

# City of Manchester Employees' Contributory Retirement System

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

Measured as of December 31, 2022

for Fiscal Year Ending June 30, 2023





April 13, 2023

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 measurement period ending December 31, 2022. Please refer to the December 31, 2022 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:ah



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# SECTION A



## EXECUTIVE SUMMARY

# Executive Summary as of December 31, 2022

Actuarial Valuation Date	December 31, 2022
Measurement Date of the Net Pension Liability	December 31, 2022
Employer's Fiscal Year Ending Date (Reporting Date)	June 30, 2023

## Membership

Number of	
- Retirees and Beneficiaries	1,058
- Inactive, Nonretired Members	123
- Active Members	1,058
- Total	2,239
Covered Payroll #	\$ 56,969,297

## Net Pension Liability

Total Pension Liability	\$ 439,499,792
Plan Fiduciary Net Position	245,595,722
Net Pension Liability	\$ 193,904,070
Plan Fiduciary Net Position as a Percentage of Total Pension Liability	55.88%
Net Pension Liability as a Percentage of Covered Payroll	340.37%

## 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*	4.05%
Last year ending December 31 in the 2023 to 2122 projection period for which projected benefit payments are fully funded	2122

**Total Pension Expense** \$ 30,285,889

## 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	\$ 3,660,706	\$ 12,459
Changes in assumptions	11,537,951	-
Net difference between projected and actual earnings on pension plan investments	46,125,792	17,657,914
Total	\$ 61,324,449	\$ 17,670,373

# Based on valuation payroll as of December 31, 2022.

\* 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, 2022, 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, 2022.

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 17 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 17 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 2122. 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, 2022 and a measurement date of December 31, 2022.

### 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 4.05% (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**

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**FINANCIAL STATEMENTS**

# Statement of Pension Expense under GASB Statement No. 68 for Fiscal Year Ending June 30, 2023 with Measurement Date December 31, 2022

**A. Expense**

1. Service Cost	\$	7,086,981
2. Interest on the Total Pension Liability		28,215,371
3. Current-Period Benefit Changes		0
4. Employee Contributions (made negative for addition here)		(2,551,251)
5. Projected Earnings on Plan Investments (made negative for addition here)		(19,279,247)
6. Pension Plan Administrative Expense		733,165
7. Other Changes in Plan Fiduciary Net Position		0
8. Recognition of Outflow (Inflow) of Resources due to Liabilities		8,501,561
9. Recognition of Outflow (Inflow) of Resources due to Assets		7,579,309
<b>10. Total Pension Expense</b>	<b>\$</b>	<b>30,285,889</b>

# Statement of Outflows and Inflows Arising from Current Reporting Period for Fiscal Year Ending June 30, 2023 with Measurement Date December 31, 2022

## A. Outflows (Inflows) of Resources Due to Liabilities

1. Difference between expected and actual experience of the Total Pension Liability (gains) or losses	\$	1,617,855
2. Assumption Changes (gains) or losses	\$	-
3. Recognition period for Liabilities: Average of the expected remaining service lives of all employees {in years}		4.6947
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	\$	344,613
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	\$	344,613
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	\$	1,273,242
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	\$	1,273,242

## B. Outflows (Inflows) of Resources Due to Assets

1. Net difference between projected and actual earnings on pension plan investments (gains) or losses	\$	57,657,240
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	\$	11,531,448
4. Deferred Outflow (Inflow) of Resources to be recognized in future pension expenses due to Assets	\$	46,125,792



# Statement of Outflows and Inflows Arising from Current and Prior Reporting Periods for Fiscal Year Ending June 30, 2023 with Measurement Date December 31, 2022

## 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	\$ 8,533,612	\$ 32,051	\$ 8,501,561
2. Due to Assets	16,920,883	9,341,574	7,579,309
<b>3. Total</b>	<b>\$ 25,454,495</b>	<b>\$ 9,373,625</b>	<b>\$ 16,080,870</b>

## 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	\$ 1,823,246	\$ 32,051	\$ 1,791,195
2. Assumption Changes	6,710,366	-	6,710,366
3. Net Difference between projected and actual earnings on pension plan investments	16,920,883	9,341,574	7,579,309
<b>4. Total</b>	<b>\$ 25,454,495</b>	<b>\$ 9,373,625</b>	<b>\$ 16,080,870</b>

## 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	\$ 3,660,706	\$ 12,459	\$ 3,648,247
2. Assumption Changes	11,537,951	-	11,537,951
3. Net Difference between projected and actual earnings on pension plan investments	46,125,792	17,657,914	28,467,878
<b>4. Total</b>	<b>\$ 61,324,449</b>	<b>\$ 17,670,373</b>	<b>\$ 43,654,076</b>

## 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
2023	\$ 9,813,800
2024	12,738,106
2025	9,331,319
2026	11,770,851
2027	-
Thereafter	-
<b>Total</b>	<b>\$ 43,654,076</b>



## Recognition of Deferred Outflows and Inflows of Resources

Year Established	Initial Amount	Initial Recognition Period	Current Year Recognition	Remaining Recognition	Remaining Recognition Period
<b>Deferred Outflow (Inflow) Due to Differences Between Expected and Actual Experience on Liabilities</b>					
2017	\$ 201,281	5.4892	\$ 17,936	\$ -	0.0000
2018	(172,714)	5.3888	(32,051)	(12,459)	0.3888
2019	3,974,876	5.1435	772,796	883,692	1.1435
2020	2,625,836	4.9787	527,414	1,043,594	1.9787
2021	781,152	4.8674	160,487	460,178	2.8674
2022	1,617,855	4.6947	344,613	1,273,242	3.6947
<b>Total</b>			<b>\$ 1,791,195</b>	<b>\$ 3,648,247</b>	
<b>Deferred Outflow (Inflow) Due to Assumption Changes</b>					
2017	\$ 9,866,319	5.4892	\$ 879,289	\$ -	0.0000
2018	-	5.3888	-	-	0.3888
2019	-	5.1435	-	-	1.1435
2020	29,031,182	4.9787	5,831,077	11,537,951	1.9787
2021	-	4.8674	-	-	2.8674
2022	-	4.6947	-	-	3.6947
<b>Total</b>			<b>\$ 6,710,366</b>	<b>\$ 11,537,951</b>	
<b>Deferred Outflow (Inflow) Due to Differences Between Projected and Actual Earnings on Plan Investments</b>					
2018	\$ 26,947,183	5.0000	\$ 5,389,435	\$ -	0.0000
2019	(18,545,922)	5.0000	(3,709,184)	(3,709,186)	1.0000
2020	(14,742,222)	5.0000	(2,948,444)	(5,896,890)	2.0000
2021	(13,419,730)	5.0000	(2,683,946)	(8,051,838)	3.0000
2022	57,657,240	5.0000	11,531,448	46,125,792	4.0000
<b>Total</b>			<b>\$ 7,579,309</b>	<b>\$ 28,467,878</b>	

