

City of Manchester Employees' Contributory Retirement System

GASB Statement Nos. 67 and 68 Accounting and
Financial Reporting for Pensions

December 31, 2019





April 13, 2020

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

Dear Board Members:

The purpose of this report is to provide the accounting and financial reporting information that is intended to comply with the Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68 for the City of Manchester Employees' Contributory Retirement System (MECRS). These calculations have been made on a basis that is consistent with our understanding of these accounting standards. This report should not be relied upon for any other purpose than described herein.

GASB Statement Nos. 67 and 68 are the accounting standards that apply to the stand-alone financial reports issued by retirement systems. This information is presented in draft form for review by the City's auditor. Please let us know if there are items that the auditor changes so that we may maintain consistency with the City's financial statements.

Our calculation of the liability associated with the benefits described in this report was performed for the purpose of assisting in the reporting and disclosure information that satisfies certain requirements of GASB Statement Nos. 67 and 68. The Net Pension Liability is not an appropriate measure for determining the sufficiency of plan assets to cover the estimated cost of settling the employer's benefit obligation. The Net Pension Liability is not an appropriate measure for assessing the need for or amount of future employer contributions. The calculation of the City's liability for this report may not be applicable for funding purposes of the Retirement System. A calculation of the City's liability for purposes other than satisfying the requirements of GASB Statement Nos. 67 and 68 may produce significantly different results. GASB Statement Nos. 67 and 68 cover pension benefits provided by the Retirement System. The Retirement System also provides post-retirement health benefits through a Section 401(h) sub-trust. The assets and liabilities of the sub-trust have not been included in this report. Please refer to the actuarial valuation for information concerning the liabilities and assets of the sub-trust.

This report may be provided to parties other than the City of Manchester Employees' Contributory Retirement System and the Board of Trustees only in its entirety and only with the permission of the Board. Authorized or unauthorized use of this report does not create a liability between GRS and the other party. GRS is not responsible for unauthorized use of this report.

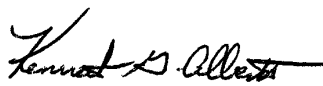
This report is based upon information, furnished to us by the Retirement System, concerning retirement and ancillary benefits, active members, deferred vested members, retirees and beneficiaries, and financial data. If your understanding of this information is different, please let us know. This information was checked for internal consistency, but was not audited. We are not responsible for the accuracy or completeness of such information.

This report complements the actuarial valuation report provided to the City of Manchester Employees' Contributory Retirement System and should be considered collectively as a combined report for the plan year ending December 31, 2019. Please refer to the December 31, 2019 actuarial valuation report for additional discussion of the nature of actuarial calculations and more information related to participant data, economic and demographic assumptions, and benefit provisions.

To the best of our knowledge, the information contained within this report is accurate and fairly represents the actuarial position of the City of Manchester Employees' Contributory Retirement System for the purposes of GASB Statements No. 67 and No. 68 reporting. All calculations have been made in conformity with generally accepted actuarial principles and practices as well as with the Actuarial Standards of Practice issued by the Actuarial Standards Board. 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. The signing individuals are independent of the plan sponsor.

This communication shall not be construed to provide tax advice, legal advice, accounting advice, or investment advice.

Respectfully submitted,



Kenneth G. Alberts



Heidi G. Barry, ASA, FCA, MAAA

KGA/HGB:dj

C2288



Table of Contents

	<u>Page</u>
Section A	Executive Summary
	Executive Summary..... 1
	Discussion..... 2
Section B	Financial Statements
	Statement of Pension Expense 5
	Statement of Outflows and Inflows Arising from Current Reporting Period 6
	Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods..... 7
	Recognition of Deferred Outflows and Inflows of Resources..... 8
	Statement of Fiduciary Net Position 9
	Statement of Changes in Fiduciary Net Position 10
	Schedule of Proportionate Employer Share 11
Section C	Required Supplementary Information
	Schedule of Changes in Net Pension Liability and Related Ratios Current Period 13
	Schedule of Changes in Net Pension Liability and Related Ratios (Multiyear)..... 14
	Schedule of Net Pension Liability..... 15
	Schedule of Contributions 16
	Notes to Schedule of Contributions..... 17
Section D	Notes to Financial Statements
	Sensitivity of Net Pension Liability to the Single Discount Rate Assumption..... 18
	Summary of Population Statistics 19
Section E	Summary of Benefits 20
Section F	Actuarial Cost Method and Actuarial Assumptions
	Actuarial Cost Method 23
	Actuarial Assumptions 24
	Miscellaneous and Technical Assumptions 30
Section G	Calculation of the Single Discount Rate
	Calculation of the Single Discount Rate 31
	Projection of Contributions..... 32
	Projection of Plan Fiduciary Net Position 34
	Present Values of Projected Benefits..... 36
	Projection of Plan Net Position and Benefit Payments 38
Section H	Glossary of Terms 39



SECTION A



EXECUTIVE SUMMARY

Executive Summary as of December 31, 2019

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

Membership

Number of	
- Retirees and Beneficiaries	955
- Inactive, Nonretired Members	110
- Active Members	1,119
- Total	2,184
Covered Payroll #	\$ 52,895,992

Net Pension Liability

Total Pension Liability	\$ 370,984,435
Plan Fiduciary Net Position	232,789,386
Net Pension Liability	\$ 138,195,049
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	62.75%
Net Pension Liability as a Percentage of Covered Payroll	261.26%

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 Pension Expense \$ 20,208,031

Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources
Difference between expected and actual experience	\$ 3,918,437	\$ 1,632,300
Changes in assumptions	4,474,101	-
Net difference between projected and actual earnings on pension plan investments	16,519,583	21,487,339
Total	\$ 24,912,121	\$ 23,119,639

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, the most recent date available on or before the measurement date. 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.



Discussion

Accounting Standard

For pension plans that are administered through trusts or equivalent arrangements, Governmental Accounting Standards Board (GASB) Statement No. 67 establishes standards of financial reporting for separately issued financial reports and specifies the required approach for measuring the pension liability. Similarly, GASB Statement No. 68 establishes standards for state and local government employers (as well as non-employer contributing entities) to account for and disclose the Net Pension Liability, pension expense, and other information associated with providing retirement benefits to their employees (and former employees) on their basic 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 and the retirement system and/or plan sponsor will be responsible for preparing and disclosing that information to comply with these accounting standards.

Financial Statements

GASB Statement No. 68 requires State or local governments to recognize the Net Pension Liability and the pension expense on their financial statements. The Net Pension Liability is the difference between the Total Pension 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 (not the smoothed actuarial value of assets that is often encountered in actuarial valuations performed to determine the employer's contribution requirement).

Paragraph 57 of GASB Statement No. 68 States, "Contributions to the pension plan from the employer subsequent to the measurement date of the collective net pension liability and before the end of the employer's reporting period should be reported as a deferred outflow of resources related to pensions." The information contained in this report does not incorporate any contributions made to MECRS subsequent to the measurement date of December 31, 2019.

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

Pension plans that prepare their own, stand-alone financial statements are required to present two financial statements – a statement of fiduciary net position and a statement of changes in fiduciary net position in accordance with GASB Statement No. 67. The statement of fiduciary net position presents the assets and liabilities of the pension plan at the end of the pension 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 expenses, and net increase or decrease in the fiduciary net position.



Notes to Financial Statements

GASB Statement No. 68 requires the notes of the employer's financial statements to disclose the total pension expense, the pension plan's liabilities and assets, and deferred outflows and inflows of resources related to pensions.

GASB Statement Nos. 67 and 68 require the notes of the financial statements for the employers and pension plans to include certain additional information. The list of disclosure items should include:

- a description of benefits provided by the plan;
- the type of employees and number of members covered by the pension plan;
- a description of the plan's funding policy, which includes member and employer contribution requirements;
- the pension plan's investment policies;
- the pension Plan's Fiduciary Net Position, Net Pension Liability, and the pension plan's fiduciary net position as a percentage of the Total Pension Liability;
- the Net Pension Liability using a discount rate that is 1% higher and 1% lower than used to calculate the Total Pension Liability and Net Pension Liability for financial reporting purposes;
- 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.

