The Employee Retirement System of the City of Providence

Actuarial Valuation and Review as of July 1, 2020

This report has been prepared at the request of the Board of Trustees to assist in administering The Employee Retirement System of the City of Providence. This valuation report may not otherwise be copied or reproduced in any form without the consent of the Board of Trustees and may only be provided to other parties in its entirety, unless expressly authorized by Segal. The measurements shown in this actuarial valuation may not be applicable for other purposes.

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December 1, 2021

Retirement Board
The Employee Retirement System of the City of Providence
City Hall
Providence, RI 02903

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of July 1, 2020. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for fiscal 2023 and later years (fiscal 2021 and 2022 have already been budgeted).

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Retirement System. The census information and financial information on which our calculations were based was prepared by the staff of the System. That assistance is gratefully acknowledged.

The actuarial calculations were directed under the supervision of Kathleen A. Riley, FSA, AAA, MAAA. She is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of her knowledge, the information supplied in this actuarial valuation is complete and accurate. Further, in her opinion, the assumptions as approved by the Board are reasonably related to the experience of and the expectations for the System.

We look forward to reviewing this report at your next meeting and to answering any questions.

Sincerely,
Segal

Kathleen A. Riley, FSA, MAAA, EA
Senior Vice President and Actuary

Chad Brown
Chad Brown, FSA, MAAA, EA
Consulting Actuary

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Section 1: Actuarial Valuation Summary

Purpose and basis

This report was prepared by Segal to present a valuation of The Employee Retirement System of the City of Providence as of July 1, 2020. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of the System assets to cover the estimated cost of settling the System's benefit obligations. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

The contribution requirements presented in this report are based on:

- The benefit provisions of The Employee Retirement System of the City of Providence, as administered by the Board;
- The characteristics of covered active participants, inactive participants, and retired participants and beneficiaries as of June 30, 2020, provided by the Board;
- The assets of the System as of June 30, 2020;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. and

Certain disclosure information required by GASB Statements No 67 and 68 as of June 30, 2020 for the System has been provided in a separate report.

Valuation highlights

1. Segal strongly recommends an actuarial funding method that targets 100% funding of the actuarial accrued liability. Generally, this implies payments that are ultimately at least enough to cover normal cost, interest on the unfunded actuarial accrued liability and the principal balance. While the funding policy adopted by the Board of The Employee Retirement System of the City of Providence meets this standard and funds the unfunded actuarial accrued liability by June 30, 2040, the increases in the Actuarially Determined Contribution over the next 19 years exceed 5% per year and may be difficult to maintain.
2. This valuation reflects the terms of the bargaining agreement with the Providence Fraternal Order of Police, Lodge No.3 for the period July 1, 2019 through June 30, 2023. The bargaining agreement includes base salary increases of 4.5% on July 1, 2019, July 1, 2020, and July 1, 2021 and an increase of 3.75% on July 1, 2022. In addition, the contribution rate for Police will increase from 8% to 10.25% on July 1, 2019, to 11.50% on July 1, 2020, to 12.00% on July 1, 2021, and to 13.50% on July 1, 2022.
3. On June 30, 2020 the Rhode Island Supreme Court issued its decision in favor of the Class B retirees who elected out of the Consent Judgements agreed to by the City related to the 10-year freeze on COLAs. COLAs have been reinstated for approximately 70 retirees and beneficiaries.
4. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 23.94%, compared to the prior year funded ratio of 23.87%. This ratio is one measure of funding status, and its history is a measure of funding progress. Using the market value of assets, the funded ratio is 21.97%, compared to 23.04% as of the prior valuation date.
5. During the year ended June 30, 2020, the market value rate of return was -1.40%, compared to the assumed rate of return of 7.00%. Because the actuarial value of assets gradually recognizes market value fluctuations at 20% per year over a five-year period, the actuarial rate of return for the year ended June 30, 2020 was 3.68%. The actuarial value of assets as of June 30, 2020 was $392.9 million, or 109.0% of the market value of assets of $360.6 million. As of June 30, 2019, the actuarial value of assets was 103.6% of the market value of assets.
6. As indicated in *Section 2* of this report, the total unrecognized investment loss as of June 30, 2020 is $32.3 million. This investment loss will be recognized in the determination of the actuarial value of assets in the next few years, to the extent it is not offset by recognition of investment gains derived from future experience. This implies that earning the assumed rate of investment return (net of investment expenses) on a market value basis will result in investment losses on the actuarial value of assets in the next few years. The funding schedule reflects the deferred investment losses in the projection of the unfunded actuarial accrued liability.
7. The unfunded liability was expected to increase from $1,213.2 million as of July 1, 2019 to $1,223.8 million as of July 1, 2020. The unfunded liability of $1,248.3 million is $24.4 million higher than expected due to an investment loss on an actuarial basis of $12.6 million and a demographic experience loss of $11.8 million. The demographic experience loss is discussed further in *Section 2*.

8. The Actuarially Determined Contributions (ADC) for fiscal 2021 and 2022 have been set equal to previously budgeted amounts of $90,483,926 and $93,585,059, respectively. The results of this valuation will first be reflected in the fiscal 2023 employer contribution of $100,323,373. The unfunded liability, less the liability associated with the 1995 Deferral, is amortized through June 30, 2040 with amortization payments that are calculated to increase 5.3% per year (beginning in fiscal 2023). The 1995 deferral liability is amortized through June 30, 2031 in level payments. Actuarially Determined Contributions are assumed to be paid on June 30. If the contribution is made on a different date, Segal will adjust the interest charge based on the actual date of payment.
9. It is important to note that this actuarial valuation is based on plan assets as of June 30, 2020. Due to the COVID-19 pandemic, market conditions may have changed significantly since the valuation date. The plan's actuarial status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the Plan Year. Moreover, this actuarial valuation does not include any possible short-term or long-term impacts on mortality of the covered population that may emerge after June 30, 2020. While it is impossible to determine how the pandemic will affect market conditions and other demographic experience of the plan in future valuations, Segal is available to prepare projections of potential outcomes upon request.
10. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the System's future financial condition, but have included a brief discussion of some risks that may affect the System in Section 2. We recommend a more detailed assessment of the risks to provide the Board with a better understanding of the inherent risks.

Summary of key valuation results

		2020	2019
Contributions for fiscal year:	• Actuarially determined contributions for fiscal 2021 and 2020	$90,483,926	$86,723,404
	• Actuarially determined contributions for fiscal 2022 and 2021	93,585,059	90,483,926
	• Actuarially determined contributions for fiscal 2023 and 2022	100,323,373	93,585,059
	• Actuarially determined contributions for fiscal 2024 and 2023	106,075,549	98,475,108
	• Actual employer contributions for fiscal 2021 and 2020	--	86,723,000
Actuarial accrued liability for plan year beginning July 1:	• Retired participants and beneficiaries	$1,089,086,369	$1,083,203,156
	• Inactive vested participants	13,086,846	16,969,653
	• Active participants	539,025,793	493,473,217
	• Total	1,641,199,008	1,593,646,026
	• Normal cost for plan year beginning July 1	26,015,311	24,016,171
Assets for plan year beginning July 1:	• Market value of assets (MVA)	$360,598,000	$367,253,000
	• Actuarial value of assets (AVA)	392,934,540	380,468,536
	• Actuarial value of assets as a percentage of market value of assets	109.0%	103.6%
Funded status for plan year beginning July 1:	• Unfunded/(overfunded) actuarial accrued liability on market value of assets	$1,280,601,008	$1,226,393,026
	• Funded percentage on MVA basis	21.97%	23.04%
	• Unfunded/(overfunded) actuarial accrued liability on actuarial value of assets	$1,248,264,468	$1,213,177,490
	• Funded percentage on AVA basis	23.94%	23.87%
Key assumptions	• Net investment return	7.00%	7.00%
	• Wage inflation	3.00%	3.00%
Demographic data as of June 30:	• Number of retired participants and beneficiaries	3,152	3,255
	• Number of inactive participants due a refund of employee contributions	411	432
	• Number of inactive vested participants	52	68
	• Number of active participants	3,031	3,017
	• Total payroll	$163,191,115	$154,798,802
	• Average payroll	53,841	51,309

Notes:

Actuarially Determined Contributions are assumed to be paid on June 30. If the contribution is made on a different date, Segal will adjust the interest charge based on the actual date of the payment.

The reported pay for Police was increased by 4.5% to reflect the bargaining agreement with the Providence Fraternal Order of Police, Lodge No. 3 that was retroactive to July 1, 2019.

Important information about actuarial valuations

An actuarial valuation is a budgeting tool with respect to the financing of future projected obligations of a pension plan. It is an estimated forecast – the actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.

In order to prepare a valuation, Segal relies on a number of input items. These include:

Plan of benefits	Plan provisions define the rules that will be used to determine benefit payments, and those rules, or the interpretation of them, may change over time. Even where they appear precise, outside factors may change how they operate. It is important to keep Segal informed with respect to plan provisions and administrative procedures, and to review the plan summary included in our report to confirm that Segal has correctly interpreted the plan of benefits.
Participant data	An actuarial valuation for a plan is based on data provided to the actuary by The Employee Retirement System of the City of Providence. Segal does not audit such data for completeness or accuracy, other than reviewing it for obvious inconsistencies compared to prior data and other information that appears unreasonable. It is important for Segal to receive the best possible data and to be informed about any known incomplete or inaccurate data.
Assets	The valuation is based on the market value of assets as of the valuation date, as provided by The Employee Retirement System of the City of Providence. The System uses an "actuarial value of assets" that differs from market value to gradually reflect year-to-year changes in the market value of assets in determining the contribution requirements.
Actuarial assumptions	In preparing an actuarial valuation, Segal projects the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This projection requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of each participant for each year. In addition, the benefits projected to be paid for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The projected benefits are then discounted to a present value, based on the assumed rate of return that is expected to be achieved on the plan's assets. There is a reasonable range for each assumption used in the projection and the results may vary materially based on which assumptions are selected. It is important for any user of an actuarial valuation to understand this concept. Actuarial assumptions are periodically reviewed to ensure that future valuations reflect emerging plan experience. While future changes in actuarial assumptions may have a significant impact on the reported results that does not mean that the previous assumptions were unreasonable.

Section 1: Actuarial Valuation Summary

The user of Segal's actuarial valuation (or other actuarial calculations) should keep the following in mind:

The actuarial valuation is prepared at the request of the System. Segal is not responsible for the use or misuse of its report, particularly by any other party.
An actuarial valuation is a measurement of the plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the plan will be determined by the actual benefits and expenses paid and the actual investment experience of the plan.
Actuarial results in this report are not rounded, but that does not imply precision.
If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.
Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the plan's provisions, but they may be subject to alternative interpretations. The Employee Retirement System of the City of Providence should look to their other advisors for expertise in these areas.

