

City of Manchester Employees' Contributory Retirement System

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

December 31, 2021





April 12, 2022

Board of Trustees
City of Manchester Employees'
Contributory Retirement System
Manchester, New Hampshire

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 was prepared using our proprietary valuation model and related software which, in our professional judgment, has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

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.

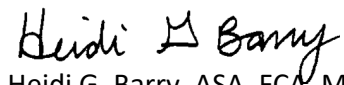
This report complements the actuarial valuation report provided to the City of Manchester Employees' Contributory Retirement System and should be considered collectively as a combined report for the plan year ending December 31, 2021. Please refer to the December 31, 2021 actuarial valuation report for 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 Nos. 67 and 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.

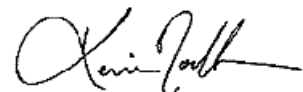
Heidi G. Barry and Kevin T. Noelke are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. The signing actuaries are independent of the plan sponsors.

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

Respectfully submitted,
Gabriel, Roeder, Smith & Company



Heidi G. Barry, ASA, FCA, MAAA



Kevin T. Noelke, ASA, FCA, MAAA

HGB/KTN:sc



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SECTION A



EXECUTIVE SUMMARY

Executive Summary as of December 31, 2021

Actuarial Valuation Date	December 31, 2021
Measurement Date of the Net Pension Liability	December 31, 2021
Employer's Fiscal Year Ending Date (Reporting Date)	June 30, 2022

Membership

Number of	
- Retirees and Beneficiaries	1,041
- Inactive, Nonretired Members	122
- Active Members	1,070
- Total	2,233
Covered Payroll #	\$ 55,323,580

Net Pension Liability

Total Pension Liability	\$ 426,344,434
Plan Fiduciary Net Position	287,263,228
Net Pension Liability	\$ 139,081,206
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	67.38%
Net Pension Liability as a Percentage of Covered Payroll	251.40%

Development of the Single Discount Rate

Single Discount Rate	6.75%
Long-Term Expected Rate of Investment Return	6.75%
Long-Term Municipal Bond Rate*	1.84%
Last year ending December 31 in the 2022 to 2121 projection period for which projected benefit payments are fully funded	2121

Total Pension Expense \$ 16,283,903

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	\$ 3,866,097	\$ 44,510
Changes in assumptions	18,248,317	-
Net difference between projected and actual earnings on pension plan investments	5,389,435	26,999,488
Total	\$ 27,503,849	\$ 27,043,998

Based on valuation payroll as of December 31, 2021.

* 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, 2021, 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, 2021.

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.

Discussion

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.

Discussion

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 6.75% 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 18 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 18 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 2121. 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. For employer reporting, the net pension liability and pension expense should be measured as of a date (measurement date) no earlier than the end of the employer's prior fiscal year, consistently applied from period to period. 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, 2021 and a measurement date of December 31, 2021.

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 6.75%; the municipal bond rate is 1.84% (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 6.75%.



Discussion

Assumption Changes

There were no assumption changes during the year.

Benefit Changes

There were no benefit changes during the year.

SECTION B



FINANCIAL STATEMENTS

Statement of Pension Expense Under GASB Statement No. 68

Plan Year Ended December 31, 2021

A. Expense

1. Service Cost	\$	6,793,736
2. Interest on the Total Pension Liability		27,407,254
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(2,478,106)
5. Projected Earnings on Plan Investments (made negative for addition here)		(17,426,683)
6. Pension Plan Administrative Expense		775,483
7. Other Changes in Plan Fiduciary Net Position		0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		8,489,657
9. Recognition of Outflow (Inflow) of Resources due to Assets		<u>(7,277,438)</u>
10. Total Pension Expense	\$	16,283,903

Statement of Outflows and Inflows Arising from Current Reporting Period Plan Year Ended December 31, 2021

A. Outflows (Inflows) of Resources Due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$	781,152
2. Assumption Changes (gains) or losses	\$	-
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		4.8674
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	\$	160,487
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	\$	160,487
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	\$	620,665
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	\$	620,665

B. Outflows (Inflows) of Resources Due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$	(13,419,730)
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	\$	(2,683,946)
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$	(10,735,784)

Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods Plan Year Ended December 31, 2021

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	\$ 9,125,849	\$ 636,192	\$ 8,489,657
2. Due to Assets	5,389,437	12,666,875	(7,277,438)
3. Total	\$ 14,515,286	\$ 13,303,067	\$ 1,212,219

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	\$ 1,497,366	\$ 636,192	\$ 861,174
2. Assumption Changes	7,628,483	-	7,628,483
3. Net Difference between projected and actual earnings on pension plan investments	5,389,437	12,666,875	(7,277,438)
4. Total	\$ 14,515,286	\$ 13,303,067	\$ 1,212,219

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	\$ 3,866,097	\$ 44,510	\$ 3,821,587
2. Assumption Changes	18,248,317	-	18,248,317
3. Net Difference between projected and actual earnings on pension plan investments	5,389,435	26,999,488	(21,610,053)
4. Total	\$ 27,503,849	\$ 27,043,998	\$ 459,851

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
2022	\$ 4,204,809
2023	(2,062,261)
2024	862,045
2025	(2,544,742)
2026	-
Thereafter	-
Total	\$ 459,851



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					
2016	\$ (5,201,876)	5.6570	\$ (604,141)	\$ -	0.0000
2017	201,281	5.4892	36,669	17,936	0.4892
2018	(172,714)	5.3888	(32,051)	(44,510)	1.3888
2019	3,974,876	5.1435	772,796	1,656,488	2.1435
2020	2,625,836	4.9787	527,414	1,571,008	2.9787
2021	781,152	4.8674	160,487	620,665	3.8674
Total			\$ 861,174	\$ 3,821,587	
Deferred Outflow (Inflow) Due to Assumption Changes					
2016	\$ -	5.6570	\$ -	\$ -	0.0000
2017	9,866,319	5.4892	1,797,406	879,289	0.4892
2018	-	5.3888	-	-	1.3888
2019	-	5.1435	-	-	2.1435
2020	29,031,182	4.9787	5,831,077	17,369,028	2.9787
2021	-	4.8674	-	-	3.8674
Total			\$ 7,628,483	\$ 18,248,317	
Deferred Outflow (Inflow) Due to Differences Between Projected and Actual Earnings on Plan Investments					
2017	\$ (16,626,501)	5.0000	\$ (3,325,301)	\$ -	0.0000
2018	26,947,183	5.0000	5,389,437	5,389,435	1.0000
2019	(18,545,922)	5.0000	(3,709,184)	(7,418,370)	2.0000
2020	(14,742,222)	5.0000	(2,948,444)	(8,845,334)	3.0000
2021	(13,419,730)	5.0000	(2,683,946)	(10,735,784)	4.0000
Total			\$ (7,277,438)	\$ (21,610,053)	

