



## Employee Retirement System of the City of Providence

Actuarial Valuation as of July 1, 2021 to  
Determine the City's Contribution for the  
Fiscal Year Ending June 30, 2024

# Bolton

Submitted by:

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Employee Benefits, Actuarial & Investment Consulting

October 31, 2022

Retirement Board  
The Employees Retirement System of the City of Providence  
City of Providence, RI  
25 Dorrance Street  
Providence, RI 02903

*Re: City of Providence, RI Valuation*

Dear Board Members:

The following sets forth the actuarial valuation of the Employee Retirement System of the City of Providence as of July 1, 2021. The actuarial valuation was performed at the request of the City. Section I of the report provides the Executive Summary, Section II sets forth our Actuarial Certification, and Section III contains the development of the City's contribution for the 2024 fiscal year. Section IV provides discussion of risk metrics in accordance with ASOP 51, while sections V through VIII contain a summary of the census and asset data, a ten-year projection of benefit payments, plan provisions, assumptions and actuarial methods. The appendices of the report provide information on plan funding and cost allocations, as well as a glossary of many of the terms used in this report.

We are available to answer any questions on the material in this report or to provide explanations or further details as appropriate.

Respectfully submitted,

Thomas Vicente, FSA, EA, FCA, MAAA

Jordan McClane, FSA, EA, FCA, MAAA



## Section I. Executive Summary

### Background

Bolton Partners, Inc. has prepared the following report that sets forth the actuarial valuation of the Employee Retirement System of the City of Providence as of July 1, 2021. This report provides the funded status of the plan as of July 1, 2021 as well as the Actuarially Determined Contribution (ADC) for the plan for the fiscal year ending June 30, 2024 (FY 2024). Accounting results under Government Accounting Standards Board Statements 67 and 68 are provided in a separate report.

### Actuarially Determined Contributions (ADC)

	FYE 2022	FYE 2023	FYE 2024
ADC	\$93,585,059	\$100,323,373	\$104,914,709
Percent of Total Payroll	53.66%	55.77%	62.12% <sup>1</sup>

Details of the determination of the City's contribution for FY 2024 are shown in Section III of this report.

### Key Demographic Elements

Participants	7/1/2020	7/1/2021
1. Participants		
a. Active Members	3,031	2,921
b. Service Retirements	2,186	2,272
c. Beneficiaries	514	540
d. Disabled Retirements	452	448
e. Inactives with Deferred Benefits	52	58
f. Members Due a Refund of Contributions	411	540
<b>g. Total</b>	<b>6,646</b>	<b>6,779</b>
2. Active Payroll	\$ 163,191,115	\$ 168,623,965

### Funding Measures

	7/1/2020	7/1/2021	% Change
1. Actuarial Accrued Liability	\$ 1,641,199,008	\$ 1,694,544,265	3.3%
2. Actuarial Value of Assets	\$ 392,934,540	\$ 417,886,023	6.4%
3. Plan Funded Ratio (2. / 1.)	23.9%	24.7%	
4. Market Value of Assets	\$ 360,598,000	\$ 439,388,000	21.8%
5. Funded Ratio based on Market Value of Assets (4. / 1.)	22.0%	25.9%	

<sup>1</sup> The ADC is calculated first as a dollar amount and then is converted into a percentage by dividing by an estimate of payroll. The payroll used for the denominator in the FYE 2024 column is the payroll after applying expected decrements. The payroll using this methodology is smaller than the payroll developed using the prior actuary's methodology (used in the FYE 2022 and FYE 2023 columns) equal to the sum of annualized pay rates.

## Experience Analysis

The following factors affected the City's contribution as a percentage of payroll:

- **Plan assets and investment performance** – the net return for the year ended June 30, 2021 after investment expenses was 23.0% on a market value basis and 7.4% on an actuarial value basis. Investment returns during FY 2021 were about \$57.6 million higher than assumed. A portion of this gain is reflected in the actuarial value of assets (AVA) in this valuation, and the remaining portions will be reflected in future valuations. The AVA and the return on the AVA also reflect the continued recognition of net investment gains and losses from prior valuations. As of July 1, 2021, there is a total of \$21.5 million in net deferred investment gains that will be reflected in future valuations.
- **Payroll changes** - Pay for returning employees increased approximately 4.8% over the prior year; more than the expected increase of 3.4% for returning actives. Total participant payroll increased by 3.3% over the prior year; more than the assumption of 3.0% growth per year.

## Risk Measures

The primary risk that a plan sponsor incurs from a defined benefit plan is the risk of substantial increases in annual contributions. Many variables can influence future results and the sensitivity of the ADC will vary from plan to plan. As part of the annual valuation, we monitor commonly used measures of the relative riskiness of a pension plan, relative to the plan sponsor and the employee group covered by the plan. A brief review of the risk metrics and a discussion of key risks are shown in Section IV. Additional detailed or focused assessment of risks is outside the scope of the actuarial valuation but can be conducted as a separate assignment.

## Changes in Methods, Assumptions, and Plan Provisions

There were no changes in methods, assumptions or plan provisions.

## Sources of Information

The July 1, 2021 participant data and market value of assets were provided by or at the direction of the City. While we have reviewed this data for consistency and completeness, we have not audited this data.

## Impact of COVID-19

Because the net impact of COVID-19 on mortality, salary increases, and changes in turnover and retirement behavior are difficult to estimate at this time, we have not made any adjustments to the assumptions for the potential impact of the COVID-19 pandemic.



## Section II. Actuarial Certification

This actuarial valuation sets forth our calculation of an estimate of the liabilities of the Employee Retirement System of the City of Providence (the Plan), together with a comparison of these liabilities with the value of the plan assets, as submitted by The City of Providence, Rhode Island (the City). This liability calculation and comparison with assets are applicable for the valuation date only. The future is uncertain, and the plan may become better funded or more poorly funded in the future. This valuation does not provide any guarantee that the plan will be able to provide the promised benefits in the future.

This report was prepared for the internal use of the City of Providence, Rhode Island, and its auditors in connection with our actuarial valuations of the pension plan. The purpose of this report is to provide the recommended employer contribution for the 2024 fiscal year. It is neither intended nor necessarily suitable for other purposes. Bolton is not responsible for the consequences of any other use or the reliance upon this report by any other party.

This report is based on plan provisions, census data, and asset data submitted by the City. We have relied on this information for purposes of preparing this report. We have not audited the census or asset data provided, however based on our review the data appears to be reasonable and consistent with previously provided information. Unless otherwise noted in our report, we believe the information provided is sufficiently complete and reliable for purposes of the results presented in this report. The accuracy of the results presented in this report is dependent upon the accuracy and completeness of the underlying information. The City is solely responsible for the validity and completeness of this information.

The City is responsible for selecting the plan's funding policy, actuarial valuation methods, asset valuation methods, and assumptions. The policies, methods and assumptions used in this valuation are those that have been so prescribed and are described in this report. The City is solely responsible for communicating to Bolton any changes required thereto.

The City is solely responsible for selecting the plan's investment policies, asset allocations and individual investments. Bolton's actuaries have not provided any investment advice to the City.

This is a deterministic valuation in that it is based on a single set of assumptions. This set of assumptions is one possible basis for our calculations. We may consider that some factors are not material to the valuation of the plan and may not provide a specific assumption for those factors. We may have used other assumptions in the past. We will likely consider changes in assumptions at a future date.

Different assumptions or scenarios within the range of possibilities may also be reasonable and results based on those assumptions would be different. As a result of the uncertainty inherent in a forward-looking projection over a very long period of time, no one projection is uniquely "correct" and many alternative projections of the future could also be regarded as reasonable. Two different actuaries could, quite reasonably, arrive at different results based on the same data and different views of the future.

The City could reasonably ask how the valuation would change if we used a different assumption set or if plan experience exhibited variations from our assumptions. This report does not contain such an analysis. That type of analysis would be a separate assignment.



In addition, decisions regarding benefit improvements, benefit changes, the trust's investment policy, and similar issues should not be based on this valuation. These issues are complex and other factors should be considered when making such decisions. Other factors might include the anticipated vitality of the local economy and future growth expectations, as well as other economic and financial factors.

The cost of this plan is determined by the benefits promised by the plan, the plan's participant population, the investment experience of the plan and many other factors. An actuarial valuation is a budgeting tool for the City. It does not affect the cost of the plan. Different funding methods provide for different timing of contributions to the plan. As the experience of the plan evolves, it is normal for the level of contributions to the plan to change. If a contribution is not made for a particular year, either by deliberate choice or because of an error in a calculation, that contribution can be made in later years. We are not responsible for the consequences of any decision by the City to make contributions at a future time rather than an earlier time. The City is responsible for funding the cost of the plan.

The report is conditioned on the assumption of an ongoing plan and is not meant to present the actuarial position of the plan in the case of plan termination. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions, changes in economic or demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status), and changes in plan provisions or applicable law.

The valuation was completed using both proprietary and third-party models (including software and tools). We have tested these models to ensure they are used for their intended purposes, within their known limitations, and without any known material inconsistencies unless otherwise stated.

The calculations in this report have been computed in accordance with our understanding of generally accepted actuarial principles and practices and fairly reflect the actuarial position of the plan. The various actuarial assumptions and methods which have been used are, in our opinion, appropriate for the purposes of this report.

We make every effort to ensure that our calculations are accurately performed. We reserve the right to correct any potential errors by amending the results of this report or by including the corrections in a future valuation report.

Bolton does not practice law and, therefore, cannot and does not provide legal advice. Any statutory interpretation on which this report is based reflects Bolton's understanding as an actuarial firm. Bolton recommends that recipients of this report consult with legal counsel when making any decisions regarding compliance with ERISA, the Internal Revenue Code, or any other statute or regulation.



The City should notify Bolton promptly after receipt of this report if the City disagrees with anything contained in the report or is aware of any information that would affect the results of the report that has not been communicated to Bolton or incorporated herein. The report will be deemed final and acceptable to the City unless the City promptly provides such notice to Bolton.

The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein. We are not aware of any direct or material indirect financial interest or relationship, including investments or other services, which could create a conflict of interest that would impair the objectivity of our work.

We are available to answer any questions on the material in this report to provide explanations or further details as appropriate.