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 10,511 years. Additionally, the total plan membership (active employees and inactive employees) was 2,239. 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 4.6947 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, 2022

### Assets

Cash and Deposits	\$	7,780,006
Receivables		
Accounts Receivable	\$	437,106
Accrued Interest and Other Dividends		330,325
Additional Contribution Account		828,696
Property, Plant, Equipment		10,780
Total Receivables	<u>\$</u>	<u>1,606,907</u>
Investments	\$	256,401,200
<b>Total Assets</b>	<u>\$</u>	<u>265,788,113</u>

### Liabilities

Payables		
Accounts Payable and Accrued Expenses	\$	132,724
Payable for Investments Purchased		-
Benefits Payable		1,995,225
Total Liabilities	<u>\$</u>	<u>2,127,949</u>
Assets held for 401(h) Subtrust	<u>\$</u>	<u>18,064,442</u>
<b>Net Position Restricted for Pensions</b>	<u>\$</u>	<u>245,595,722</u>



## Statement of Changes in Fiduciary Net Position for Year Ended December 31, 2022

### Additions

Contributions	
Employer	\$ 18,657,250
Employee (Including Additional Contributions, Buybacks, Upgrades and Enrollments)	2,551,251
Total Contributions	\$ 21,208,501
Other	\$ -
Investment Income	
Net Appreciation in Fair Value of Investments	\$ (39,602,226)
Interest and Dividends	1,999,711
Less Investment Expense	(775,478)
Net Investment Income	\$ (38,377,993)
<b>Total Additions</b>	<b>\$ (17,169,492)</b>

### Deductions

Benefit Payments, Additional Contribution Payments, and Refunds of Employee Contributions	\$ 23,764,849
Pension Plan Administrative Expense	733,165
<b>Total Deductions</b>	<b>\$ 24,498,014</b>
<b>Net Increase in Net Position</b>	<b>\$ (41,667,506)</b>

### Net Position Restricted for Pensions

Beginning of Year	\$ 287,263,228
Prior Year Adjustment	-
End of Year	\$ 245,595,722

## Schedule of Proportionate Employer Share for Fiscal Year Ending June 30, 2023 with Measurement Date December 31, 2022

### Deferred Outflows of Resources

Covered Payroll	Employer	Prop. Share	Net Pension Liability	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 Outflows of Resources
\$ 5,415,622	Airport	9.51%	\$ 18,440,277	\$ 348,133	\$ 2,707,295	\$ 1,097,259	\$ 916,934	\$ 5,069,621
459,423	Parking Control	0.81%	1,570,623	29,652	230,590	93,457	59,944	413,643
2,611,316	Environmental Protection	4.58%	8,880,806	167,660	1,303,829	528,438	389,285	2,389,212
10,794,220	School District	18.95%	36,744,821	693,704	5,394,663	2,186,442	2,387,261	10,662,070
5,410,576	Water Works	9.50%	18,420,887	347,767	2,704,448	1,096,105	619,593	4,767,913
32,278,140	General Fund City Departments	56.65%	109,846,656	2,073,790	16,127,053	6,536,250	594,282	25,331,375
<b>\$ 56,969,297</b>	<b>Total for All Employers</b>	<b>100.00%</b>	<b>\$ 193,904,070</b>	<b>\$ 3,660,706</b>	<b>\$ 28,467,878</b>	<b>\$ 11,537,951</b>	<b>\$ 4,967,299</b>	<b>\$ 48,633,834</b>



**Schedule of Proportionate Employer Share  
for Fiscal Year Ending June 30, 2023  
with Measurement Date December 31, 2022  
(Concluded)**

Employer	Deferred Inflows of Resources				Pension Expense		
	Differences Between Expected and Actual Experience	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	\$ 1,185	\$ -	\$ 664,786	\$ 665,971	\$ 2,880,188	\$ 70,169	\$ 2,950,357
Parking Control	101	-	222,638	222,739	245,316	(45,345)	199,971
Environmental Protection	571	-	58,157	58,728	1,387,094	135,834	1,522,928
School District	2,361	-	1,186,300	1,188,661	5,739,176	58,918	5,798,094
Water Works	1,184	-	371,303	372,487	2,877,159	186,272	3,063,431
General Fund City Departments	7,057	-	2,464,115	2,471,172	17,156,956	(405,848)	16,751,108
<b>Total for All Employers</b>	<b>\$ 12,459</b>	<b>\$ -</b>	<b>\$ 4,967,299</b>	<b>\$ 4,979,758</b>	<b>\$ 30,285,889</b>	<b>\$ -</b>	<b>\$ 30,285,889</b>

\* 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

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### REQUIRED SUPPLEMENTARY INFORMATION

# Schedule of Changes in Net Pension Liability and Related Ratios

## Current Period

### for Fiscal Year Ending June 30, 2023

### with Measurement Date December 31, 2022

A. Total Pension Liability		
1. Service cost	\$	7,086,981
2. Interest on the Total Pension Liability		28,215,371
3. Changes of benefit terms		-
4. Difference between expected and actual experience of the Total Pension Liability		1,617,855
5. Changes of assumptions		-
6. Benefit payments, including refunds of employee contributions		(23,764,849)
7. Net change in Total Pension Liability		<u>13,155,358</u>
8. Total Pension Liability – Beginning		<u>426,344,434</u>
9. Total Pension Liability – Ending		<u><u>439,499,792</u></u>
B. Plan Fiduciary Net Position		
1. Contributions – Employer		18,657,250
2. Contributions – Employee		2,551,251
3. Net investment income		(38,377,993)
4. Benefit payments, including refunds of employee contributions		(23,764,849)
5. Pension plan administrative expense		(733,165)
6. Other		-
7. Net change in Plan Fiduciary Net Position		<u>(41,667,506)</u>
8. Plan Fiduciary Net Position – Beginning		<u>287,263,228</u>
9. Plan Fiduciary Net Position – Ending		<u><u>245,595,722</u></u>
C. Net Pension Liability		193,904,070
D. Plan Fiduciary Net Position as a percentage of the Total Pension Liability		55.88%
E. Covered-Employee Payroll	\$	56,969,297
F. Net Pension Liability as a percentage of Covered-Employee Payroll		340.37%