According to paragraph 33 of GASB Statement 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 10,869 years. Additionally, the total plan membership (active employees and inactive employees) was 2,233. 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 4.8674 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, 2021

Assets

Cash and Deposits	\$	9,037,679
Receivables		
Accounts Receivable	\$	405,254
Accrued Interest and Other Dividends		-
Additional Contribution Account		683,068
Property, Plant, Equipment		14,844
Total Receivables	<u>\$</u>	<u>1,103,166</u>
Investments	\$	299,293,256
Total Assets	<u>\$</u>	<u>309,434,101</u>

Liabilities

Payables		
Accounts Payable and Accrued Expenses	\$	156,293
Payable for Investments Purchased		-
Benefits Payable		1,887,202
Total Liabilities	<u>\$</u>	<u>2,043,495</u>
Assets held for 401(h) Subtrust	<u>\$</u>	<u>20,127,378</u>
Net Position Restricted for Pensions	<u>\$</u>	<u>287,263,228</u>

Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2021

Additions

Contributions	
Employer	\$ 17,333,301
Employee (Including Additional Contributions, Buybacks, Upgrades and Enrollments)	2,478,106
Total Contributions	\$ 19,811,407
Other	\$ -
Investment Income	
Net Appreciation in Fair Value of Investments	\$ 27,601,809
Less Investment Expense	(708,500)
Net Investment Income	\$ 30,846,413
Total Additions	\$ 50,657,820

Deductions

Benefit Payments, Additional Contribution Payments, and Refunds of Employee Contributions	\$ 22,548,469
Pension Plan Administrative Expense	775,483
Other: Custodial Fees and Foreign Taxes	-
Total Deductions	\$ 23,323,952
Net Increase in Net Position	\$ 27,333,868

Net Position Restricted for Pensions

Beginning of Year	\$ 259,929,360
Prior Year Adjustment	-
End of Year	\$ 287,263,228

Schedule of Proportionate Employer Share for Year Ended December 31, 2021

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
\$ 5,434,427	Airport	9.82%	\$ 13,657,774	\$ 379,651	\$ 1,791,985	\$ 1,260,462	\$ 3,432,098
495,731	Parking Control	0.90%	1,251,731	34,795	164,235	90,239	289,269
2,460,998	Environmental Protection	4.45%	6,189,114	172,041	812,050	400,396	1,384,487
9,236,811	School District	16.70%	23,226,561	645,638	3,047,469	212,801	3,905,908
5,267,910	Water Works	9.52%	13,240,531	368,052	1,737,240	932,725	3,038,017
32,427,703	General Fund City Departments	58.61%	81,515,495	2,265,920	10,695,338	894,620	13,855,878
\$ 55,323,580	Total for All Employers	100.00%	\$ 139,081,206	\$ 3,866,097	\$ 18,248,317	\$ 3,791,243	\$ 25,905,657



Schedule of Proportionate Employer Share for Year Ended December 31, 2021 (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	\$ 4,371	\$ 2,122,107	\$ -	\$ 599,201	\$ 2,725,679	\$ 1,599,079	\$ 142,366	\$ 1,741,445
Parking Control	401	194,490	-	185,338	380,229	146,555	(21,288)	125,267
Environmental Protection	1,981	961,647	-	87,549	1,051,177	724,634	103,007	827,641
School District	7,433	3,608,879	-	1,785,834	5,402,146	2,719,412	(544,510)	2,174,902
Water Works	4,237	2,057,277	-	455,342	2,516,856	1,550,228	195,393	1,745,621
General Fund City Departments	26,087	12,665,653	-	677,979	13,369,719	9,543,995	125,032	9,669,027
Total for All Employers	\$ 44,510	\$ 21,610,053	\$ -	\$ 3,791,243	\$ 25,445,806	\$ 16,283,903	\$ -	\$ 16,283,903

* 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. Beginning in the 2019 report 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, 2021

A. Total Pension Liability	
1. Service cost	6,793,736
2. Interest on the Total Pension Liability	27,407,254
3. Changes of benefit terms	-
4. Difference between expected and actual experience of the Total Pension Liability	781,152
5. Changes of assumptions	-
6. Benefit payments, including refunds of employee contributions	(22,548,469)
7. Net change in Total Pension Liability	12,433,673
8. Total Pension Liability – Beginning	413,910,761
9. Total Pension Liability – Ending	426,344,434
B. Plan Fiduciary Net Position	
1. Contributions – Employer	17,333,301
2. Contributions – Employee	2,478,106
3. Net investment income	30,846,413
4. Benefit payments, including refunds of employee contributions	(22,548,469)
5. Pension plan administrative expense	(775,483)
6. Other	-
7. Net change in Plan Fiduciary Net Position	27,333,868
8. Plan Fiduciary Net Position – Beginning	259,929,360
9. Plan Fiduciary Net Position – Ending	287,263,228
C. Net Pension Liability	139,081,206
D. Plan Fiduciary Net Position as a percentage of the Total Pension Liability	1
E. Covered-Employee Payroll	55,323,580
F. Net Pension Liability as a percentage of Covered-Employee Payroll	3

Schedules of Required Supplementary Information

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

(Ultimately 10 Years Will Be Displayed)