Thomas Vicente, FSA, EA, FCA, MAAA

Jordan McClane, FSA, EA, FCA, MAAA





## Section III. Determination of Contributions

### Derivation of Liabilities

Below is a summary of the actuarial accrued liability of the future benefits expected to be paid from the plan.

Participants	7/1/2020	7/1/2021
1. Participants		
a. Active Members	3,031	2,921
b. Service Retirements	2,186	2,272
c. Beneficiaries	514	540
d. Disabled Retirements	452	448
e. Inactives with Deferred Benefits	52	58
f. Members Due a Refund of Contributions	411	540
<b>g. Total</b>	<b>6,646</b>	<b>6,779</b>
2. Active Payroll	\$ 163,191,115	\$ 168,623,965

Actuarial Accrued Liability	7/1/2020	7/1/2021
1. Active Participants	\$ 539,025,793	\$ 545,851,648
2. In-pay Participants		
a. Service Retirements	N/A	\$ 713,710,271
b. Beneficiaries	N/A	136,115,226
c. Disabled Retirements	N/A	282,739,885
d. Total In-pay Participants	\$ 1,089,086,369	\$ 1,132,565,382
3. Inactives with Deferred Benefits	\$ 9,117,320	\$ 8,725,419
4. Members Due a Refund of Contributions	\$ 3,969,526	\$ 7,401,816
<b>5. Total Actuarial Accrued Liability (1. + 2.d. + 3. + 4.)</b>	<b>\$ 1,641,199,008</b>	<b>\$ 1,694,544,265</b>
6. Actuarial Value of Assets (AVA)	\$ 392,934,540	\$ 417,886,023
7. Unfunded Liability Based on AVA (5. - 6.)	\$ 1,248,264,468	\$ 1,276,658,242
8. Funded Ratio Based on AVA (6. / 5.)	23.9%	24.7%
9. Market Value of Assets (MVA)	\$ 360,598,000	\$ 439,388,000
10. Unfunded Liability Based on MVA (5. - 9.)	\$ 1,280,601,008	\$ 1,255,156,265
11. Funded Ratio Based on MVA (9. / 5.)	22.0%	25.9%



## Normal Cost

The normal cost and the projected normal cost are shown below.

Normal Cost	7/1/2020	7/1/2021
1. Total Benefit Normal Cost	\$ 26,015,311	\$ 25,526,975
2. Expected Employee Contributions	(14,365,308)	(14,203,411)
3. Net Normal Cost for the Plan Year	\$ 11,650,003	\$ 11,323,564
4. Projected Normal Cost for FYE 06/30/2024		\$ 12,013,169

## Projection of Unfunded Liability

The projection of the unfunded actuarial liability from July 1, 2021 to July 1, 2023 is shown below.

Projection of Unfunded Liability	7/1/2021
1. Unfunded Liability as of July 1, 2021	\$ 1,276,658,242
2. Expected Employer Contributions 07/01/2021-06/30/2022	\$ 93,585,059
3. Expected Employee Contributions 07/01/2021-06/30/2022	\$ 14,201,538
4. Expected Expenses 07/01/2021-06/30/2022	0
5. Total Benefit Normal Cost 07/01/2021-06/30/2022	\$ 25,526,975
6. Interest	\$ 90,664,318
<b>7. Projected Unfunded Liability as of July 1, 2022</b> <b>(1. - 2. - 3. + 4. + 5. + 6.)</b>	<b>\$ 1,285,062,938</b>
8. Expected Employer Contributions 07/01/2022-06/30/2023	\$ 100,323,373
9. Expected Employee Contributions 07/01/2022-06/30/2023	\$ 15,132,886
10. Expected Expenses 07/01/2022-06/30/2023	0
11. Total Benefit Normal Cost 07/01/2022-06/30/2023	\$ 26,292,784
12. Interest	\$ 91,274,208
<b>13. Projected Unfunded Liability as of July 1, 2023</b> <b>(7. - 8. - 9. + 10. + 11. + 12.)</b>	<b>\$ 1,287,173,671</b>



## Actuarially Determined Contribution

Below is the derivation of the Actuarially Determined Contribution.

Actuarially Determined Contribution		FY 2024
1. Projected Normal Cost for FYE 06/30/2024	\$	27,081,568
2. Expected Employee Contributions		(15,068,399)
3. Employer Normal Cost (1. + 2.)	\$	12,013,169
4. Amortization Amount		86,037,961
5. Actuarially Determined Contribution (ADC) (3. + 4.)	\$	98,051,130
<b>6. ADC Adjusted for Timing of Payment</b>	<b>\$</b>	<b>104,914,709</b>
7. Projected Participant Payroll		168,901,729
8. Employer Contribution as a Percentage of Participant Payroll		62.12%



## Actuarial Gain/Loss

Development of Actuarial (Gain)/Loss for July 1, 2020 to June 30, 2021.

	Liability	Actuarial Value of Assets	UAAL
1. Beginning of year total	\$ 1,641,199,008	\$ 392,934,540	\$ 1,248,264,468
2. Normal cost (net of admin exp)	26,015,311		26,015,311
3. Administration expense		(213,000)	213,000
4. Benefit payments	(107,619,000)	(107,619,000)	0
5. Contributions		103,964,000	(103,964,000)
6. Interest	112,938,337	27,370,038	85,568,299
7. Expected end of year total	\$ 1,672,533,656	\$ 416,436,578	\$ 1,256,097,078
8. Actual end of year (before changes)	1,694,544,265	417,886,023	1,276,658,242
<b>9. (Gain)/Loss</b>	<b>\$ 22,010,609</b>	<b>\$ (1,449,445)</b>	<b>\$ 20,561,164</b>

Development of Actuarial Unfunded Accrued Liability as of June 30, 2021.

Development of Unfunded Actuarial Accrued Liability as of June 30, 2021	
1. Expected UAAL as of June 30, 2021	\$ 1,256,097,078
2. Changes to UAAL due to:	
a. Actuarial (Gain)/Loss	20,561,164
b. Plan Change	0
c. Assumption Change	0
d. Method Change	0
e. Other	0
3. Total of all changes in UAAL	20,561,164
4. Actual UAAL as of June 30, 2021 (1. + 3.)	\$ 1,276,658,242



## Schedule of Amortization Bases

Below is a schedule of the amortization bases as of July 1, 2023.

Description	Date Established	Years Remaining	Outstanding Balance	Amortization Amount
Deferral Liability	7/1/2023	8	\$ 2,630,101	\$ 411,642
Remaining Unfunded Liability	7/1/2023	17	\$ 1,284,543,570	\$ 85,626,319
<b>Totals</b>			<b>\$ 1,287,173,671</b>	<b>\$ 86,037,961</b>

The deferral liability amortization base is amortized as a level dollar amount, while the remaining unfunded liability is amortized as an equal percent of payroll each year with total payroll expected to increase 5.3% annually. The July 1, 2023 amortization payment of \$86,037,961 is sufficient to cover the interest on the plan's unfunded liability. Based on the the total payment shown above, the total outstanding balance will be fully amortized in approximately 17 years.

## Section IV. Risk Discussion

### Risk Measures

Pension plans are complicated financial instruments designed to provide income security for plan participants as they move through their working lives and into retirement. As such they can be subject to many different forces that can put the plan in better or worse positions over time. The primary risk that a plan sponsor incurs from a defined benefit plan is the risk of substantial increases in annual contributions.

The “maturity” level of a plan can indicate the likely sensitivity the plan will have to different events whether positive or negative. Variations in the investment returns are a common source of these types of events or shocks. Other sources might be experience that differs from that assumed, assumption changes or plan changes.

Actuarial Standard of Practice No. 51 *Assessment and Disclosure of Risk Associated with Measuring Pension Obligations and Determining Pension Plan Contributions* requires actuaries to provide information so that users of the report can better understand the potential for future results to vary from the results presented in this report and identify risks on the plan’s future financial condition. This standard does not require the assessment to be based on numerical calculations. In some cases, a more in-depth review of plan risk is warranted.

Examples of risk common to most public plans include the following (generally listed from greatest to least risk):

- **Investment risk:** The potential that investment returns will be different than expected. The Trustees are well aware of this risk. This valuation reflects the smoothing of asset returns, which reduces the risk of wide year-by-year contribution changes due to investment return fluctuations but does not ultimately reduce the risk inherent in a defined benefit plan.
- **Contribution risk:** Most commonly this is associated with the potential that actual future contributions are not made in accordance with the plan’s actuarially based funding policy. When this occurs, it can create negative long-term problems.
- **Longevity and other demographic risks:** The potential that mortality or other demographic experience will be different than expected.
- **Asset/liability mismatch risk:** The potential that changes in asset values are not matched by changes in the value of liabilities.
- **Cash flow risks:** The potential that contributions coming into the plan will not cover benefit payments. While common in well-funded plans, this still requires the use of interest, dividends, or principal to cover benefit payments. When assets need to be sold (or more cash held) it can be an issue. Poorly funded plans with DROP lump sum payments can magnify the issue.

One item left off this list is “interest rate risk” (i.e., the potential that interest rates will be different than expected). This risk is common in corporate ERISA plans where funding is based on bond rates. Interest rates on bonds are still an important consideration when setting an expected return assumption and can change over time.

There are several plan maturity measures that can be significant to understanding the risks associated with the plan. The following table shows four commonly used measures of the relative riskiness of a pension plan, relative to the plan sponsor and the employee group covered by the plan and how they have changed over time.

Risk Measure	July 1, 2018	July 1, 2019	July 1, 2020	July 1, 2021	Median Measures
Inactive Liability as a Percent of Total Liability	69%	69%	67%	68%	79%
Assets to Payroll	2.4	2.4	2.2	2.6	6.9
Liabilities to Payroll	9.2	10.3	10.1	10.0	5.0
Benefit Payments to Contributions	1.1	1.1	1.0	1.0	1.6

The Assets to Payroll ratio, also called the Asset Volatility Ratio (AVR) is equal to the market value of assets (MVA) divided by payroll. A higher AVR implies that the plan is exposed to greater contribution volatility. The current AVR of 2.6 indicates that a:

- 1% asset gain/loss can be related to about 2.6% of the annual payroll.
- The City’s contribution changes by about 0.2% of payroll for each 1.0% gain or loss on the market assets.