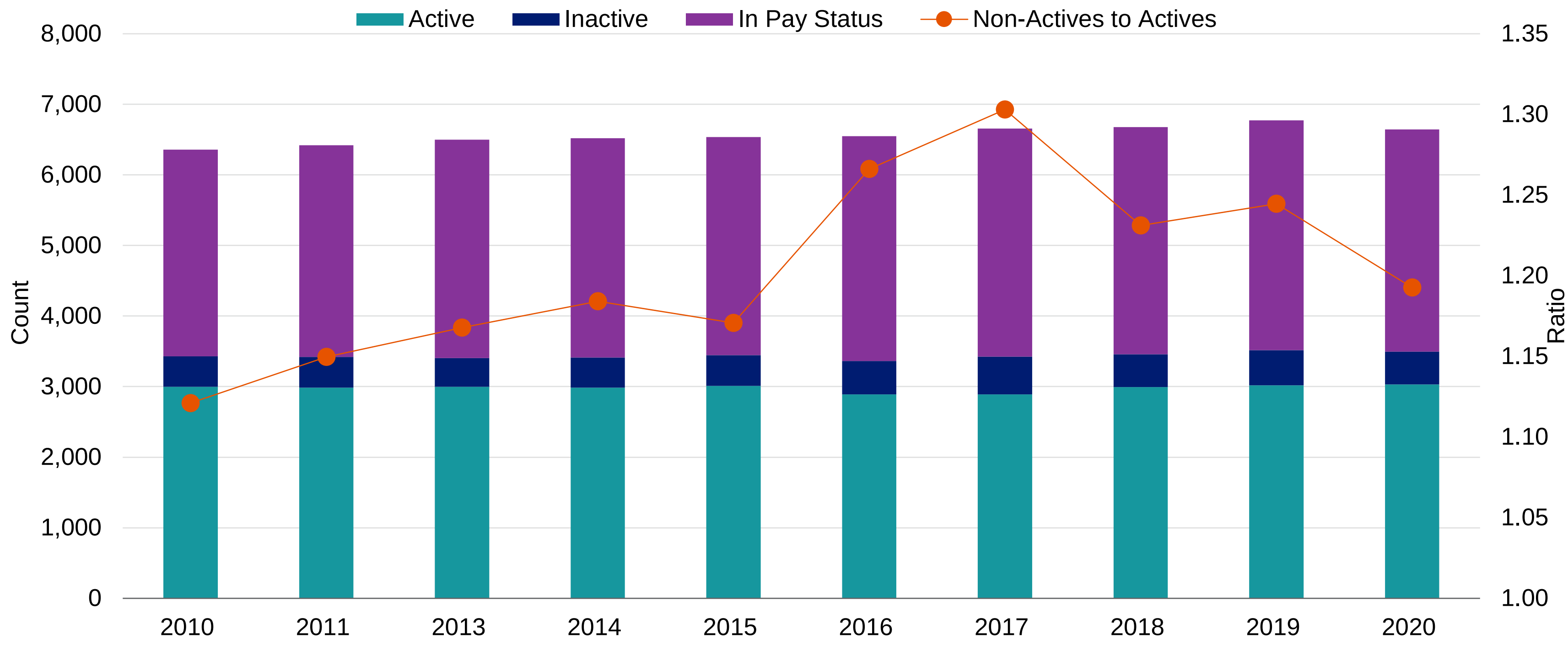
As Segal has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the System.

Section 2: Actuarial Valuation Results

Participant data

This section presents a summary of significant statistical data on covered participants. More detailed information for this valuation year and the preceding valuation can be found in *Section 3, Exhibits A* and *B*.

Participant Population: 2010 – 2020



	2010	2011	2013	2014	2015	2016	2017	2018	2019	2020
In Pay Status	2,929	2,999	3,094	3,108	3,094	3,185	3,234	3,220	3,255	3,152
Inactive	432	435	407	428	432	473	533	465	500	463
Active	2,998	2,987	2,998	2,986	3,012	2,889	2,891	2,993	3,017	3,031
Ratio	1.12	1.15	1.17	1.18	1.17	1.27	1.30	1.23	1.24	1.19

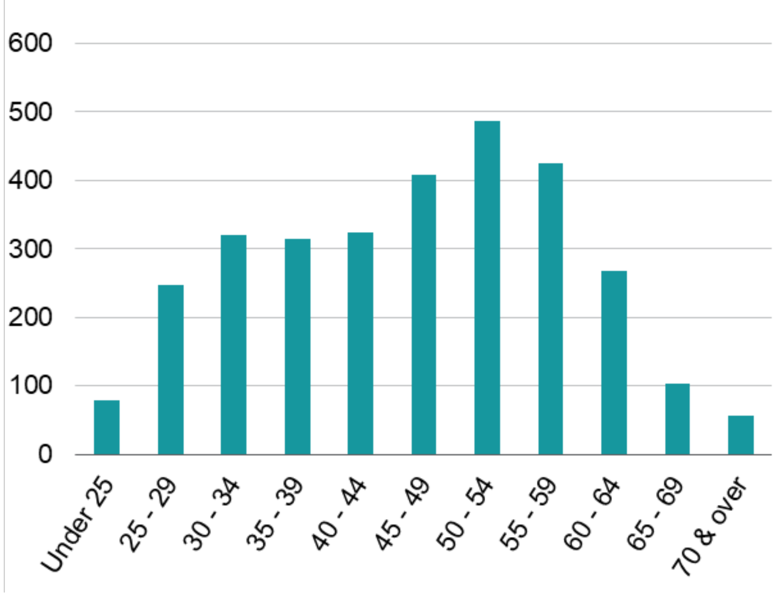
Active participants

As of June 30,	2020	2019	Change
Active participants	3,031	3,017	0.5%
Average age	46.7	46.4	0.3
Average years of service	12.5	12.2	0.3
Average compensation	53,841	51,309	4.9%

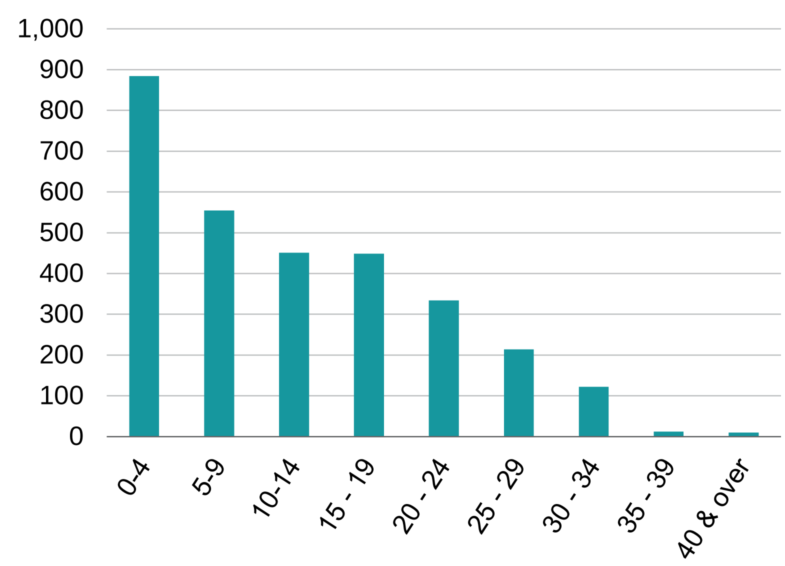
Among the active participants, there were none with unknown age and/or service information.

Distribution of Active Participants as of June 30, 2020

Actives by Age



Actives by Years of Service

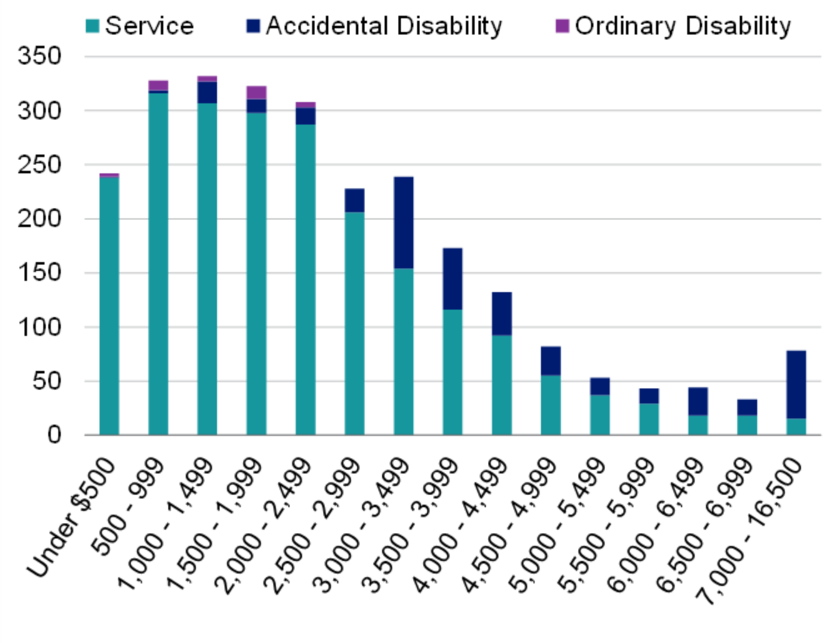


Retired participants and beneficiaries

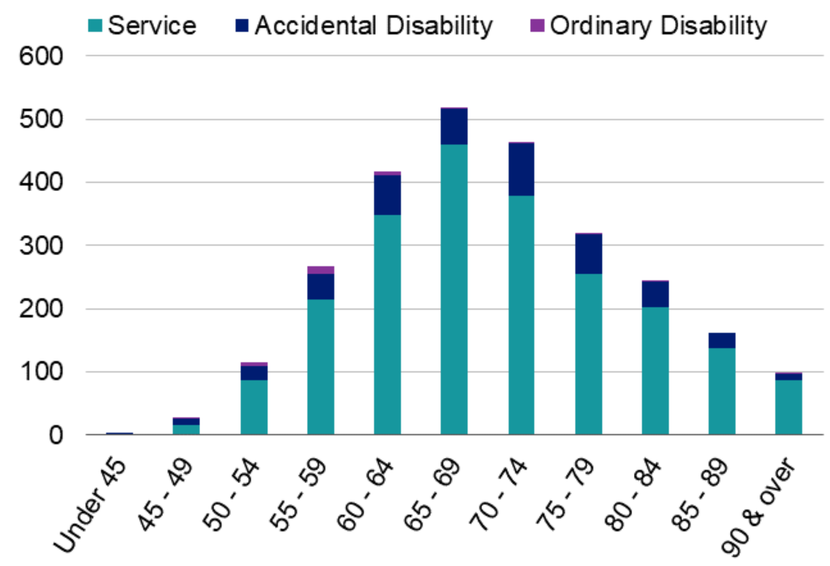
As of June 30,	2020	2019	Change
Retirees	2,638	2,712	-2.7%
Beneficiaries	514	543	-5.3%
Average age	70.8	70.9	-0.1
Average amount	$2,495	$2,445	2.0%
Total monthly amount	$7,864,423	$7,959,690	-1.2%