Plan Year Ending December 31,	2021	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability								
Service Cost	\$ 6,793,736	\$ 6,467,132	\$ 6,188,578	\$ 6,361,053	\$ 6,341,280	\$ 6,327,991	\$ 6,468,648	\$ 6,589,804
Interest on the Total Pension Liability	27,407,254	25,471,822	24,447,847	23,689,732	22,956,480	22,438,990	21,231,157	20,108,289
Benefit Changes: Buybacks and COLA Experience	781,152	2,625,836	3,974,876	(172,714)	201,281	(5,201,876)	4,528,433	2,716,119
Assumption Changes	-	29,031,182	-	-	9,866,319	-	-	-
Benefit Payments	(21,857,612)	(20,446,872)	(19,272,847)	(17,781,112)	(16,605,774)	(15,812,395)	(14,516,835)	(12,335,397)
Refunds	(690,857)	(222,774)	(302,235)	(567,039)	(229,271)	(220,469)	(446,590)	(207,947)
Net Change in Total Pension Liability	\$ 12,433,673	\$ 42,926,326	\$ 15,036,219	\$ 11,529,920	\$ 22,530,315	\$ 7,532,241	\$ 17,264,813	\$ 16,870,868
Total Pension Liability - Beginning	\$ 413,910,761	\$ 370,984,435	\$ 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)	\$ 426,344,434	\$ 413,910,761	\$ 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	\$ 17,333,301	\$ 15,442,093	\$ 14,205,016	\$ 13,113,367	\$ 12,221,415	\$ 8,391,456	\$ 11,613,137	\$ 10,959,998
Employee and Add'l Contributions	2,478,106	2,374,547	2,440,534	2,387,580	2,342,148	2,389,882	2,744,956	2,254,021
Pension Plan Net Investment Income	30,846,413	30,899,858	32,777,140	(11,682,616)	30,429,722	11,543,017	(4,783,148)	6,754,397
Benefit Payments	(21,857,612)	(20,446,872)	(19,272,847)	(17,781,112)	(16,605,774)	(15,812,395)	(14,516,835)	(12,335,397)
Refunds	(690,857)	(222,774)	(302,235)	(567,039)	(229,271)	(220,469)	(446,590)	(207,947)
Pension Plan Administrative Expense	(775,483)	(910,717)	(876,660)	(702,533)	(759,927)	(791,762)	(693,329)	(679,116)
Other	-	(1,982)	(36,626)	(59,532)	(50,612)	(61,856)	(65,963)	(50,008)
Net Change in Plan Fiduciary Net Position	\$ 27,333,868	\$ 27,134,153	\$ 28,934,322	\$ (15,291,885)	\$ 27,347,701	\$ 5,437,873	\$ (6,147,772)	\$ 6,695,948
Plan Fiduciary Net Position - Beginning	\$ 259,929,360	\$ 232,789,386	\$ 203,944,655	\$ 219,277,973	\$ 191,930,272	\$ 186,492,399	\$ 192,562,665	\$ 185,979,137
Adjustment	-	5,821	(89,591)	(41,433)	-	-	77,506	(112,420)
Plan Fiduciary Net Position - Ending (b)	\$ 287,263,228	\$ 259,929,360	\$ 232,789,386	\$ 203,944,655	\$ 219,277,973	\$ 191,930,272	\$ 186,492,399	\$ 192,562,665
Net Pension Liability - Ending (a) - (b)	\$ 139,081,206	\$ 153,981,401	\$ 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	67.38 %	62.80 %	62.75 %	57.30 %	63.67 %	59.63 %	59.33 %	64.82 %
Covered-Employee Payroll	\$ 55,323,580	\$ 54,254,463	\$ 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	251.40 %	283.81 %	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	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%
2020	413,910,761	259,929,360	153,981,401	62.80%	54,254,463	283.81%
2021	426,344,434	287,263,228	139,081,206	67.38%	55,323,580	251.40%

* 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%
2020	15,442,093	15,442,093	-	54,254,463	28.46%
2021	17,333,301	17,333,301	-	55,323,580	31.33%

* 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, 2019 and December 31, 2020
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 2021 Contribution Rate:

Actuarial Cost Method	Entry-Age Normal
Amortization Method	Level Percent-of-Payroll, Closed
Remaining Amortization Period	20 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 There were no changes to benefit provision or actuarial assumptions or methods.

Methods and Assumptions Used to Determine Fiscal Year 2022 Contribution Rate:

Actuarial Cost Method	Entry-Age Normal
Amortization Method	Level Percent-of-Payroll, Closed
Remaining Amortization Period	19 years
Asset Valuation Method	5-year smoothed market; 20% corridor
Wage Inflation	2.50%
Salary Increases	3.25% to 5.96% including inflation
Investment Rate of Return	6.75% (net of investment expenses)
Retirement Age	Age and Experience-based table of rates that are specific to the type of eligibility condition.
Mortality	Pub-2010 Mortality Table projected to 2039 for males and females using projection scale MP-2019.
Expense Load	1.25% of payroll.
COLA Assumption	1.00% compounded annually.

Other Information:

Notes There were changes to assumptions including many demographic assumptions, assumed rates of investment return, wage inflation, and price inflation, and administrative expenses following the 3-year experience study for period ending December 31, 2019. There were no changes to benefit provisions.

SECTION D

NOTES TO FINANCIAL STATEMENTS

Single Discount Rate

A Single Discount Rate of 6.75% 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 6.75%. 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 6.75%, 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 5.75%	Rate Assumption 6.75%	1% Increase 7.75%
Total Pension Liability (TPL)	\$ 477,165,606	\$ 426,344,434	\$ 383,538,684
Net Position Restricted for Pensions	287,263,228	287,263,228	287,263,228
Net Pension Liability (NPL)	\$ 189,902,378	\$ 139,081,206	\$ 96,275,456

Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	1,041
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	122
Active Plan Members	<u>1,070</u>
Total Plan Members	2,233

SECTION E

SUMMARY OF BENEFITS

Summary of Benefit Provisions as of December 31, 2021

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, 2021

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, 2021

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 three to five years to evaluate/modify valuation assumptions. Assumptions used in this report are based on the January 1, 2017 – December 31, 2019 experience study of the MECRS and were adopted by the Board. These assumptions were first used in the December 31, 2020 preliminary actuarial valuation. We believe the assumptions are reasonable individually and in the aggregate.