The Liabilities to Payroll ratio also call the Liability Volatility Ratio (LVR) is equal to the Actuarial Accrued Liability (AAL) divided by payroll. A higher LVR implies that the plan is exposed to greater contribution volatility due to changes in liability measurements. The current LVR of 10.0 indicates that a:

- 1% liability gain/loss can be related to about 10.0% of the annual payroll.
- The City’s contribution changes by about 0.7% of payroll for each 1.0% gain or loss on the AAL.

As the plan approaches a 100% funded level, the AVR will converge to the LVR.

The use of payroll in these risk measures is an easily available substitute for the employer’s revenue and often reflects the employer’s ability to afford the plan. Each of these measures are a measure of plan maturity. The common evolution of a pension plan is to become more mature over time. Mature plans present more risk to plan sponsors because changes to the liability or assets will result in large changes in the unfunded liability as compared to the overall size of the employer as measured by payroll. As a result, the change in the metrics over time can be as important as the nominal size of the metric itself.

## Additional Review

In some instances, more detailed quantitative assessment of risks is warranted either by the above maturity metrics, part of a periodic self-assessment of risks, or due to changes in investment allocations and capital market assumptions. The following are examples of tests that could be performed:

- **Scenario Test**—A process for assessing the impact of one possible event, or several simultaneously or sequentially occurring possible events, on a plan’s financial condition. A scenario test could show, for example, the effect of a layoff or reduction in workforce, or early retirement program.
- **Sensitivity Test**—A process for assessing the impact of a change in an actuarial assumption on an actuarial measurement. A sensitivity analysis could demonstrate, for example, the impact of a decrease in the valuation discount rate or a change in future life expectancies.
- **Stochastic Modeling**—A process for generating numerous potential outcomes by allowing for random variations in one or more inputs over time for the purpose of assessing the distribution of those outcomes. This type of analysis could show, for example, a range of potential future contribution levels and the likelihood of contributions increasing to a certain level.
- **Stress Test**—A process for assessing the impact of adverse changes in one or relatively few factors affecting a plan’s financial condition. A stress test could show, for example, the impact of a single year or period of several years with significant investment losses.





## Section V. Assets

### Statement of Assets

Below is a statement of assets as of June 30, 2020 and June 30, 2021 from the trust asset statements provided by the City.

	6/30/2020	6/30/2021
1. Receivables		
a. Employer Contributions	\$ 0	\$ 0
b. Employee Contributions	0	0
c. Loans	26,354,000	25,474,000
d. Other	2,475,000	673,000
e. Due from Fiduciary, Net	<u>36,760,000</u>	<u>38,225,000</u>
f. Total Receivables	\$ 65,589,000	\$ 64,372,000
2. Investments at Fair Value		
a. Equities	\$ 232,450,000	\$ 299,843,000
b. Alternative Investments	3,366,000	0
c. Money Market Mutual Funds	12,276,000	8,542,000
d. Fixed Income	47,377,000	67,044,000
e. Real Estate	0	0
f. Other	<u>0</u>	<u>0</u>
g. Total Investments	\$ 295,469,000	\$ 375,429,000
3. Prepaid Insurance	<u>0</u>	<u>0</u>
4. Total Assets (1.f. + 2.g. + 3.)	\$ 361,058,000	\$ 439,801,000
5. Liabilities		
a. Investments Purchased	0	0
b. Accounts Payable	460,000	413,000
c. Other	<u>0</u>	<u>0</u>
d. Total Liabilities	\$ 460,000	\$ 413,000
<b>6. End of Year Assets (4. - 5.d.)</b>	<b>\$ 360,598,000</b>	<b>\$ 439,388,000</b>



## Reconciliation of Assets

Below is a reconciliation of assets (unaudited) from July 1, 2019 through June 30, 2021.

	07/01/2019 to 06/30/2020	07/01/2020 to 06/30/2021
1. Beginning of Year Assets	\$ 367,253,000	\$ 360,598,000
2. Receipts		
a. Employer Contributions	\$ 86,723,000	\$ 90,485,000
b. Employee Contributions	12,842,000	13,479,000
c. Interest and Dividends	0	6,002,000
d. Realized and Unrealized Gain/(Loss)	(5,144,000)	76,656,000
e. Stock Loan Income	0	0
f. Other	0	0
g. Total Receipts	\$ 94,421,000	\$ 186,622,000
3. Deductions		
a. Benefit Payments	\$ (101,076,000)	\$ (107,619,000)
b. Administrative Expenses	0	(213,000)
c. Investment Expenses	0	0
d. Total Disbursements	\$ (101,076,000)	\$ (107,832,000)
4. Net Increase (2.g. + 3.d.)	\$ (6,655,000)	\$ 78,790,000
5. Preliminary Ending Value (1. + 4.)	\$ 360,598,000	\$ 439,388,000
6. Contribution Receivable	\$ 0	\$ 0
7. End of Year Assets (5. + 6.)	\$ 360,598,000	\$ 439,388,000
8. Rate of Return Net of Investment Fees	-1.40%	23.05%



## Determination of Investment Gain/(Loss) for Assets

<b>Market Value of Assets</b>			
As of June 30, 2020			\$ 360,598,000

<b>Item (1)</b>	<b>Amount (2)</b>	<b>Weight for Timing (3)</b>	<b>Weighted Amount (2) × (3)</b>
Contributions	\$ 103,964,000	50%	\$ 51,982,000
Benefits Paid	(107,619,000)	50%	(53,809,500)
Expenses	(213,000)	50%	(106,500)
<b>Total</b>			<b>(1,934,000)</b>
Market Value plus Total Weighted Amount			358,664,000
Assumed Rate of Return for the Year			7.00%
<b>Expected Return</b>			<b>\$ 25,106,480</b>

<b>Actual Return</b>		
1. Market Value as of June 30, 2020		\$ 360,598,000
2. Contributions		103,964,000
3. Benefits and Administrative Expenses Paid		(107,832,000)
4. Market Value as of June 30, 2021		439,388,000
<b>Actual Return [(4) - (1) - (2) - (3)]</b>		<b>\$ 82,658,000</b>
Calculation Base (1) + 50% × [(2) + (3)]		358,664,000
<b>Market Value Return as a Percentage</b>		<b>23.0%</b>

<b>Investment Gain/(Loss)</b>	
Actual Return minus Expected Return	\$ 57,551,520

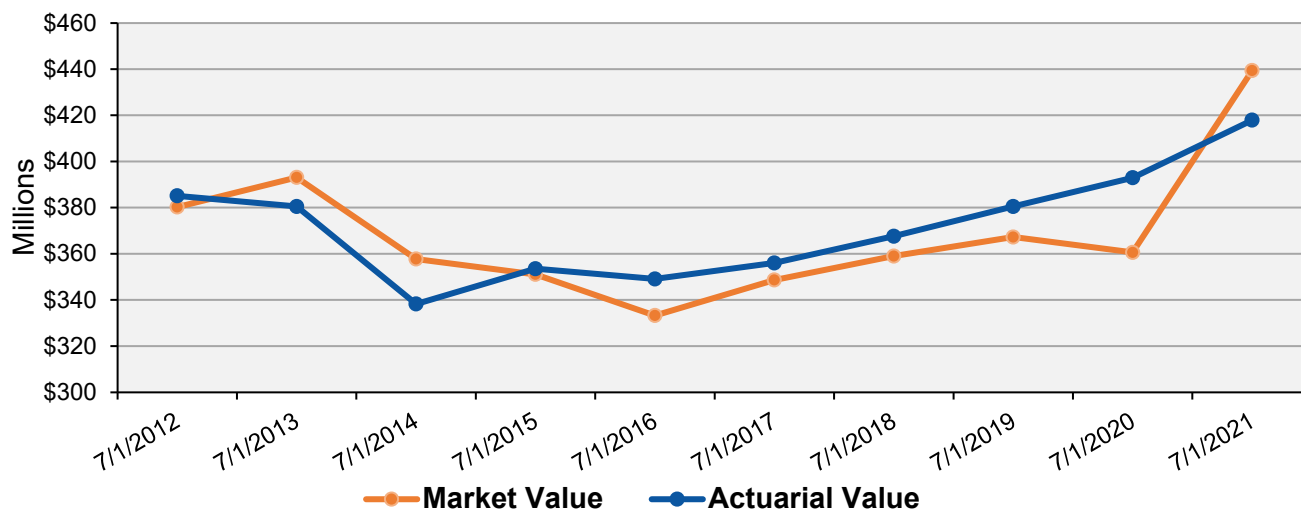


## Development of Actuarial Value of Assets

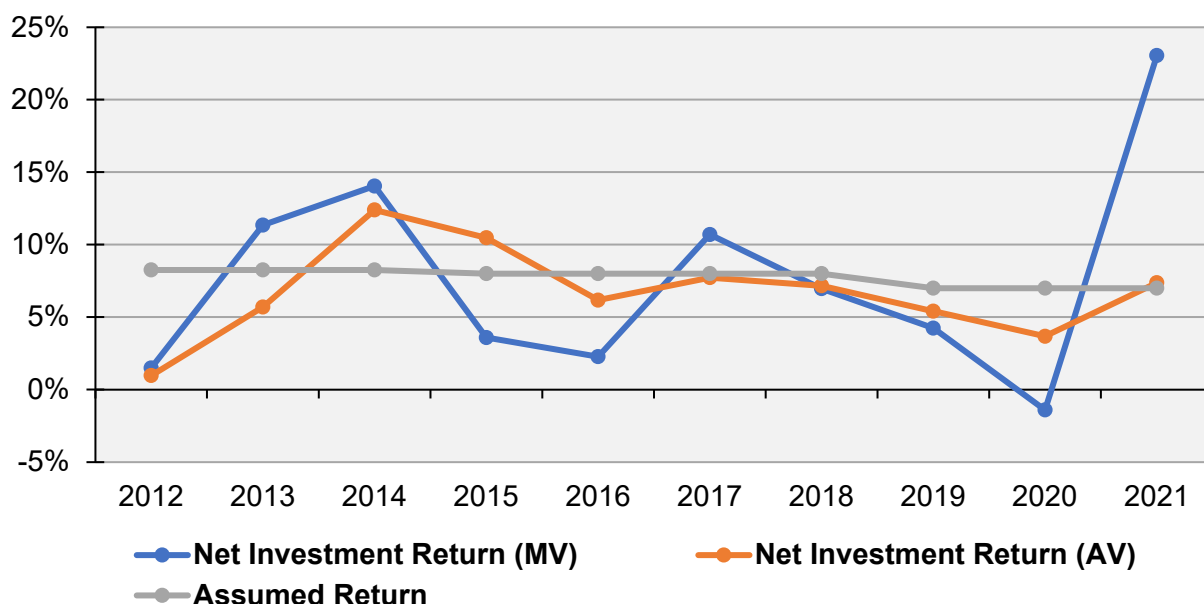
The actuarial asset value as of July 1, 2021 is determined by spreading the asset gain or loss for each year over a five-year period. The asset gain or loss is the amount by which the actual asset return differs from the expected asset return.