Retirement systems that issue stand-alone financial statements are required to disclose additional information in accordance with GASB Statement No. 67. This information includes:

- the composition of the pension 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.

Required Supplementary Information

GASB Statement No. 67 requires a 10-year fiscal history of:

- sources of changes in the Net Pension Liability;
- information about the components of the Net Pension Liability and related ratios, including the pension plan's Fiduciary Net Position as a percentage of the Total Pension Liability, and the Net Pension Liability as a percent of covered-employee payroll; and
- comparison of the actual employer contributions to the actuarially determined contributions based on the plan's funding policy.

General Implications of Contribution Allocation Procedure or Funding Policy on Future Expected Plan Contributions and Funded Status

Given the plan's contribution allocation procedure, if all actuarial assumptions are met (including the assumption of the plan earning 7.00% on the actuarial value of assets), then the following outcomes are expected:

1. The employer normal cost as a percentage of pay is expected to remain level as a percentage of payroll.
2. The unfunded liability is expected to be paid off in approximately 20 years, which is the number of years remaining in the closed amortization schedule of the unfunded liability.
3. The funded status of the plan is expected to reach a 100% funded ratio in approximately 20 years, which is the number of years remaining in the closed amortization schedule of the unfunded liability.

This funding policy results in the expectation that the plan's assets will be able to fully pay for promised benefits through at least 2119. 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.

Timing of the Valuation

An actuarial valuation to determine the Total Pension Liability is required to be performed at least every two years. The Net Pension Liability and pension expense should be measured as of the pension plan's fiscal year end (measurement date) on a date that is within the employer's prior fiscal year. If the actuarial valuation used to determine the Total Pension Liability is not calculated as of the measurement date, the Total Pension Liability is required to be rolled-forward from the actuarial valuation date to the measurement date.

The Total Pension 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 pension 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 pension 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%.



SECTION B



FINANCIAL STATEMENTS

Statement of Pension Expense Under GASB Statement No. 68

Plan Year Ended December 31, 2019

A. Expense

1. Service Cost	\$	6,188,578
2. Interest on the Total Pension Liability		24,447,847
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(2,440,534)
5. Projected Earnings on Plan Investments (made negative for addition here)		(14,141,627)
6. Pension Plan Administrative Expense		876,660
7. Other Changes in Plan Fiduciary Net Position		36,626
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		2,810,862
9. Recognition of Outflow (Inflow) of Resources due to Assets		2,429,619
10. Total Pension Expense	\$	20,208,031

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

A. Outflows (Inflows) of Resources Due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$ 3,974,876
2. Assumption Changes (gains) or losses	\$ -
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}	5.1435
4. Outflow (Inflow) of Resources to be recognized in the current pension expense for the difference between expected and actual experience of the Total Pension Liability	\$ 772,796
5. Outflow (Inflow) of Resources to be recognized in the current pension expense for Assumption Changes	\$ -
6. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Liabilities	<u>\$ 772,796</u>
7. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for the difference between expected and actual experience of the Total Pension Liability	\$ 3,202,080
8. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses for Assumption Changes	\$ -
9. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Liabilities	<u>\$ 3,202,080</u>

B. Outflows (Inflows) of Resources Due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$ (18,545,922)
2. Recognition period for Assets {in years}	5.0000
3. Outflow (Inflow) of Resources to be recognized in the current pension expense due to Assets	\$ (3,709,184)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$ (14,836,738)



Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Plan Year Ended December 31, 2019

A. Outflows and Inflows of Resources Due to Liabilities and Assets to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Due to Liabilities	\$ 3,762,460	\$ 951,598	\$ 2,810,862
2. Due to Assets	9,464,103	7,034,484	2,429,619
3. Total	\$ 13,226,563	\$ 7,986,082	\$ 5,240,481

B. Outflows and Inflows of Resources by Source to be Recognized in Current Pension Expense

	Outflows of Resources	Inflows of Resources	Net Outflows of Resources
1. Differences between expected and actual experience	\$ 1,965,054	\$ 951,598	\$ 1,013,456
2. Assumption Changes	1,797,406	-	1,797,406
3. Net Difference between projected and actual earnings on pension plan investments	9,464,103	7,034,484	2,429,619
4. Total	\$ 13,226,563	\$ 7,986,082	\$ 5,240,481

C. Deferred Outflows and Deferred Inflows of Resources by Source to be Recognized in Future Pension Expenses

	Deferred Outflows of Resources	Deferred Inflows of Resources	Net Deferred Outflows of Resources
1. Differences between expected and actual experience	\$ 3,918,437	\$ 1,632,300	\$ 2,286,137
2. Assumption Changes	4,474,101	-	4,474,101
3. Net Difference between projected and actual earnings on pension plan investments	16,519,583	21,487,339	(4,967,756)
4. Total	\$ 24,912,121	\$ 23,119,639	\$ 1,792,482

D. Deferred Outflows and Deferred Inflows of Resources by Year to be Recognized in Future Pension Expenses

	Year Ending December 31	Net Deferred Outflows of Resources
	2020	\$ 986,583
	2021	325,631
	2022	3,318,221
	2023	(2,948,849)
	2024	110,896
	Thereafter	0
	Total	\$ 1,792,482



Recognition of Deferred Outflows and Inflows of Resources

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					
2014	\$ 2,716,119	5.8007	\$ 374,919	\$ 0	0.0000
2015	4,528,433	5.8007	780,670	625,083	0.8007
2016	(5,201,876)	5.6570	(919,547)	(1,523,688)	1.6570
2017	201,281	5.4892	36,669	91,274	2.4892
2018	(172,714)	5.3888	(32,051)	(108,612)	3.3888
2019	3,974,876	5.1435	772,796	3,202,080	4.1435
Total			1,013,456	2,286,137	
Deferred Outflow (Inflow) Due to Assumption Changes					
2014	\$ 0	5.8007	\$ 0	\$ 0	0.0000
2015	0	5.8007	0	0	0.8007
2016	0	5.6570	0	0	1.6570
2017	9,866,319	5.4892	1,797,406	4,474,101	2.4892
2018	0	5.3888	0	0	3.3888
2019	0	5.1435	0	0	4.1435
Total			1,797,406	4,474,101	
Deferred Outflow (Inflow) Due to Differences Between Projected and Actual Earnings on Plan Investments					
2015	\$ 18,616,968	5.0000	\$ 3,723,392	\$ 0	0.0000
2016	1,756,370	5.0000	351,274	351,274	1.0000
2017	(16,626,501)	5.0000	(3,325,300)	(6,650,601)	2.0000
2018	26,947,183	5.0000	5,389,437	16,168,309	3.0000
2019	(18,545,922)	5.0000	(3,709,184)	(14,836,738)	4.0000
Total			2,429,619	(4,967,756)	

According to paragraph 33 of GASB No. 68, differences between expected and actual experience and changes in assumptions are recognized in pension 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 pensions through the pension 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 11,233 years. Additionally, the total plan membership (active employees and inactive employees) was 2,184. 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 5.1435 years.

Additionally, differences between projected and actual earnings on pension plan investments should be recognized in pension 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 pension expense as a level dollar amount over the closed period identified above.