Valuation Assumptions

The rate of investment return was 6.75% 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 five years has been as follows:

	Year Ended December 31					5-Year Average
	2021	2020	2019	2018	2017	
1) Nominal rate of return#	9.7 %	8.6 %	5.6 %	3.4 %	7.4 %	6.9 %
2) Increase in CPI	7.0 %	1.4 %	2.3 %	1.9 %	2.1 %	2.9 %
3) Average Salary Increase (ASI)	3.7 %	5.5 %	4.2 %	(0.1)%	1.2 %	2.9 %
4) Real Return						
- Total: CPI (1) - (2)						4.0 %
- Total: ASI (1) - (3)						4.0 %
- 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 2.00% 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, 2020 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.

Years of Service	Salary Increase Assumptions for an Individual Member		
	Merit & Seniority	Base (Economic)	Increase Next Year
1	3.46%	2.50%	5.96%
2	4.43%	2.50%	6.93%
3	4.22%	2.50%	6.72%
4	3.70%	2.50%	6.20%
5	3.38%	2.50%	5.88%
6	2.93%	2.50%	5.43%
7	2.55%	2.50%	5.05%
8	2.26%	2.50%	4.76%
9	2.06%	2.50%	4.56%
10	1.85%	2.50%	4.35%
15	1.08%	2.50%	3.58%
20	0.77%	2.50%	3.27%
25	0.75%	2.50%	3.25%
30	0.75%	2.50%	3.25%
35	0.75%	2.50%	3.25%
40	0.75%	2.50%	3.25%

If the number of active members remains constant, then the total active member payroll will increase 2.50% 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, 2020 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, 2020 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		
	Male	Female		Age and Service		Rule of 80
				Male	Female	
60	12%	8%	50			10%
61	11%	15%	51			4%
62	22%	19%	52			7%
63	18%	10%	53			5%
64	18%	10%	54			5%
65	24%	19%	55	5%	10%	5%
66	38%	27%	56	5%	15%	4%
67	15%	19%	57	5%	8%	8%
68	39%	15%	58	5%	7%	8%
69	15%	22%	59	5%	7%	10%
70	27%	25%				
71	50%	19%				
72	42%	19%				
73	50%	19%				
74	50%	19%				
75	100%	19%				
76	100%	19%				
77	100%	19%				
78	100%	19%				
79	100%	19%				
80	100%	100%				

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 Pub-2010 General Healthy Mortality Table projected to 2039 using projection scale MP-2019.

Sample Attained Ages	Single Life Retirement Values					
	Present Value of \$1 Monthly for Life		Percent Dying Next Year		Future Life Expectancy (Years)	
	Male	Female	Male	Female	Male	Female
50	\$158.10	\$162.48	0.2552%	0.1899%	34.83	37.64
55	150.84	156.27	0.3655%	0.2572%	30.30	33.01
60	141.83	148.25	0.5441%	0.3494%	25.91	28.46
65	130.71	137.94	0.7880%	0.5138%	21.66	23.99
70	117.05	125.04	1.2298%	0.8314%	17.58	19.67
75	101.05	109.55	2.0765%	1.4535%	13.77	15.59
80	83.40	91.89	3.6906%	2.6437%	10.36	11.86

This assumption is used to measure the probabilities of members dying after retirement. The projection to 2039 is the margin for mortality improvement.

Post-retirement disabled mortality table is the Pub-2010 General Disabled Retiree Mortality Tables projected to 2039 using projection scale MP-2019.

Pre-retirement mortality is modeled using the Pub-2010 General Employee Mortality Tables projected to 2039 using projection scale MP-2019.

These tables were updated for the December 31, 2020 valuation in accordance with an experience study for the System of the three-year period ended December 31, 2019.

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, 2020 valuation.

Sample Ages	Years of Service	% of Active Members Separating within Next Year	
		Male	Female
	0-1	24.00%	36.00%
	1-2	18.00%	26.00%
	2-3	13.00%	22.00%
	3-4	7.00%	14.00%
	4-5	7.00%	14.00%
	5-6	n/a	11.00%
30	5 & Up (Men) 6 & Up (Women)	4.00%	6.89%
35		2.96%	5.79%
40		2.33%	5.01%
45		2.00%	4.42%
50		1.87%	3.84%

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	0.003%	0.003%
25	0.003%	0.003%
30	0.003%	0.003%
35	0.013%	0.013%
40	0.051%	0.051%
45	0.105%	0.105%
50	0.173%	0.173%
55	0.256%	0.256%
60	0.382%	0.382%

Miscellaneous and Technical Assumptions

December 31, 2021

Marriage Assumption:	50% of males and 50% 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:	1.25% 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 12% 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.
Data Processing:	The Retirement System provides data in excel format. GRS reviews the data for reasonableness and completeness. Questions are sent to the System. Data is then modified based on the answers provided. For new members with less than one year of earnings, reported pay is annualized based on reported service.
Data Adjustments:	For one member who had no salary provided, their prior year's salary was used.

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 6.75%; the municipal bond rate is 1.84%; and the resulting SDR is 6.75%.

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 1.4% 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, 2121

Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost Contributions	Administrative Expense Contributions	UAL Contributions	Total Contributions
0	\$ 55,323,580					
1	57,793,659	\$ 2,167,262	\$ 5,162,571	\$ 810,107	\$ 12,457,800	\$ 20,597,740
2	53,499,080	2,006,216	4,758,748	749,909	11,951,587	19,466,459
3	50,155,530	1,880,832	4,436,027	703,041	11,676,300	18,696,200
4	47,433,745	1,778,765	4,166,348	664,889	11,653,259	18,263,261
5	44,988,977	1,687,087	3,923,501	630,621	11,944,590	18,185,798
6	42,552,760	1,595,728	3,675,111	596,472	12,243,205	18,110,516
7	40,341,259	1,512,797	3,451,968	565,472	12,549,285	18,079,522
8	38,193,518	1,432,257	3,240,237	535,367	12,863,017	18,070,878
9	36,112,514	1,354,219	3,033,689	506,197	13,184,593	18,078,699
10	34,080,231	1,278,009	2,836,506	477,710	13,514,208	18,106,432
11	32,227,281	1,208,523	2,658,028	451,737	13,852,062	18,170,350
12	30,424,020	1,140,901	2,485,616	426,460	14,198,364	18,251,341
13	28,765,426	1,078,703	2,328,757	403,211	14,553,323	18,363,994
14	27,150,015	1,018,126	2,176,955	380,568	14,917,156	18,492,804
15	25,574,216	959,033	2,027,840	358,480	15,290,085	18,635,438
16	24,108,864	904,082	1,893,032	337,939	15,672,337	18,807,391
17	22,693,361	851,001	1,762,443	318,098	16,064,146	18,995,687
18	21,385,603	801,960	1,644,843	299,767	16,465,750	19,212,320
19	20,067,364	752,526	1,523,524	281,289	-	2,557,340
20	18,852,737	706,978	1,416,711	264,263	-	2,387,951
21	17,658,846	662,207	1,311,137	247,528	-	2,220,871
22	16,561,515	621,057	1,218,053	232,146	-	2,071,256
23	15,463,023	579,863	1,124,569	216,749	-	1,921,182
24	14,378,102	539,179	1,035,213	201,541	-	1,775,932
25	13,371,524	501,432	952,810	187,432	-	1,641,674
26	12,334,233	462,534	870,081	172,892	-	1,505,507
27	11,364,902	426,184	794,254	159,304	-	1,379,742
28	10,343,901	387,896	714,825	144,993	-	1,247,714
29	9,399,235	352,471	640,938	131,751	-	1,125,160
30	8,423,616	315,886	567,223	118,076	-	1,001,184
31	7,559,931	283,497	503,720	105,969	-	893,187
32	6,682,672	250,600	439,288	93,673	-	783,561
33	5,859,581	219,734	379,945	82,135	-	681,815
34	5,094,946	191,060	325,974	71,417	-	588,451
35	4,363,959	163,648	275,315	61,171	-	500,134
36	3,694,212	138,533	229,801	51,783	-	420,116
37	3,090,799	115,905	189,720	43,324	-	348,949
38	2,551,837	95,694	154,097	35,770	-	285,561
39	2,039,861	76,495	121,241	28,593	-	226,329
40	1,616,128	60,605	94,365	22,654	-	177,623
41	1,271,782	47,692	73,203	17,827	-	138,721
42	968,642	36,324	54,639	13,578	-	104,541
43	748,812	28,080	41,356	10,496	-	79,933
44	559,353	20,976	30,289	7,841	-	59,106
45	414,832	15,556	22,163	5,815	-	43,534
46	296,340	11,113	15,232	4,154	-	30,499
47	220,034	8,251	11,103	3,084	-	22,438
48	151,201	5,670	7,293	2,119	-	15,082
49	106,264	3,985	4,933	1,490	-	10,407
50	75,492	2,831	3,243	1,058	-	7,131



Single Discount Rate Development Projection of Contributions Ending December 31, 2121 (Concluded)

Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost Contributions	Administrative Expense Contributions	UAL Contributions	Total Contributions
51	\$ 51,853	\$ 1,944	\$ 2,190	\$ 727	-	\$ 4,862
52	37,425	1,403	1,441	525	-	3,369
53	24,860	932	950	348	-	2,231
54	18,016	676	679	253	-	1,608
55	11,778	442	374	165	-	981
56	8,719	327	272	122	-	721
57	5,757	216	183	81	-	480
58	3,316	124	104	46	-	274
59	1,635	61	42	23	-	126
60	939	35	31	13	-	79
61	408	15	11	6	-	32
62	101	4	3	1	-	8
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, 2121

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.75%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
1	\$ 287,263,228	\$ 20,597,740	\$ 24,690,886	\$ 810,107	\$ 19,227,485	\$ 301,587,461
2	301,587,461	19,466,459	25,896,018	749,909	20,118,803	314,526,796
3	314,526,796	18,696,200	27,027,583	703,041	20,930,626	326,422,998
4	326,422,998	18,263,261	28,211,669	664,889	21,681,202	337,490,902
5	337,490,902	18,185,798	29,403,147	630,621	22,387,296	348,030,230
6	348,030,230	18,110,516	30,633,188	596,472	23,056,499	357,967,585
7	357,967,585	18,079,522	31,805,863	565,472	23,688,339	367,364,111
8	367,364,111	18,070,878	32,956,652	535,367	24,285,112	376,228,081
9	376,228,081	18,078,699	34,025,398	506,197	24,849,177	384,624,362
10	384,624,362	18,106,432	35,042,542	477,710	25,384,024	392,594,566
11	392,594,566	18,170,350	35,941,956	451,737	25,895,138	400,266,361
12	400,266,361	18,251,341	36,768,710	426,460	26,389,065	407,711,596
13	407,711,596	18,363,994	37,484,222	403,211	26,872,376	415,060,533
14	415,060,533	18,492,804	38,094,956	380,568	27,353,181	422,430,995
15	422,430,995	18,635,438	38,597,558	358,480	27,839,470	429,949,866
16	429,949,866	18,807,391	38,997,074	337,939	28,340,121	437,762,364
17	437,762,364	18,995,687	39,295,038	318,098	28,864,483	446,009,398
18	446,009,398	19,212,320	39,447,887	299,767	29,423,884	454,897,948
19	454,897,948	2,557,340	39,485,681	281,289	29,470,292	447,158,609
20	447,158,609	2,387,951	39,451,114	264,263	28,943,976	438,775,160
21	438,775,160	2,220,871	39,329,954	247,528	28,377,124	429,795,673
22	429,795,673	2,071,256	39,095,117	232,146	27,774,349	420,314,014
23	420,314,014	1,921,182	38,776,219	216,749	27,140,453	410,382,681
24	410,382,681	1,775,932	38,381,801	201,541	26,478,865	400,054,136
25	400,054,136	1,641,674	37,932,839	187,432	25,792,604	389,368,143
26	389,368,143	1,505,507	37,435,463	172,892	25,083,774	378,349,069
27	378,349,069	1,379,742	36,901,128	159,304	24,354,002	367,022,381
28	367,022,381	1,247,714	36,316,788	144,993	23,604,942	355,413,256
29	355,413,256	1,125,160	35,660,809	131,751	22,839,475	343,585,330
30	343,585,330	1,001,184	34,961,351	118,076	22,060,649	331,567,737
31	331,567,737	893,187	34,194,574	105,969	21,271,734	319,432,115
32	319,432,115	783,561	33,433,366	93,673	20,474,620	307,163,257
33	307,163,257	681,815	32,689,444	82,135	19,668,174	294,741,667
34	294,741,667	588,451	31,891,175	71,417	18,853,475	282,221,002
35	282,221,002	500,134	31,039,798	61,171	18,034,003	269,654,170
36	269,654,170	420,116	30,145,370	51,783	17,213,091	257,090,225
37	257,090,225	348,949	29,227,127	43,324	16,393,428	244,562,150
38	244,562,150	285,561	28,287,076	35,770	15,577,138	232,102,003
39	232,102,003	226,329	27,321,345	28,593	14,766,411	219,744,804
40	219,744,804	177,623	26,315,171	22,654	13,964,284	207,548,887
41	207,548,887	138,721	25,281,309	17,827	13,174,251	195,562,724
42	195,562,724	104,541	24,233,166	13,578	12,398,989	183,819,510
43	183,819,510	79,933	23,173,099	10,496	11,640,800	172,356,649
44	172,356,649	59,106	22,120,276	7,841	10,901,407	161,189,044
45	161,189,044	43,534	21,075,313	5,815	10,181,835	150,333,285
46	150,333,285	30,499	20,036,179	4,154	9,483,192	139,806,643
47	139,806,643	22,438	19,008,981	3,084	8,806,513	129,623,529
48	129,623,529	15,082	17,999,051	2,119	8,152,470	119,789,911
49	119,789,911	10,407	17,000,248	1,490	7,521,725	110,320,305
50	110,320,305	7,131	16,017,879	1,058	6,915,046	101,223,546