# Schedules of Required Supplementary Information

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

(Ultimately 10 Years Will Be Displayed)

Measurement Period Ending December 31,	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total Pension Liability</b>									
Service Cost	\$ 7,086,981	\$ 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	28,215,371	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	1,617,855	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	(23,267,787)	(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	(497,062)	(690,857)	(222,774)	(302,235)	(567,039)	(229,271)	(220,469)	(446,590)	(207,947)
<b>Net Change in Total Pension Liability</b>	<b>\$ 13,155,358</b>	<b>\$ 12,433,673</b>	<b>\$ 42,926,326</b>	<b>\$ 15,036,219</b>	<b>\$ 11,529,920</b>	<b>\$ 22,530,315</b>	<b>\$ 7,532,241</b>	<b>\$ 17,264,813</b>	<b>16,870,868</b>
<b>Total Pension Liability - Beginning</b>	<b>\$ 426,344,434</b>	<b>\$ 413,910,761</b>	<b>\$ 370,984,435</b>	<b>\$ 355,948,216</b>	<b>\$ 344,418,296</b>	<b>\$ 321,887,981</b>	<b>\$ 314,355,740</b>	<b>\$ 297,090,927</b>	<b>280,332,479</b>
<b>Prior Year Adjustment</b>	-	-	-	-	-	-	-	-	(112,420)
<b>Total Pension Liability - Ending (a)</b>	<b>\$ 439,499,792</b>	<b>\$ 426,344,434</b>	<b>\$ 413,910,761</b>	<b>\$ 370,984,435</b>	<b>\$ 355,948,216</b>	<b>\$ 344,418,296</b>	<b>\$ 321,887,981</b>	<b>\$ 314,355,740</b>	<b>\$ 297,090,927</b>
<b>Plan Fiduciary Net Position</b>									
Employer and Other Contributions	\$ 18,657,250	\$ 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	2,551,251	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	(38,377,993)	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	(23,267,787)	(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	(497,062)	(690,857)	(222,774)	(302,235)	(567,039)	(229,271)	(220,469)	(446,590)	(207,947)
Pension Plan Administrative Expense	(733,165)	(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)
<b>Net Change in Plan Fiduciary Net Position</b>	<b>\$ (41,667,506)</b>	<b>\$ 27,333,868</b>	<b>\$ 27,134,153</b>	<b>\$ 28,934,322</b>	<b>\$ (15,291,885)</b>	<b>\$ 27,347,701</b>	<b>\$ 5,437,873</b>	<b>\$ (6,147,772)</b>	<b>6,695,948</b>
<b>Plan Fiduciary Net Position - Beginning</b>	<b>\$ 287,263,228</b>	<b>\$ 259,929,360</b>	<b>\$ 232,789,386</b>	<b>\$ 203,944,655</b>	<b>\$ 219,277,973</b>	<b>\$ 191,930,272</b>	<b>\$ 186,492,399</b>	<b>\$ 192,562,665</b>	<b>185,979,137</b>
<b>Adjustment</b>	-	-	5,821	(89,591)	(41,433)	-	-	77,506	(112,420)
<b>Plan Fiduciary Net Position - Ending (b)</b>	<b>\$ 245,595,722</b>	<b>\$ 287,263,228</b>	<b>\$ 259,929,360</b>	<b>\$ 232,789,386</b>	<b>\$ 203,944,655</b>	<b>\$ 219,277,973</b>	<b>\$ 191,930,272</b>	<b>\$ 186,492,399</b>	<b>\$ 192,562,665</b>
<b>Net Pension Liability - Ending (a) - (b)</b>	<b>\$ 193,904,070</b>	<b>\$ 139,081,206</b>	<b>\$ 153,981,401</b>	<b>\$ 138,195,049</b>	<b>\$ 152,003,561</b>	<b>\$ 125,140,323</b>	<b>\$ 129,957,709</b>	<b>\$ 127,863,341</b>	<b>104,528,262</b>
<b>Plan Fiduciary Net Position as a Percentage</b>									
<b>of Total Pension Liability</b>	55.88 %	67.38 %	62.80 %	62.75 %	57.30 %	63.67 %	59.63 %	59.33 %	64.82 %
<b>Covered-Employee Payroll</b>	\$ 56,969,297	\$ 55,323,580	\$ 54,254,463	\$ 52,895,992	\$ 51,787,265	\$ 53,364,536	\$ 52,888,074	\$ 52,953,903	\$ 54,267,183
<b>Net Pension Liability as a Percentage</b>									
<b>of Covered-Employee Payroll</b>	340.37 %	251.40 %	283.81 %	261.26 %	293.52 %	234.50 %	245.72 %	241.46 %	192.62 %
<b>Notes to Schedule:</b>	N/A	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)

Measurement Date 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%
2022	439,499,792	245,595,722	193,904,070	55.88%	56,969,297	340.37%

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

# Schedule of Contributions

(Ultimately 10 Years Will Be Displayed)

Fiscal Year Ending June 30	Actuarially Determined Contribution (ADC) #	Actual Contribution	Contribution Deficiency (Excess)	Covered Payroll*	Actual Contribution as a % of Covered Payroll
2015	\$ 10,959,998	\$ 10,959,998	\$ -	\$ 54,267,183	20.20%
2016	11,613,137	11,613,137	-	52,953,903	21.93%
2017	8,391,456	8,391,456	-	52,888,074	15.87%
2018	12,221,415	12,221,415	-	53,364,536	22.90%
2019	13,113,367	13,113,367	-	51,787,265	25.32%
2020	14,205,016	14,205,016	-	52,895,992	26.85%
2021	15,442,093	15,442,093	-	54,254,463	28.46%
2022	17,333,301	17,333,301	-	55,323,580	31.33%
2023	18,657,250	18,657,250	-	56,969,297	32.75%

\* 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, 2020 and December 31, 2021  
**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 the Fiscal Year Ending June 30, 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.