Statement of Fiduciary Net Position as of December 31, 2019

Assets

Cash and Deposits	\$	11,081,397
Receivables		
Accounts Receivable	\$	312,074
Accrued Interest and Other Dividends		36,675
Additional Contribution Account		974,001
Property, Plant, Equipment		10,805
Total Receivables	<u>\$</u>	<u>1,333,555</u>
Investments	\$	237,109,959
Total Assets	<u>\$</u>	<u>249,524,911</u>

Liabilities

Payables		
Accounts Payable and Accrued Expenses	\$	302,935
Payable for Investments Purchased		-
Benefits Payable		1,659,888
Total Liabilities	<u>\$</u>	<u>1,962,823</u>
Assets held for 401(h) Subtrust	<u>\$</u>	<u>14,772,702</u>
Net Position Restricted for Pensions	<u>\$</u>	<u>232,789,386</u>

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

Additions

Contributions

Employer	\$	14,205,016
Employee (Including Additional Contributions, Buybacks, Upgrades and Enrollments)		2,440,534
Total Contributions	\$	16,645,550

Other	\$	-
-------	----	---

Investment Income

Net Appreciation in Fair Value of Investments	\$	30,674,005
Less Investment Expense		(685,818)
Net Investment Income	\$	32,777,140

Total Additions	\$	49,422,690
------------------------	-----------	-------------------

Deductions

Benefit Payments, Additional Contribution Payments, and Refunds of Employee Contributions	\$	19,575,082
---	----	------------

Pension Plan Administrative Expense		876,660
-------------------------------------	--	---------

Other: Custodial Fees and Foreign Taxes		36,626
		36,626

Total Deductions	\$	20,488,368
-------------------------	-----------	-------------------

Net Increase in Net Position	\$	28,934,322
-------------------------------------	-----------	-------------------

Net Position Restricted for Pensions

Beginning of Year	\$	203,944,655
-------------------	----	-------------

Prior Year Adjustment		(89,591)
		(89,591)

End of Year	\$	232,789,386
-------------	----	-------------

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

Deferred Outflows of Resources

Covered Payroll	Employer	Prop. Share	Net Pension 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%	\$ 13,266,725	\$ 376,170	\$ 429,514	\$ 1,069,889	\$ 1,875,573
577,038	Parking Control	1.09%	1,506,326	42,711	48,768	254,586	346,065
2,266,077	Environmental Protection	4.28%	5,914,748	167,709	191,492	172,357	531,558
8,989,476	School District	16.99%	23,479,339	665,742	760,150	745,623	2,171,515
5,017,429	Water Works	9.49%	13,114,710	371,860	424,592	1,143,751	1,940,203
30,967,848	General Fund City Departments	58.55%	80,913,201	2,294,245	2,619,585	1,453,716	6,367,546
\$ 52,895,992	Total for All Employers	100.00%	\$ 138,195,049	\$ 3,918,437	\$ 4,474,101	\$ 4,839,922	\$ 13,232,460



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

Employer	Deferred Inflows of Resources				Pension Expense			
	Differences Between Expected and Actual Experience	Net Difference Between Projected and Actual Investment Earnings on Pension 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 Pension Expense	Net Amortization of Deferred Amounts from Changes in Proportion and Differences Between Employer Contributions and Proportionate Share of Contributions	Total Employer Pension Expense
Airport	\$ 156,701	\$ 476,905	\$ -	\$ 688,400	\$ 1,322,006	\$ 1,939,971	\$ 92,069	\$ 2,032,040
Parking Control	17,792	54,149	-	103,757	175,698	220,268	36,402	256,670
Environmental Protection	69,862	212,620	-	318,690	601,172	864,904	(35,317)	829,587
School District	277,328	844,022	-	2,618,557	3,739,907	3,433,344	(452,019)	2,981,325
Water Works	154,905	471,440	-	198,730	825,075	1,917,742	228,074	2,145,816
General Fund City Departments	955,712	2,908,620	-	911,788	4,776,120	11,831,802	130,791	11,962,593
Total for All Employers	\$ 1,632,300	\$ 4,967,756	\$ -	\$ 4,839,922	\$ 11,439,978	\$ 20,208,031	\$ -	\$ 20,208,031

* 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

Schedule of Changes in Net Pension Liability and Related Ratios

Current Period

Plan Year Ended December 31, 2019

A. Total Pension Liability	
1. Service cost	\$ 6,188,578
2. Interest on the Total Pension Liability	\$ 24,447,847
3. Changes of benefit terms	\$ -
4. Difference between expected and actual experience of the Total Pension Liability	\$ 3,974,876
5. Changes of assumptions	\$ -
6. Benefit payments, including refunds of employee contributions	\$ (19,575,082)
7. Net change in Total Pension Liability	\$ 15,036,219
8. Total Pension Liability – Beginning	355,948,216
9. Total Pension Liability – Ending	<u><u>\$ 370,984,435</u></u>
B. Plan fiduciary net position	
1. Contributions – Employer	\$ 14,205,016
2. Contributions – Employee	2,440,534
3. Net investment income	32,777,140
4. Benefit payments, including refunds of employee contributions	(19,575,082)
5. Pension plan administrative expense	(876,660)
6. Other	(36,626)
7. Net change in Plan Fiduciary Net Position	\$ 28,934,322
8. Plan Fiduciary Net Position – Beginning	203,855,064
9. Plan Fiduciary Net Position – Ending	<u><u>\$ 232,789,386</u></u>
C. Net Pension Liability	<u><u>\$ 138,195,049</u></u>
D. Plan Fiduciary Net Position as a percentage of the Total Pension Liability	62.75%
E. Covered-Employee Payroll	\$ 52,895,992
F. Net Pension Liability as a percentage of Covered-Employee Payroll	261.26%

Schedules of Required Supplementary Information

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

Plan Year Ending December 31,	(Ultimately 10 Years Will Be Displayed)					
	2019	2018	2017	2016	2015	2014
Total Pension Liability						
Service Cost	\$ 6,188,578	\$ 6,361,053	\$ 6,341,280	\$ 6,327,991	\$ 6,468,648	\$ 6,589,804
Interest on the Total Pension Liability	24,447,847	23,689,732	22,956,480	22,438,990	21,231,157	20,108,289
Benefit Changes: Buybacks and COLA	-	-	-	-	-	-
Experience	3,974,876	(172,714)	201,281	(5,201,876)	4,528,433	2,716,119
Assumption Changes	-	-	9,866,319	-	-	-
Benefit Payments	(19,272,847)	(17,781,112)	(16,605,774)	(15,812,395)	(14,516,835)	(12,335,397)
Refunds	(302,235)	(567,039)	(229,271)	(220,469)	(446,590)	(207,947)
Net Change in Total Pension Liability	15,036,219	11,529,920	22,530,315	7,532,241	17,264,813	16,870,868
Total Pension Liability - Beginning	355,948,216	344,418,296	321,887,981	314,355,740	297,090,927	280,332,479
Prior Year Adjustment	-	-	-	-	-	(112,420)
Total Pension Liability - Ending (a)	\$ 370,984,435	\$ 355,948,216	\$ 344,418,296	\$ 321,887,981	\$ 314,355,740	\$ 297,090,927
Plan Fiduciary Net Position						
Employer and Other Contributions	\$ 14,205,016	\$ 13,113,367	\$ 12,221,415	\$ 8,391,456	\$ 11,613,137	\$ 10,959,998
Employee and Add'l Contributions	2,440,534	2,387,580	2,342,148	2,389,882	2,744,956	2,254,021
Pension Plan Net Investment Income	32,777,140	(11,682,616)	30,429,722	11,543,017	(4,783,148)	6,754,397
Benefit Payments	(19,272,847)	(17,781,112)	(16,605,774)	(15,812,395)	(14,516,835)	(12,335,397)
Refunds	(302,235)	(567,039)	(229,271)	(220,469)	(446,590)	(207,947)
Pension Plan Administrative Expense	(876,660)	(702,533)	(759,927)	(791,762)	(693,329)	(679,116)
Other	(36,626)	(59,532)	(50,612)	(61,856)	(65,963)	(50,008)
Net Change in Plan Fiduciary Net Position	28,934,322	(15,291,885)	27,347,701	5,437,873	(6,147,772)	6,695,948
Plan Fiduciary Net Position - Beginning	203,944,655	219,277,973	191,930,272	186,492,399	192,562,665	185,979,137
Adjustment	(89,591)	(41,433)	-	-	77,506	(112,420)
Plan Fiduciary Net Position - Ending (b)	\$ 232,789,386	\$ 203,944,655	\$ 219,277,973	\$ 191,930,272	\$ 186,492,399	\$ 192,562,665
Net Pension Liability - Ending (a) - (b)	138,195,049	152,003,561	125,140,323	129,957,709	127,863,341	104,528,262
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	62.75 %	57.30 %	63.67 %	59.63 %	59.33 %	64.82 %
Covered-Employee Payroll	\$ 52,895,992	\$ 51,787,265	\$ 53,364,536	\$ 52,888,074	\$ 52,953,903	\$ 54,267,183
Net Pension Liability as a Percentage of Covered-Employee Payroll	261.26 %	293.52 %	234.50 %	245.72 %	241.46 %	192.62 %
Notes to Schedule:	N/A	N/A	N/A	N/A	N/A	N/A



