable for the City's reporting under GASB Statement No. 75.

The signing individuals are independent of the plan sponsor.

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, 2017

Actuarial Valuation Date/Measurement Date	December 31, 2017
OPEB Plan's Fiscal Year Ending Date (Reporting Date)	December 31, 2017

Membership

Number of	
- Retirees and Beneficiaries	325
- Inactive, Nonretired Members	96
- Active Members	1,176
- Total	1,597
Covered Payroll	\$ 53,364,536

Net OPEB Liability

Total OPEB Liability	\$ 26,405,178
Plan Fiduciary Net Position	12,535,536
Net OPEB Liability	\$ 13,869,642
Plan Fiduciary Net Position as a Percentage of Total OPEB Liability	47.47 %
Net OPEB Liability as a Percentage of Covered Payroll	25.99 %

Development of the Single Discount Rate

Single Discount Rate	7.00 %
Long-Term Expected Rate of Return	7.00 %
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	2117

**Source: "20-Year Municipal Go AA Index" is the Fidelity Index, general obligation, 20 years to maturity, mixed quality. 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 rate shown is as of December 29, 2017, the most recent date available on or before the measurement date.*

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 Statement No. 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 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. 74 requires 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 pension liability;
- The net OPEB liability using +/- 1% on the discount rate;
- The net OPEB liability using +/- 1% on the healthcare trend rate (if applicable);
- Significant assumptions and methods used to calculate the total pension 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 pension 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, 2017 and a measurement date of December 31, 2017.

Discussion

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 3.31% (based on the weekly 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%.

Actuarial Assumptions

The actuarial assumptions and methods used to value the liabilities are outlined 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; and
 - Time of retirement or termination.

Benefits Valued

The benefit provisions that were valued are described in the December 31, 2017 actuarial valuation report. 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 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.

Statement of Fiduciary Net Position as of December 31, 2017

Assets

Cash and Deposits	\$	4,556,531
Receivables		
Accounts Receivable - Sale of Investments	\$	319,146
Accrued Interest and Other Dividends		28,887
Additional Contribution Account		834,763
Property, Plant, Equipment		2,504
Total Receivables	\$	<u>1,185,300</u>
Investments	\$	227,878,034
Total Assets	\$	<u>233,619,865</u>

Liabilities

Payables		
Accounts Payable and Accrued Expenses	\$	381,113
Payable for Investments Purchased		1,680
Benefits Payable		1,423,563
Total Liabilities	\$	<u>1,806,356</u>

Assets Held for Pensions	\$	<u>219,277,973</u>
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Net Position Restricted for OPEB	\$	<u>12,535,536</u>
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Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2017

	2017
Additions	
Contributions	
Employer	\$ 715,870
Nonemployer contributing entities	0
Active Employees	680,166
Other	0
Total Contributions	\$ 1,396,036
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 1,724,069
Interest and Dividends	0
Less Investment Expense	(42,153)
Net Investment Income	\$ 1,681,916
Other	\$ 0
Total Additions	\$ 3,077,952
 Deductions	
Benefit Payments	\$ 954,291
OPEB Plan Administrative Expense	41,993
Other	2,797
Total Deductions	\$ 999,081
Net Increase in Net Position	\$ 2,078,871
 Net Position Restricted for OPEB	
Beginning of Year	\$ 10,456,665
End of Year	\$ 12,535,536

SECTION C

REQUIRED SUPPLEMENTARY INFORMATION

Auditor's Note – This information is intended to assist in preparation of the financial statements of 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.

Schedules of Required Supplementary Information

Schedule of Changes in Net OPEB Liability and Related Ratios (Multiyear)

(Ultimately 10 Years Will Be Displayed)

Fiscal year ending December 31,	2017
Total OPEB liability	
Service cost	\$ 629,368
Interest on the total OPEB liability	1,657,437
Changes of benefit terms	0
Difference between expected and actual experience	(139,278)
Changes of assumptions	2,188,276
Benefit payments, including refunds of employee contributions	(954,291)
Net change in total OPEB liability	3,381,512
Total OPEB liability - beginning	23,023,666
Total OPEB liability - ending (a)	\$ 26,405,178
Plan fiduciary net position	
Employer contributions	\$ 715,870
Nonemployer contributing entities contributions	0
Employee contributions	680,166
OPEB plan net investment income	1,681,916
Benefit payments, including refunds of employee contributions	(954,291)
OPEB plan administrative expense	(41,993)
Other	(2,797)
Net change in plan fiduciary net position	2,078,871
Plan fiduciary net position - beginning	10,456,665
Plan fiduciary net position - ending (b)	\$ 12,535,536
Net OPEB liability - ending (a) - (b)	\$ 13,869,642
Plan fiduciary net position as a percentage	
of total OPEB liability	47.47 %
Covered-employee payroll	\$ 53,364,536
Net OPEB liability as a percentage of covered-employee payroll	25.99 %
Notes to Schedule:	
N/A	