**Methods and Assumptions Used to Determine the Fiscal Year Ending June 30, 2023 Contribution Rate:**

Actuarial Cost Method	Entry-Age Normal
Amortization Method	Level Percent-of-Payroll, Closed
Remaining Amortization Period	18 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 no changes to benefit provision or actuarial assumptions or methods.

## **SECTION D**

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### **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)	\$ 491,269,560	\$ 439,499,792	\$ 395,850,701
Net Position Restricted for Pensions	245,595,722	245,595,722	245,595,722
Net Pension Liability (NPL)	\$ 245,673,838	\$ 193,904,070	\$ 150,254,979

## Summary of Population Statistics

Inactive Plan Members or Beneficiaries Currently Receiving Benefits	1,058
Inactive Plan Members Entitled to But Not Yet Receiving Benefits	123
Active Plan Members	<u>1,058</u>
Total Plan Members	2,239

## SECTION E

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### SUMMARY OF BENEFITS

# Summary of Benefit Provisions as of December 31, 2022

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## Eligibility

## Amount

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### 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, 2022

Eligibility	Amount
<b>ORDINARY DEATH-IN-SERVICE</b>	
(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.
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## **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, 2022

## 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

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### **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.

## Valuation Assumptions

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.

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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 actuarial valuation. We believe the assumptions are reasonable individually and in the aggregate.

## Valuation Assumptions (Continued)

**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
	2022	2021	2020	2019	2018	
1) Nominal rate of return#	4.00 %	9.70 %	8.60 %	5.60 %	3.40 %	6.23 %
2) Increase in CPI	6.50 %	7.00 %	1.40 %	2.30 %	1.90 %	3.79 %
3) Average Salary Increase (ASI)	4.14 %	3.69 %	5.49 %	4.24 %	(0.07)%	3.48 %
4) Real Return						
- Total: CPI (1) - (2)						2.44 %
- Total: ASI (1) - (3)						2.75 %
- Assumption	4.25 %	4.25 %	4.25 %	4.25 %	4.25 %	4.25 %

# 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

<b>Marriage Assumption:</b>	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.
<b>Pay Increase Timing:</b>	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.
<b>Decrement Timing:</b>	Decrements of all types are assumed to occur mid-year.
<b>Eligibility Testing:</b>	Eligibility for benefits is determined based upon the age nearest birthday and exact fractional service on the date the decrement is assumed to occur.
<b>Decrement Relativity:</b>	Decrement rates are used directly from the experience study, without adjustment for multiple decrement table effects.
<b>Decrement Operation:</b>	Disability and withdrawal decrements do not operate after member reaches retirement eligibility.
<b>Administrative Expense Load:</b>	1.25% of payroll.
<b>Normal Form of Benefit:</b>	The assumed normal form of benefit is the straight life form.
<b>Benefit Service:</b>	Exact fractional service as of the valuation date is used to determine the amount of benefit payable.
<b>Incidence of Contributions:</b>	Contributions are assumed to be received continuously throughout the year based upon the actual payroll payable at the time contributions are made.
<b>COLA Assumption:</b>	1.00% compounded annually.
<b>Adjustments:</b>	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.
<b>Data Processing:</b>	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.
<b>Data Adjustments:</b>	For members who have no salary provided, their prior year's salary was used.

## **SECTION G**

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### **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 4.05%; 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 1.29% 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, 2122

Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost Contributions	Administrative Expense Contributions	UAL Contributions	Total Contributions
0	\$ 56,969,297					
1	59,535,477	\$ 2,232,580	\$ 5,414,600	\$ 766,190	\$ 13,937,139	\$ 22,350,509
2	54,798,243	2,054,934	4,950,820	705,225	14,778,886	22,489,865
3	51,422,131	1,928,330	4,612,493	661,776	16,005,263	23,207,862
4	48,624,592	1,823,422	4,330,253	625,773	17,697,952	24,477,400
5	45,960,076	1,723,503	4,055,127	591,482	18,140,401	24,510,513
6	43,567,329	1,633,775	3,810,270	560,689	18,593,911	24,598,645
7	41,354,652	1,550,799	3,587,090	532,213	19,058,758	24,728,861
8	39,176,867	1,469,133	3,367,526	504,186	19,535,227	24,876,072
9	37,101,673	1,391,313	3,162,690	477,479	20,023,608	25,055,090
10	35,134,418	1,317,541	2,969,165	452,162	20,524,198	25,263,066
11	33,222,452	1,245,842	2,781,987	427,556	21,037,303	25,492,688
12	31,472,325	1,180,212	2,611,601	405,032	21,563,236	25,760,082
13	29,758,639	1,115,949	2,446,573	382,978	22,102,317	26,047,817
14	28,086,980	1,053,262	2,285,020	361,465	22,654,874	26,354,621
15	26,565,037	996,189	2,141,745	341,878	23,221,246	26,701,059
16	25,082,807	940,605	2,001,147	322,803	23,801,778	27,066,334
17	23,688,970	888,336	1,871,646	304,865	24,396,822	27,461,670
18	22,290,061	835,877	1,740,028	286,861	-	2,862,766
19	21,002,768	787,604	1,623,513	270,295	-	2,681,412
20	19,764,919	741,184	1,511,318	254,364	-	2,506,866
21	18,597,654	697,412	1,409,451	239,342	-	2,346,205
22	17,433,484	653,756	1,307,267	224,360	-	2,185,383
23	16,286,797	610,755	1,210,161	209,603	-	2,030,519
24	15,203,350	570,126	1,118,151	195,659	-	1,883,936
25	14,089,505	528,356	1,026,555	181,325	-	1,736,236
26	13,043,116	489,117	940,871	167,858	-	1,597,846
27	11,921,678	447,063	850,908	153,426	-	1,451,397
28	10,887,841	408,294	767,617	140,121	-	1,316,032
29	9,812,223	367,958	682,937	126,278	-	1,177,173
30	8,834,767	331,304	608,355	113,699	-	1,053,358
31	7,852,297	294,461	533,148	101,055	-	928,664
32	6,914,363	259,289	463,452	88,984	-	811,724
33	6,047,667	226,788	399,901	77,830	-	704,518
34	5,215,548	195,583	340,787	67,121	-	603,491
35	4,443,732	166,640	286,094	57,189	-	509,923
36	3,749,544	140,608	238,115	48,255	-	426,978
37	3,124,884	117,183	195,585	40,216	-	352,984
38	2,519,162	94,469	155,063	32,420	-	281,952
39	2,021,424	75,803	122,204	26,015	-	224,022
40	1,613,167	60,494	96,190	20,761	-	177,445
41	1,235,005	46,313	72,153	15,894	-	134,360
42	963,548	36,133	55,325	12,400	-	103,858
43	734,674	27,550	41,567	9,455	-	78,572
44	544,779	20,429	30,093	7,011	-	57,534
45	392,672	14,725	21,336	5,053	-	41,114
46	291,863	10,945	15,436	3,756	-	30,137
47	202,011	7,575	10,265	2,600	-	20,440
48	141,352	5,301	6,969	1,819	-	14,088
49	103,783	3,892	4,889	1,336	-	10,117
50	71,234	2,671	3,216	917	-	6,804