Distribution of Retired Participants as of June 30, 2020

Retired Participants by Type and Monthly Amount



Retired Participants by Type and Age

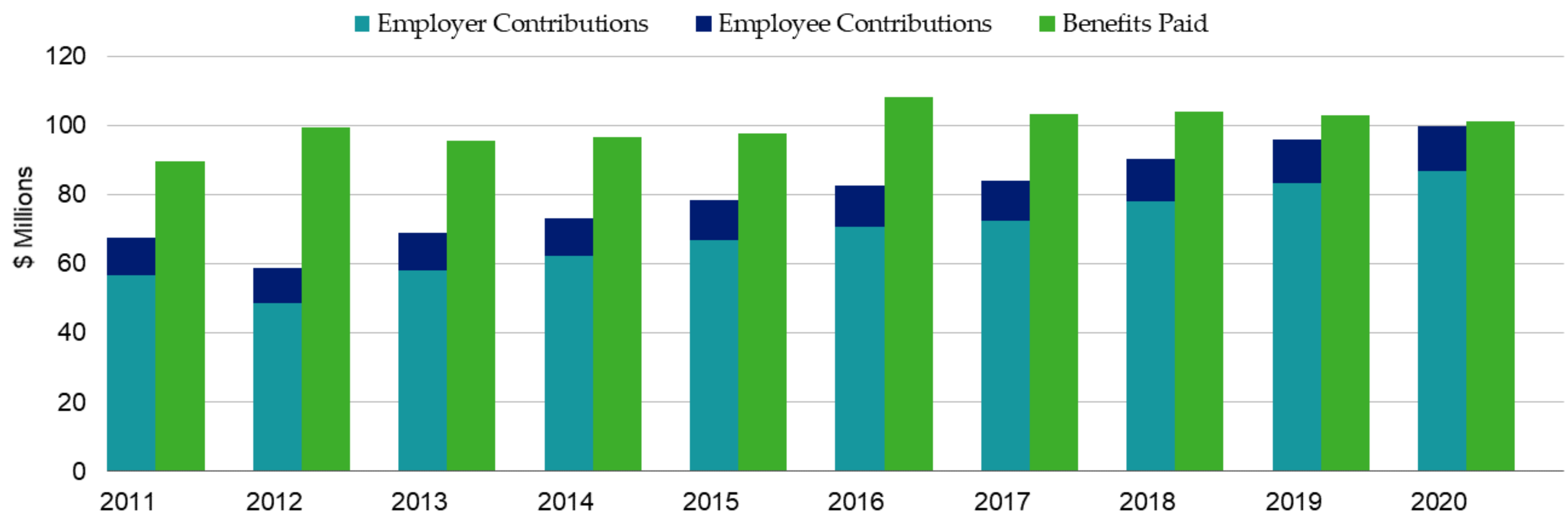


Financial information

Retirement plan funding anticipates that, over the long term, both contributions and investment earnings (less investment fees) will be needed to cover benefit payments and administrative expenses. Retirement plan assets change as a result of the net impact of these income and expense components.

Additional financial information, including a summary of transactions for the valuation year, is presented in *Section 3, Exhibits I* and *J*.

Comparison of Contributions with Benefits for Years Ended June 30, 2011 – 2020



Section 2: Actuarial Valuation Results

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board has approved an asset valuation method that gradually adjusts to market value. Under this valuation method, the full value of market fluctuations is not recognized in a single year and, as a result, the asset value and the plan costs are more stable. The amount of the adjustment to recognize market value is treated as income, which may be positive or negative. Realized and unrealized gains and losses are treated equally and, therefore, the sale of assets has no immediate effect on the actuarial value.

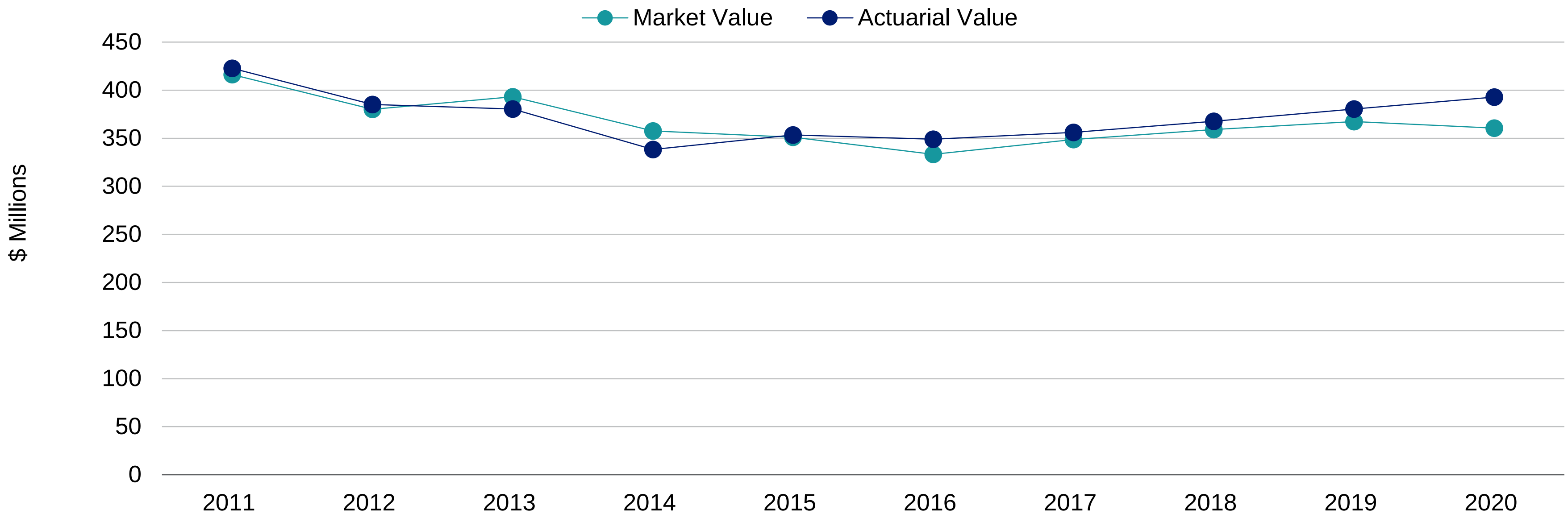
Determination of Actuarial Value of Assets for Year Ended June 30, 2020

1	Market value of assets, June 30, 2020					$360,598,000
2	Calculation of unrecognized return		**Original Amount[1]**	**Percent Deferred**	**Unrecognized Amount[2]**	
	(a)	Year ended June 30, 2020	-$30,798,825	80%	-$24,639,060	
	(b)	Year ended June 30, 2019	-13,374,080	60%	-8,024,448	
	(c)	Year ended June 30, 2018	-3,551,560	40%	-1,420,624	
	(d)	Year ended June 30, 2017	8,737,960	20%	1,747,592	
	(e)	Year ended June 30, 2016	-19,402,600	0%	0	
	(f)	Total unrecognized return				-32,336,540
3	Preliminary actuarial value: **(1) - (2f)**					$392,934,540
4	Adjustment to be within 20% corridor					0
5	Final actuarial value of assets as of June 30, 2020: **(3) + (4)**					392,934,540
6	Actuarial value as a percentage of market value: **(5) ÷ (1)**					109.0%
7	Amount deferred for future recognition: **(1) - (5)**					-$32,336,540

[1] Total return minus expected return on a market value basis.
[2] Recognition at 20% per year over five years.

Both the actuarial value and market value of assets are representations of the System's financial status. As investment gains and losses are gradually taken into account, the actuarial value of assets tracks the market value of assets. The actuarial asset value is significant because the System's liabilities are compared to these assets to determine what portion, if any, remains unfunded. Amortization of the unfunded actuarial accrued liability is an important element in determining the contribution requirement.

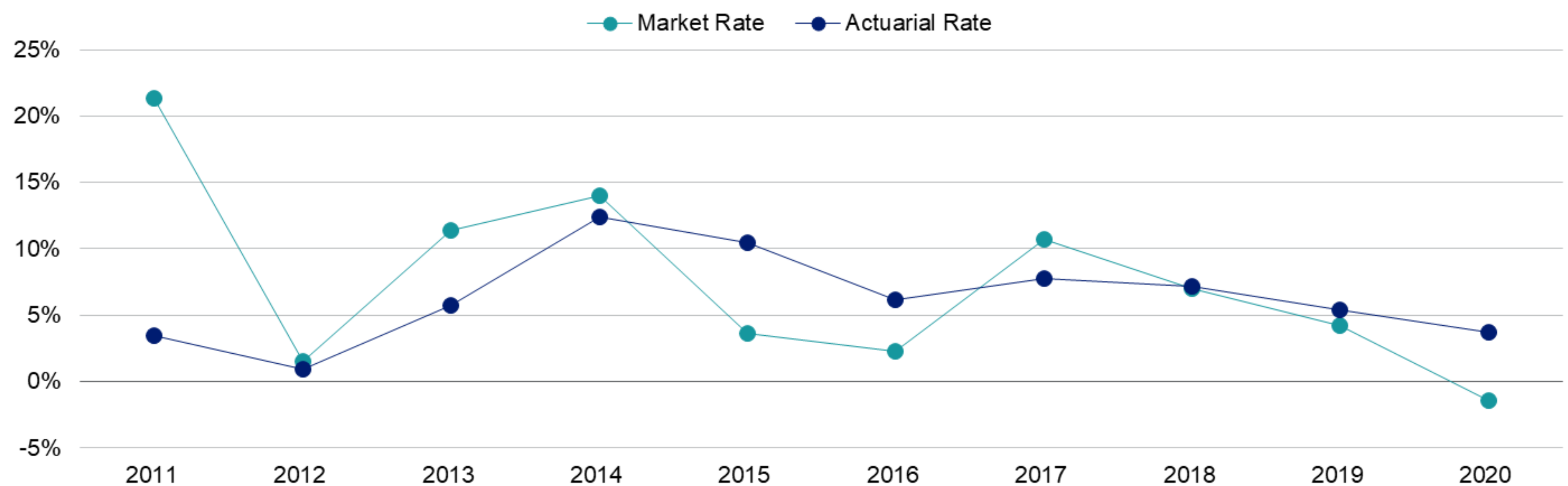
Market Value of Assets vs. Actuarial Value of Assets



Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the actual market value investment return for the last 10 years, including averages over select time periods.

As described earlier in this section, the actuarial asset valuation method gradually recognizes fluctuations in the market value rate of return. The goal of this is to stabilize the actuarial rate of return and to produce more level pension plan costs.