<b>Market Value of Assets</b>					
As of June 30, 2021					\$ 439,388,000
	<b>Plan Year End (1)</b>	<b>Investment Gain/(Loss) (2)</b>	<b>Percent Recognized (3)</b>	<b>Percent Deferred (4)</b>	<b>Deferred Gain/(Loss) (2) × (4)</b>
	6/30/2021	57,551,520	20%	80%	\$ 46,041,216
	6/30/2020	(30,798,825)	40%	60%	(18,479,295)
	6/30/2019	(13,374,080)	60%	40%	(5,349,632)
	6/30/2018	(3,551,560)	80%	20%	(710,312)
<b>Total</b>					<b>\$ 21,501,977</b>
<b>Preliminary Actuarial Value of Assets</b>					
As of July 1, 2021					
(Market Value of Assets less Total Deferred Gain/(Loss))					\$ 417,886,023
<b>Final Actuarial Value of Assets</b>					
Minimum Actuarial Value of Assets (80% of MVA)					351,510,400
Maximum Actuarial Value of Assets (120% of MVA)					527,265,600
As a Percentage of Market Value					95.1%
<b>Actuarial Value of Assets as of July 1, 2021</b>					<b>\$ 417,886,023</b>
<b>Calculation of Actuarial Return</b>					
1. Actuarial Value as of July 1, 2020					\$ 392,934,540
2. Contributions					103,964,000
3. Benefits and Administrative Expenses Paid					(107,832,000)
4. Actuarial Value as of July 1, 2021					417,886,023
5. Actuarial Return [(4) - (1) - (2) - (3)]					28,819,483
6. Calculation Base (1) + 50% × [(2) + (3)]					391,000,540
<b>Actuarial Return as a Percentage [(5) / (6)]</b>					<b>7.4%</b>

### 10-Year: Market Value vs. Actuarial Value of Assets



### 10-Year: Market Value vs. Actuarial Value Rates of Return



The assumed long-term rate of return of 7.00% considers past experience, the Trustees' asset allocation policy and future expectations.

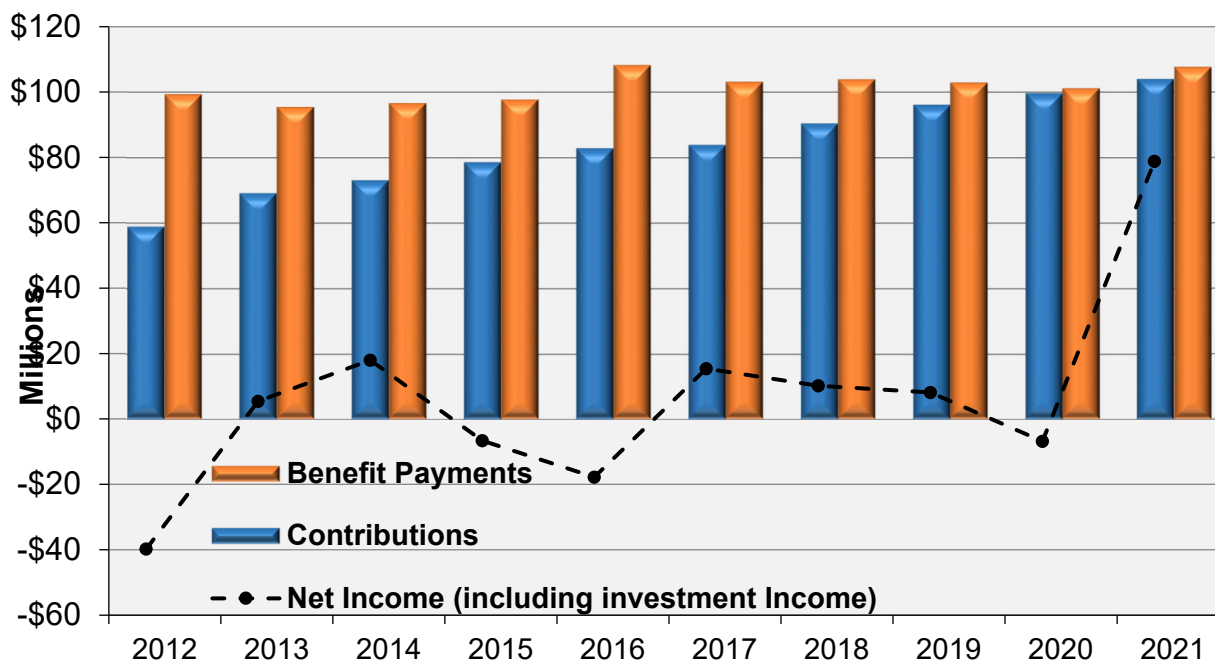
Average Rates of Return	Market Value	Actuarial Value
Most recent year return	23.0%	7.4%
Most recent five-year average return	8.4%	6.3%
Most recent ten-year average return	7.4%	6.7%



## Summary of Investment Returns & Historical Cash Flows

Plan Year Ending	Market Value		Total Contributions	Benefit Payments & Expenses	Net Income
	Net Investment Return Amount	Percent			
2012	\$ 621,797	1.5%	\$ 58,874,000	\$ 99,273,000	\$ (39,777,203)
2013	31,707,000	11.4%	69,085,000	95,402,000	5,390,000
2014	41,549,000	14.0%	73,013,000	96,570,000	17,992,000
2015	12,507,000	3.6%	78,500,000	97,651,000	(6,644,000)
2016	7,665,000	2.3%	82,747,000	108,193,000	(17,781,000)
2017	34,630,000	10.7%	83,815,000	103,088,000	15,357,000
2018	23,802,000	7.0%	90,369,000	104,042,000	10,129,000
2019	15,073,000	4.2%	96,011,000	103,004,000	8,080,000
2020	(5,144,000)	-1.4%	99,565,000	101,259,000	(6,838,000)
2021	82,658,000	23.0%	103,964,000	107,832,000	78,790,000
<b>Total</b>	<b>\$ 245,068,797</b>		<b>\$ 835,943,000</b>	<b>\$ 1,016,314,000</b>	<b>\$ 64,697,797</b>

## Comparison of Net Income versus Historical Cash Flows





## Benefit Payment Projection

The following table shows the estimated benefit payments from July 1, 2021 through June 30, 2031 based on existing members of the plan.

Fiscal Year End	Benefits
2022	\$ 108,911,252
2023	104,686,944
2024	108,558,813
2025	112,299,687
2026	115,952,320
2027	119,485,426
2028	123,328,120
2029	126,773,332
2030	130,278,101
2031	133,898,325



## Section VI. Participant Information

### Total Participant Summary

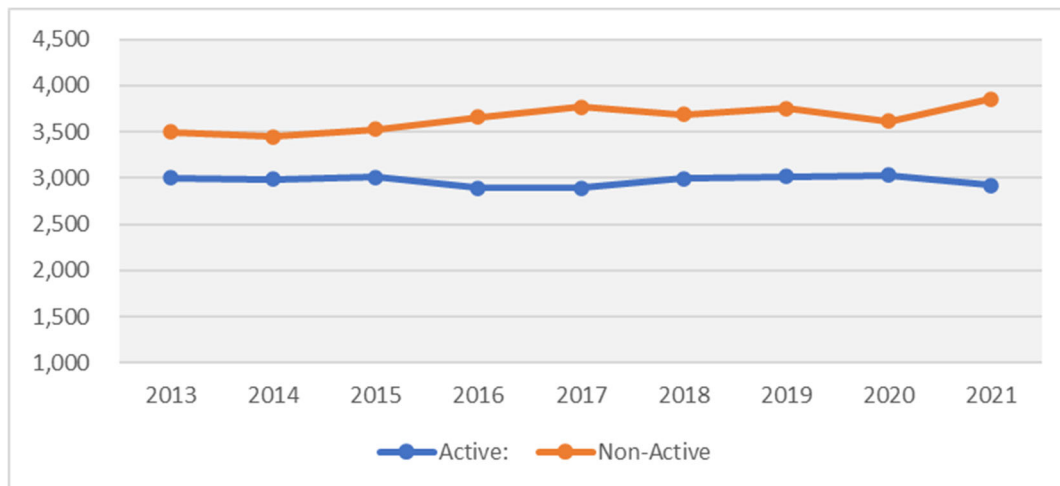
The following table summarizes the counts, ages and benefit information for plan participants used in this valuation and the last valuation.

		7/1/2020	7/1/2021	% Change
1.	Actives			
a.	Number	3,031	2,921	-3.6%
b.	Average Age	46.7	46.8	0.2%
c.	Average Service	12.5	12.5	0.4%
d.	Total Compensation	\$ 163,191,115	\$ 168,623,965	3.3%
e.	Average Salary	\$ 53,841	\$ 57,728	7.2%
f.	Participant Contributions	\$ 203,340,055	\$ 195,065,356	-4.1%
2.	Inactives with Deferred Benefits			
a.	Number	52	58	11.5%
b.	Average Age	50.0	48.8	-2.4%
c.	Average Monthly Benefits	\$ 1,359	\$ 1,441	6.0%
3.	Members Due a Refund of Contributions			
a.	Number	411	540	31.4%
b.	Total Contributions Due	\$ 5,398,217	\$ 7,401,816	37.1%
4.	Retired Participants			
a.	Number	2,186	2,272	3.9%
b.	Average Age	70.3	70.6	0.4%
c.	Average Monthly Benefits	\$ 2,151	\$ 2,157	0.3%
5.	Disabled Participants			
a.	Number	452	448	-0.9%
b.	Average Age	68.7	69.5	1.1%
c.	Average Monthly Benefits	\$ 4,392	\$ 4,391	0.0%
6.	Beneficiaries			
a.	Number	514	540	5.1%
b.	Average Age	75.2	75.5	0.3%
c.	Average Monthly Benefits	\$ 2,252	\$ 2,229	-1.0%



## Total Plan Participation: Ten Years

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
In Pay:	N/A	3,094	3,018	3,094	3,185	3,234	3,220	3,255	3,152	3,260
Inactive:	N/A	407	428	432	473	533	465	500	463	598
Active:	N/A	2,998	2,986	3,012	2,889	2,891	2,993	3,017	3,031	2,921
<b>Total:</b>	<b>N/A</b>	<b>6,499</b>	<b>6,432</b>	<b>6,538</b>	<b>6,547</b>	<b>6,658</b>	<b>6,678</b>	<b>6,772</b>	<b>6,646</b>	<b>6,779</b>





## Participant Summary: Class A

The following table summarizes the counts, ages and benefit information for plan participants used in this valuation and the last valuation.