# Single Discount Rate Development Projection of Contributions Ending December 31, 2122 (Concluded)

Year	Payroll for Current Employees	Contributions from Current Employees	Service Cost Contributions	Administrative Expense Contributions	UAL Contributions	Total Contributions
51	\$ 51,023	\$ 1,913	\$ 2,216	\$ 657	-	\$ 4,786
52	34,211	1,283	1,375	440	-	3,098
53	24,160	906	985	311	-	2,202
54	16,079	603	568	207	-	1,378
55	10,947	411	383	141	-	935
56	7,278	273	222	94	-	589
57	4,510	169	152	58	-	379
58	2,151	81	59	28	-	168
59	1,305	49	35	17	-	101
60	580	22	17	7	-	45
61	275	10	7	4	-	21
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, 2122

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	\$ 245,595,722	\$ 22,350,509	\$ 26,066,669	\$ 766,190	\$ 16,428,902	\$ 257,542,274
2	257,542,274	22,489,865	27,228,129	705,225	17,203,386	269,302,171
3	269,302,171	23,207,862	28,387,836	661,776	17,983,957	281,444,378
4	281,444,378	24,477,400	29,592,980	625,773	18,806,889	294,509,914
5	294,509,914	24,510,513	30,755,196	591,482	19,652,466	307,326,216
6	307,326,216	24,598,645	31,918,945	560,689	20,482,879	319,928,106
7	319,928,106	24,728,861	33,100,571	532,213	21,299,547	332,323,729
8	332,323,729	24,876,072	34,208,233	504,186	22,105,296	344,592,678
9	344,592,678	25,055,090	35,274,848	477,479	22,904,869	356,800,309
10	356,800,309	25,263,066	36,232,927	452,162	23,704,822	369,083,109
11	369,083,109	25,492,688	37,078,999	427,556	24,514,262	381,583,505
12	381,583,505	25,760,082	37,853,158	405,032	25,341,963	394,427,360
13	394,427,360	26,047,817	38,544,921	382,978	26,196,242	407,743,519
14	407,743,519	26,354,621	39,102,165	361,465	27,087,483	421,721,993
15	421,721,993	26,701,059	39,564,181	341,878	28,027,843	436,544,836
16	436,544,836	27,066,334	39,918,662	322,803	29,029,376	452,399,080
17	452,399,080	27,461,670	40,124,927	304,865	30,106,410	469,537,369
18	469,537,369	2,862,766	40,210,357	286,861	30,444,349	462,347,267
19	462,347,267	2,681,412	40,210,730	270,295	29,953,534	454,501,189
20	454,501,189	2,506,866	40,127,838	254,364	29,421,410	446,047,262
21	446,047,262	2,346,205	39,937,967	239,342	28,852,239	437,068,398
22	437,068,398	2,185,383	39,659,498	224,360	28,250,568	427,620,491
23	427,620,491	2,030,519	39,311,593	209,603	27,619,733	417,749,547
24	417,749,547	1,883,936	38,906,151	195,659	26,962,501	407,494,174
25	407,494,174	1,736,236	38,456,390	181,325	26,280,768	396,873,463
26	396,873,463	1,597,846	37,965,455	167,858	25,576,021	385,914,018
27	385,914,018	1,451,397	37,435,879	153,426	24,849,457	374,625,566
28	374,625,566	1,316,032	36,831,173	140,121	24,103,510	363,073,814
29	363,073,814	1,177,173	36,175,752	126,278	23,341,375	351,290,333
30	351,290,333	1,053,358	35,450,577	113,699	22,566,372	339,345,787
31	339,345,787	928,664	34,744,691	101,055	21,779,830	327,208,536
32	327,208,536	811,724	34,074,368	88,984	20,979,338	314,836,246
33	314,836,246	704,518	33,332,809	77,830	20,165,639	302,295,764
34	302,295,764	603,491	32,538,460	67,121	19,342,529	289,636,203
35	289,636,203	509,923	31,703,876	57,189	18,512,940	276,898,001
36	276,898,001	426,978	30,815,139	48,255	17,680,159	264,141,744
37	264,141,744	352,984	29,904,465	40,216	16,847,155	251,397,203
38	251,397,203	281,952	28,981,298	32,420	16,015,448	238,680,885
39	238,680,885	224,022	28,005,512	26,015	15,187,781	226,061,161
40	226,061,161	177,445	26,990,675	20,761	14,368,269	213,595,438
41	213,595,438	134,360	25,957,621	15,894	13,559,860	201,316,143
42	201,316,143	103,858	24,899,463	12,400	12,765,241	189,273,379
43	189,273,379	78,572	23,838,107	9,455	11,986,848	177,491,237
44	177,491,237	57,534	22,782,092	7,011	11,225,995	165,985,662
45	165,985,662	41,114	21,722,960	5,053	10,484,051	154,782,814
46	154,782,814	30,137	20,669,894	3,756	9,762,498	143,901,799
47	143,901,799	20,440	19,629,361	2,600	9,062,290	133,352,568
48	133,352,568	14,088	18,592,353	1,819	8,384,460	123,156,945
49	123,156,945	10,117	17,567,236	1,336	7,730,172	113,328,662
50	113,328,662	6,804	16,556,457	917	7,100,224	103,878,316