Market and Actuarial Rates of Return for Years Ended June 30, 2011 – 2020



Average Rates of Return	Actuarial Value	Market Value
Most recent five-year average return:	5.97%	4.40%
Most recent nine-year average return:	6.40%	5.72%

Actuarial experience

To calculate any actuarially determined contribution, assumptions are made about future events that affect the amount and timing of benefits to be paid and assets to be accumulated. Each year actual experience is measured against the assumptions. If overall experience is more favorable than anticipated (an actuarial gain), any contribution requirement will decrease from the previous year. On the other hand, any contribution requirement will increase if overall actuarial experience is less favorable than expected (an actuarial loss).

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that the single year's experience was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience.

If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years. An experience study for the three year period ending June 30, 2018 has been completed and the recommended changes from that study were reflected in the prior valuation.

Actuarial Experience for Year Ended June 30, 2020

1	Net loss from investments	-$12,602,909
2	Net loss from other experience	-11,836,323
3	Net experience loss: **1 + 2**	-$24,439,232

Investment experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Plan's investment policy. The rate of return on the market value of assets was -1.40% for the year ended June 30, 2020.

For valuation purposes, the assumed rate of return on the actuarial value of assets was 7.00% for the year ended June 30, 2020. The actual rate of return on an actuarial basis for the 2020 plan year was 3.68%. Since the actual return for the year was less than the assumed return, the Plan experienced an actuarial loss during the year ended June 30, 2020 with regard to its investments.

Investment Experience

		Year Ended June 30, 2020	
		Market Value	**Actuarial Value**
1	Net investment income	-$5,144,000	$13,977,004
2	Average value of assets	366,497,500	379,713,036
3	Rate of return: **1 ÷ 2**	-1.40%	3.68%
4	Assumed rate of return	7.00%	7.00%
5	Expected investment income: **2 x 4**	$25,654,825	$26,579,913
6	Actuarial gain/(loss): **1 - 5**	-$30,798,825	-$12,602,909

Other experience

There are other differences between the expected and the actual experience that appear when the new valuation is compared with the projections from the previous valuation. These include:

- The extent of turnover among participants,
- Retirement experience (earlier or later than projected),
- Mortality (more or fewer deaths than expected),
- The number of disability retirements (more or fewer than projected), and
- Salary increases (greater or smaller than projected).

The net loss from this other experience for the year ended June 30, 2020 amounted to $11,836,323, which is 0.7% of the actuarial accrued liability. The primary sources of this loss were the additional liability associated with the reinstatement of COLAs for certain Class B retirees that had opted out of the Consent Judgments, additional liability associated with the new five-year agreement for the Providence Fraternal Order of Police, Lodge No.3, and salary increases greater than assumed. The losses were partially offset by gains due to greater mortality and fewer new retirements than assumed.

Changes in the actuarial accrued liability

The actuarial accrued liability as of July 1, 2020 is $1,641,199,008, an increase of $47,552,982, or 3.0%, from the actuarial accrued liability as of the prior valuation date. The liability is expected to grow each year with normal cost and interest, and to decline due to benefit payments made. Additional fluctuations can occur due to actual experience that differs from expected (as discussed in the previous subsection) and changes in assumptions, if any.

Actuarial assumptions

There were no changes in actuarial assumptions reflected in this year's valuation. Details on actuarial assumptions and methods are in *Section 4, Exhibit I.*

Plan provisions

This valuation reflects the terms of the bargaining agreement with the Providence Fraternal Order of Police, Lodge No.3 for the period July 1, 2019 through June 30, 2023. The bargaining agreement includes base salary increases of 4.5% on July 1, 2019, July 1, 2020, and July 1, 2021 and an increase of 3.75% on July 1, 2022. In addition, the contribution rate for Police will increase from 8% to 10.25% on July 1, 2019, to 11.50% on July 1, 2020, to 12.00% on July 1, 2021, and to 13.50% on July 1, 2022.

A summary of plan provisions is in *Section 4, Exhibit II*.

Development of Unfunded Actuarial Accrued Liability for Year Ended June 30, 2020

1	Unfunded actuarial accrued liability at beginning of year		$1,213,177,490
2	Normal cost at beginning of year		24,016,171
3	Employer contributions		-86,723,000
4	Employee contributions		-12,842,000
5	Interest		
	For whole year on **1 + 2**	$86,603,556	
	For half year on **4**	-406,981	
	Total interest		86,196,575
5	Expected unfunded/(overfunded) actuarial accrued liability		$1,223,825,236
6	Changes due to:		
	(a) Net loss from investments	$12,602,909	
	(b) Net loss from other experience	11,836,323	
	Total changes		24,439,232
7	Unfunded actuarial accrued liability at end of year		$1,248,264,468

Actuarially determined contribution

The Actuarially Determined Contribution is equal to the employer normal cost payment and a payment on the unfunded actuarial accrued liability. For fiscal 2021 and fiscal 2022, the Actuarially Determined Contribution is set to the previously budgeted amounts of $90,483,926, and $93,585,059, respectively. The results of this valuation will first be reflected in the fiscal 2023 employer contribution of $100,323,373. The unfunded liability, less the liability associated with the 1995 Deferral, is amortized through June 30, 2040 with amortization payments that are calculated to increase 5.3% per year (beginning in fiscal 2023). The 1995 deferral liability is amortized through June 30, 2031 in level payments.

The determination of the Actuarially Determined Contribution projected through fiscal 2040 is shown on the following page. Liabilities are rolled forward using standard actuarial techniques and the actuarial value of assets is projected based on anticipated employer contributions and assuming the market value of assets return 7.00% net of investment expenses.

Actuarially Determined Contribution for Year Beginning July 1

		2020		2019	
		Amount	% of Projected Compensation	Amount	% of Projected Compensation
1	Total normal cost	$26,015,311	15.41%	$24,016,171	15.06%
2	Expected employee contributions	-14,365,308	-8.51%	-12,692,801	-7.96%
3	Employer normal cost: (1) + (2)	$11,650,003	6.90%	$11,323,370	7.10%
4	Actuarial accrued liability	1,641,199,008		1,593,646,026	
5	Actuarial value of assets	392,934,540		380,468,536	
6	Unfunded actuarial accrued liability: (4) - (5)	$1,248,264,468		$1,213,177,490	
7	Amortization of unfunded actuarial accrued liability	72,914,414	43.19%	69,726,541	43.71%
8	Actuarially determined contribution for fiscal 2021 and 2020: (3) + (7), adjusted for timing	$90,483,926	53.59%	$86,723,404	54.37%
9	Projected compensation	$168,841,260		$159,504,851	

Notes:

Fiscal 2021 and 2020 Actuarially Determined Contribution set to previously budgeted amounts.

Contributions are assumed to be paid on June 30.

Funding schedule

(1) Fiscal Year Ended June 30:	(2) Employer Normal Cost	(3) Amortization of Deferral Liability	(4) Amortization of Remaining Unfunded Liability	(5) Actuarially Determined Contribution: (2)+(3)+(4)	(6) Increase	(7) Payroll	(8) Contributions as a % of Payroll	(9) Actuarial Accrued Liability	(10) Actuarial Value of Assets	(11) Total Unfunded Actuarial Accrued Liability	(12) Funded Ratio
2021	$12,465,503	$440,457	$77,577,966	$90,483,926		$168,841,260	53.59%	$1,641,199,008	$392,934,540	$1,248,264,468	23.94%
2022	12,786,705	440,457	80,357,897	93,585,059	3.43%	$174,400,893	53.66%	1,672,378,611	404,693,194	1,267,685,417	24.20%
2023	12,725,327	440,457	87,157,589	100,323,373	7.20%	$179,891,241	55.77%	1,710,555,776	423,668,093	1,286,887,682	24.77%
2024	13,153,161	440,457	92,481,931	106,075,549	5.73%	$185,287,979	57.25%	1,750,065,068	450,809,109	1,299,255,959	25.76%
2025	13,595,284	440,457	97,879,146	111,914,887	5.50%	$190,846,618	58.64%	1,790,289,696	486,417,259	1,303,872,437	27.17%
2026	14,052,170	440,457	103,066,740	117,559,367	5.04%	$196,572,016	59.80%	1,830,619,840	533,795,935	1,296,823,905	29.16%
2027	14,524,308	440,457	108,529,278	123,494,042	5.05%	$202,469,176	60.99%	1,871,252,815	587,158,434	1,284,094,381	31.38%
2028	15,012,206	440,457	114,281,329	129,733,992	5.05%	$208,543,251	62.21%	1,912,251,579	647,240,325	1,265,011,254	33.85%
2029	15,516,387	440,457	120,338,240	136,295,084	5.06%	$214,799,549	63.45%	1,953,558,001	714,717,746	1,238,840,255	36.59%
2030	16,037,390	440,457	126,716,166	143,194,013	5.06%	$221,243,536	64.72%	1,995,513,338	790,732,962	1,204,780,376	39.63%
2031	16,575,774	440,457	133,432,123	150,448,354	5.07%	$227,880,842	66.02%	2,038,117,036	876,158,657	1,161,958,379	42.99%
2032	17,132,117	0	140,504,026	157,636,143	4.78%	$234,717,268	67.16%	2,081,512,250	972,089,364	1,109,422,886	46.70%
2033	17,707,013	0	147,950,739	165,657,752	5.09%	$241,758,785	68.52%	2,126,330,994	1,079,752,532	1,046,578,462	50.78%
2034	18,301,078	0	155,792,128	174,093,206	5.09%	$249,011,548	69.91%	2,173,110,780	1,201,222,565	971,888,215	55.28%
2035	18,914,947	0	164,049,111	182,964,058	5.10%	$256,481,894	71.34%	2,222,418,690	1,338,290,428	884,128,262	60.22%
2036	19,549,279	0	172,743,714	192,292,993	5.10%	$264,176,351	72.79%	2,274,589,165	1,492,621,035	781,968,130	65.62%
2037	20,204,750	0	181,899,131	202,103,881	5.10%	$272,101,641	74.28%	2,330,224,875	1,666,262,690	663,962,185	71.51%
2038	20,882,061	0	191,539,784	212,421,845	5.11%	$280,264,691	75.79%	2,389,690,246	1,861,149,838	528,540,408	77.88%
2039	21,581,936	0	201,691,393	223,273,329	5.11%	$288,672,632	77.34%	2,453,759,681	2,079,761,229	373,998,452	84.76%
2040	22,305,124	0	212,381,037	234,686,161	5.11%	$297,332,811	78.93%	2,522,482,764	2,323,995,813	198,486,951	92.13%
2041	23,052,396	0	0	23,052,396	-90.18%	$306,252,795	7.53%	2,596,423,612	2,596,423,612	0	100.00%

Notes:
Fiscal 2021 and 2022 contributions set at previously budgeted amounts.
Contributions are assumed to be paid on June 30. If the contribution is made on a different date, Segal will adjust the interest charge based on the actual date of payment.
Items (2) and (7) reflect 3.0% growth in payroll (4.5% in fiscal 2022 and 3.75% in fiscal 2023 for Police) as well as a 0.15% adjustment to total normal cost to reflect the effects of mortality improvements due to the generational mortality assumption.
Amortization payments of remaining unfunded liability increase at 5.3% per year beginning with fiscal year 2023.
Projected unfunded actuarial accrued liability reflects deferred investment losses. Recognizing deferred investment losses means the System is anticipating investment losses on an actuarial basis.
Normal cost is projected based on plan of benefits of current employees and does not reflect different benefits for new hires, if applicable.