		7/1/2020	7/1/2021	% Change
1.	Actives			
a.	Number	2,170	2,098	-3.3%
b.	Average Age	49.0	48.9	-0.3%
c.	Average Service	12.2	12.0	-1.3%
d.	Total Compensation	\$ 101,145,962	\$ 102,950,034	1.8%
e.	Average Salary	\$ 46,611	\$ 49,071	5.3%
f.	Participant Contributions	\$ 116,260,789	\$ 109,369,299	-5.9%
2.	Inactives with Deferred Benefits			
a.	Number	49	51	4.1%
b.	Average Age	50.0	49.2	-1.7%
c.	Average Monthly Benefits	\$ 1,304	\$ 1,341	2.8%
3.	Members Due a Refund of Contributions			
a.	Number	393	515	31.0%
b.	Total Contributions Due	\$ 4,726,652	\$ 6,539,628	38.4%
4.	Retired Participants			
a.	Number	1,463	1,538	5.1%
b.	Average Age	72.6	72.7	0.2%
c.	Average Monthly Benefits	\$ 1,553	\$ 1,579	1.6%
5.	Disabled Participants			
a.	Number	80	78	-2.5%
b.	Average Age	70.4	71.1	1.0%
c.	Average Monthly Benefits	\$ 1,688	\$ 1,701	0.8%
6.	Beneficiaries			
a.	Number	184	192	4.3%
b.	Average Age	76.0	76.2	0.3%
c.	Average Monthly Benefits	\$ 1,391	\$ 1,399	0.6%



## Participant Summary: Class B

The following table summarizes the counts, ages and benefit information for plan participants used in this valuation and the last valuation.

		7/1/2020	7/1/2021	% Change
1.	Actives			
a.	Number	861	823	-4.4%
b.	Average Age	40.9	41.5	1.5%
c.	Average Service	13.2	13.8	0.4%
d.	Total Compensation	\$ 62,045,153	\$ 65,673,931	5.8%
e.	Average Salary	\$ 72,062	\$ 79,798	10.7%
f.	Participant Contributions	\$ 87,079,266	\$ 85,696,057	-1.6%
2.	Inactives with Deferred Benefits			
a.	Number	3	7	133.3%
b.	Average Age	50.8	46.5	-8.5%
c.	Average Monthly Benefits	\$ 2,261	\$ 2,170	-4.0%
3.	Members Due a Refund of Contributions			
a.	Number	18	25	38.9%
b.	Total Contributions Due	\$ 671,565	\$ 862,188	28.4%
4.	Retired Participants			
a.	Number	723	734	1.5%
b.	Average Age	65.5	66.0	0.7%
c.	Average Monthly Benefits	\$ 3,362	\$ 3,370	0.2%
5.	Disabled Participants			
a.	Number	372	370	-0.5%
b.	Average Age	68.3	69.1	1.2%
c.	Average Monthly Benefits	\$ 4,974	\$ 4,958	-0.3%
6.	Beneficiaries			
a.	Number	330	348	5.5%
b.	Average Age	74.8	75.1	0.3%
c.	Average Monthly Benefits	\$ 2,732	\$ 2,687	-1.7%



## Active Age/Service Distribution Including Compensation: Class A

Shown below is the distribution of active participants in Class A based on age and service. The compensation shown is the assumed pay for the year beginning July 1, 2021.

Age	Years of Service as of 07/01/2021										Total	
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up		
Under 25	22	28	-	-	-	-	-	-	-	-	-	50
	30,519	30,522	-	-	-	-	-	-	-	-	-	30,521
25 to 29	27	66	9	-	-	-	-	-	-	-	-	102
	47,219	44,987	52,286	-	-	-	-	-	-	-	-	46,222
30 to 34	33	74	55	13	1	-	-	-	-	-	-	176
	39,459	52,779	54,730	47,175	58,251	-	-	-	-	-	-	50,508
35 to 39	20	74	49	47	11	-	-	-	-	-	-	201
	43,235	55,129	58,757	52,276	67,251	-	-	-	-	-	-	54,826
40 to 44	26	53	34	38	36	34	1	-	-	-	-	222
	47,766	45,060	60,225	41,234	51,952	51,958	22,543	-	-	-	-	49,117
45 to 49	17	57	34	44	46	65	15	2	-	-	-	280
	47,103	46,967	50,855	43,373	52,976	54,561	53,624	41,556	-	-	-	49,951
50 to 54	20	49	60	55	50	67	42	14	1	-	-	358
	43,035	39,111	48,587	46,055	50,426	56,726	62,081	61,038	78,647	-	-	50,525
55 to 59	9	37	58	55	58	62	33	18	3	-	-	333
	40,975	41,762	47,028	43,952	43,989	52,175	56,372	57,729	85,732	-	-	48,053
60 to 64	4	27	31	48	36	42	27	12	1	1	-	229
	26,160	53,232	43,291	42,495	49,812	47,196	56,045	73,494	61,028	61,314	-	48,981
65 to 69	4	7	20	21	13	17	8	8	1	3	-	102
	20,824	28,780	40,443	43,969	50,353	43,567	61,064	63,414	50,379	72,854	-	45,853
70 & up	1	4	6	7	10	3	2	6	1	5	-	45
	31,995	40,073	35,196	45,457	41,097	47,412	56,962	48,347	55,437	38,438	-	42,811
Total	183	476	356	328	261	290	128	60	7	9	-	2,098
	41,559	46,502	50,959	45,053	49,949	52,461	57,892	60,935	71,812	52,452	-	49,071

Averages	
Age	48.9
Service	12.0



## Active Age/Service Distribution Including Compensation: Class B

Shown below is the distribution of active participants in Class B based on age and service. The compensation shown is the assumed pay for the year beginning July 1, 2021.

Age	Years of Service as of 07/01/2021										Total	
	Under 1	1-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40 & Up		
Under 25	-	24	-	-	-	-	-	-	-	-	-	24
	-	57,882	-	-	-	-	-	-	-	-	-	57,882
25 to 29	-	87	17	-	-	-	-	-	-	-	-	104
	-	61,126	80,429	-	-	-	-	-	-	-	-	64,282
30 to 34	-	85	58	6	-	-	-	-	-	-	-	149
	-	58,305	80,856	85,218	-	-	-	-	-	-	-	68,167
35 to 39	-	33	36	41	5	1	-	-	-	-	-	116
	-	63,775	78,718	85,751	87,325	93,728	-	-	-	-	-	77,454
40 to 44	-	18	14	35	41	8	-	-	-	-	-	116
	-	59,865	74,554	85,104	90,587	88,164	-	-	-	-	-	82,063
45 to 49	-	1	3	17	31	25	3	-	-	-	-	80
	-	51,137	76,748	80,426	84,041	92,853	91,094	-	-	-	-	85,606
50 to 54	-	1	4	6	34	18	61	12	-	-	-	136
	-	68,208	83,597	82,868	86,951	97,896	97,515	94,466	-	-	-	93,385
55 to 59	-	-	-	2	9	8	28	33	1	-	-	81
	-	-	-	81,138	86,987	87,500	93,309	100,376	91,663	-	-	94,591
60 to 64	-	-	-	-	3	1	3	4	3	2	-	16
	-	-	-	-	91,330	79,926	85,396	91,031	158,445	107,226	-	104,000
65 to 69	-	-	-	-	-	-	-	-	1	-	-	1
	-	-	-	-	-	-	-	-	63,966	-	-	63,966
70 & up	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-	-	-	-	-
Total	-	249	132	107	123	61	95	49	5	2	-	823
	-	60,099	79,539	84,415	87,554	92,827	95,690	98,166	126,193	107,226	-	79,798

Averages	
Age	41.5
Service	13.8



## Total Participant Reconciliation

Shown below is the reconciliation of participants between the prior and current valuation date.

	Active Participants	Inactive Participants		Total
		Receiving Benefits	With Deferred Benefits	
Participants in Last Valuation	3,031	3,152	463	6,646
Retired	(120)	125	(5)	0
Vested Termination	(162)	(1)	163	0
Nonvested Termination	0	0	0	0
Disabled	(1)	1	0	0
Deceased/Payment Expired	(8)	(68)	(1)	(77)
Return of Employee Contributions	(14)	0	(14)	(28)
New QDRO	0	0	0	0
New Participants	182	0	0	182
Rehired	4	0	(4)	0
Beneficiary	0	42	0	42
Adjustments	9	9	(4)	14
Participants in This Valuation	2,921	3,260	598	6,779

Note: Inactive participants 'With Deferred Benefits' includes those participants due only a refund of contributions.



## Participant Reconciliation: Class A

Shown below is the reconciliation of participants between the prior and current valuation date.

	Active Participants	Inactive Participants		Total
		Receiving Benefits	With Deferred Benefits	
Participants in Last Valuation	2,170	1,727	442	4,339
Retired	(96)	101	(5)	0
Vested Termination	(152)	(1)	153	0
Nonvested Termination	0	0	0	0
Disabled	0	0	0	0
Deceased/Payment Expired	(4)	(46)	(1)	(51)
Return of Employee Contributions	(14)	0	(14)	(28)
New QDRO	0	0	0	0
New Participants	182	0	0	182
Rehired	4	0	(4)	0
Beneficiary	0	17	0	17
Adjustments	8	10	(5)	13
Participants in This Valuation	2,098	1,808	566	4,472

Note: Inactive participants 'With Deferred Benefits' includes those participants due only a refund of contributions.



## Participant Reconciliation: Class B

Shown below is the reconciliation of participants between the prior and current valuation date.