Schedules of Required Supplementary Information

Schedule of the Net Pension Liability

(Ultimately 10 Years Will Be Displayed)

December 31,	Total Pension Liability	Plan Net Position	Net Pension Liability	Plan Net Position as a % of Total Pension Liability	Covered Payroll*	Net Pension Liability as a % of Covered Payroll
2014	\$ 297,090,927	\$ 192,562,665	\$ 104,528,262	64.82%	\$ 54,267,183	192.62%
2015	314,355,740	186,492,399	127,863,341	59.33%	52,953,903	241.46%
2016	321,887,981	191,930,272	129,957,709	59.63%	52,888,074	245.72%
2017	344,418,296	219,277,973	125,140,323	63.67%	53,364,536	234.50%
2018	355,948,216	203,944,655	152,003,561	57.30%	51,787,265	293.52%
2019	370,984,435	232,789,386	138,195,049	62.75%	52,895,992	261.26%

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

Schedule of Contributions

(Ultimately 10 Years Will Be Displayed)

<u>Plan Year Ending December 31,</u>	<u>Actuarially Determined Contribution (ADC) #</u>	<u>Actual Contribution</u>	<u>Contribution Deficiency (Excess)</u>	<u>Covered Payroll*</u>	<u>Actual Contribution as a % of Covered Payroll</u>
2014	\$ 10,959,998	\$ 10,959,998	\$ -	\$ 54,267,183	20.20%
2015	11,613,137	11,613,137	-	52,953,903	21.93%
2016	8,391,456	8,391,456	-	52,888,074	15.87%
2017	12,221,415	12,221,415	-	53,364,536	22.90%
2018	13,113,367	13,113,367	-	51,787,265	25.32%
2019	14,205,016	14,205,016	-	52,895,992	26.85%

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

Employer contributes based on percent of payroll. Employer pays the 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 Percent-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	1.00% of payroll.
COLA Assumption	1.00% compounded annually.

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 Percent-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	1.00% of payroll.
COLA Assumption	1.00% compounded annually.

Other Information:

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



SECTION D

NOTES TO FINANCIAL STATEMENTS

Single Discount Rate

A Single Discount Rate of 7.00% was used to measure the Total Pension Liability. This Single Discount Rate was based on the expected rate of return on pension plan investments of 7.00%. The projection of cash flows used to determine this Single Discount Rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension 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 pension plan investments was applied to all periods of projected benefit payments to determine the Total Pension Liability.

Regarding the sensitivity of the Net Pension Liability to changes in the Single Discount Rate, the following presents the plan's Net Pension Liability, calculated using a Single Discount Rate of 7.00%, as well as what the plan's Net Pension Liability would be if it were calculated using a Single Discount Rate that is one percent lower or one percent higher:

Sensitivity of Net Pension Liability to the Single Discount Rate Assumption

	Current Single Discount		
	1% Decrease 6.00%	Rate Assumption 7.00%	1% Increase 8.00%
Total Pension Liability (TPL)	\$ 413,651,575	\$ 370,984,435	\$ 334,790,409
Net Position Restricted for Pensions	232,789,386	232,789,386	232,789,386
Net Pension Liability (NPL)	\$ 180,862,189	\$ 138,195,049	\$ 102,001,023

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	955
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	110
Active Plan Members	<u>1,119</u>
Total Plan Members	2,184

SECTION E

SUMMARY OF BENEFITS

Summary of Benefit Provisions as of December 31, 2019

Eligibility

Amount

NORMAL RETIREMENT

Members are eligible to retire at age 60.

Straight life pension equals 2.0% of 3-year Final Average Earnings (FAE) times service on and after January 1, 1999 *plus* 1.5% of FAE times service before January 1, 1999.

Members with at least 20 years of service at retirement are eligible for a minimum benefit if employed on or before January 1, 1974.

Minimum benefit for eligible members is 50% of FAE.

EARLY RETIREMENT

Members are eligible to retire early if the sum of age and service is at least 80, or at age 55 with at least 20 years of service.

Computed as a normal retirement pension. If the early retirement occurs prior to the member attaining age 60, the benefit is reduced by 1/6 of 1% for each month that the early retirement precedes age 60.

DEFERRED RETIREMENT

Members are eligible to retire with a deferred benefit after attaining at least 5 years of service, provided they do not take a refund of member contributions.

Pension is computed as a normal retirement pension, based on service and FAE on date of termination. Commencement of benefits begins at age 60.

NON-DUTY DISABILITY

Members are eligible upon attainment of 15 years of service.

Pension is computed as a normal retirement pension based on service and FAE as of date of disability.

DUTY DISABILITY

No age or service requirement.

Pension is computed as a normal retirement pension based on service and FAE as of date of disability. Minimum duty disability benefit is 50% of FAE.



Summary of Benefit Provisions as of December 31, 2019

Eligibility

Amount

ORDINARY DEATH-IN-SERVICE

- | | |
|--|---|
| (1) Any age with less than 5 years of service. | Beneficiary receives member's contributions and accumulated interest, and an additional lump sum equal to one year's salary. |
| (2) Any age with 5 or more years of service. | Beneficiary receives the option of: (1) the greater of (a) 50% of the accrued service retirement benefit (without any early retirement reduction); or (b) pension computed as normal or early retirement benefit (depending on eligibility), actuarially reduced as if the member had elected the 100% Joint & Survivor benefit; or (2) lump sum equal to 100% of base salary plus the member's accumulated contributions (including interest). |

DUTY DEATH-IN-SERVICE

- | | |
|--|---|
| Death as a result of a work-related accident; not caused by willful neglect of the member. | The option of: (1) the greater of (a) 50% of FAE, or (b) pension computed as an early retirement benefit actuarially reduced as if the member had elected the 100% Joint & Survivor benefit; or (2) a lump sum as described below; options payable to the spouse or child(ren) under age 18. If no spouse or child(ren) are alive at the time of the member's death, a lump sum is payable to the member's estate in the amount of 100% of base salary plus the member's accumulated contributions (including interest) plus accrued fringe benefits not paid at the time of death. |
|--|---|

MEMBER CONTRIBUTIONS

3.75% of pay for service on and after January 1, 1999. 2.5% of pay for service prior to January 1, 1999. Contributions are credited with 5.0% interest per annum. Members may elect to contribute additional contributions which are accounted for separately. At retirement the additional contribution balance is annuitized to provide an additional benefit, within certain limits.



Summary of Benefit Provisions as of December 31, 2019

OPTIONAL FORMS OF PAYMENT

In lieu of the straight life benefit, a member may elect an actuarially reduced benefit in one of the following forms:

- 100% Joint & Survivor with pop-up
- 66 2/3 % Joint & Survivor with pop-up
- 50% Joint & Survivor with pop-up
- 10-year Certain & Life Option

The actuarial factors for optional forms of payment are based on the 1983 Group Annuity Mortality Table and 7.5% interest.