Contribution by class and department

The chart below shows the contribution for fiscal 2022 and fiscal 2023 for Class A and Class B.

		Class A		Class B - Police		Class B - Fire		Class B - Total	
		Amount	% of Pay	Amount	% of Pay	Amount	% of Pay	Amount	% of Pay
1	Total normal cost	$10,382,614	9.95%	$8,046,791	23.92%	$7,585,906	24.29%	$15,632,697	24.09%
2	Expected employee contributions	-8,322,248	-7.98%	-3,481,245	-10.35%	-2,561,815	-8.20%	-6,043,060	-9.31%
3	Employer normal cost: **(1) + (2)**	$2,060,366	1.98%	$4,565,546	13.57%	$5,024,091	16.09%	$9,589,637	14.78%
4	Actuarial accrued liability	551,615,153		520,505,686		569,078,169		1,089,583,855	
5	Actuarial value of assets	132,067,254		124,619,051		136,248,235		260,867,286	
6	Unfunded actuarial accrued liability (UAAL): **(4) - (5)**	$419,547,899		$395,886,635		$432,829,934		$828,716,569	
7	Total fiscal 2022 contribution	$29,878,505	28.64%	$31,089,072	92.40%	$32,617,482	104.43%	$63,706,554	98.19%
8	Projected compensation as of July 1, 2021	104,337,855		33,647,747		31,233,095		64,880,842	
9	Total fiscal 2023 contribution	33,719,185	30.49%	31,817,522	89.04%	34,786,666	103.69%	66,604,188	96.13%
10	Projected compensation as of July 1, 2022	110,607,231		35,734,492		33,549,518		69,284,009	

Notes:
Contributions are assumed to be paid on June 30. If the contribution is made before or after June 30, Segal will calculate the change in interest charge based on the actual date of payment.
July 1, 2020 actuarial value of assets allocated in proportion to July 1, 2020 actuarial accrued liability.
Fiscal 2022 allocation and projected compensation as of July 1, 2021 are based on July 1, 2019 actuarial valuation report.
Class A includes Elected Officials.

The chart below shows the contribution for fiscal 2022 and fiscal 2023 for the departments of Class A.

Class A Contribution by Department

	Fiscal 2022		Fiscal 2023	
	Total Contribution	**Projected Compensation**	**Total Contribution**	**Projected Compensation**
General	$12,401,151	$43,305,701	$13,649,510	$44,773,756
School	11,061,390	38,627,156	12,971,846	42,550,850
School Crossing Guards	307,322	1,073,189	355,254	1,165,321
Water	4,129,173	14,419,364	4,604,461	15,103,765
Workforce Development (JTPA)	291,940	1,019,475	288,694	946,988
Fire Civilians	379,490	1,325,206	409,906	1,344,592
Police Civilians	1,308,039	4,567,764	1,439,514	4,721,959
Total	$29,878,505	$104,337,855	$33,719,185	$110,607,231

Notes:
Contribution is allocated in proportion to projected compensation.
Fiscal 2022 allocation and projected compensation are based on July 1, 2019 actuarial valuation report.

Risk

Since the actuarial valuation results are dependent on a given set of assumptions and data as of a specific date, there is a risk that emerging results may differ significantly as actual experience differs from the assumptions.

This report does not contain a detailed analysis of the potential range of future measurements, but does include a brief discussion of some risks that may affect the System. We recommend a more detailed assessment of the risks to provide the Trustees with a better understanding of the risks inherent in the System. This assessment may include scenario testing, sensitivity testing, stress testing and stochastic modeling.

- **Investment Risk** (the risk that returns will be different than expected)

  The market value rate of return over the last 12 years has ranged from a low of -13.42% in 2009 to a high of 21.33% in 2011.

- **Longevity Risk** (the risk that mortality experience will be different than expected)

  The actuarial valuation includes an expectation of future improvement in life expectancy. Emerging plan experience that does not match these expectations will result in either an increase or decrease in the actuarially determined contribution.

- **Contribution Risk** (the risk that actual contributions will be different from actuarially determined contribution). If the system pays the actuarially determined contribution (ADC), contribution risk is negligible.

- **Demographic Risk** (the risk that participant experience will be different than assumed)

  Examples of this risk include:

  – Actual retirements occurring earlier or later than assumed.
  – Disability retirement experience different than assumed
  – More or less active participant turnover than assumed
  – Salary increases greater or less than expected

- **Actual Experience** in recent years and implications for the future

  Past experience can help demonstrate the sensitivity of key results to the System's actual experience. Over the past several years:

  The investment gain(loss) has ranged from a loss of $19,402,600 to a gain of $18,753,464.

  The non-investment gain(loss) has ranged from a loss of $15,267,386 to a gain of $13,225,018.

  The funded percentage on the actuarial value of assets has ranged from a low of 23.9% to a high of 33.6% since 2011.

- **Maturity Measures**

  As pension plans mature, the cash need to fulfill benefit obligations will increase over time. Therefore, cash flow projections and analysis should be performed to assure that the System's asset allocation is aligned to meet emerging pension liabilities.

  For the prior year, benefits paid were $1,511,000 more than contributions received. Because the employer contribution is made at the end of the year, the System will need cash from the investment portfolios to meet benefit payments.

Section 3: Supplemental Information

Exhibit A: Table of Plan Coverage – Class A Demographics

Category	Year Ended June 30: 2020	Year Ended June 30: 2019	Change From Prior Year
Active participants in valuation:			
• Number	2,170	2,130	1.9%
• Average age	49.0	48.9	0.1
• Average years of service	12.2	12.0	0.2
• Total compensation	$101,145,962	$95,453,810	6.0%
• Average compensation	46,611	44,814	4.0%
• Participant contributions	116,260,789	105,932,354	9.8%
Inactive participants in valuation:			
• Inactive entitled to a refund of employee contributions	393	412	-4.6%
• Inactive participants with a vested right to a deferred or immediate benefit	49	64	-23.4%
Retired participants:			
• Number in pay status	1,463	1,512	-3.2%
• Average age	72.6	72.7	-0.1
• Average monthly benefit	$1,553	$1,558	-0.3%
• Number in suspended status	0	0	N/A
Disabled participants:			
• Number in pay status	80	83	-3.6%
• Average age	70.4	69.7	0.7
• Average monthly benefit	$1,688	$1,656	1.9%
Beneficiaries:			
• Number in pay status	184	196	-6.1%
• Average age	76.0	76.9	-0.9
• Average monthly benefit	$1,391	$1,326	4.9%

Note:
Includes elected officials.

Exhibit B: Table of Plan Coverage – Class B Demographics

Category	Year Ended June 30 2020	Year Ended June 30 2019	Change From Prior Year
Active participants in valuation:			
• Number	861	887	-2.9%
• Average age	40.9	40.3	0.6
• Average years of service	13.2	12.6	0.6
• Total compensation	$62,045,153	$59,344,993	4.5%
• Average compensation	72,062	66,905	7.7%
• Participant contributions	87,079,266	80,686,093	7.9%
Inactive participants in valuation:			
• Inactive entitled to a refund of employee contributions	18	20	-10.0%
• Inactive participants with a vested right to a deferred or immediate benefit	3	4	-25.0%
Retired participants:			
• Number in pay status	723	732	-1.2%
• Average age	65.5	65.5	0.0
• Average monthly benefit	$3,362	$3,329	1.0%
• Number in suspended status	0	0	N/A
Disabled participants:			
• Number in pay status	372	385	-3.4%
• Average age	68.3	67.6	0.7
• Average monthly benefit	$4,974	$4,737	5.0%
Beneficiaries:			
• Number in pay status	330	347	-4.9%
• Average age	74.8	75.8	-1.0
• Average monthly benefit	$2,732	$2,726	0.2%

Note:
The reported pay for Police was increased by 4.5% to reflect the bargaining agreement with the Providence Fraternal Order of Police, Lodge No. 3 that was retroactive to July 1, 2019.

Exhibit C: Participants in Active Service as of June 30, 2020 – Class A by Age, Years of Service, and Average Compensation

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	44	44	--	--	--	--	--	--	--	0
	$31,496	$31,496	--	--	--	--	--	--	--	-
25 - 29	121	104	17	--	--	--	--	--	--	--
	$41,003	$40,286	$45,391	--	--	--	--	--	--	--
30 - 34	170	96	63	11	--	--	--	--	--	--
	$50,923	$52,644	$49,639	$43,248	--	--	--	--	--	--
35 - 39	195	87	56	42	10	--	--	--	--	--
	$50,352	$52,369	$48,009	$49,442	$49,742	--	--	--	--	--
40 - 44	221	65	42	47	38	29	--	--	--	--
	$47,210	$42,437	$49,117	$49,032	$51,066	$47,138	--	--	--	--
45 - 49	306	75	47	53	47	65	16	3	--	--
	$46,455	$43,045	$48,585	$43,149	$47,817	$49,677	$49,656	$48,491	--	--
50 - 54	363	66	64	51	67	67	35	13	--	--
	$48,281	$37,897	$44,639	$39,962	$49,247	$54,288	$66,272	$67,187	--	--
55 - 59	338	46	63	55	64	59	34	15	2	--
	$45,643	$41,220	$40,898	$44,519	$41,359	$50,346	$55,557	$53,625	$97,715	--
60 - 64	253	31	43	48	42	46	29	11	2	1
	$46,366	$46,673	$40,595	$37,807	$42,738	$48,256	$57,399	$80,097	$52,283	$58,507
65 - 69	103	12	18	16	19	13	12	8	1	4
	$46,060	$34,804	$43,626	$41,336	$51,588	$43,226	$41,936	$64,195	$35,459	$71,385
70 & over	56	4	8	10	11	5	4	8	2	4
	$40,120	$45,354	$31,761	$35,404	$41,159	$36,909	$68,793	$39,732	$44,567	$34,432
Total	2,170	630	421	333	298	284	130	58	7	9
	$46,611	$43,834	$45,492	$43,425	$46,509	$49,894	$57,276	$60,961	$60,656	$53,530

Exhibit D: Participants in Active Service as of June 30, 2020 – Class B by Age, Years of Service, and Average Compensation

		Years of Service								
Age	Total	0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	35	35	--	--	--	--	--	--	--	--
	$52,684	$52,684	--	--	--	--	--	--	--	--
25 - 29	126	94	32	--	--	--	--	--	--	--
	$57,916	$54,346	$68,402	--	--	--	--	--	--	--
30 - 34	151	80	56	15	--	--	--	--	--	--
	$61,865	$53,560	$69,989	$75,828	--	--	--	--	--	--
35 - 39	120	32	28	47	13	--	--	--	--	--
	$70,930	$58,605	$72,014	$75,876	$81,053	--	--	--	--	--
40 - 44	102	11	13	31	47	--	--	--	--	--
	$73,997	$56,364	$72,972	$74,611	$78,003	--	--	--	--	--
45 - 49	102	1	4	17	48	19	13	--	--	--
	$80,652	$44,970	$73,327	$75,314	$79,028	$87,123	$89,170	--	--	--
50 - 54	123	1	1	7	29	23	42	20	--	--
	$84,952	$71,472	$79,495	$73,859	$78,420	$84,527	$90,204	$88,713	--	--
55 - 59	87	--	--	1	12	7	27	38	2	--
	$85,250	--	--	$70,602	$79,299	$81,341	$83,787	$87,980	$109,858	--
60 - 64	15	--	--	--	2	1	2	6	3	1
	$94,036	--	--	--	$73,819	$77,365	$76,796	$92,398	$116,771	$127,246
Total	861	254	134	118	151	50	84	64	5	1
	$72,062	$54,524	$70,493	$75,292	$78,719	$84,924	$87,662	$88,623	$114,006	$127,246

Note:

The reported pay for Police was increased by 4.5% to reflect the bargaining agreement with the Providence Fraternal Order of Police, Lodge No. 3 that was retroactive to July 1, 2019.