Schedules of Required Supplementary Information

Schedule of the Net OPEB Liability Multiyear

(Ultimately 10 Years Will Be Displayed)

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
2017	\$ 26,405,178	\$ 12,535,536	\$ 13,869,642	47.47 %	\$ 53,364,536	25.99 %

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

Schedule of Contributions Multiyear Last 10 Fiscal Years

FY Ending December 31,	Actuarially Determined Contribution (ADC) [#]	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
2017	\$ 715,870	\$ 715,870	\$ 0	\$ 53,364,536	1.34 %

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

[#]Employer contributes based on percent of payroll. Employer pays ADC percentage.

Notes to Schedule of Contributions

Valuation Date: December 31, 2015
Notes Actuarially determined contribution rates are calculated as of December 31, which is 6 months prior to the beginning of the fiscal year in which contributions are reported.

Methods and Assumptions Used to Determine Fiscal Year 2017 Contribution Rates:

Actuarial Cost Method	Entry Age Normal
Amortization Method	Level Percentage of Payroll, Closed
Remaining Amortization Period	23 years
Asset Valuation Method	5-Year smoothed market; 20% corridor
Wage Inflation	3.00%
Salary Increases	3.00% to 7.93%, including inflation
Long-Term Municipal Bond Rate	3.31%
Investment Rate of Return	7.25% (net of investment expenses)
Retirement Age	Age and Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	RP-2000 Mortality Table projected to 2020 for males and females.
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 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.

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	325
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	96
Active Plan Members	<u>1,176</u>
Total Plan Members	1,597

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

	Current Single Discount		
	1% Decrease 6.00%	Rate Assumption 7.00%	1% Increase 8.00%
Total OPEB Liability (TOL)	\$ 29,946,268	\$ 26,405,178	\$ 23,448,126
Net Position Restricted for Pensions	12,535,536	12,535,536	12,535,536
Net OPEB Liability	\$ 17,410,732	\$ 13,869,642	\$ 10,912,590

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%

SECTION F

VALUATION METHODS 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. 67 and 68 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 Pensions.

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. Assumptions are forward-looking.

Actuarial Assumptions Used for the Valuation

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
	2017	2016	2015	2014	2013	
1) Nominal rate of return#	7.4 %	6.3 %	4.8 %	7.4 %	9.3 %	7.0 %
2) Increase in CPI	2.1 %	2.1 %	0.7 %	0.8 %	1.5 %	1.4 %
3) Average Salary Increase (ASI)	1.2 %	1.1 %	(2.0)%	1.3 %	3.3 %	1.0 %
4) Real Return						
- Total: CPI (1) - (2)						5.6 %
- Total: ASI (1) - (3)						6.1 %
- 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%.

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.

Actuarial Assumptions Used for the Valuation

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	\$152.48	\$156.61	0.3826%	0.2596%	35.07	37.62
55	145.39	150.10	0.5366%	0.3600%	30.31	32.68
60	136.49	141.81	0.7607%	0.5462%	25.72	27.88
65	125.58	131.52	1.1113%	0.8176%	21.33	23.29
70	112.43	118.88	1.6572%	1.2451%	17.20	18.93
75	97.02	103.77	2.6043%	2.0005%	13.39	14.86
80	79.85	86.49	4.3403%	3.4148%	9.98	11.18
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.

Actuarial Assumptions Used for the Valuation

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:

A member was assumed to be eligible for normal retirement after attaining age 60 regardless of years 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.