SERVICE UPGRADE

Members may elect to purchase an increase in their benefit multiplier for service rendered before 1999 under Chapter 159 (or Senate Bill 402). The cost to the member is $\frac{1}{2}$ of the actuarially determined increase in System costs and results in a benefit based on 2% of FAE for the time purchased.

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. 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.

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

Marriage Assumption:	75% of males and 75% of females are assumed to be married for purposes of death-in-service benefits. Male spouses are assumed to be three years older than female spouses.
Pay Increase Timing:	Beginning of the year. This is equivalent to assuming that reported pays represent amounts paid to members during the year ended on the valuation date.
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.
Administrative Expense Load:	1.00% of payroll.
Normal Form of Benefit:	The assumed normal form of benefit is the straight life form.
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.
COLA Assumption:	1.00% compounded annually.
Adjustments:	Normal and Early retirement costs were increased by 10% to reflect lump sums that are payable at retirement but not available in the active data. Retiree liabilities were increased 1% to account for pop-up retiree benefits.
Post-Retirement Subsidy:	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. 67 includes a specific requirement for the discount rate that is used for the purpose of the measurement of the Total Pension 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 “risk-free” 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 pension 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 pension plan investments is 7.00%; the municipal bond rate is 2.75%; and the resulting SDR is 7.00%.

The tables in this section provide background for the development of the SDR.

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). Administrative expenses were projected at the current level of 1.66% of payroll.

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 SDR. It breaks down the benefit payments into present values for funded and unfunded portions and shows the equivalent total at the SDR.

Single Discount Rate Development Projection of Contributions Ending December 31, 2119

Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost Contributions	Administrative Expense Contributions	UAL Contributions	Total Contributions
0	\$ 52,895,992					
1	55,452,261	\$ 2,079,460	\$ 4,776,814	\$ 919,026	\$ 10,427,809	\$ 18,203,109
2	52,253,004	1,959,488	4,471,785	866,004	10,615,841	17,913,117
3	49,697,009	1,863,638	4,223,680	823,642	11,079,650	17,990,610
4	47,474,636	1,780,299	4,011,561	786,810	11,035,074	17,613,744
5	45,170,744	1,693,903	3,790,467	748,627	11,338,538	17,571,536
6	43,074,479	1,615,293	3,588,740	713,885	11,650,348	17,568,266
7	40,986,004	1,536,975	3,386,825	679,272	11,970,733	17,573,805
8	38,838,930	1,456,460	3,179,886	643,688	12,299,928	17,579,962
9	36,728,092	1,377,303	2,977,925	608,705	12,638,176	17,602,110
10	34,586,426	1,296,991	2,777,319	573,210	12,985,726	17,633,246
11	32,540,898	1,220,284	2,584,137	539,309	13,342,833	17,686,563
12	30,558,277	1,145,935	2,398,756	506,451	13,709,761	17,760,903
13	28,721,712	1,077,064	2,230,141	476,013	14,086,780	17,869,998
14	26,938,768	1,010,204	2,067,010	446,464	14,474,166	17,997,844
15	25,292,394	948,465	1,914,691	419,178	14,872,206	18,154,539
16	23,732,489	889,968	1,773,715	393,325	15,281,191	18,338,200
17	22,190,389	832,140	1,634,845	367,767	15,701,424	18,536,176
18	20,791,309	779,674	1,511,204	344,580	16,133,213	18,768,671
19	19,426,320	728,487	1,391,460	321,958	16,576,877	19,018,782
20	18,206,380	682,739	1,286,850	301,739	17,032,741	19,304,069
21	16,952,369	635,714	1,179,889	280,956	-	2,096,558
22	15,820,470	593,268	1,085,922	262,197	-	1,941,386
23	14,788,941	554,585	1,001,360	245,101	-	1,801,047
24	13,752,744	515,728	918,600	227,928	-	1,662,256
25	12,775,444	479,079	842,696	211,731	-	1,533,506
26	11,769,695	441,364	765,840	195,062	-	1,402,266
27	10,866,875	407,508	698,098	180,100	-	1,285,706
28	9,943,489	372,881	630,757	164,796	-	1,168,434
29	9,054,360	339,539	567,417	150,060	-	1,057,015
30	8,170,132	306,380	505,745	135,406	-	947,531
31	7,349,789	275,617	448,611	121,810	-	846,038
32	6,574,652	246,549	396,631	108,964	-	752,145
33	5,842,541	219,095	348,581	96,830	-	664,506
34	5,143,713	192,889	303,388	85,248	-	581,525
35	4,457,049	167,139	259,369	73,868	-	500,376
36	3,838,464	143,942	220,524	63,616	-	428,082
37	3,229,159	121,093	183,442	53,518	-	358,053
38	2,690,393	100,890	151,227	44,589	-	296,705
39	2,216,427	83,116	123,017	36,733	-	242,866
40	1,785,151	66,943	97,852	29,586	-	194,382
41	1,397,268	52,398	75,937	23,157	-	151,492
42	1,096,529	41,120	58,963	18,173	-	118,256
43	862,462	32,342	46,039	14,294	-	92,675
44	661,164	24,794	34,938	10,958	-	70,690
45	500,059	18,752	26,090	8,288	-	53,131
46	358,586	13,447	18,400	5,943	-	37,790
47	251,757	9,441	12,817	4,172	-	26,430
48	175,384	6,577	8,743	2,907	-	18,227
49	118,459	4,442	5,750	1,963	-	12,155
50	76,791	2,880	3,692	1,273	-	7,845



Single Discount Rate Development Projection of Contributions Ending December 31, 2119 (Concluded)

Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost Contributions	Administrative Expense Contributions	UAL Contributions	Total Contributions
51	\$ 48,093	\$ 1,803	\$ 2,223	\$ 797	\$ -	\$ 4,823
52	31,642	1,187	1,413	524	-	3,124
53	20,416	766	921	338	-	2,025
54	13,684	513	573	227	-	1,313
55	8,206	308	343	136	-	787
56	5,305	199	209	88	-	496
57	3,172	119	131	53	-	303
58	2,342	88	91	39	-	217
59	947	36	32	16	-	83
60	252	9	9	4	-	23
61	-	-	-	-	-	-
62	-	-	-	-	-	-
63	-	-	-	-	-	-
64	-	-	-	-	-	-
65	-	-	-	-	-	-
66	-	-	-	-	-	-
67	-	-	-	-	-	-
68	-	-	-	-	-	-
69	-	-	-	-	-	-
70	-	-	-	-	-	-
71	-	-	-	-	-	-
72	-	-	-	-	-	-
73	-	-	-	-	-	-
74	-	-	-	-	-	-
75	-	-	-	-	-	-
76	-	-	-	-	-	-
77	-	-	-	-	-	-
78	-	-	-	-	-	-
79	-	-	-	-	-	-
80	-	-	-	-	-	-
81	-	-	-	-	-	-
82	-	-	-	-	-	-
83	-	-	-	-	-	-
84	-	-	-	-	-	-
85	-	-	-	-	-	-
86	-	-	-	-	-	-
87	-	-	-	-	-	-
88	-	-	-	-	-	-
89	-	-	-	-	-	-
90	-	-	-	-	-	-
91	-	-	-	-	-	-
92	-	-	-	-	-	-
93	-	-	-	-	-	-
94	-	-	-	-	-	-
95	-	-	-	-	-	-
96	-	-	-	-	-	-
97	-	-	-	-	-	-
98	-	-	-	-	-	-
99	-	-	-	-	-	-
100	-	-	-	-	-	-