Exhibit E: Service Retirees as of June 30, 2020

	Class A		Class B		Total	
Age	Number	Amount	Number	Amount	Number	Amount
40 - 44	0	$0	0	$0	0	$0
45 - 49	4	104,791	12	340,254	16	445,045
50 - 54	16	435,687	70	2,252,760	86	2,688,447
55 - 59	73	1,826,636	142	4,982,129	215	6,808,765
60 - 64	191	4,241,898	157	6,398,789	348	10,640,687
65 - 69	339	6,742,463	120	5,266,844	459	12,009,307
70 - 74	279	5,250,050	100	4,665,177	379	9,915,227
75 - 79	207	3,387,433	49	2,373,982	256	5,761,415
80 - 84	167	2,344,504	35	1,422,422	202	3,766,926
85 - 89	113	1,941,359	25	977,009	138	2,918,368
90 - 94	57	976,935	11	383,052	68	1,359,987
95 - 99	14	197,546	2	104,455	16	302,001
100 & over	3	42,221	0	0	3	42,221
Total	1,463	$27,491,523	723	$29,166,873	2,186	$56,658,396

Exhibit F: Class A Disabled Retirees as of June 30, 2020

	Ordinary		Accidental		Total	
Age	Number	Amount	Number	Amount	Number	Amount
40 - 44	0	$0	0	$0	0	$0
45 - 49	1	4,845	1	33,665	2	38,510
50 - 54	2	49,991	1	23,173	3	73,164
55 - 59	7	71,702	5	136,316	12	208,018
60 - 64	3	41,013	5	98,762	8	139,775
65 - 69	2	21,190	10	257,712	12	278,902
70 - 74	1	4,087	10	243,551	11	247,638
75 - 79	1	21,352	12	231,120	13	252,472
80 - 84	1	10,720	11	220,753	12	231,473
85 - 89	0	0	5	109,442	5	109,442
90 - 94	0	0	2	40,616	2	40,616
95 - 99	0	0	0	0	0	0
100 & over	0	0	0	0	0	0
Total	18	$224,900	62	$1,395,110	80	$1,620,010

Exhibit G: Class B Disabled Retirees as of June 30, 2020

	Ordinary		Accidental		Total	
Age	Number	Amount	Number	Amount	Number	Amount
25 - 29	0	$0	0	$0	0	$0
30 - 35	0	0	1	36,028	1	36,028
35 - 39	0	0	0	0	0	0
40 - 44	0	0	3	134,061	3	134,061
45 - 49	2	35,228	9	375,011	11	410,239
50 - 54	4	84,953	22	948,238	26	1,033,191
55 - 59	5	106,936	36	1,516,079	41	1,623,015
60 - 64	4	79,396	58	3,087,037	62	3,166,433
65 - 69	0	0	47	2,811,762	47	2,811,762
70 - 74	0	0	73	4,708,932	73	4,708,932
75 - 79	0	0	50	3,491,528	50	3,491,528
80 - 84	0	0	31	2,519,329	31	2,519,329
85 - 89	0	0	19	1,657,107	19	1,657,107
90 - 94	1	19,104	6	554,257	7	573,361
95 - 99	0	0	0	0	0	0
100 & over	0	0	1	38,951	1	38,951
Total	16	$325,617	356	$21,878,320	372	$22,203,937

Exhibit H: Beneficiaries as of June 30, 2020

	Class A		Class B		Total	
Age	Number	Amount	Number	Amount	Number	Amount
20 - 24	1	$26,298	0	$0	1	$26,298
25 - 29	0	0	0	0	0	0
30 - 35	0	0	0	0	0	0
35 - 39	0	0	0	0	0	0
40 - 44	1	13,590	1	24,901	2	38,491
45 - 49	3	26,476	3	67,305	6	93,781
50 - 54	4	183,328	6	137,006	10	320,334
55 - 59	6	86,044	22	471,369	28	557,413
60 - 64	19	367,547	24	539,888	43	907,435
65 - 69	29	540,897	47	1,577,503	76	2,118,400
70 - 74	21	348,031	56	1,906,788	77	2,254,819
75 - 79	17	283,313	44	1,574,527	60	1,846,479
80 - 84	23	289,644	44	1,806,586	67	2,096,230
85 - 89	26	381,902	40	1,530,346	66	1,912,248
90 - 94	27	466,574	32	951,924	59	1,418,498
95 - 99	5	38,727	9	182,781	14	221,508
100 & over	2	19,887	0	0	2	19,887
Certain Only	0	0	2	47,555	3	58,916
Total	184	$3,072,258	330	$10,818,479	514	$13,890,737

Exhibit I: Summary Statement of Income and Expenses on a Market Value Basis

	Year Ended June 30, 2020		Year Ended June 30, 2019	
Net assets at market value at the beginning of the year		$367,253,000		$358,997,000
Contribution income:				
• Employer contributions	$86,723,000		$83,357,000	
• Employee contributions	12,842,000		12,654,000	
Net contribution income		99,565,000		96,011,000
Net investment income		-5,144,000		15,073,000
Total income available for benefits		$94,421,000		$111,084,000
Less benefit payments:		-101,076,000		-102,828,000
Change in reserve for future benefits		-$6,655,000		$8,256,000
Net assets at market value at the end of the year		$360,598,000		$367,253,000

Exhibit J: Development of the Fund through June 30, 2020

Year Ended June 30	Employer Contributions	Employee Contributions	Net Investment Return	Benefit Payments	Market Value of Assets at Year-End	Actuarial Value of Assets at Year-End	Actuarial Value as a Percent of Market Value
2011	$56,654,000	$10,708,000	$71,100,244	$89,636,000	$416,275,009	$422,839,189	101.6%
2012	48,583,000	10,291,000	621,797	99,273,000	380,252,177	385,106,813	101.3%
2013	58,145,000	10,940,000	31,707,000	95,402,000	393,059,827	380,484,015	96.8%
2014	62,140,000	10,873,000	41,549,000	96,570,000	357,712,000	338,253,329	94.6%
2015	66,876,000	11,624,000	12,507,000	97,651,000	351,068,000	353,520,549	100.7%
2016	70,704,000	12,043,000	7,665,000	108,193,000	333,287,000	349,094,428	104.7%
2017	72,396,000	11,419,000	34,630,000	103,088,000	348,644,000	356,030,203	102.1%
2018	78,123,000	12,246,000	23,802,000	103,818,000	358,997,000	367,599,364	102.4%
2019	83,357,000	12,654,000	15,073,000	102,828,000	367,253,000	380,468,536	103.6%
2020	86,723,000	12,842,000	-5,144,000	101,076,000	360,598,000	392,934,540	109.0%

Notes:

Net investment return is net of investment expenses.

Assets as of July 1, 2013 and earlier years include the discounted contribution expected to be paid by the City for the fiscal year following the valuation date.

Figures do not add due to the inclusion of discounted contributions in 2013 and earlier years.

Exhibit K: Definition of Pension Terms

The following list defines certain technical terms for the convenience of the reader:

Actuarial Accrued Liability for Actives:	The equivalent of the accumulated normal costs allocated to the years before the valuation date.
Actuarial Accrued Liability for Retirees and Beneficiaries:	Actuarial Present Value of lifetime benefits to existing retirees and beneficiaries. This sum takes account of life expectancies appropriate to the ages of the annuitants and the interest that the sum is expected to earn before it is entirely paid out in benefits.
Actuarial Cost Method:	A procedure allocating the Actuarial Present Value of Future Benefits to various time periods; a method used to determine the Normal Cost and the Actuarial Accrued Liability that are used to determine the actuarially determined contribution.
Actuarial Gain or Loss:	A measure of the difference between actual experience and that expected based upon a set of Actuarial Assumptions, during the period between two Actuarial Valuation dates. To the extent that actual experience differs from that assumed, Actuarial Accrued Liabilities emerge which may be the same as forecasted, or may be larger or smaller than projected. Actuarial gains are due to favorable experience, e.g., assets earn more than projected, salary increases are less than assumed, members retire later than assumed, etc. Favorable experience means actual results produce actuarial liabilities not as large as projected by the actuarial assumptions. On the other hand, actuarial losses are the result of unfavorable experience, i.e., actual results yield actuarial liabilities that are larger than projected.
Actuarially Equivalent:	Of equal Actuarial Present Value, determined as of a given date and based on a given set of Actuarial Assumptions.
Actuarial Present Value (APV):	The value of an amount or series of amounts payable or receivable at various times, determined as of a given date by the application of a particular set of Actuarial Assumptions. Each such amount or series of amounts is: Adjusted for the probable financial effect of certain intervening events (such as changes in compensation levels, marital status, etc.) Multiplied by the probability of the occurrence of an event (such as survival, death, disability, withdrawal, etc.) on which the payment is conditioned, and Discounted according to an assumed rate (or rates) of return to reflect the time value of money.

Actuarial Present Value of Future Benefits:	The Actuarial Present Value of benefit amounts expected to be paid at various future times under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age, anticipated future compensation, and future service credits. The Actuarial Present Value of Future Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund of member contributions 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.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan, as well as Actuarially Determined Contributions.
Actuarial Value of Assets (AVA):	The value of the Plan's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use 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.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the Plan.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is intended to pay off the Unfunded Actuarial Accrued Liability.

Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Plan is calculated, including: Investment return - the rate of investment yield that the Plan will earn over the long-term future; Mortality rates - the rate or probability of death at a given age for employees and retirees; Retirement rates - the rate or probability of retirement at a given age or service; Disability rates - the rate or probability of disability retirement at a given age; Withdrawal rates - the rate or probability at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; Salary increase rates - the rates of salary increase due to inflation, real wage growth and merit and promotion increases.
Closed Amortization Period:	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc. See Open Amortization Period.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula based on the member's compensation, age and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Employer Normal Cost:	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience Study:	A periodic review and analysis of the actual experience of the Plan that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified based on recommendations from the Actuary.
Funded Ratio:	The ratio of the Actuarial Value of Assets AVA to the Actuarial Accrued Liability (AAL). Plans sometimes also calculate a market funded ratio, using the Market Value of Assets (MVA), rather than the AVA.

GASB 67 and GASB 68:	Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. These are the governmental accounting standards that set the accounting rules for public retirement systems and the employers that sponsor or contribute to them. Statement No. 68 sets the accounting rules for the employers that sponsor or contribute to public retirement systems, while Statement No. 67 sets the rules for the systems themselves.
Investment Return:	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Net Pension Liability (NPL):	The Net Pension Liability is equal to the Total Pension Liability minus the Plan Fiduciary Net Position.
Normal Cost:	The portion of the Actuarial Present Value of Future Benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment with respect to an Unfunded Actuarial Accrued Liability is not part of the Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of member contributions and employer Normal Cost unless otherwise specifically stated.
Open Amortization Period:	An open amortization period is one which is used to determine the Amortization Payment but which does not change over time. If the initial period is set as 30 years, the same 30-year period is used in each future year in determining the Amortization Period.
Plan Fiduciary Net Position:	Market value of assets.
Total Pension Liability (TPL):	The actuarial accrued liability under the entry age normal cost method and based on the blended discount rate as described in GASB 67 and 68.
Unfunded Actuarial Accrued Liability:	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus or an Overfunded Actuarial Accrued Liability.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

Section 4: Actuarial Valuation Basis

Exhibit I: Actuarial Assumptions, Actuarial Cost Method and Models

Rationale for Demographic and Noneconomic Assumptions:	The information and analysis used in selecting each assumption that has a significant effect on this actuarial valuation is shown in the Actuarial Experience Review as of June 30, 2018.
Net Investment Return:	7.00%
Interest on Employee Contributions:	4.00%, compounded weekly. No interest for inactive members after five years.
Salary Increases:	3.0% per year, before reflecting longevity. For Police participants, 4.5% for fiscal 2021 and 2022, and 3.75% for fiscal 2023. Base wages are increased by the following percentages to reflect longevity compensation:

Class A Years of Service	Rate of base wage increase (%) Hired on or before October 23, 1999
5 – 10	4%
10 – 15	5%
15 – 20	6%
20+	7%
Years of Service	**Hired after October 23, 1999**
7 – 12	3%
12 – 17	4%
17 – 20	5%
20+	6%

Class B – Fire Years of Service	Rate of base wage increase (%) Hired on or before June 30, 1996
5 – 10	8%
10 – 15	9%
15 – 20	10%
20+	11%
Years of Service	**Hired after June 30, 1996**
5 – 10	7%
10 – 15	8%
15 – 20	9%
20+	10%

Class B – Police Years of Service	Rate of base wage increase (%) Hired on or before June 30, 1998
6 – 11	8%
11 – 16	9%
16 – 21	10%
21+	11%
Years of Service	**Hired after June 30, 1998**
6 – 11	7%
11 – 16	8%
16 – 21	9%

Section 415 Limit Increase Assumption: 2.5% per year

Cost-of-Living Adjustments:	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 Judgments 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. Any Class B retired participant whose total benefit 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. We have assumed that Class B average compensation for all ranks will increase by 3.0% per year. Future COLAs will not exceed 3% per year.
Mortality Rates:	**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

Annuitant Mortality Rates:

Rate per year (%)

	Class A					
	Healthy		Beneficiary		Disabled	
Age	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
55	0.43	0.29	0.82	0.45	2.11	1.74
60	0.62	0.38	1.01	0.62	2.50	1.96
65	0.91	0.61	1.38	0.90	3.04	2.26
70	1.53	1.06	2.13	1.35	3.90	2.86
75	2.67	1.88	3.38	2.15	5.19	4.00
80	4.77	3.36	5.36	3.57	7.35	6.01
85	8.59	6.21	8.74	6.32	10.82	9.33
90	14.67	11.49	14.42	11.33	16.25	13.67

	Class B					
	Healthy		Beneficiary		Disabled	
Age	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
55	0.31	0.26	0.82	0.45	0.48	0.46
60	0.51	0.45	1.01	0.62	0.74	0.70
65	0.88	0.77	1.38	0.90	1.19	1.06
70	1.57	1.33	2.13	1.35	1.91	1.61
75	2.83	2.30	3.38	2.15	3.24	2.44
80	5.10	3.96	5.36	3.57	5.60	3.96
85	9.14	6.84	8.74	6.32	9.21	6.84
90	15.86	11.82	14.42	11.33	15.86	11.82

Termination Rates Before Retirement:

	Class A – Rate (%)		
	Mortality		
Age	Male	Female	Disability
20	0.04	0.01	0.02
25	0.03	0.01	0.02
30	0.04	0.02	0.04
35	0.05	0.02	0.06
40	0.07	0.04	0.08
45	0.10	0.06	0.13
50	0.15	0.08	0.17
55	0.22	0.12	0.21
60	0.32	0.19	0.27

Notes:
Mortality rates do not reflect generational projection.
33.33% of the disability rates shown represent accidental disability.
40.00% of the death rates shown represent accidental death.

Age	Class B – Rate (%) Mortality Male	Class B – Rate (%) Mortality Female	Class B – Rate (%) Disability
20	0.04	0.02	0.08
25	0.04	0.02	0.13
30	0.04	0.03	0.19
35	0.05	0.04	0.25
40	0.06	0.05	0.37
45	0.08	0.07	0.66
50	0.12	0.09	1.14
55	0.18	0.12	1.64
60	0.26	0.17	2.28

Notes:
Mortality rates do not reflect generational projection.
90% of the disability rates shown represent accidental disability.
50% of the death rates shown represent accidental death.

Withdrawal Rates:

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

Retirement Rates:

	Rate per year (%)		
	Class A		
Age	Fewer than 10 Years of Service	10 Years of Service or More	Class B
40	2.00	2.50	5.50
41	2.25	2.50	5.50
42	2.50	2.50	5.50
43	2.75	2.50	5.50
44	3.00	2.50	5.50
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	5.00	10.00	7.25
52	5.50	10.00	7.50
53	6.00	10.00	7.75
54	6.50	10.00	8.00
55	7.00	10.00	10.00
56	7.00	10.00	12.50
57	7.00	10.00	15.00
58	7.00	10.00	17.50
59	7.00	10.00	25.00
60	10.00	7.50	100.00
61	11.00	7.50	- -
62	12.00	15.00	- -
63	13.00	15.00	- -
64	14.00	15.00	- -
65	15.00	20.00	- -
66 – 74	15.00	20.00	- -
75	100.00	100.00	- -

Retirement Rates for Vested Former Participants:	• Vested former participants who terminated after June 30, 2013: Assumed to retire at minimum age for a Normal Service Retirement. • Vested participants who terminated prior to June 30, 2013: Assumed to take an immediate refund of their employee contributions. • Current active participants who terminate after valuation date: – Participants in the Fire department who terminate with 23 or more years of service are assumed to retire on their 25th 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 Service Retirement and who terminate prior to age 45 or without vesting are assumed to take an immediate refund of their employee contributions. The retirement age for inactive vested participants was based on historical and current demographic data, adjusted to reflect economic conditions of the area and estimated future experience and professional judgment.
Unknown Data for Participants:	Same as those exhibited by participants with similar known characteristics. For retirees missing beneficiary information, Class A members who elected Option 2 or 3 and Class B members who did not elect Option 1 are assumed to have a beneficiary of the opposite sex with males three years older than females. However, for Class B retirees with retirement dates between July 1, 2005 and June 30, 2013 where all records are missing beneficiary information, 80% of retirees are assumed to have a beneficiary of the opposite sex with males three years older than females and 20% are assumed to be unmarried.
Percent Married:	80%
Age of Spouse:	Females three years younger than males.
Total Service:	Total service is based on 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 of the Police and Fire departments, respectively, to estimate the impact of Purchased Service.
2020 Salary:	Salaries for the year ending June 30, 2020 are equal to the total of pensionable wages earned during the plan year as provided in the data, except for participants who were hired during the plan year, those who were in transition from active to retiree status as of July 1, 2020 and participants receiving worker's compensation, for whom current rate of pay was provided. In addition, salaries for Police were increased by 4.5% to reflect the bargaining agreement with the Providence Fraternal Order of Police, Lodge No. 3 that was retroactive to July 1, 2019.
Benefit Election:	All participants are assumed to elect the Maximum Retirement Option.
Actuarial Value of Assets:	Market value of assets as reported in the City's Financial Statement less unrecognized returns in each of the last five years. Unrecognized return is equal to the difference between the actual market return and the expected market return, and is recognized over a five-year period, further adjusted, if necessary, to be within 20% of the market value.
Actuarial Cost Method:	Entry Age Normal Actuarial Cost Method. Entry Age is the age of the participant at date of hire. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and are allocated by salary. Normal Cost is determined by using the plan of benefits applicable to each participant.

Section 4: Actuarial Valuation Basis

Models:	Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Deterministic cost projections are based on a proprietary forecasting model. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.
Justification for Change in Actuarial Assumptions:	Based on past experience and future expectations, the following actuarial assumption was changed as of July 1, 2020: • Salary increases before reflecting longevity for Police participants were increased from 3.0% to 4.5% for fiscal 2022 and to 3.75% for fiscal 2023 to reflect the bargaining agreement with the Providence Fraternal Order of Police, Lodge No. 3. This change was reflected in the gain/loss due to it arising from the normal bargaining process.

Exhibit II: Summary of Plan Provisions

This exhibit summarizes the major provisions of the Plan included in the valuation. It is not intended to be, nor should it be interpreted as, a complete statement of all plan provisions.