Active Members Retiring Next Year Under Normal Retirement			Active Members Retiring Next Year Under Early Retirement			
Ages	% Retiring		Ages	% Retiring		Rule of 80
	Men	Women		Age and Service		
	Men	Women	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

Actuarial Assumptions Used for the Valuation

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) 6 & Up (Women)	4.88%	5.57%
35		3.61%	4.67%
40		2.85%	4.04%
45		2.45%	3.57%
50		2.28%	3.10%
Ref.		1106 77 x 0.4275	1105 37 x 1.05

Rates of disability were divided equally between duty and 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

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:	For Manchester School District and enterprise funds of MECRS (Airport, Water Works, and the MECRS), contributions are assumed to be received continuously throughout the year based upon the actual payroll payable at the time contributions are made. For the remaining City group, contributions are assumed to be received on a semiannual basis in December and July.
Subsidy COLA Assumption:	4.00% annual increases.
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.

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 3.31%; 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.

In a closed group, the members that survive in active status the longest tend to have a lower normal cost than the average normal cost on the valuation date. Since the employee contribution rate is currently just under the average normal cost but above the average normal cost expected in a few years for remaining members, contributions at this rate would eventually overfund the benefits (assuming the employer fully funded the current UAAL). This phenomenon is illustrated in the projections. It is important to note that this phenomenon is not likely to occur for the open group. In addition, if the plan were closed, there would be implications on the expected rate of investment return that are not modeled in the projections and could eliminate this phenomenon.

Single Discount Rate Development

Projection of Contributions Ending December 31 for 2018 to 2067

Year	Projected Payroll for Current Employees	Projected Contributions from Current Employees	Projected Service Cost and Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2017	\$ 53,364,536				
2018	55,898,718	\$ 698,734	\$ 39,561	\$ 965,810	\$ 1,704,105
2019	52,804,334	660,054	22,079	992,370	1,674,503
2020	50,486,551	631,082	10,881	1,019,660	1,661,623
2021	48,269,838	603,373	2,701	1,047,701	1,653,775
2022	46,067,740	575,847	0	1,076,512	1,652,359
2023	43,996,348	549,954	0	1,106,117	1,656,071
2024	41,841,154	523,014	0	1,136,535	1,659,549
2025	39,705,768	496,322	0	1,167,789	1,664,112
2026	37,531,559	469,144	0	1,199,904	1,669,048
2027	35,346,779	441,835	0	1,232,901	1,674,736
2028	33,245,737	415,572	0	1,266,806	1,682,377
2029	31,157,027	389,463	0	1,301,643	1,691,106
2030	29,136,530	364,207	0	1,337,438	1,701,645
2031	27,194,596	339,932	0	1,374,218	1,714,150
2032	25,382,943	317,287	0	1,412,009	1,729,295
2033	23,642,639	295,533	0	1,450,839	1,746,372
2034	22,033,535	275,419	0	1,490,737	1,766,156
2035	20,505,531	256,319	0	1,531,732	1,788,051
2036	19,015,818	237,698	0	1,573,855	1,811,553
2037	17,659,278	220,741	0	1,617,136	1,837,877
2038	16,353,476	204,418	0	1,661,607	1,866,026
2039	15,182,335	189,779	0	1,707,301	1,897,081
2040	14,009,977	175,125	0	0	175,125
2041	12,914,702	161,434	0	0	161,434
2042	11,916,305	148,954	0	0	148,954
2043	10,941,490	136,769	0	0	136,769
2044	10,019,201	125,240	0	0	125,240
2045	9,110,660	113,883	0	0	113,883
2046	8,294,197	103,677	0	0	103,677
2047	7,460,774	93,260	0	0	93,260
2048	6,688,047	83,601	0	0	83,601
2049	5,929,687	74,121	0	0	74,121
2050	5,242,775	65,535	0	0	65,535
2051	4,610,143	57,627	0	0	57,627
2052	4,016,280	50,204	0	0	50,204
2053	3,444,153	43,052	0	0	43,052
2054	2,903,852	36,298	0	0	36,298
2055	2,438,202	30,478	0	0	30,478
2056	1,993,549	24,919	0	0	24,919
2057	1,604,921	20,062	0	0	20,062
2058	1,286,280	16,078	0	0	16,078
2059	1,004,978	12,562	0	0	12,562
2060	765,309	9,566	0	0	9,566
2061	585,183	7,315	0	0	7,315
2062	443,019	5,538	0	0	5,538
2063	328,225	4,103	0	0	4,103
2064	241,807	3,023	0	0	3,023
2065	167,768	2,097	0	0	2,097
2066	106,256	1,328	0	0	1,328
2067	71,029	888	0	0	888