Single Discount Rate Development Projection of Plan Fiduciary Net Position Ending December 31, 2121 (Concluded)

Year	Projected Beginning Plan Net Position	Projected Total Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings at 6.75%	Projected Ending Plan Net Position
	(a)	(b)	(c)	(d)	(e)	(f)=(a)+(b)-(c)-(d)+(e)
51	\$ 101,223,546	\$ 4,862	\$ 15,051,990	\$ 727	\$ 6,333,017	\$ 92,508,708
52	92,508,708	3,369	14,103,355	525	5,776,216	84,184,413
53	84,184,413	2,231	13,172,345	348	5,245,203	76,259,154
54	76,259,154	1,608	12,258,838	253	4,740,558	68,742,228
55	68,742,228	981	11,364,335	165	4,262,844	61,641,553
56	61,641,553	721	10,489,663	122	3,812,579	54,965,069
57	54,965,069	480	9,637,449	81	3,390,202	48,718,221
58	48,718,221	274	8,808,966	46	2,996,039	42,905,522
59	42,905,522	126	8,006,135	23	2,630,331	37,529,821
60	37,529,821	79	7,231,853	13	2,293,175	32,591,210
61	32,591,210	32	6,489,359	6	1,984,468	28,086,345
62	28,086,345	8	5,781,486	1	1,703,889	24,008,755
63	24,008,755	-	5,111,123	-	1,450,907	20,348,540
64	20,348,540	-	4,481,149	-	1,224,757	17,092,147
65	17,092,147	-	3,894,214	-	1,024,436	14,222,369
66	14,222,369	-	3,352,505	-	848,710	11,718,575
67	11,718,575	-	2,857,633	-	696,134	9,557,076
68	9,557,076	-	2,410,482	-	565,077	7,711,671
69	7,711,671	-	2,011,033	-	453,774	6,154,412
70	6,154,412	-	1,658,434	-	360,365	4,856,342
71	4,856,342	-	1,351,146	-	282,947	3,788,143
72	3,788,143	-	1,086,970	-	219,613	2,920,786
73	2,920,786	-	863,095	-	168,499	2,226,190
74	2,226,190	-	676,215	-	127,818	1,677,793
75	1,677,793	-	522,656	-	95,899	1,251,037
76	1,251,037	-	398,516	-	71,215	923,736
77	923,736	-	299,844	-	52,398	676,289
78	676,289	-	222,769	-	38,254	491,774
79	491,774	-	163,605	-	27,763	355,933
80	355,933	-	118,974	-	20,076	257,035
81	257,035	-	85,868	-	14,499	185,666
82	185,666	-	61,692	-	10,484	134,458
83	134,458	-	44,275	-	7,606	97,789
84	97,789	-	31,859	-	5,543	71,473
85	71,473	-	23,063	-	4,059	52,469
86	52,469	-	16,836	-	2,983	38,616
87	38,616	-	12,405	-	2,195	28,405
88	28,405	-	9,215	-	1,611	20,802
89	20,802	-	6,878	-	1,176	15,100
90	15,100	-	5,129	-	849	10,820
91	10,820	-	3,802	-	604	7,621
92	7,621	-	2,786	-	422	5,257
93	5,257	-	2,008	-	288	3,538
94	3,538	-	1,418	-	192	2,312
95	2,312	-	977	-	124	1,458
96	1,458	-	656	-	77	879
97	879	-	428	-	45	496
98	496	-	271	-	25	250
99	250	-	166	-	11	96
100	96	-	99	-	3	0



Single Discount Rate Development Present Values of Projected Benefits Ending December 31, 2121