	Active Participants	Inactive Participants		Total
		Receiving Benefits	With Deferred Benefits	
Participants in Last Valuation	861	1,425	21	2,307
Retired	(24)	24	0	0
Vested Termination	(10)	0	10	0
Nonvested Termination	0	0	0	0
Disabled	(1)	1	0	0
Deceased/Payment Expired	(4)	(22)	0	(26)
Return of Employee Contributions	0	0	0	0
New QDRO	0	0	0	0
New Participants	0	0	0	0
Rehired	0	0	0	0
Beneficiary	0	25	0	25
Adjustments	1	(1)	1	1
Participants in This Valuation	823	1,452	32	2,307

Note: Inactive participants 'With Deferred Benefits' includes those participants due only a refund of contributions.



## Section VII. Summary of Plan Provisions

### Plan Year

July 1 – June 30.

### Compensation

Regular annual rate of pay, exclusive of extra compensation of any kind such as overtime pay, bonuses, and commissions.

### Final Compensation

Final compensation is the average of the highest four years of base compensation including the base wage increases for longevity earned by a member during their total service as an employee.

### Employee Contributions

Member Type	Contribution Rate
<b>Class A</b>	8% of compensation
<b>Class B – Police<sup>2</sup></b>	11.5% of compensation for fiscal 2021, 12.0% of compensation for fiscal 2022, and 13.5% for the fiscal years thereafter.
<b>Class B - Fire hired before 7/1/2011</b>	8% of compensation
<b>Class B – Fire hired on or after 7/1/2011</b>	9% of compensation
<b>Elected Officials (Class A)</b>	\$350 per year plus 8% compensation

The interest on employee contributions is 4.00%, compounded weekly. There is no interest on employee contributions for inactive members after 5 years.

Class B member contributions may cease after 32.5 years of service.



### Normal Retirement Date

The age and service requirements for normal retirement are as follows:

Group Criteria	Age and Service Requirements
<b>Class A:</b>	
• hired before 7/1/1995	Age 55 or 25 years of service
• hired between 7/1/1995 and 6/30/2004	Age 55 or 30 years of service
• hired between 7/1/2004 and 6/30/2009	Age 60 with 10 years of service or 30 years of service
• hired on or after 7/1/2009	Age 62 with 10 years of service or a total of 30 years of service
<b>Class B Fire:</b>	
• Hired before 9/18/2010	Age 55 or 20 years of service
• Hired between 9/18/2010 and 6/30/2012	Age 55 or 23 years of service
• Hired on or after 7/1/2012	Age 55 or 23 years of service. Payment cannot commence until 25 years after membership date.
<b>Class B Police:</b>	
• Hired before 7/1/2011	Age 55 or 20 years of service
• Hired on or after 7/1/2011	Age 55 or 25 years of service

### Normal Retirement Benefit

The Normal Retirement Benefit is equal to an annuity portion which is the actuarial equivalent of the member's accumulated contributions at the time of their retirement plus a pension portion. The total retirement allowance varies based on member type, hire date, years of total service and Union membership for members of the Police Department.

The total retirement allowance are as follows:

#### Class A, hired prior to July 1, 1996

Years of Service	Percentage of Final Compensation
0 - 20	2.5% per year
20+	2.0% per year

\*Limited to 100% of final compensation.

#### Class A, hired on or after July 1, 1996

Years of Service	Percentage of Final Compensation
All	2.0% per year

\*Limited to 100% of final compensation.

**Class B, Fire**

<b>Years of Service</b>	<b>Percentage of Final Compensation</b>
0 - 20	2.5% per year
20+	2.0% per year

\*Limited to 75% of final compensation.

**Class B, Police hired before September 1, 2001**

<b>Years Of Service</b>	<b>Percentage Of Final Compensation</b>
Less Than 20	2.5% per year
20	50%
21	52%
22	54%
23	56%
24	58%
25	65%
26	62%
27	64%
28	66%
29	68%
30	75%
31	72%
32	80%

\*Non-union members are limited to 75% of compensation.



### Class B, Police hired between September 1, 2001 and July 1, 2011

Non-union members get the same benefits as listed below, but with a maximum benefit of 75% of compensation.

Years of Service	Percentage of Final Compensation
Less than 20	2.5% per year
20	50%
21	52%
22	54%
23	56%
24	58%
25	60%
26	62%
27	64%
28	66%
29	68%
30	70%
31	72%
32	80%

\*Non-union members are limited to 75% of compensation.

### Class B, Police hired on or after July 1, 2011

Years of Service	Percentage of Final Compensation
Less than 20	2.5% per year
20-25	50.0%
26	52.5%
27	55.0%
28	57.5%
29	60.0%
30	62.5%
31	65.0%
32	67.5%
33	70.0%
34	72.5%
35	75.0%

\*Non-union members are limited to 75% of compensation.

## Forms of Benefit

For *Maximum Retirement Option*, a life annuity where, upon the member's death, any unpaid portion of the member's accumulated contributions will be paid to their beneficiary.

*Option 1*, a reduced life annuity where, upon the member's death, the beneficiary will receive the difference between the value of the expected benefit at the member's date of retirement and the total value of payments made by the life annuity.

*Option 2*, a reduced 100% Joint & Survivor Annuity.

*Option 3*, a reduced 50% Joint & Survivor Annuity.

*Option 4*, a single life annuity where members receive their annuity portion as an immediate lump sum payment upon retirement (equivalent to the member's employee contribution balance).

Class B members who retire on Accidental Disability Retirement may not elect Option 4.

Married Class B members may not elect Option 1.

Class B members may not elect Option 2 or Option 3.

There is an optional form that is exclusive to Class B members, a life annuity with a 67.5% spouse's survivor benefit.

## Early Retirement Eligibility

Class A members hired on or after July 1, 2004 with at least 10 years of service.

All other members are not eligible for early retirement benefits.

## Early Retirement Benefit

For Class A members hired before June 30, 2009: the member's normal retirement benefit reduced by 5/12% for each month benefit commencement date precedes the Normal Retirement Date.

For Class A members hired on or after July 1, 2009: the member's normal retirement benefit reduced by 5/12% for each month benefit commencement date precedes age 62.

## Termination Benefit

Members may receive a refund of contributions with payable interest.

In lieu of a refund of contributions, members with at least 10 years of service, are eligible for a deferred benefit payable upon minimum age for Normal Retirement

## Disability Eligibility

Members are eligible for Ordinary Disability after 10 years of service.

There is no age or service requirement for Accidental Disability.

### Ordinary Disability Benefit

For Class A: a pension which, when added to the annuity portion, is equivalent to 1.8% of final compensation for each year of total service had the member continued in service to the minimum age for Normal Retirement.

Class B Fire: a pension which, when added to the annuity portion, is equivalent to 2.25% of final compensation for each year of total service had the member continued in service to the minimum age for Normal Retirement. Such total is not to exceed 45% of the member's final compensation.

Class B Police: a pension which, when added to the annuity portion, is equivalent to a percentage of final compensation, as described in the following table:

Years of Service	Percentage of Final Compensation
10	22.50%
11	24.75%
12	27.00%
13	29.25%
14	31.50%
15	33.75%
16	36.00%
17	38.25%
18	40.50%
19	42.75%

### Accidental Disability Benefit

For all, the annuity portion of benefit plus a pension equal to 66 $\frac{2}{3}$ % of final compensation, but not less than the Normal Retirement benefit.

Upon the death of the member within 5 years after accidental disability, 50% of final compensation is payable to surviving spouse (if Class B, 67.5% of the member's benefit be paid to surviving spouse).

### Pre-Retirement Death Benefit

#### Accidental Death Benefit

Greater of accrued benefit or 50% of final earnings.

#### Ordinary Death Benefit

A refund of the member's accumulated contributions with interest. If the member is of minimum retirement age, the surviving spouse is entitled to, in lieu of a refund of contributions, to a benefit equal to that which would have been payable under an Option 2 retirement. For Class B, the benefit of to the spouse shall not be less than 67 $\frac{1}{2}$ % of the benefit that would have been paid to such retired member without reduction.

### Normal Form of Benefit

For Class A, the normal form of benefit is the *Maximum Retirement Option*.

For Class B, the normal form of benefit is the *Maximum Retirement Option*, however, an reduced 67½% Joint & Survivor annuity is granted for married participants.

### Cost of Living Adjustment – COLA

COLAs commence on January 1, 2023, except for widows of accidental death participants who receive an immediate COLA and participants identified by the City who opted out of the Consent Judgements agreed to by the City.

For participants who opted out of the Consent Judgements, COLAs have been reinstated as a result of the Rhode Island Supreme Court decision issued on June 30, 2020.

A ten-year freeze period was implemented effective January 1, 2013 and no COLAs will be issued during this period. COLAs will resume on January 1, 2023. Once COLAs resume, they will be paid in the amount of the lesser of 3% compounded or the percentage the member received prior to the freeze, provided that their total benefit is lower than 150% of Rhode Island state median income and is lower than the base compensation of a current employee holding the same rank that the retiree held at the time of retirement. If a member's benefit is above either of these amounts, no COLA is granted.

150% of the state median income as reported by the City was approximately \$105,458 as of the valuation date. It is assumed that the median income will increase by 3.0% per year. The initial COLA payment is deferred until the January 1 that occurs three years after the member's retirement date.

The following COLAs will resume on January 1, 2023:

Member Type	Retirement Date	COLAs
<b>Class A, was not a member of Local 1033</b>	Before 12/18/91	3% compounded
<b>Class A, was a member of Local 1033</b>	Before 12/18/91	3% simple on first 12,000 of annual benefit
<b>Class A</b>	After 12/18/91	None
<b>Class B - Police</b>	Before 1/1/1990	5% compounded
<b>Class B - Police</b>	Between 1/1/1990 and 12/18/1991	6% compounded
<b>Class B - Police</b>	Between 12/19/1991 and 12/31/1992	5% compounded
<b>Class B – Police, Non-Union</b>	On or after 1/1/1993	3% simple on first 12,000 of annual benefit
<b>Class B – Police, Union</b>	On or after 1/1/1993	3% compounded
<b>Class B – Police, Special Court Awarded Members</b>	-	5% compounded
<b>Class B – Police, Hired on or after 7/1/2012</b>	-	Will be based on the CPI for the Northeastern Region, shall not be less than 1% simple and shall not exceed 3% simple and %150 of RI state median income

<b>Class B - Fire</b>	Before >1/1/1990	5% compounded
<b>Class B – Fire</b>	Between 1/1/1990 and 12/18/1991	6% compounded
<b>Class B - Fire</b>	Between 12/19/1991 and 6/30/1992	5% compounded
<b>Class B - Fire</b>	Between 7/1/1992 and 6/30/1995	6% compounded
<b>Class B - Fire</b>	Between 7/1/1995 and 3/16/2006	3% simple on first \$12,000
<b>Class B - Fire</b>	On or after 3/16/06	3% compounded
<b>Class B – Fire, Special Court Awarded Members</b>	-	5% compounded
<b>Class B – Fire, hired on or after 7/1/2012</b>	-	Will be based on the CPI for the Northeastern Region, shall not exceed 3% simple

### Elected Officials

Any Class A member who has served as Mayor or City Councilman for at least 8 years prior to January 2015, is entitled to an additional retirement allowance. Such allowance is based on service as an elected official upon attainment of age 52 or the completion of 20 consecutive years as an elected official, whichever is earlier, or the occurrence of total and permanent disability.