Single Discount Rate Development

Projection of Contributions Ending December 31 for 2068 to 2117

Year	Projected Payroll for Current Employees	Projected Contributions from Current Employees	Projected Service Cost and Expense Contributions	Projected UAL Contributions	Projected Total Contributions
2068	45,467 \$	568 \$	0 \$	0 \$	568
2069	27,983	350	0	0	350
2070	17,519	219	11	0	230
2071	12,197	152	0	0	152
2072	7,304	91	7	0	98
2073	3,968	50	0	0	50
2074	2,028	25	1	0	26
2075	825	10	3	0	13
2076	117	1	1	0	2
2077	91	1	1	0	2
2078	0	0	0	0	0
2079	0	0	0	0	0
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

Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2018 to 2067

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.000%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2018	\$ 12,535,536	\$ 1,704,105	\$ 703,668	\$ 0	\$ 911,911	\$ 14,447,883
2019	14,447,883	1,674,503	823,208	0	1,040,643	16,339,821
2020	16,339,821	1,661,623	948,686	0	1,168,318	18,221,076
2021	18,221,076	1,653,775	1,087,207	0	1,294,970	20,082,613
2022	20,082,613	1,652,359	1,230,721	0	1,420,291	21,924,542
2023	21,924,542	1,656,071	1,384,161	0	1,544,074	23,740,526
2024	23,740,526	1,659,549	1,538,869	0	1,665,989	25,527,195
2025	25,527,195	1,664,112	1,696,234	0	1,785,798	27,280,871
2026	27,280,871	1,669,048	1,860,988	0	1,903,057	28,991,988
2027	28,991,988	1,674,736	2,026,355	0	2,017,341	30,657,710
2028	30,657,710	1,682,377	2,189,395	0	2,128,594	32,279,287
2029	32,279,287	1,691,106	2,354,899	0	2,236,710	33,852,204
2030	33,852,204	1,701,645	2,514,474	0	2,341,686	35,381,060
2031	35,381,060	1,714,150	2,672,751	0	2,443,691	36,866,150
2032	36,866,150	1,729,295	2,821,795	0	2,543,040	38,316,690
2033	38,316,690	1,746,372	2,960,856	0	2,640,380	39,742,586
2034	39,742,586	1,766,156	3,098,557	0	2,736,136	41,146,321
2035	41,146,321	1,788,051	3,227,050	0	2,830,729	42,538,051
2036	42,538,051	1,811,553	3,346,587	0	2,924,846	43,927,862
2037	43,927,862	1,837,877	3,460,249	0	3,019,128	45,324,618
2038	45,324,618	1,866,026	3,568,213	0	3,114,154	46,736,584
2039	46,736,584	1,897,081	3,661,038	0	3,210,867	48,183,493
2040	48,183,493	175,125	3,744,920	0	3,250,015	47,863,712
2041	47,863,712	161,434	3,818,444	0	3,224,629	47,431,332
2042	47,431,332	148,954	3,878,925	0	3,191,852	46,893,213
2043	46,893,213	136,769	3,929,546	0	3,152,023	46,252,458
2044	46,252,458	125,240	3,963,400	0	3,105,608	45,519,906
2045	45,519,906	113,883	3,988,214	0	3,053,085	44,698,661
2046	44,698,661	103,677	4,000,975	0	2,994,808	43,796,172
2047	43,796,172	93,260	4,003,540	0	2,931,187	42,817,079
2048	42,817,079	83,601	3,992,907	0	2,862,684	41,770,456
2049	41,770,456	74,121	3,967,965	0	2,789,952	40,666,564
2050	40,666,564	65,535	3,930,381	0	2,713,678	39,515,395
2051	39,515,395	57,627	3,881,947	0	2,634,490	38,325,565
2052	38,325,565	50,204	3,824,458	0	2,552,925	37,104,236
2053	37,104,236	43,052	3,759,027	0	2,469,437	35,857,698
2054	35,857,698	36,298	3,685,032	0	2,384,493	34,593,457
2055	34,593,457	30,478	3,598,309	0	2,298,780	33,324,406
2056	33,324,406	24,919	3,499,058	0	2,213,170	32,063,437
2057	32,063,437	20,062	3,391,619	0	2,128,432	30,820,312
2058	30,820,312	16,078	3,277,909	0	2,045,189	29,603,671
2059	29,603,671	12,562	3,159,812	0	1,963,966	28,420,388
2060	28,420,388	9,566	3,039,006	0	1,885,190	27,276,138
2061	27,276,138	7,315	2,916,463	0	1,809,232	26,176,221
2062	26,176,221	5,538	2,793,526	0	1,736,406	25,124,639
2063	25,124,639	4,103	2,670,950	0	1,666,964	24,124,756
2064	24,124,756	3,023	2,549,588	0	1,601,111	23,179,301
2065	23,179,301	2,097	2,429,997	0	1,539,012	22,290,412
2066	22,290,412	1,328	2,311,663	0	1,480,835	21,460,912
2067	21,460,912	888	2,194,549	0	1,426,784	20,694,035