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	\$ 287,263,228	\$ 24,690,886	\$ 24,690,886	\$ -	\$ 23,897,514	\$ -	\$ 23,897,514
2	301,587,461	25,896,018	25,896,018	-	23,479,084	-	23,479,084
3	314,526,796	27,027,583	27,027,583	-	22,955,540	-	22,955,540
4	326,422,998	28,211,669	28,211,669	-	22,446,116	-	22,446,116
5	337,490,902	29,403,147	29,403,147	-	21,914,841	-	21,914,841
6	348,030,230	30,633,188	30,633,188	-	21,387,934	-	21,387,934
7	357,967,585	31,805,863	31,805,863	-	20,802,520	-	20,802,520
8	367,364,111	32,956,652	32,956,652	-	20,192,215	-	20,192,215
9	376,228,081	34,025,398	34,025,398	-	19,528,829	-	19,528,829
10	384,624,362	35,042,542	35,042,542	-	18,840,860	-	18,840,860
11	392,594,566	35,941,956	35,941,956	-	18,102,516	-	18,102,516
12	400,266,361	36,768,710	36,768,710	-	17,347,933	-	17,347,933
13	407,711,596	37,484,222	37,484,222	-	16,567,232	-	16,567,232
14	415,060,533	38,094,956	38,094,956	-	15,772,518	-	15,772,518
15	422,430,995	38,597,558	38,597,558	-	14,970,128	-	14,970,128
16	429,949,866	38,997,074	38,997,074	-	14,168,694	-	14,168,694
17	437,762,364	39,295,038	39,295,038	-	13,374,194	-	13,374,194
18	446,009,398	39,447,887	39,447,887	-	12,577,253	-	12,577,253
19	454,897,948	39,485,681	39,485,681	-	11,793,258	-	11,793,258
20	447,158,609	39,451,114	39,451,114	-	11,037,877	-	11,037,877
21	438,775,160	39,329,954	39,329,954	-	10,308,176	-	10,308,176
22	429,795,673	39,095,117	39,095,117	-	9,598,713	-	9,598,713
23	420,314,014	38,776,219	38,776,219	-	8,918,423	-	8,918,423
24	410,382,681	38,381,801	38,381,801	-	8,269,516	-	8,269,516
25	400,054,136	37,932,839	37,932,839	-	7,656,005	-	7,656,005
26	389,368,143	37,435,463	37,435,463	-	7,077,863	-	7,077,863
27	378,349,069	36,901,128	36,901,128	-	6,535,679	-	6,535,679
28	367,022,381	36,316,788	36,316,788	-	6,025,466	-	6,025,466
29	355,413,256	35,660,809	35,660,809	-	5,542,510	-	5,542,510
30	343,585,330	34,961,351	34,961,351	-	5,090,209	-	5,090,209
31	331,567,737	34,194,574	34,194,574	-	4,663,766	-	4,663,766
32	319,432,115	33,433,366	33,433,366	-	4,271,612	-	4,271,612
33	307,163,257	32,689,444	32,689,444	-	3,912,473	-	3,912,473
34	294,741,667	31,891,175	31,891,175	-	3,575,579	-	3,575,579
35	282,221,002	31,039,798	31,039,798	-	3,260,070	-	3,260,070
36	269,654,170	30,145,370	30,145,370	-	2,965,929	-	2,965,929
37	257,090,225	29,227,127	29,227,127	-	2,693,757	-	2,693,757
38	244,562,150	28,287,076	28,287,076	-	2,442,263	-	2,442,263
39	232,102,003	27,321,345	27,321,345	-	2,209,727	-	2,209,727
40	219,744,804	26,315,171	26,315,171	-	1,993,769	-	1,993,769
41	207,548,887	25,281,309	25,281,309	-	1,794,322	-	1,794,322
42	195,562,724	24,233,166	24,233,166	-	1,611,176	-	1,611,176
43	183,819,510	23,173,099	23,173,099	-	1,443,275	-	1,443,275
44	172,356,649	22,120,276	22,120,276	-	1,290,588	-	1,290,588
45	161,189,044	21,075,313	21,075,313	-	1,151,869	-	1,151,869
46	150,333,285	20,036,179	20,036,179	-	1,025,832	-	1,025,832
47	139,806,643	19,008,981	19,008,981	-	911,701	-	911,701
48	129,623,529	17,999,051	17,999,051	-	808,677	-	808,677
49	119,789,911	17,000,248	17,000,248	-	715,505	-	715,505
50	110,320,305	16,017,879	16,017,879	-	631,531	-	631,531