Such retirement allowance is currently \$350 for each year of service, provided that no more than 20 years of such service are to be used.

### Changes in Plan Provisions Since Prior Valuation

None.



## Section VIII. Actuarial Methods and Assumptions

### Discount Rate and Investment Rate of Return

7.00% compounded annually, net of investment expenses. This assumption is based on the plan’s investment policy and the long-term expectation of each investment class, based upon the recommendations of the plan’s investment advisor.

### Inflation

3.00%, compounded annually.

### Cost of Living Increase in Benefits

Any Class B retired participant whose total benefit is greater than 150% of the Rhode Island state median income and is greater than the base of compensation of a current employee holding the same rank that the retiree held at the time of retirement, will not receive a COLA in any year until this is no longer true. 150% of the state median income was approximately \$100,750 as of the valuation date. The median income and Class B average compensation for all ranks is assumed to increase by 3.0% per year. Future COLAs will not exceed 3% per year.

### Salary Increases

Salary increases before reflecting longevity for members is assumed to be 3.0% per year. For Class B – Police members, salary increases before reflecting longevity are assumed to be 4.5% for fiscal 2021 and 2022 and 3.75% for fiscal 2023. Base wages are also increased to reflect longevity compensation, but the percentage of that increase varies based on member type, date of hire and years of service.

Below are tables that reflect the rate of base wage increase for longevity for Class A, Class B – Fire and Class B – Police.

Class A:

Date of Hire	Years of Service	Rate of Base Wage Increase
On or before 10/23/1999	5-10	4%
On or before 10/23/1999	10-15	5%
On or before 10/23/1999	15-20	6%
On or before 10/23/1999	20+	7%
After 10/23/1999	7-12	3%
After 10/23/1999	12-17	4%
After 10/23/1999	17-20	5%
After 10/23/1999	20+	6%

Class B – Fire:

Date of Hire	Years of Service	Rate of Base Wage Increase
On or before 6/30/1996	5-10	8%
On or before 6/30/1996	10-15	9%
On or before 6/30/1996	15-20	10%
On or before 6/30/1996	20+	11%
After 6/30/1996	5-10	7%
After 6/30/1996	10-15	8%
After 6/30/1996	15-20	9%
After 6/30/1996	20+	10%

Class B – Police:

Date of Hire	Years of Service	Rate of Base Wage Increase
On or Before 6/30/1998	6-11	8%
On or Before 6/30/1998	11-16	9%
On or Before 6/30/1998	16-21	10%
On or Before 6/30/1998	21+	11%
After 6/30/1998 and Before 9/1/2016	6-11	7%
After 6/30/1998 and Before 9/1/2016	11-16	8%
After 6/30/1998 and Before 9/1/2016	16-21	9%
After 6/30/1998 and Before 9/1/2016	21+	10%
On or After 9/1/2016	6-11	4%
On or After 9/1/2016	11-16	5%
On or After 9/1/2016	16-21	6%
On or After 9/1/2016	21+	7%

**Mortality**

Pre-Retirement:

Class A Healthy: Pub-2010 General Employee Amount-Weighted Mortality Tables projected generationally using Scale MP-2019

Class B Healthy: Pub-2010 Safety Employee Amount-Weighted Mortality Tables projected generationally using Scale MP-2019

Post-Retirement:

Class A Healthy Retiree: Pub-2010 General Healthy Retiree Amount-Weighted Mortality Tables projected generationally using Scale MP-2019

Class B Healthy Retiree: Pub-2010 Safety Healthy Retiree Amount-Weighted Mortality Tables projected generationally using Scale MP-2019



Class A Beneficiary: Pub-2010 General Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2019

Class B Beneficiary: Pub-2010 Safety Contingent Survivor Amount-Weighted Mortality Tables projected generationally using Scale MP-2019

Class A Disabled Retirees: Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Tables projected generationally using Scale MP-2019

Class B Disabled Retirees: Pub-2010 Safety Disabled Retiree Amount-Weighted Mortality Tables projected generationally using Scale MP-2019

Ordinary vs. Accidental Deaths:

40% of Class A deaths are assumed to be Accidental.

55% of Class B deaths are assumed to be Accidental.

### Active Retirement Rates

The retirement rates are listed in the table below:

Age	Rate per year (%)		
	Fewer than 10 years of Service – Class A	10+ years of Service – Class A	Class B
40	2.00	2.50	5.5
41	2.25	2.50	5.5
42	2.50	2.50	5.5
43	2.75	2.50	5.5
44	3.00	2.50	5.5
45	3.25	7.50	5.75
46	3.50	7.50	6.00
47	3.75	7.50	6.25
48	4.00	7.50	6.50
49	4.25	7.50	6.75
50	4.50	7.50	7.00
51	5.0	10.0	7.25
52	5.5	10.0	7.50
53	6.0	10.0	7.75
54	6.5	10.0	8.00
55	7.0	10.0	10.00
56	7.0	10.0	12.5
57	7.0	10.0	15.0
58	7.0	10.0	17.5
59	7.0	10.0	25.0
60	10.0	7.50	100.0
61	11.0	7.50	--

<b>62</b>	12.0	15.00	--
<b>63</b>	13.0	15.00	--
<b>64</b>	14.0	15.00	--
<b>65</b>	15.0	20.0	--
<b>66-74</b>	15.0	20.0	--
<b>75</b>	100.0	100.0	--

### Inactive Retirement Rates

Vested former participants who terminated after June 30, 2013 are assumed to retire at the minimum age for normal retirement. Vested participants who terminated before or on June 30, 2013 were assumed to take an immediate refund of their employee contributions. Current active participants in the Fire department who terminate with 23 years or more of service are assumed to retire on their 25<sup>th</sup> anniversary of employment. Other participants who terminate at age 45 or older and are vested are assumed to retire at their minimum age for a normal retirement. Other participants who terminate prior to age 45 or without vesting are assumed to take an immediate refund of their employee contributions.

### Termination of Employment

Sample termination rates are as follows:

Age	Rate per year (%)	
	Class A	Class B
<b>20</b>	20.00	2.50
<b>25</b>	15.00	1.90
<b>30</b>	12.50	1.40
<b>35</b>	10.00	0.90
<b>40</b>	8.70	0.55
<b>45</b>	7.50	0.35
<b>50</b>	6.20	0.15
<b>55</b>	5.00	0.00
<b>60</b>	5.00	0.00

### Non-Vested Terminations

Non-vested terminated participants are assumed to take an immediate refund of their employee contribution.



### Disability Rates

Sample disability rates are as follows:

Age	Rate per year (%)	
	Class A	Class B
20	0.02	0.08
25	0.02	0.13
30	0.04	0.19
35	0.06	0.25
40	0.08	0.37
45	0.13	0.66
50	0.17	1.14
55	0.21	1.64
60	0.27	2.28

For Class A, 33.33% of disabilities are assumed to be Accidental disabilities.

For Class B, 90% of disabilities are assumed to be Accidental disabilities.

### Total Service

Total service is based on the date of hire provided in the data. In addition, 1.0 and 0.5 years of service were added to the service totals for participants in the Police and Fire departments, respectively, to estimate the impact of purchased service.

### Marital Status

80% of participants are assumed to be married. Females are assumed to be three years younger than males.

### Administrative Expenses

None.

### Rationale for Assumptions

All current assumptions have been inherited from the previous plan actuary. We believe the assumptions are reasonable for valuation purposes.

### Changes Since Prior Valuation

None.



## Appendix 1

### Summary of Funding Progress

	(1)	(2)	(3)	(4)	(5)	(6)
Valuation Date	Actuarial Value of Assets	Actuarial Accrued Liability	Percentage Funded (1) / (2)	Unfunded Actuarial Accrued Liability (2) - (1)	Annual Covered Payroll	Unfunded Actuarial Accrued Liability as a Percentage of Covered Payroll (4) / (5)
7/1/2012	\$422,839,189	\$1,323,824,102	31.94%	\$900,984,913	\$135,473,709	665.06%
7/1/2013	\$380,484,015	\$1,212,007,656	31.39%	\$831,523,641	\$134,863,923	616.56%
7/1/2014	\$338,253,329	\$1,232,590,168	27.44%	\$894,336,839	\$137,504,822	650.40%
7/1/2015	\$353,520,549	\$1,305,338,091	27.08%	\$951,817,542	\$140,908,879	675.48%
7/1/2016	\$349,094,428	\$1,330,301,262	26.24%	\$981,206,834	\$138,236,828	709.80%
7/1/2017	\$356,030,203	\$1,356,171,912	26.25%	\$1,000,141,709	\$140,752,162	710.57%
7/1/2018	\$367,599,364	\$1,378,187,364	26.67%	\$1,010,588,000	\$149,921,633	674.08%
7/1/2019	\$380,468,536	\$1,593,646,026	23.87%	\$1,213,177,490	\$154,798,802	783.71%
7/1/2020	\$392,934,540	\$1,641,199,008	23.94%	\$1,248,264,468	\$163,191,115	764.91%
7/1/2021	\$417,886,023	\$1,694,544,265	24.66%	\$1,276,658,242	\$168,623,965	757.10%

Analysis of the dollar amounts of net assets available for benefits, actuarial accrued liability, and unfunded actuarial accrued liability in isolation can be misleading. Expressing the net assets available for benefits as a percentage of the actuarial accrued liability provides one indication of funding status on a going-concern basis. Analysis of this percentage over time indicates whether the plan is becoming financially stronger or weaker. Generally, the greater this percentage, the stronger the plan. Trends in unfunded actuarial accrued liability and annual covered payroll are both affected by inflation. Expressing the unfunded actuarial accrued liability as a percentage of annual covered payroll approximately adjusts for the effects of inflation and aids analysis of City's progress made in accumulating sufficient assets to pay benefits when due. Generally, the smaller this percentage, the stronger the plan.