Single Discount Rate Development Projection of Plan Net Position Ending December 31 for 2068 to 2117

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 7.000%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
2068	20,694,035	568	2,079,020	0	1,377,067	19,992,651
2069	19,992,651	350	1,964,921	0	1,331,889	19,359,968
2070	19,359,968	230	1,852,147	0	1,291,477	18,799,528
2071	18,799,528	152	1,740,732	0	1,256,077	18,315,026
2072	18,315,026	98	1,630,684	0	1,225,947	17,910,386
2073	17,910,386	50	1,521,917	0	1,201,363	17,589,882
2074	17,589,882	26	1,414,477	0	1,182,623	17,358,054
2075	17,358,054	13	1,308,551	0	1,170,040	17,219,555
2076	17,219,555	2	1,204,346	0	1,163,930	17,179,142
2077	17,179,142	2	1,102,154	0	1,164,617	17,241,606
2078	17,241,606	0	1,002,349	0	1,172,424	17,411,681
2079	17,411,681	0	905,311	0	1,187,668	17,694,038
2080	17,694,038	0	811,492	0	1,210,661	18,093,207
2081	18,093,207	0	721,372	0	1,241,704	18,613,539
2082	18,613,539	0	635,448	0	1,281,083	19,259,174
2083	19,259,174	0	554,207	0	1,329,073	20,034,040
2084	20,034,040	0	478,118	0	1,385,932	20,941,853
2085	20,941,853	0	407,634	0	1,451,904	21,986,123
2086	21,986,123	0	343,155	0	1,527,221	23,170,189
2087	23,170,189	0	284,978	0	1,612,108	24,497,319
2088	24,497,319	0	233,267	0	1,706,786	25,970,838
2089	25,970,838	0	188,029	0	1,811,489	27,594,299
2090	27,594,299	0	149,098	0	1,926,471	29,371,671
2091	29,371,671	0	116,170	0	2,052,020	31,307,521
2092	31,307,521	0	88,835	0	2,188,470	33,407,156
2093	33,407,156	0	66,596	0	2,336,209	35,676,769
2094	35,676,769	0	48,886	0	2,495,692	38,123,575
2095	38,123,575	0	35,101	0	2,667,442	40,755,916
2096	40,755,916	0	24,628	0	2,852,067	43,583,354
2097	43,583,354	0	16,871	0	3,050,254	46,616,737
2098	46,616,737	0	11,276	0	3,262,784	49,868,245
2099	49,868,245	0	7,348	0	3,490,524	53,351,422
2100	53,351,422	0	4,667	0	3,734,439	57,081,194
2101	57,081,194	0	2,888	0	3,995,584	61,073,891
2102	61,073,891	0	1,741	0	4,275,112	65,347,262
2103	65,347,262	0	1,023	0	4,574,273	69,920,512
2104	69,920,512	0	586	0	4,894,416	74,814,341
2105	74,814,341	0	328	0	5,236,993	80,051,006
2106	80,051,006	0	179	0	5,603,564	85,654,391
2107	85,654,391	0	96	0	5,995,804	91,650,099
2108	91,650,099	0	51	0	6,415,505	98,065,553
2109	98,065,553	0	27	0	6,864,588	104,930,114
2110	104,930,114	0	14	0	7,345,108	112,275,208
2111	112,275,208	0	7	0	7,859,264	120,134,465
2112	120,134,465	0	3	0	8,409,412	128,543,874
2113	128,543,874	0	2	0	8,998,071	137,541,944
2114	137,541,944	0	1	0	9,627,936	147,169,879
2115	147,169,879	0	0	0	10,301,892	157,471,771
2116	157,471,771	0	0	0	11,023,024	168,494,795
2117	168,494,795	0	0	0	11,794,636	180,289,430

Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2018 to 2067

Year	Projected 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 ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+SDR)) ^a ((a)-.5)
2018	\$ 12,535,536	\$ 703,668	\$ 703,668	\$ 0	\$ 680,262	\$ 0	\$ 680,262
2019	14,447,883	823,208	823,208	0	743,762	0	743,762
2020	16,339,821	948,686	948,686	0	801,056	0	801,056
2021	18,221,076	1,087,207	1,087,207	0	857,964	0	857,964
2022	20,082,613	1,230,721	1,230,721	0	907,680	0	907,680
2023	21,924,542	1,384,161	1,384,161	0	954,060	0	954,060
2024	23,740,526	1,538,869	1,538,869	0	991,305	0	991,305
2025	25,527,195	1,696,234	1,696,234	0	1,021,192	0	1,021,192
2026	27,280,871	1,860,988	1,860,988	0	1,047,084	0	1,047,084
2027	28,991,988	2,026,355	2,026,355	0	1,065,540	0	1,065,540
2028	30,657,710	2,189,395	2,189,395	0	1,075,956	0	1,075,956
2029	32,279,287	2,354,899	2,354,899	0	1,081,580	0	1,081,580
2030	33,852,204	2,514,474	2,514,474	0	1,079,319	0	1,079,319
2031	35,381,060	2,672,751	2,672,751	0	1,072,204	0	1,072,204
2032	36,866,150	2,821,795	2,821,795	0	1,057,939	0	1,057,939
2033	38,316,690	2,960,856	2,960,856	0	1,037,454	0	1,037,454
2034	39,742,586	3,098,557	3,098,557	0	1,014,676	0	1,014,676
2035	41,146,321	3,227,050	3,227,050	0	987,619	0	987,619
2036	42,538,051	3,346,587	3,346,587	0	957,199	0	957,199
2037	43,927,862	3,460,249	3,460,249	0	924,962	0	924,962
2038	45,324,618	3,568,213	3,568,213	0	891,422	0	891,422
2039	46,736,584	3,661,038	3,661,038	0	854,777	0	854,777
2040	48,183,493	3,744,920	3,744,920	0	817,161	0	817,161
2041	47,863,712	3,818,444	3,818,444	0	778,695	0	778,695
2042	47,431,332	3,878,925	3,878,925	0	739,280	0	739,280
2043	46,893,213	3,929,546	3,929,546	0	699,932	0	699,932
2044	46,252,458	3,963,400	3,963,400	0	659,778	0	659,778
2045	45,519,906	3,988,214	3,988,214	0	620,475	0	620,475
2046	44,698,661	4,000,975	4,000,975	0	581,739	0	581,739
2047	43,796,172	4,003,540	4,003,540	0	544,030	0	544,030
2048	42,817,079	3,992,907	3,992,907	0	507,089	0	507,089
2049	41,770,456	3,967,965	3,967,965	0	470,954	0	470,954
2050	40,666,564	3,930,381	3,930,381	0	435,975	0	435,975
2051	39,515,395	3,881,947	3,881,947	0	402,432	0	402,432
2052	38,325,565	3,824,458	3,824,458	0	370,535	0	370,535
2053	37,104,236	3,759,027	3,759,027	0	340,370	0	340,370
2054	35,857,698	3,685,032	3,685,032	0	311,841	0	311,841
2055	34,593,457	3,598,309	3,598,309	0	284,582	0	284,582
2056	33,324,406	3,499,058	3,499,058	0	258,628	0	258,628
2057	32,063,437	3,391,619	3,391,619	0	234,287	0	234,287
2058	30,820,312	3,277,909	3,277,909	0	211,619	0	211,619
2059	29,603,671	3,159,812	3,159,812	0	190,649	0	190,649
2060	28,420,388	3,039,006	3,039,006	0	171,365	0	171,365
2061	27,276,138	2,916,463	2,916,463	0	153,696	0	153,696
2062	26,176,221	2,793,526	2,793,526	0	137,586	0	137,586
2063	25,124,639	2,670,950	2,670,950	0	122,943	0	122,943
2064	24,124,756	2,549,588	2,549,588	0	109,679	0	109,679
2065	23,179,301	2,429,997	2,429,997	0	97,696	0	97,696
2066	22,290,412	2,311,663	2,311,663	0	86,858	0	86,858
2067	21,460,912	2,194,549	2,194,549	0	77,063	0	77,063