Single Discount Rate Development Projection of Plan Fiduciary Net Position Ending December 31, 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)
1	\$ 232,789,386	\$ 18,203,109	\$ 21,605,470	\$ 919,026	\$ 16,146,567	\$ 244,614,566
2	244,614,566	17,913,117	22,671,174	866,004	16,929,507	255,920,011
3	255,920,011	17,990,610	23,756,842	823,642	17,687,656	267,017,794
4	267,017,794	17,613,744	24,981,018	786,810	18,410,679	277,274,389
5	277,274,389	17,571,536	26,124,193	748,627	19,089,168	287,062,273
6	287,062,273	17,568,266	27,260,403	713,885	19,736,308	296,392,559
7	296,392,559	17,573,805	28,450,095	679,272	20,349,875	305,186,872
8	305,186,872	17,579,962	29,628,674	643,688	20,926,360	313,420,833
9	313,420,833	17,602,110	30,746,809	608,705	21,466,231	321,133,659
10	321,133,659	17,633,246	31,827,002	573,210	21,971,254	328,337,947
11	328,337,947	17,686,563	32,812,909	539,309	22,444,632	335,116,924
12	335,116,924	17,760,903	33,726,614	506,451	22,891,410	341,536,172
13	341,536,172	17,869,998	34,528,879	476,013	23,317,954	347,719,231
14	347,719,231	17,997,844	35,211,864	446,464	23,732,684	353,791,431
15	353,791,431	18,154,539	35,783,558	419,178	24,144,397	359,887,632
16	359,887,632	18,338,200	36,247,103	393,325	24,562,390	366,147,794
17	366,147,794	18,536,176	36,596,089	367,767	24,996,285	372,716,399
18	372,716,399	18,768,671	36,841,449	344,580	25,456,443	379,755,484
19	379,755,484	19,018,782	36,969,878	321,958	25,954,144	387,436,574
20	387,436,574	19,304,069	36,947,270	301,739	26,503,110	395,994,743
21	395,994,743	2,096,558	36,826,395	280,956	26,514,979	387,498,930
22	387,498,930	1,941,386	36,612,653	262,197	25,922,933	378,488,399
23	378,488,399	1,801,047	36,329,212	245,101	25,297,708	369,012,840
24	369,012,840	1,662,256	35,955,157	227,928	24,643,105	359,135,116
25	359,135,116	1,533,506	35,474,435	211,731	23,964,332	348,946,788
26	348,946,788	1,402,266	34,940,528	195,062	23,265,578	338,479,041
27	338,479,041	1,285,706	34,366,709	180,100	22,549,083	327,767,022
28	327,767,022	1,168,434	33,766,780	164,796	21,816,376	316,820,255
29	316,820,255	1,057,015	33,129,190	150,060	21,068,714	305,666,734
30	305,666,734	947,531	32,437,307	135,406	20,308,511	294,350,063
31	294,350,063	846,038	31,671,705	121,810	19,539,662	282,942,249
32	282,942,249	752,145	30,873,844	108,964	18,765,779	271,477,365
33	271,477,365	664,506	30,051,235	96,830	17,988,944	259,982,750
34	259,982,750	581,525	29,254,402	85,248	17,209,282	248,433,907
35	248,433,907	500,376	28,463,824	73,868	16,425,664	236,822,255
36	236,822,255	428,082	27,609,527	63,616	15,640,109	225,217,303
37	225,217,303	358,053	26,711,930	53,518	14,856,584	213,666,493
38	213,666,493	296,705	25,785,628	44,589	14,078,096	202,211,078
39	202,211,078	242,866	24,840,920	36,733	13,307,141	190,883,432
40	190,883,432	194,382	23,870,088	29,586	12,546,188	179,724,327
41	179,724,327	151,492	22,868,619	23,157	11,798,254	168,782,297
42	168,782,297	118,256	21,840,107	18,173	11,066,729	158,109,003
43	158,109,003	92,675	20,809,656	14,294	10,354,308	147,732,036
44	147,732,036	70,690	19,790,216	10,958	9,662,355	137,663,907
45	137,663,907	53,131	18,786,450	8,288	8,991,611	127,913,911
46	127,913,911	37,790	17,799,190	5,943	8,342,634	118,489,202
47	118,489,202	26,430	16,820,601	4,172	7,716,246	109,407,105
48	109,407,105	18,227	15,855,050	2,907	7,113,483	100,680,857
49	100,680,857	12,155	14,907,712	1,963	6,535,066	92,318,403
50	92,318,403	7,845	13,979,442	1,273	5,981,509	84,327,042



Single Discount Rate Development

Projection of Plan Fiduciary Net Position

Ending December 31, 2119

(Concluded)

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)
51	\$ 84,327,042	\$ 4,823	\$ 13,069,708	\$ 797	\$ 5,453,328	\$ 76,714,689
52	76,714,689	3,124	12,180,696	524	4,951,004	69,487,596
53	69,487,596	2,025	11,314,950	338	4,474,864	62,649,198
54	62,649,198	1,313	10,473,543	227	4,025,107	56,201,847
55	56,201,847	787	9,657,003	136	3,601,873	50,147,368
56	50,147,368	496	8,865,635	88	3,205,281	44,487,422
57	44,487,422	303	8,100,732	53	2,835,398	39,222,338
58	39,222,338	217	7,363,862	39	2,492,194	34,350,848
59	34,350,848	83	6,656,440	16	2,175,527	29,870,001
60	29,870,001	23	5,979,253	4	1,885,166	25,775,934
61	25,775,934	-	5,334,265	-	1,620,774	22,062,443
62	22,062,443	-	4,723,567	-	1,381,842	18,720,718
63	18,720,718	-	4,149,077	-	1,167,689	15,739,330
64	15,739,330	-	3,612,452	-	977,456	13,104,333
65	13,104,333	-	3,115,211	-	810,115	10,799,237
66	10,799,237	-	2,658,748	-	664,464	8,804,953
67	8,804,953	-	2,244,240	-	539,127	7,099,840
68	7,099,840	-	1,872,372	-	432,564	5,660,032
69	5,660,032	-	1,543,130	-	343,106	4,460,009
70	4,460,009	-	1,255,675	-	268,995	3,473,330
71	3,473,330	-	1,008,305	-	208,439	2,673,464
72	2,673,464	-	798,634	-	159,663	2,034,493
73	2,034,493	-	623,764	-	120,952	1,531,681
74	1,531,681	-	480,367	-	90,689	1,142,004
75	1,142,004	-	364,818	-	67,388	844,574
76	844,574	-	273,383	-	49,714	620,905
77	620,905	-	202,380	-	36,500	455,024
78	455,024	-	148,283	-	26,750	333,491
79	333,491	-	107,832	-	19,634	245,293
80	245,293	-	78,125	-	14,482	181,650
81	181,650	-	56,660	-	10,766	135,756
82	135,756	-	41,348	-	8,080	102,488
83	102,488	-	30,510	-	6,124	78,103
84	78,103	-	22,844	-	4,681	59,940
85	59,940	-	17,373	-	3,598	46,165
86	46,165	-	13,397	-	2,771	35,539
87	35,539	-	10,435	-	2,129	27,233
88	27,233	-	8,168	-	1,625	20,690
89	20,690	-	6,392	-	1,228	15,526
90	15,526	-	4,977	-	916	11,465
91	11,465	-	3,836	-	671	8,300
92	8,300	-	2,909	-	481	5,871
93	5,871	-	2,163	-	337	4,045
94	4,045	-	1,573	-	229	2,701
95	2,701	-	1,115	-	151	1,737
96	1,737	-	768	-	95	1,064
97	1,064	-	515	-	57	606
98	606	-	335	-	31	302
99	302	-	211	-	14	105
100	105	-	129	-	3	-



Single Discount Rate Development Present Values of Projected Benefits Ending December 31, 2119