## Appendix 2

### Summary of Funding Schedule

(1) Fiscal Year Ended June 30:	(2) Employer Normal Cost	(3) Amortization of Deferral Liability	(4) Amortization of Remaining Unfunded Liability	(5) Interest Adjustment for Assumed Payment Timing End of Year	(6) Actuarially Determined Contribution (2)+(3)+(4)+(5)	(7) Increase	(8) Payroll	(9) Contributions as a % of Payroll	(10) Actuarial Accrued Liability (BOY)	(11) Actuarial Value of Assets (BOY)	(12) Total Unfunded Actuarial Accrued Liability	(13) Projected UAAL in Two Years	(14) Funded Ratio
2022	11,797,830	411,642	75,253,200	6,122,387	93,585,059		159,206,079	58.78%	1,694,544,265	417,886,023	1,276,658,242	1,287,173,671	24.66%
2023	11,663,271	411,642	81,685,249	6,563,211	100,323,373	7.20%	163,982,261	61.18%	1,727,753,081	446,160,692	1,281,592,389	1,281,241,778	25.82%
2024	12,013,169	411,642	85,626,319	6,863,579	104,914,709	4.58%	168,901,729	62.12%	1,768,478,089	489,061,188	1,279,416,901	1,269,670,205	27.65%
2025	12,373,564	411,642	89,896,156	7,187,695	109,869,057	4.72%	173,968,781	63.15%	1,808,890,462	538,505,794	1,270,384,668	1,249,703,234	29.77%
2026	12,744,770	411,642	94,323,661	7,523,605	115,003,678	4.67%	179,187,844	64.18%	1,849,129,214	598,762,988	1,250,366,226	1,216,994,799	32.38%
2027	13,127,113	411,642	98,735,128	7,859,172	120,133,055	4.46%	184,563,479	65.09%	1,889,299,601	652,774,514	1,236,525,087	1,191,773,591	34.55%
2028	13,520,927	411,642	102,776,063	8,169,604	124,878,236	3.95%	190,100,383	65.69%	1,929,547,410	712,552,611	1,216,994,799	1,158,963,012	36.93%
2029	13,926,555	411,642	108,218,947	8,579,000	131,136,144	5.01%	195,803,394	66.97%	1,969,585,306	777,811,715	1,191,773,591	1,117,727,993	39.49%
2030	14,344,352	411,642	113,945,770	9,009,123	137,710,887	5.01%	201,677,496	68.28%	2,009,838,485	850,875,473	1,158,963,012	1,067,159,477	42.34%
2031	14,774,682	411,642	119,971,045	9,461,016	144,618,385	5.02%	207,727,821	69.62%	2,050,289,729	932,561,736	1,117,727,993	1,006,709,108	45.48%
2032	15,217,922	0	126,309,843	9,906,944	151,434,709	4.71%	213,959,656	70.78%	2,090,863,639	1,023,704,162	1,067,159,477	934,864,182	48.96%
2033	15,674,460	0	133,004,264	10,407,511	159,086,235	5.05%	220,378,446	72.19%	2,132,258,388	1,125,549,280	1,006,709,108	850,447,440	52.79%
2034	16,144,694	0	140,053,490	10,933,873	167,132,057	5.06%	226,989,799	73.63%	2,174,783,593	1,239,919,411	934,864,182	752,179,094	57.01%
2035	16,629,035	0	147,476,325	11,487,375	175,592,735	5.06%	233,799,493	75.10%	2,219,038,092	1,368,590,652	850,447,440	638,668,580	61.67%
2036	17,127,906	0	155,292,571	12,069,433	184,489,910	5.07%	240,813,478	76.61%	2,265,246,874	1,513,067,780	752,179,094	508,405,688	66.79%
2037	17,641,743	0	163,523,077	12,681,537	193,846,357	5.07%	248,037,882	78.15%	2,314,032,801	1,675,364,221	638,668,580	359,750,999	72.40%
2038	18,170,995	0	172,189,801	13,325,256	203,686,052	5.08%	255,479,018	79.73%	2,365,539,447	1,857,133,759	508,405,688	190,925,600	78.51%
2039	18,716,125	0	181,315,859	14,002,239	214,034,223	5.08%	263,143,389	81.34%	2,420,363,203	2,060,612,204	359,750,999	0	85.14%
2040	19,277,609	0	190,925,600	14,714,225	224,917,434	5.08%	271,037,691	82.98%	2,478,499,404	2,287,573,804	190,925,600	0	92.30%
2041	19,855,937	0	0	1,389,916	21,245,853	-90.55%	279,168,822	7.61%	2,540,501,101	2,540,501,101	0	0	100.00%
2042	20,451,615	0	0	1,431,613	21,883,228	3.00%	287,543,887	7.61%	2,606,895,523	2,606,895,523	0	0	100.00%



## Appendix 3

### Cost Allocations

Normal Cost	Class A	Class B - Police	Class B - Fire	Class B - Total	Total
	Amount	Amount	Amount	Amount	Amount
1. Total Benefit Normal Cost 07/01/2021	\$ 9,984,449	\$ 8,281,674	\$ 7,260,852	\$ 15,542,526	\$ 25,526,975
2. Expected Employee Contributions	(7,554,802)	(4,268,396)	(2,380,213)	(6,648,609)	(14,203,411)
3. Net Normal Cost for the Plan Year	\$ 2,429,647	\$ 4,013,278	\$ 4,880,639	\$ 8,893,917	\$ 11,323,564
4. Actuarial Accrued Liability	552,937,722	562,678,966	578,927,577	1,141,606,543	1,694,544,265
5. Actuarial Value of Assets	136,358,164	138,760,421	142,767,438	281,527,859	417,886,023
6. Unfunded Actuarial accrued liability	416,579,558	423,918,545	436,160,139	860,078,684	1,276,658,242
7. Total Fiscal 2023 Contribution	33,719,185	31,817,522	34,786,666	66,604,188	100,323,373
8. Projected compensation for fiscal 2023	110,607,231	35,734,492	33,549,518	69,284,010	179,891,241
9. Fiscal 2023 Contribution as % of Pay	30.5%	89.0%	103.7%	96.1%	55.8%
10. Total Fiscal 2024 Contribution	34,234,161	34,837,272	35,843,276	70,680,548	104,914,709
11. Projected compensation for fiscal 2024	103,541,955	34,682,186	30,677,588	65,359,774	168,901,729
12. Fiscal 2024 Contribution as % of Pay	33.1%	100.4%	116.8%	108.1%	62.1%





## Appendix 3

### Cost Allocations

Department	Fiscal 2023		Fiscal 2024	
	Total Contribution	Projected Compensation	Total Contribution	Projected Compensation
General	\$ 13,649,510	\$ 44,773,756	\$ 13,215,917	\$ 39,971,822
School	12,971,846	42,550,850	13,794,064	41,720,444
School Crossing Guards	355,254	1,165,321	347,326	1,050,495
Water	4,604,461	15,103,765	4,866,457	14,718,703
Workforce Development	288,694	946,988	232,557	703,375
Fire Civilians	409,906	1,344,592	405,717	1,227,101
Police Civilians	1,439,514	4,721,959	1,372,123	4,150,015
<b>Total</b>	<b>\$ 33,719,185</b>	<b>\$ 110,607,231</b>	<b>\$ 34,234,161</b>	<b>\$ 103,541,955</b>

## Appendix 4 – Glossary

### Actuarial Accrued Liability (AAL)

The difference between the Present Value of Future Benefits and the Present Value of Future Normal Costs or the portion of the present value of future benefits allocated to service before the valuation date in accordance with the actuarial cost method. Represents the present value of benefits expected to be paid from the plan in the future allocated to service prior to the date of the measurement.

### Actuarial Assumptions

Estimates of future plan experience such as investment return, expected lifetimes and the likelihood of receiving a pension from the pension plan. Demographic, or “people” assumptions include rates of mortality, retirement and separation. Economic, or “money” assumptions, include expected investment return, inflation and salary increases.

### Actuarial Cost Method

A procedure for allocating the Present Value of Future Benefits into the Present Value of Future Normal Costs and the Actuarial Accrued Liability. Also known as the “funding method”.

### Actuarial Value of Assets (AVA)

The value of the assets as of a given date, used by the actuary for valuation purposes. The AVA may be the market or fair value of plan assets or a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the actuarially determined contribution (ADC).

### Actuarially Determined Contribution (ADC)

The employer’s periodic determined contribution to a pension plan, calculated in accordance with the assumptions and methods used by the plan actuary.

### Amortization Method

A procedure for payment of the Unfunded Actuarial Accrued Liability (UAAL) by means of periodic contributions of interest and principal. The components of the amortization payment for the UAAL includes the amortization period length, amortization payment increase (level dollar or level percentage of pay), and amortization type (closed or open).

### Experience Gain/Loss

A measure of the difference between actuarial experience and experience anticipated by a set of actuarial assumptions during the period between two actuarial valuation dates, in accordance with the actuarial cost method being used.

### Funded Ratio

The actuarial value of assets expressed as a percentage of the plan’s actuarial accrued liability.

### Market Value of Assets (MVA)

The value of the assets as of a given date held in the trust available to pay for benefits of the pension plan.

### Normal Cost

That portion of the Present Value of Future Benefits and expenses which is allocated to a valuation year by the Actuarial Cost Method.

### Present Value of Future Benefits (PVFB)

The present value of amounts which are expected to be paid at various future times to active members, retired members, beneficiaries receiving benefits, and inactive, non-retired members entitled to either a refund or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.

### Present Value of Future Normal Cost (PVFNC)

The portion of the Present Value of Future Benefits (PVFB) allocated to future service.

### Unfunded Actuarial Accrued Liabilities (UAAL)

The difference between the Actuarial Accrued Liability (AAL) and the Actuarial Value of Assets (AVA).