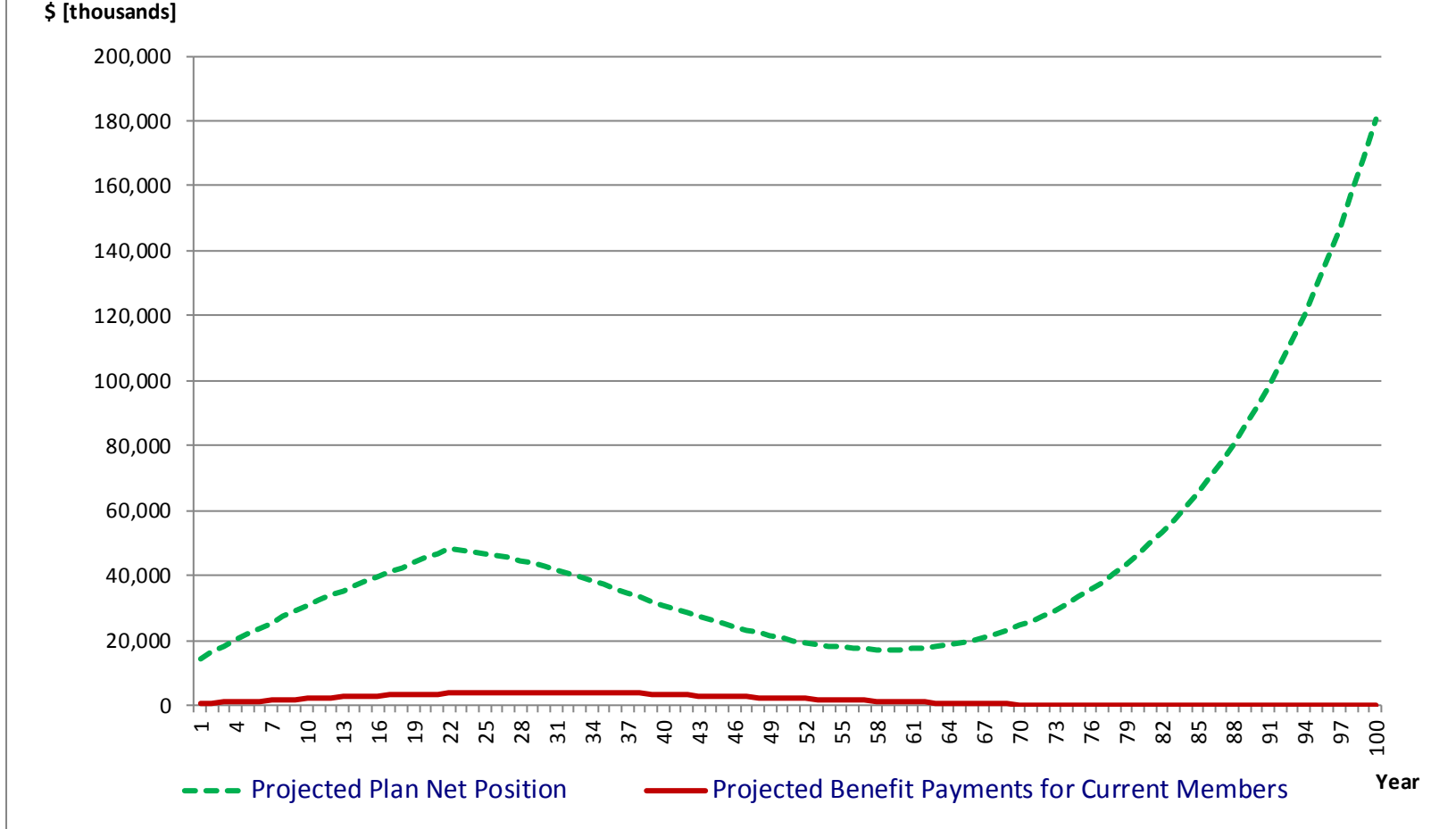
Single Discount Rate Development

Present Values of Projected Benefits

Ending December 31 for 2068 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 ((a)-.5)	(g)=(e)*vf ^a ((a)-.5)	(h)=((c)/(1+SDR)) ^a (a-.5)
2068	\$ 20,694,035	\$ 2,079,020	\$ 2,079,020	\$ 0	\$ 68,230	\$ 0	\$ 68,230
2069	19,992,651	1,964,921	1,964,921	0	60,267	0	60,267
2070	19,359,968	1,852,147	1,852,147	0	53,092	0	53,092
2071	18,799,528	1,740,732	1,740,732	0	46,634	0	46,634
2072	18,315,026	1,630,684	1,630,684	0	40,828	0	40,828
2073	17,910,386	1,521,917	1,521,917	0	35,612	0	35,612
2074	17,589,882	1,414,477	1,414,477	0	30,932	0	30,932
2075	17,358,054	1,308,551	1,308,551	0	26,744	0	26,744
2076	17,219,555	1,204,346	1,204,346	0	23,004	0	23,004
2077	17,179,142	1,102,154	1,102,154	0	19,675	0	19,675
2078	17,241,606	1,002,349	1,002,349	0	16,722	0	16,722
2079	17,411,681	905,311	905,311	0	14,115	0	14,115
2080	17,694,038	811,492	811,492	0	11,825	0	11,825
2081	18,093,207	721,372	721,372	0	9,824	0	9,824
2082	18,613,539	635,448	635,448	0	8,088	0	8,088
2083	19,259,174	554,207	554,207	0	6,592	0	6,592
2084	20,034,040	478,118	478,118	0	5,315	0	5,315
2085	20,941,853	407,634	407,634	0	4,235	0	4,235
2086	21,986,123	343,155	343,155	0	3,332	0	3,332
2087	23,170,189	284,978	284,978	0	2,586	0	2,586
2088	24,497,319	233,267	233,267	0	1,978	0	1,978
2089	25,970,838	188,029	188,029	0	1,490	0	1,490
2090	27,594,299	149,098	149,098	0	1,104	0	1,104
2091	29,371,671	116,170	116,170	0	804	0	804
2092	31,307,521	88,835	88,835	0	575	0	575