# Single Discount Rate Development Projection of Plan Fiduciary Net Position Ending December 31, 2122 (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	\$ 103,878,316	\$ 4,786	\$ 15,558,784	\$ 657	\$ 6,495,389	\$ 94,819,050
52	94,819,050	3,098	14,575,311	440	5,916,490	86,162,886
53	86,162,886	2,202	13,605,818	311	5,364,359	77,923,317
54	77,923,317	1,378	12,652,458	207	4,839,815	70,111,845
55	70,111,845	935	11,716,136	141	4,343,613	62,740,115
56	62,740,115	589	10,799,348	94	3,876,448	55,817,709
57	55,817,709	379	9,904,635	58	3,438,883	49,352,278
58	49,352,278	168	9,034,212	28	3,031,357	43,349,563
59	43,349,563	101	8,191,217	17	2,654,159	37,812,589
60	37,812,589	45	7,379,554	7	2,307,358	32,740,431
61	32,740,431	21	6,602,595	4	1,990,781	28,128,634
62	28,128,634	-	5,863,737	-	1,704,013	23,968,911
63	23,968,911	-	5,166,248	-	1,446,388	20,249,050
64	20,249,050	-	4,513,381	-	1,216,972	16,952,641
65	16,952,641	-	3,907,816	-	1,014,568	14,059,392
66	14,059,392	-	3,351,663	-	837,737	11,545,467
67	11,545,467	-	2,846,247	-	684,827	9,384,046
68	9,384,046	-	2,391,884	-	554,015	7,546,177
69	7,546,177	-	1,987,985	-	443,368	6,001,560
70	6,001,560	-	1,633,245	-	350,883	4,719,198
71	4,719,198	-	1,325,643	-	274,536	3,668,091
72	3,668,091	-	1,062,507	-	212,322	2,817,906
73	2,817,906	-	840,628	-	162,301	2,139,579
74	2,139,579	-	656,312	-	122,633	1,605,899
75	1,605,899	-	505,528	-	91,615	1,191,987
76	1,191,987	-	384,133	-	67,706	875,560
77	875,560	-	288,009	-	49,539	637,089
78	637,089	-	213,164	-	35,927	459,852
79	459,852	-	155,874	-	25,865	329,843
80	329,843	-	112,768	-	18,521	235,595
81	235,595	-	80,869	-	13,218	167,944
82	167,944	-	57,629	-	9,423	119,738
83	119,738	-	40,935	-	6,723	85,526
84	85,526	-	29,079	-	4,808	61,255
85	61,255	-	20,723	-	3,447	43,979
86	43,979	-	14,850	-	2,476	31,605
87	31,605	-	10,713	-	1,778	22,670
88	22,670	-	7,770	-	1,272	16,171
89	16,171	-	5,648	-	904	11,428
90	11,428	-	4,096	-	635	7,967
91	7,967	-	2,949	-	440	5,458
92	5,458	-	2,096	-	299	3,661
93	3,661	-	1,465	-	198	2,395
94	2,395	-	1,002	-	128	1,521
95	1,521	-	669	-	80	933
96	933	-	434	-	49	547
97	547	-	274	-	28	301
98	301	-	168	-	15	148
99	148	-	99	-	7	55
100	55	-	57	-	2	0



# Single Discount Rate Development

## Present Values of Projected Benefits

### Ending December 31, 2122

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 <sup>(a)-.5</sup>	(g)=(e)*vf <sup>(a)-.5</sup>	(h)=(c)/(1+sdr) <sup>(a)-.5</sup>
1	\$ 245,595,722	\$ 26,066,669	\$ 26,066,669	\$ -	\$ 25,229,091	\$ -	\$ 25,229,091
2	257,542,274	27,228,129	27,228,129	-	24,686,867	-	24,686,867
3	269,302,171	28,387,836	28,387,836	-	24,110,853	-	24,110,853
4	281,444,378	29,592,980	29,592,980	-	23,545,131	-	23,545,131
5	294,509,914	30,755,196	30,755,196	-	22,922,555	-	22,922,555
6	307,326,216	31,918,945	31,918,945	-	22,285,643	-	22,285,643
7	319,928,106	33,100,571	33,100,571	-	21,649,319	-	21,649,319
8	332,323,729	34,208,233	34,208,233	-	20,959,046	-	20,959,046
9	344,592,678	35,274,848	35,274,848	-	20,245,949	-	20,245,949
10	356,800,309	36,232,927	36,232,927	-	19,480,878	-	19,480,878
11	369,083,109	37,078,999	37,078,999	-	18,675,198	-	18,675,198
12	381,583,505	37,853,158	37,853,158	-	17,859,589	-	17,859,589
13	394,427,360	38,544,921	38,544,921	-	17,036,039	-	17,036,039
14	407,743,519	39,102,165	39,102,165	-	16,189,535	-	16,189,535
15	421,721,993	39,564,181	39,564,181	-	15,345,034	-	15,345,034
16	436,544,836	39,918,662	39,918,662	-	14,503,532	-	14,503,532
17	452,399,080	40,124,927	40,124,927	-	13,656,650	-	13,656,650
18	469,537,369	40,210,357	40,210,357	-	12,820,352	-	12,820,352
19	462,347,267	40,210,730	40,210,730	-	12,009,809	-	12,009,809
20	454,501,189	40,127,838	40,127,838	-	11,227,215	-	11,227,215
21	446,047,262	39,937,967	39,937,967	-	10,467,533	-	10,467,533
22	437,068,398	39,659,498	39,659,498	-	9,737,281	-	9,737,281
23	427,620,491	39,311,593	39,311,593	-	9,041,558	-	9,041,558
24	417,749,547	38,906,151	38,906,151	-	8,382,489	-	8,382,489
25	407,494,174	38,456,390	38,456,390	-	7,761,673	-	7,761,673
26	396,873,463	37,965,455	37,965,455	-	7,178,068	-	7,178,068
27	385,914,018	37,435,879	37,435,879	-	6,630,391	-	6,630,391
28	374,625,566	36,831,173	36,831,173	-	6,110,809	-	6,110,809
29	363,073,814	36,175,752	36,175,752	-	5,622,544	-	5,622,544
30	351,290,333	35,450,577	35,450,577	-	5,161,438	-	5,161,438
31	339,345,787	34,744,691	34,744,691	-	4,738,796	-	4,738,796
32	327,208,536	34,074,368	34,074,368	-	4,353,509	-	4,353,509
33	314,836,246	33,332,809	33,332,809	-	3,989,475	-	3,989,475
34	302,295,764	32,538,460	32,538,460	-	3,648,152	-	3,648,152
35	289,636,203	31,703,876	31,703,876	-	3,329,817	-	3,329,817
36	276,898,001	30,815,139	30,815,139	-	3,031,826	-	3,031,826
37	264,141,744	29,904,465	29,904,465	-	2,756,184	-	2,756,184
38	251,397,203	28,981,298	28,981,298	-	2,502,201	-	2,502,201
39	238,680,885	28,005,512	28,005,512	-	2,265,061	-	2,265,061
40	226,061,161	26,990,675	26,990,675	-	2,044,948	-	2,044,948
41	213,595,438	25,957,621	25,957,621	-	1,842,322	-	1,842,322
42	201,316,143	24,899,463	24,899,463	-	1,655,476	-	1,655,476
43	189,273,379	23,838,107	23,838,107	-	1,484,693	-	1,484,693
44	177,491,237	22,782,092	22,782,092	-	1,329,201	-	1,329,201
45	165,985,662	21,722,960	21,722,960	-	1,187,266	-	1,187,266
46	154,782,814	20,669,894	20,669,894	-	1,058,277	-	1,058,277
47	143,901,799	19,629,361	19,629,361	-	941,455	-	941,455
48	133,352,568	18,592,353	18,592,353	-	835,333	-	835,333
49	123,156,945	17,567,236	17,567,236	-	739,369	-	739,369
50	113,328,662	16,556,457	16,556,457	-	652,765	-	652,765