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of 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 Benefit Payments using Single Discount Rate (sdr)
(a)	(b)	(c)	(d)	(e)	(f)=(d)*v ^{((a)-.5)}	(g)=(e)*vf ^{((a)-.5)}	(h)=(c)/(1+sdr) ^(a-.5)
1	\$ 232,789,386	\$ 21,605,470	\$ 21,605,470	\$ -	\$ 20,886,796	\$ -	\$ 20,886,796
2	244,614,566	22,671,174	22,671,174	-	20,483,225	-	20,483,225
3	255,920,011	23,756,842	23,756,842	-	20,059,923	-	20,059,923
4	267,017,794	24,981,018	24,981,018	-	19,713,644	-	19,713,644
5	277,274,389	26,124,193	26,124,193	-	19,267,079	-	19,267,079
6	287,062,273	27,260,403	27,260,403	-	18,789,772	-	18,789,772
7	296,392,559	28,450,095	28,450,095	-	18,326,907	-	18,326,907
8	305,186,872	29,628,674	29,628,674	-	17,837,496	-	17,837,496
9	313,420,833	30,746,809	30,746,809	-	17,299,675	-	17,299,675
10	321,133,659	31,827,002	31,827,002	-	16,735,930	-	16,735,930
11	328,337,947	32,812,909	32,812,909	-	16,125,570	-	16,125,570
12	335,116,924	33,726,614	33,726,614	-	15,490,281	-	15,490,281
13	341,536,172	34,528,879	34,528,879	-	14,821,264	-	14,821,264
14	347,719,231	35,211,864	35,211,864	-	14,125,636	-	14,125,636
15	353,791,431	35,783,558	35,783,558	-	13,415,867	-	13,415,867
16	359,887,632	36,247,103	36,247,103	-	12,700,615	-	12,700,615
17	366,147,794	36,596,089	36,596,089	-	11,984,015	-	11,984,015
18	372,716,399	36,841,449	36,841,449	-	11,275,105	-	11,275,105
19	379,755,484	36,969,878	36,969,878	-	10,574,215	-	10,574,215
20	387,436,574	36,947,270	36,947,270	-	9,876,400	-	9,876,400
21	395,994,743	36,826,395	36,826,395	-	9,200,083	-	9,200,083
22	387,498,930	36,612,653	36,612,653	-	8,548,304	-	8,548,304
23	378,488,399	36,329,212	36,329,212	-	7,927,221	-	7,927,221
24	369,012,840	35,955,157	35,955,157	-	7,332,337	-	7,332,337
25	359,135,116	35,474,435	35,474,435	-	6,761,031	-	6,761,031
26	348,946,788	34,940,528	34,940,528	-	6,223,621	-	6,223,621
27	338,479,041	34,366,709	34,366,709	-	5,720,946	-	5,720,946
28	327,767,022	33,766,780	33,766,780	-	5,253,343	-	5,253,343
29	316,820,255	33,129,190	33,129,190	-	4,816,961	-	4,816,961
30	305,666,734	32,437,307	32,437,307	-	4,407,815	-	4,407,815
31	294,350,063	31,671,705	31,671,705	-	4,022,224	-	4,022,224
32	282,942,249	30,873,844	30,873,844	-	3,664,390	-	3,664,390
33	271,477,365	30,051,235	30,051,235	-	3,333,416	-	3,333,416
34	259,982,750	29,254,402	29,254,402	-	3,032,737	-	3,032,737
35	248,433,907	28,463,824	28,463,824	-	2,757,737	-	2,757,737
36	236,822,255	27,609,527	27,609,527	-	2,499,970	-	2,499,970
37	225,217,303	26,711,930	26,711,930	-	2,260,463	-	2,260,463
38	213,666,493	25,785,628	25,785,628	-	2,039,323	-	2,039,323
39	202,211,078	24,840,920	24,840,920	-	1,836,083	-	1,836,083
40	190,883,432	23,870,088	23,870,088	-	1,648,902	-	1,648,902
41	179,724,327	22,868,619	22,868,619	-	1,476,376	-	1,476,376
42	168,782,297	21,840,107	21,840,107	-	1,317,735	-	1,317,735
43	158,109,003	20,809,656	20,809,656	-	1,173,422	-	1,173,422
44	147,732,036	19,790,216	19,790,216	-	1,042,933	-	1,042,933
45	137,663,907	18,786,450	18,786,450	-	925,266	-	925,266
46	127,913,911	17,799,190	17,799,190	-	819,291	-	819,291
47	118,489,202	16,820,601	16,820,601	-	723,595	-	723,595
48	109,407,105	15,855,050	15,855,050	-	637,438	-	637,438
49	100,680,857	14,907,712	14,907,712	-	560,142	-	560,142
50	92,318,403	13,979,442	13,979,442	-	490,900	-	490,900



Single Discount Rate Development

Present Values of Projected Benefits

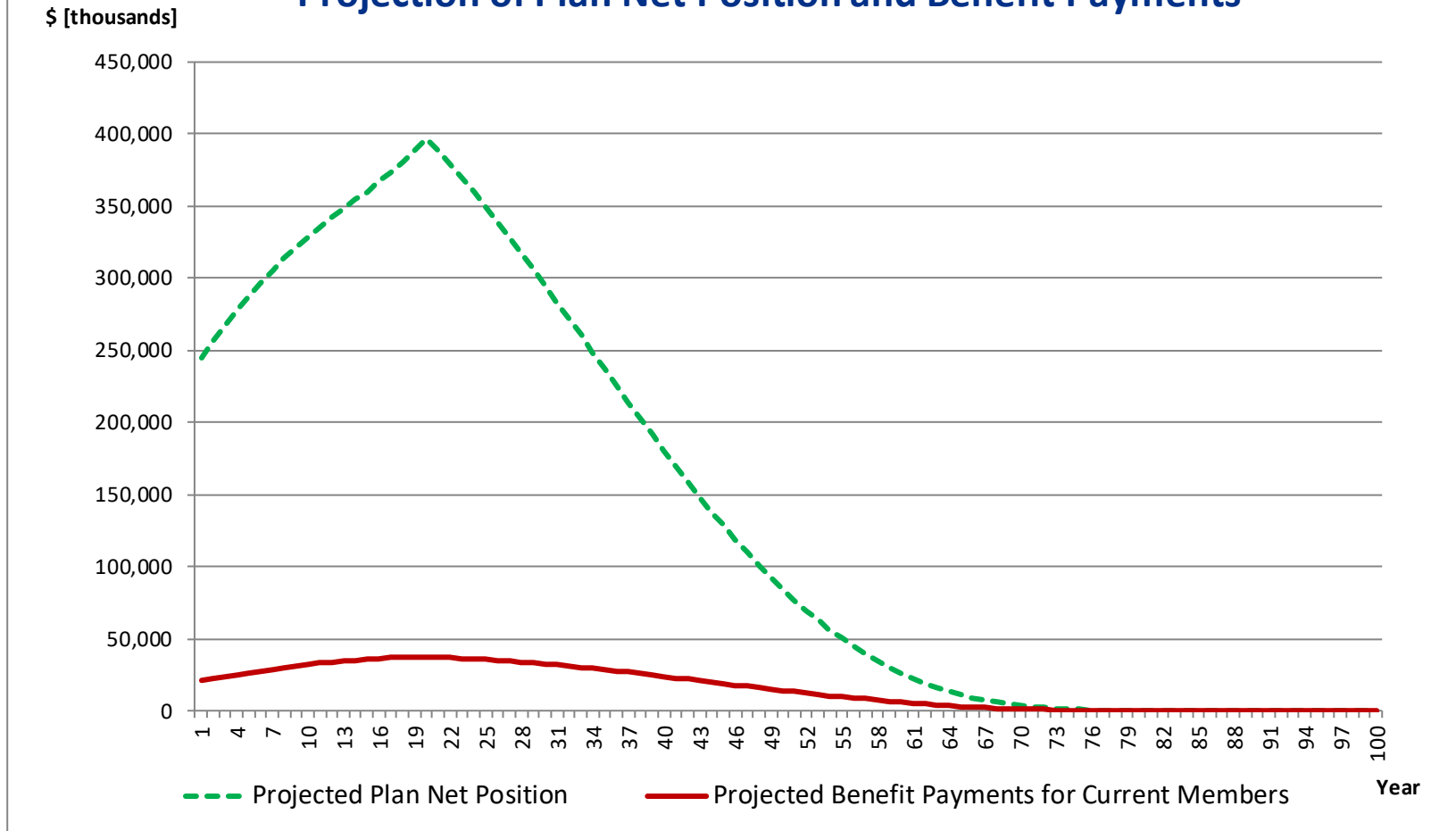
Ending December 31, 2119

(Concluded)