2093	33,407,156	66,596	66,596	0	403	0	403
2094	35,676,769	48,886	48,886	0	276	0	276
2095	38,123,575	35,101	35,101	0	185	0	185
2096	40,755,916	24,628	24,628	0	122	0	122
2097	43,583,354	16,871	16,871	0	78	0	78
2098	46,616,737	11,276	11,276	0	49	0	49
2099	49,868,245	7,348	7,348	0	30	0	30
2100	53,351,422	4,667	4,667	0	18	0	18
2101	57,081,194	2,888	2,888	0	10	0	10
2102	61,073,891	1,741	1,741	0	6	0	6
2103	65,347,262	1,023	1,023	0	3	0	3
2104	69,920,512	586	586	0	2	0	2
2105	74,814,341	328	328	0	1	0	1
2106	80,051,006	179	179	0	0	0	0
2107	85,654,391	96	96	0	0	0	0
2108	91,650,099	51	51	0	0	0	0
2109	98,065,553	27	27	0	0	0	0
2110	104,930,114	14	14	0	0	0	0
2111	112,275,208	7	7	0	0	0	0
2112	120,134,465	3	3	0	0	0	0
2113	128,543,874	2	2	0	0	0	0
2114	137,541,944	1	1	0	0	0	0
2115	147,169,879	0	0	0	0	0	0
2116	157,471,771	0	0	0	0	0	0
2117	168,494,795	0	0	0	0	0	0
Totals	\$		\$	\$	\$ 32,016,737	\$ 0	\$ 32,016,737

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 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.



May 18, 2018

Mr. Gerard E. Fleury
Executive Director
City of Manchester Employees'
Contributory Retirement System
1045 Elm Street, Suite 403
Manchester, New Hampshire 03101-1824

Dear Mr. Fleury:

Please find enclosed 10 copies of the GASB Statement No. 74 Financial Reporting for Postemployment Benefit Plans Other Than Pension Plans report of the City of Manchester Employees' Contributory Retirement System.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth G. Alberts", is written over a light blue background.

Kenneth G. Alberts

KGA:ah
Enclosures