# Single Discount Rate Development

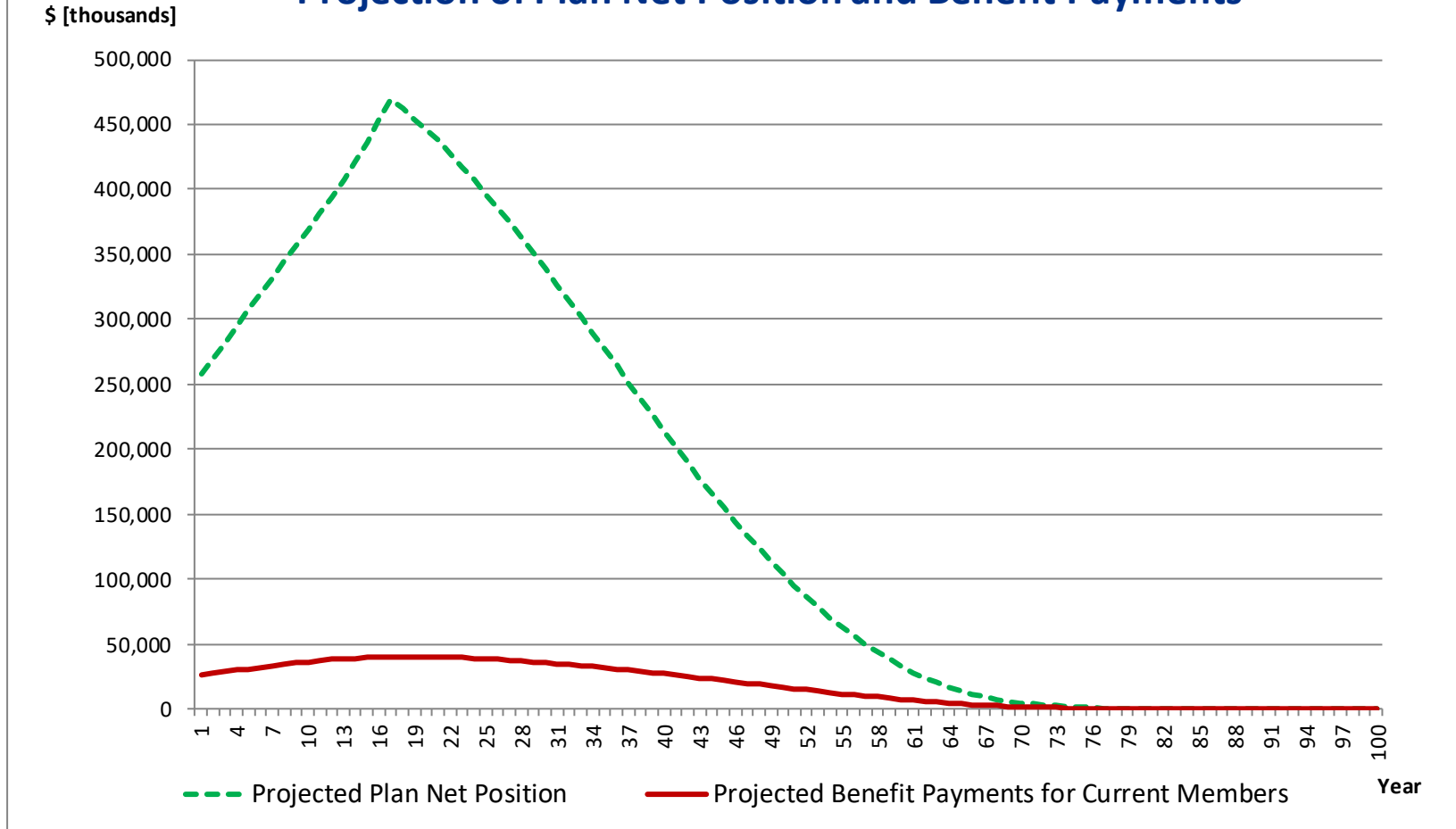
## Present Values of Projected Benefits

### Ending December 31, 2122 (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 <sup>(a)-.5</sup>	(g)=(e)*vf <sup>(a)-.5</sup>	(h)=(c)/(1+sdr) <sup>(a)-.5</sup>
51	\$ 103,878,316	\$ 15,558,784	\$ 15,558,784	\$ -	\$ 574,642	\$ -	\$ 574,642
52	94,819,050	14,575,311	14,575,311	-	504,280	-	504,280
53	86,162,886	13,605,818	13,605,818	-	440,972	-	440,972
54	77,923,317	12,652,458	12,652,458	-	384,143	-	384,143
55	70,111,845	11,716,136	11,716,136	-	333,223	-	333,223
56	62,740,115	10,799,348	10,799,348	-	287,727	-	287,727
57	55,817,709	9,904,635	9,904,635	-	247,203	-	247,203
58	49,352,278	9,034,212	9,034,212	-	211,221	-	211,221
59	43,349,563	8,191,217	8,191,217	-	179,402	-	179,402
60	37,812,589	7,379,554	7,379,554	-	151,405	-	151,405
61	32,740,431	6,602,595	6,602,595	-	126,899	-	126,899
62	28,128,634	5,863,737	5,863,737	-	105,572	-	105,572
63	23,968,911	5,166,248	5,166,248	-	87,133	-	87,133
64	20,249,050	4,513,381	4,513,381	-	71,309	-	71,309
65	16,952,641	3,907,816	3,907,816	-	57,837	-	57,837
66	14,059,392	3,351,663	3,351,663	-	46,469	-	46,469
67	11,545,467	2,846,247	2,846,247	-	36,967	-	36,967
68	9,384,046	2,391,884	2,391,884	-	29,101	-	29,101
69	7,546,177	1,987,985	1,987,985	-	22,658	-	22,658
70	6,001,560	1,633,245	1,633,245	-	17,437	-	17,437
71	4,719,198	1,325,643	1,325,643	-	13,258	-	13,258
72	3,668,091	1,062,507	1,062,507	-	9,955	-	9,955
73	2,817,906	840,628	840,628	-	7,378	-	7,378
74	2,139,579	656,312	656,312	-	5,396	-	5,396
75	1,605,899	505,528	505,528	-	3,893	-	3,893
76	1,191,987	384,133	384,133	-	2,771	-	2,771
77	875,560	288,009	288,009	-	1,947	-	1,947
78	637,089	213,164	213,164	-	1,350	-	1,350
79	459,852	155,874	155,874	-	924	-	924
80	329,843	112,768	112,768	-	627	-	627
81	235,595	80,869	80,869	-	421	-	421
82	167,944	57,629	57,629	-	281	-	281
83	119,738	40,935	40,935	-	187	-	187
84	85,526	29,079	29,079	-	124	-	124
85	61,255	20,723	20,723	-	83	-	83
86	43,979	14,850	14,850	-	56	-	56
87	31,605	10,713	10,713	-	38	-	38
88	22,670	7,770	7,770	-	26	-	26
89	16,171	5,648	5,648	-	17	-	17
90	11,428	4,096	4,096	-	12	-	12
91	7,967	2,949	2,949	-	8	-	8
92	5,458	2,096	2,096	-	5	-	5
93	3,661	1,465	1,465	-	3	-	3
94	2,395	1,002	1,002	-	2	-	2
95	1,521	669	669	-	1	-	1
96	933	434	434	-	1	-	1
97	547	274	274	-	1	-	1
98	301	168	168	-	0	-	0
99	148	99	99	-	-	-	-
100	55	57	57	-	-	-	-
<b>Totals</b>					\$ 498,882,562	\$ -	\$ 498,882,562



## Projection of Plan Net Position and Benefit Payments



## **SECTION H**

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### **GLOSSARY OF TERMS**

# Glossary of Terms

<b><i>Accrued Service</i></b>	Service credited under the system which was rendered before the date of the actuarial valuation.
<b><i>Actuarial Accrued Liability (AAL)</i></b>	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.”
<b><i>Actuarial Assumptions</i></b>	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.
<b><i>Actuarial Cost Method</i></b>	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.
<b><i>Actuarial Equivalent</i></b>	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.