Year	Projected Beginning Plan Net Position	Projected Benefit Payments	Funded Portion of Benefit Payments	Unfunded Portion of 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 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))
51	\$ 84,327,042	\$ 13,069,708	\$ 13,069,708	\$ -	\$ 428,929	\$ -	\$ 428,929
52	76,714,689	12,180,696	12,180,696	-	373,601	-	373,601
53	69,487,596	11,314,950	11,314,950	-	324,343	-	324,343
54	62,649,198	10,473,543	10,473,543	-	280,583	-	280,583
55	56,201,847	9,657,003	9,657,003	-	241,783	-	241,783
56	50,147,368	8,865,635	8,865,635	-	207,448	-	207,448
57	44,487,422	8,100,732	8,100,732	-	177,150	-	177,150
58	39,222,338	7,363,862	7,363,862	-	150,501	-	150,501
59	34,350,848	6,656,440	6,656,440	-	127,143	-	127,143
60	29,870,001	5,979,253	5,979,253	-	106,736	-	106,736
61	25,775,934	5,334,265	5,334,265	-	88,993	-	88,993
62	22,062,443	4,723,567	4,723,567	-	73,649	-	73,649
63	18,720,718	4,149,077	4,149,077	-	60,460	-	60,460
64	15,739,330	3,612,452	3,612,452	-	49,196	-	49,196
65	13,104,333	3,115,211	3,115,211	-	39,649	-	39,649
66	10,799,237	2,658,748	2,658,748	-	31,626	-	31,626
67	8,804,953	2,244,240	2,244,240	-	24,949	-	24,949
68	7,099,840	1,872,372	1,872,372	-	19,453	-	19,453
69	5,660,032	1,543,130	1,543,130	-	14,984	-	14,984
70	4,460,009	1,255,675	1,255,675	-	11,395	-	11,395
71	3,473,330	1,008,305	1,008,305	-	8,551	-	8,551
72	2,673,464	798,634	798,634	-	6,330	-	6,330
73	2,034,493	623,764	623,764	-	4,621	-	4,621
74	1,531,681	480,367	480,367	-	3,326	-	3,326
75	1,142,004	364,818	364,818	-	2,360	-	2,360
76	844,574	273,383	273,383	-	1,653	-	1,653
77	620,905	202,380	202,380	-	1,144	-	1,144
78	455,024	148,283	148,283	-	783	-	783
79	333,491	107,832	107,832	-	532	-	532
80	245,293	78,125	78,125	-	360	-	360
81	181,650	56,660	56,660	-	244	-	244
82	135,756	41,348	41,348	-	167	-	167
83	102,488	30,510	30,510	-	115	-	115
84	78,103	22,844	22,844	-	80	-	80
85	59,940	17,373	17,373	-	57	-	57
86	46,165	13,397	13,397	-	41	-	41
87	35,539	10,435	10,435	-	30	-	30
88	27,233	8,168	8,168	-	22	-	22
89	20,690	6,392	6,392	-	16	-	16
90	15,526	4,977	4,977	-	12	-	12
91	11,465	3,836	3,836	-	8	-	8
92	8,300	2,909	2,909	-	6	-	6
93	5,871	2,163	2,163	-	4	-	4
94	4,045	1,573	1,573	-	3	-	3
95	2,701	1,115	1,115	-	2	-	2
96	1,737	768	768	-	1	-	1
97	1,064	515	515	-	1	-	1
98	606	335	335	-	0	-	0
99	302	211	211	-	-	-	-
100	105	129	129	-	-	-	-
Totals					\$ 425,106,461	\$ -	\$ 425,106,461



Projection of Plan Net Position and Benefit Payments



SECTION H

GLOSSARY OF TERMS

Glossary of Terms

<i>Accrued Service</i>	Service credited under the system which was rendered before the date of the actuarial valuation.
<i>Actuarial Accrued Liability (AAL)</i>	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.”
<i>Actuarial Assumptions</i>	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.
<i>Actuarial Cost Method</i>	A mathematical budgeting procedure for allocating the dollar amount of the actuarial present value of the pension trust benefits between future normal cost and actuarial accrued liability. The actuarial cost method may also be referred to as the actuarial funding method.
<i>Actuarial Equivalent</i>	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.
<i>Actuarial Gain (Loss)</i>	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.
<i>Actuarial Present Value (APV)</i>	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.
<i>Actuarial Valuation</i>	The actuarial valuation report determines, as of the actuarial valuation date, the service cost, Total Pension Liability, and related actuarial present value of projected benefit payments for pensions.
<i>Actuarial Valuation Date</i>	The date as of which an actuarial valuation is performed.
<i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</i>	A calculated contribution into a defined benefit pension 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.

Glossary of Terms

<i>Amortization Method</i>	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).
<i>Amortization Payment</i>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<i>Cost-of-Living Adjustments</i>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i>	A multiple-employer defined benefit pension plan in which the pension obligations to the employees of more than one employer are pooled and pension plan assets can be used to pay the benefits of the employees of any employer that provides pensions through the pension plan.
<i>Covered-Employee Payroll</i>	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
<i>Deferred Inflows and Outflows</i>	The deferred inflows and outflows of pension resources are amounts used under GASB Statement No. 68 in developing the annual pension expense. Deferred inflows and outflows arise with differences between expected and actual experiences; changes of assumptions. The portion of these amounts not included in pension expense should be included in the deferred inflows or outflows of resources.
<i>Deferred Retirement Option Program (DROP)</i>	A program that permits a plan member to elect a calculation of benefit payments based on service credits and salary, as applicable, as of the DROP entry date. The plan member continues to provide service to the employer and is paid for the service by the employer after the DROP entry date; however, the pensions that would have been paid to the plan member are credited to an individual member account within the defined benefit pension plan until the end of the DROP period. Other variations for DROP exist and will be more fully detailed in the plan provision section of the valuation report.
<i>Discount Rate</i>	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 pension 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 funding 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. 67, money-weighted rate of return is calculated as the internal rate of return on pension plan investments, net of pension plan investment expense.

Multiple-Employer Defined Benefit Pension Plan

A multiple-employer plan is a defined benefit pension plan that is used to provide pensions 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 Pension Liability (NPL)

The NPL is the liability of employers and non-employer contribution entities to plan members for benefits provided through a defined benefit pension plan.

Non-Employer Contribution Entities

Non-employer contribution entities are entities that make contributions to a pension plan that is used to provide pensions to the employees of other entities. For purposes of the GASB accounting statements, plan members are not considered non-employer contribution entities.

Normal Cost

The actuarial present value of the pension trust benefits allocated to the current year by the actuarial cost method. The Normal Cost may also be referred to as "Service Cost."



Glossary of Terms

<i>Other Postemployment Benefits (OPEB)</i>	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 postemployment benefits do not include termination benefits.
<i>Real Rate of Return</i>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<i>Service Cost</i>	The service cost is the portion of the actuarial present value of projected benefit payments that is attributed to a valuation year. The Service Cost may also be referred to as the “Normal Cost.”
<i>Total Pension Expense</i>	The total pension 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 Pension Liability3. Current-Period Benefit Changes4. Employee Contributions (made negative for addition here)5. Projected Earnings on Plan Investments (made negative for addition here)6. Pension 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
<i>Total Pension Liability (TPL)</i>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<i>Unfunded Actuarial Accrued Liability (UAAL)</i>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<i>Valuation Assets</i>	The valuation assets are the assets used in determining the unfunded liability of the plan. For purposes of GASB Statement Nos. 67 and 68, the valuation assets are equal to the market value of assets.