Single Discount Rate Development

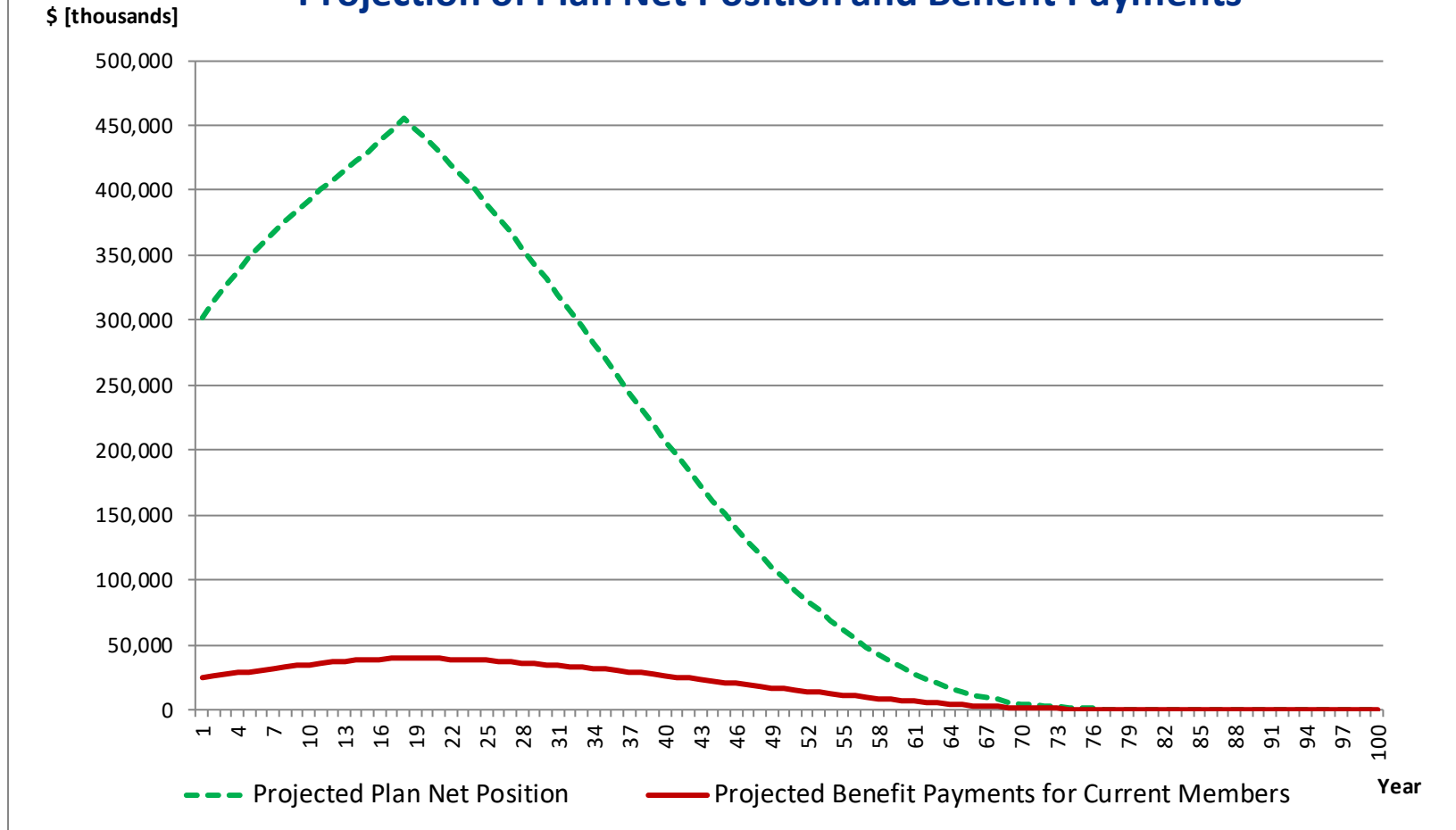
Present Values of Projected Benefits

Ending December 31, 2121 (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)-.5}	(g)=(e)*vf ^{(a)-.5}	(h)=(c)/(1+sdr) ^{(a)-.5}
51	\$ 101,223,546	\$ 15,051,990	\$ 15,051,990	\$ -	\$ 555,924	\$ -	\$ 555,924
52	92,508,708	14,103,355	14,103,355	-	487,951	-	487,951
53	84,184,413	13,172,345	13,172,345	-	426,923	-	426,923
54	76,259,154	12,258,838	12,258,838	-	372,192	-	372,192
55	68,742,228	11,364,335	11,364,335	-	323,217	-	323,217
56	61,641,553	10,489,663	10,489,663	-	279,476	-	279,476
57	54,965,069	9,637,449	9,637,449	-	240,534	-	240,534
58	48,718,221	8,808,966	8,808,966	-	205,955	-	205,955
59	42,905,522	8,006,135	8,006,135	-	175,348	-	175,348
60	37,529,821	7,231,853	7,231,853	-	148,375	-	148,375
61	32,591,210	6,489,359	6,489,359	-	124,723	-	124,723
62	28,086,345	5,781,486	5,781,486	-	104,091	-	104,091
63	24,008,755	5,111,123	5,111,123	-	86,203	-	86,203
64	20,348,540	4,481,149	4,481,149	-	70,799	-	70,799
65	17,092,147	3,894,214	3,894,214	-	57,636	-	57,636
66	14,222,369	3,352,505	3,352,505	-	46,481	-	46,481
67	11,718,575	2,857,633	2,857,633	-	37,114	-	37,114
68	9,557,076	2,410,482	2,410,482	-	29,327	-	29,327
69	7,711,671	2,011,033	2,011,033	-	22,920	-	22,920
70	6,154,412	1,658,434	1,658,434	-	17,706	-	17,706
71	4,856,342	1,351,146	1,351,146	-	13,513	-	13,513
72	3,788,143	1,086,970	1,086,970	-	10,184	-	10,184
73	2,920,786	863,095	863,095	-	7,575	-	7,575
74	2,226,190	676,215	676,215	-	5,560	-	5,560
75	1,677,793	522,656	522,656	-	4,025	-	4,025
76	1,251,037	398,516	398,516	-	2,875	-	2,875
77	923,736	299,844	299,844	-	2,027	-	2,027
78	676,289	222,769	222,769	-	1,410	-	1,410
79	491,774	163,605	163,605	-	970	-	970
80	355,933	118,974	118,974	-	661	-	661
81	257,035	85,868	85,868	-	447	-	447
82	185,666	61,692	61,692	-	301	-	301
83	134,458	44,275	44,275	-	202	-	202
84	97,789	31,859	31,859	-	136	-	136
85	71,473	23,063	23,063	-	92	-	92
86	52,469	16,836	16,836	-	63	-	63
87	38,616	12,405	12,405	-	44	-	44
88	28,405	9,215	9,215	-	30	-	30
89	20,802	6,878	6,878	-	21	-	21
90	15,100	5,129	5,129	-	15	-	15
91	10,820	3,802	3,802	-	10	-	10
92	7,621	2,786	2,786	-	7	-	7
93	5,257	2,008	2,008	-	5	-	5
94	3,538	1,418	1,418	-	3	-	3
95	2,312	977	977	-	2	-	2
96	1,458	656	656	-	1	-	1
97	879	428	428	-	1	-	1
98	496	271	271	-	0	-	0
99	250	166	166	-	-	-	-
100	96	99	99	-	-	-	-
Totals					\$ 483,416,115	\$ -	\$ 483,416,115



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

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 health care benefits regardless of the manner in which they are provided. Other postemployment 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. The Service Cost may also be referred to as the “Normal Cost.”

Total Pension Expense

The total pension expense is the sum of the following items that are recognized at the end of the employer’s fiscal year:

1. Service Cost
2. Interest on the Total Pension Liability
3. Current-Period Benefit Changes
4. Employee Contributions (made negative for addition here)
5. Projected Earnings on Plan Investments (made negative for addition here)
6. Pension Plan Administrative Expense
7. Other Changes in Plan Fiduciary Net Position
8. Recognition of Outflow (Inflow) of Resources due to Liabilities
9. Recognition of Outflow (Inflow) of Resources due to Assets

Total Pension Liability (TPL)

The TPL 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. 67 and 68, the valuation assets are equal to the market value of assets.