<b><i>Actuarial Gain (Loss)</i></b>	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.
<b><i>Actuarial Present Value (APV)</i></b>	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.
<b><i>Actuarial Valuation</i></b>	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.
<b><i>Actuarial Valuation Date</i></b>	The date as of which an actuarial valuation is performed.
<b><i>Actuarially Determined Contribution (ADC) or Annual Required Contribution (ARC)</i></b>	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

<b><i>Amortization Method</i></b>	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).
<b><i>Amortization Payment</i></b>	The amortization payment is the periodic payment required to pay off an interest-discounted amount with payments of interest and principal.
<b><i>Cost-of-Living Adjustments</i></b>	Postemployment benefit changes intended to adjust benefit payments for the effects of inflation.
<b><i>Cost-Sharing Multiple-Employer Defined Benefit Pension Plan (cost-sharing pension plan)</i></b>	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.
<b><i>Covered-Employee Payroll</i></b>	The payroll of covered employees, which is typically only the pensionable pay and does not include pay above any pay cap.
<b><i>Deferred Inflows and Outflows</i></b>	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.
<b><i>Deferred Retirement Option Program (DROP)</i></b>	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.
<b><i>Discount Rate</i></b>	<p>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:</p> <ol style="list-style-type: none"><li>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; and</li><li>2. The present value of the benefit payments not in (1) above, discounted using the municipal bond rate.</li></ol>

## 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

<b><i>Other Postemployment Benefits (OPEB)</i></b>	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.
<b><i>Real Rate of Return</i></b>	The real rate of return is the rate of return on an investment after adjustment to eliminate inflation.
<b><i>Service Cost</i></b>	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.”
<b><i>Total Pension Expense</i></b>	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"><li>1. Service Cost</li><li>2. Interest on the Total Pension Liability</li><li>3. Current-Period Benefit Changes</li><li>4. Employee Contributions (made negative for addition here)</li><li>5. Projected Earnings on Plan Investments (made negative for addition here)</li><li>6. Pension Plan Administrative Expense</li><li>7. Other Changes in Plan Fiduciary Net Position</li><li>8. Recognition of Outflow (Inflow) of Resources due to Liabilities</li><li>9. Recognition of Outflow (Inflow) of Resources due to Assets</li></ol>
<b><i>Total Pension Liability (TPL)</i></b>	The TPL is the portion of the actuarial present value of projected benefit payments that is attributed to past periods of member service.
<b><i>Unfunded Actuarial Accrued Liability (UAAL)</i></b>	The UAAL is the difference between actuarial accrued liability and valuation assets.
<b><i>Valuation Assets</i></b>	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.