Plan Year:	July 1 through June 30
Plan Status:	Ongoing
Normal Retirement:	• *Age and Service Requirements:* The minimum age for normal service retirement is: – Class A members hired prior to July 1, 1995: Age 55 or the age at which 25 years of service are completed, if earlier. – Class A members hired between July 1, 1995 and June 30, 2004: Age 55 or the age at which 30 years of service are completed, if earlier. – Class A members hired between July 1, 2004 and June 30, 2009: Age 60 or the age at which 30 years of service are completed, if earlier. – Class A members hired on or after July 1, 2009: Age 62 with 10 years of service or the age at which 30 years of service are completed, if earlier. – Class B members of the Police Department hired prior to July 1, 2011: Age 55 or the age at which 20 years of service are completed, if earlier. – Class B members of the Police Department hired on or after July 1, 2011: Age 55 or the age at which 25 years of service are completed, if earlier. – Class B members of the Fire Department hired prior to September 18, 2010: Age 55 or the age at which 20 years of service are completed, if earlier. – Class B members of the Fire Department hired between September 18, 2010 and June 30, 2012: Age 55 or the age at which 23 years of service are completed, if earlier. – Class B members of the Fire Department hired on or after July 1, 2012: Age 55 or the age at which 23 years of service are completed, if earlier, BUT cannot commence payment until the 25th anniversary of membership date. • *Amount:* – Annuity Based on Member Contributions: An annuity which is the actuarial equivalent of his or her accumulated contributions at the time of his or her retirement. – Pension Based on City Contributions: – Class A members hired prior to July 1, 1996: A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 2.5% of final compensation for each year of total service credited not in excess of 20 years, plus 2% of final compensation for each year of total service credited in excess of 20 years, limited to 100% of final compensation.

- Class A members hired on or after July 1, 1996: A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 2% of final compensation for each year of total service credited, limited to 100% of final compensation.
- Fire: A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 2.5% of final compensation for each year of total service credited not in excess of 20 years, plus 2% of final compensation for each year of total service credited in excess of 20 years, limited to 75% of final compensation.
- Police: A pension which, when added to the annuity, exclusive of any excess annuity, equals:
  - Members hired prior to September 1, 2001:

Years of Service	Percentage of Final Compensation	Years of Service	Percentage of Final Compensation
Prior to 20	2.5% per year	26	62%
20	50%	27	64%
21	52%	28	66%
22	54%	29	68%
23	56%	30	75%
24	58%	31	72%
25	65%	32	80%

  - Members hired on or after September 1, 2001 and prior to July 1, 2011:

Years of Service	Percentage of Final Compensation	Years of Service	Percentage of Final Compensation
Prior to 20	2.5% per year	26	62%
20	50%	27	64%
21	52%	28	66%
22	54%	29	68%
23	56%	30	70%
24	58%	31	72%
25	60%	32	75%

	• Members hired on or after July 1, 2011:

Years of Service	Percentage of Final Compensation	Years of Service	Percentage of Final Compensation
Prior to 25	2.0% per year	30	62.5%
25	50.0%	31	65.0%
26	52.5%	32	67.5%
27	55.0%	33	70.0%
28	57.5%	34	72.5%
29	60.0%	35	75.0%

- For Non-Union members of the Police Department, the same benefits as described above, but with a maximum benefit of 75% of compensation.

- Final compensation is the average of the highest four years of base compensation including longevity pay earned by a member during his total service as an employee.

Early Retirement:

- *Age Requirement:* Age 55 for Class A members hired on or after July 1, 2004. Other members will not receive early retirement benefits.
- *Service Requirement:* 10 years of service.
- *Amount:*
  – Class A members hired between July 1, 2004 and June 30, 2009: The member's Normal Service Retirement benefit reduced by 5/12% per month for each month between retirement commencement and age 60.
- Class A members hired on or after July 1, 2009: The member's Normal Service Retirement benefit reduced by 5/12% per month for each month between retirement commencement and age 62.

Deferred Retirement:

- *Age Requirement:* Minimum age for Normal Service Retirement.
- *Service Requirement:* 10 years of service.
- *Amount:* Same as Normal Service Retirement.
- Any member who withdraws from employment is eligible to receive a refund of his or her accumulated contributions at withdrawal, in lieu of a Deferred Retirement benefit.

Ordinary Disability Retirement:

- *Age Requirement:* None
- *Service Requirement:* 10 years of service.
- *Amount:*
  - Annuity Based on Member Contributions: An annuity which is the actuarial equivalent of his or her accumulated contributions at the time of his retirement.
  - Pension Based on City Contributions:
  - Class A members: A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 90% of 2% of final compensation for each year of total service which would have been credited had the member continued in service to the minimum age for a Normal Service Retirement. Such retirement allowance, exclusive of any excess annuity, is not to exceed 45% of final compensation.
  - Police: A pension which, when added to the annuity, will give a total retirement allowance equal to a percentage of final compensation, as described in the following table:

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

- Fire: A pension which, when added to the annuity, exclusive of any excess annuity, will give a total retirement allowance of 90% of 2.5% of final compensation for each year of total service which would have been credited had the member continued in service to the minimum age for a Normal Service Retirement. Such retirement allowance, exclusive of any excess annuity, is not to exceed 45% of the member’s final compensation.

Accidental Disability Retirement:	• *Age Requirement:* None • *Service Requirement:* None • *Amount:* – Annuity Based on Member Contributions: An annuity that is the actuarial equivalent of his or her accumulated contributions at the time of his or her retirement. – Pension Based on City Contributions: A pension of 66-2/3% of final compensation, but not less than the Normal Service Retirement allowance. Upon the death of a member within 5 years after accidental disability retirement as a result of an accident while in the performance of duty, a pension of one-half of the member's final compensation is paid to his or her widow until he or she dies or remarries, at which point the pension is paid to his or her child or children until they attain age 19. Upon the death of a Class B member beyond 5 years, 67.5% of his or her monthly benefit will be paid to his or her surviving spouse.
Accidental Death Benefit:	• *Age Requirement:* None • *Service Requirement:* None • *Amount:* If a member dies due to an accident in the performance of duty, a pension of one-half of the member's final compensation is paid to his or her surviving spouse until he or she dies or remarries, at which point the pension is payable to his or her child or children until they attain age 19. If there are no other dependents, the pension is payable to his or her dependent parents. In addition, a lump sum payment of the member's accumulated contributions is made.
Ordinary Death Benefit:	Should a member die before retirement, his or her estate or beneficiary is entitled to a refund of the member's accumulated contributions. If the member has attained minimum retirement age, has not made an optional election as described below and is survived by a spouse, such spouse is entitled, in lieu of the return of the member's accumulated contributions, to a benefit equal to that which would have been payable to such spouse upon the death of the member had the member retired on the day of his or her death and elected to receive a benefit under the provisions of Option 2, as described below, and nominated such spouse as his or her designated beneficiary. For a Class B member, the benefit to the spouse shall not be less than 67½% of the benefit that would have been paid to such retired member without reduction.
Benefit upon Death after Retirement:	• *Class A:* Benefits under any option as described below. • *Class B:* Upon the death of a Class B pensioner, 67½% of his or her retirement allowance is paid to his or her surviving spouse until he or she dies or remarries, at which point the benefit is paid to any dependent children until they attain age 18.

Options at Retirement:	• *Maximum Retirement Option:* An unreduced retirement allowance payable during the retired member's life, where no monthly payments will continue to the member's beneficiary, but where, upon the member's death, any unpaid portion of his or her accumulated contributions will be paid to his or her beneficiary. • *Option 1:* A reduced retirement allowance payable during the retired member's life, where no monthly payments will continue to the member's beneficiary, but where, upon the member's death, any amount that payments made are less than the present value of his or her retirement allowance at his or her date of retirement will be paid to his or her beneficiary. • *Option 2:* A reduced retirement allowance payable during the retired member's life, where upon the member's death, the entire monthly benefit will continue to be paid to his or her beneficiary for the remainder of his or her life. • *Option 3:* A reduced retirement allowance payable during the retired member's life, where upon the member's death, 50% of the monthly benefit will continue to be paid to his or her beneficiary for the remainder of his or her life. • *Option 4:* An unreduced retirement allowance payable during the retired member's life, where the member's accumulated contributions are paid immediately as a lump sum payment, with the pension portion of his or her benefit payable during the retired member's life, where no monthly payments will continue to the member's beneficiary. Class B members who retire on an Accidental Disability Retirement may not elect Option 4. Class B members may not elect Options 2 or 3. Married Class B members may not elect Option 1.

Cost of Living Adjustment:	A ten-year freeze period was implemented effective January 1, 2013 and no COLAs will be granted 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 the 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 the member's benefit is above either of these amounts, no COLA will be granted. 150% of the state median income as reported by the City was approximately $100,750 as of the valuation date. It is assumed that the median income will increase by 3.0% per year. The following COLAs will resume on January 1, 2023: • *Class A:* 3% compounded for certain eligible members who retired prior to December 18, 1991 and were not members of Local 1033. 3% simple on first $12,000 of annual benefit for members of Local 1033 who retired prior to December 18, 1991. None for members who retired after December 18, 1991. • *Police:* 5% compounded for members who retired prior to January 1, 1990; 6% compounded for members who retired between January 1, 1990 and December 18, 1991; 5% compounded for members who retired between December 19, 1991 and December 31, 1992; 3% simple on first $12,000 of annual benefit for Non-Union Police who retired January 1, 1993 and later; 3% compounded for other retired members who retired January 1, 1993 and later; 5% compounded for special court awarded members; for all members hired on or after July 1, 2012, the COLA will be based on the Consumer Price Index for the Northeast Region but shall not be less than 1% and shall not exceed 3% simple and 150% of the Rhode Island state median income. • *Fire:* 5% compounded for members who retired prior to January 1, 1990; 6% compounded for members who retired between January 1, 1990 and December 18, 1991; 5% compounded for members who retired between December 19, 1991 and June 30, 1992; 6% compounded for members who retired between July 1, 1992 and June 30, 1995; 3% simple on first $12,000 of annual benefit for members who retired between July 1, 1995 and March 16, 2006; 3% compounded for members who retired March 17, 2006 or later; 5% compounded for special court awarded members; for all members hired on or after July 1, 2012, the COLA will be based on the Consumer Price Index for the Northeast Region but shall not exceed 3% simple. The initial COLA payment is deferred until the January 1 that occurs three years after the member's retirement date.
Provisions for Elected Officials:	Any person who has served as Mayor or City Councilman for at least eight full legislative years prior to January 2015 is entitled to an additional retirement allowance on the basis of such 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 prior thereto. 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 in determining the allowance. Upon the death of any such elected official, benefits are payable in accordance with the Class A provisions of the act. An elected official may elect to withdraw his accumulated contributions in lieu of his rights to the allowance based on service as an elected official.

Section 4: Actuarial Valuation Basis

Contribution Rates:	• *Class A:* 8% of compensation. • *Police:* 11.5% of compensation for fiscal 2021, 12.0% for fiscal 2022 and 13.5% thereafter (previously, 8%) • *Firefighters hired before July 1, 2011:* 8% of compensation. • *Firefighters hired on or after July 1, 2011:* 9% of compensation. • *Elected Officials:* $350 per year plus 8% of compensation. Class B member contributions may cease after 32.5 years of service.
Changes in Plan Provisions:	The following plan provisions were reflected in this valuation:: • Contribution rates for Police participants were updated from 8.0% of compensation to 11.5% for fiscal 2021, 12.0% for fiscal 2022 and 13.5% for fiscal 2023