

Police and Firemen's Retirement System of New Jersey

Actuarial Valuation and Review as of July 1, 2022



This report has been prepared at the request of the Board of Trustees to assist in administering the System. 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.

© 2022 by The Segal Group, Inc. All rights reserved.

Segal



333 West 34th Street, 3rd Floor
New York, NY 10001-2402
segalco.com
T 212.251.5000

December 20, 2022

Police and Firemen's Retirement System of New Jersey
50 West State Street, Trenton, NJ 08625

Dear Board of Trustees Members:

We are pleased to submit this Actuarial Valuation and Review as of July 1, 2022. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for the fiscal year ending June 30, 2024.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board of Trustees to assist in administering the Police and Firemen's Retirement System of New Jersey (PFRS or System). The census information and financial information on which our calculations were based was prepared by the staff of the Divisions of Pensions and Benefits. That assistance is gratefully acknowledged.

Segal does not audit the data provided. The accuracy and comprehensiveness of the data is the responsibility of those supplying the data. To the extent we can, however, Segal does review the data for reasonableness and consistency. Based on our review of the data, we have no reason to doubt the substantial accuracy of the information on which we have based this report and we have no reason to believe there are facts or circumstances that would affect the validity of these results.

The measurements shown in this actuarial valuation may not be applicable for other purposes. 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 actuarial calculations were directed under the supervision of Jonathan P. Scarpa, FSA, MAAA who 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 his knowledge, the information supplied in this actuarial valuation is complete and accurate, except as noted in *Section 4*. The assumptions used in this actuarial valuation were selected by the Board of Trustees based upon his analysis and

recommendations. In his opinion, the assumptions are reasonable and take into account the experience of the System and reasonable expectation.

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

Sincerely,
Segal



Frank Santasiero, FSA, FCA, MAAA
Vice President and Consulting Actuary



Jonathan P. Scarpa, FSA, MAAA, EA
Vice President and Consulting Actuary

Table of Contents

Section 1: Actuarial Valuation Summary	6
Purpose and basis	6
Valuation highlights.....	7
Changes from prior valuation	8
Risk	8
Summary of key valuation results - State.....	9
Summary of key valuation results – Local Employers	10
Important information about actuarial valuations.....	11
Section 2: Actuarial Valuation Results.....	13
Participant information	13
Financial information.....	23
Assets.....	25
Actuarial experience	35
Statutory Pension Contribution	40
Risk	54
GFOA funded liability by type	60
Active liability by type.....	64
Section 3: Supplemental Information.....	66
Exhibit A: Table of Plan Demographics for State	66
Exhibit B: Table of Plan Demographics for Local	67
Exhibit C: State Participants in Active Service as of June 30, 2022	68
Exhibit D: Local Employers’ Participants in Active Service as of June 30, 2022.....	69
Exhibit E: Reconciliation of Participant Data	70

Table of Contents

Section 4: Actuarial Valuation Basis.....	71
Exhibit I: Actuarial Assumptions, Methods and Models	71
Exhibit II: Summary of Plan Provisions	76
Exhibit III: Contribution Rates	79
Exhibit IV: Legislation History	80
Section 5: Additional Required Exhibits.....	82
Exhibit 1: Early Retirement Incentive Program ERI 1 Contribution Schedules.....	82
Exhibit 2: Recent ERI Legislation Contribution Schedules	83
Exhibit 3: Chapter 19, P.L. 2009 Deferral and Payment Schedules	84
Appendix A: Definition of Pension Terms	90

Section 1: Actuarial Valuation Summary

Purpose and basis

This report has been prepared by Segal to present a valuation of the Police and Firemen's Retirement System of New Jersey as of July 1, 2022. The valuation was performed to determine whether the assets and contributions sufficient to provide the prescribed benefits

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Plan, in accordance with New Jersey Statute and as administered by the Board of Trustees;
- The characteristics of covered active participants, inactive vested participants, and retired participants and beneficiaries as of June 30, 2022, provided by the Division of Pensions and Benefits;
- The assets of the Plan as of June 30, 2022, provided by the Division of Pension and Benefits
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. and
- The funding policy in accordance with New Jersey Statute

Certain disclosure information required by GASB Statements No. 67 and 68 as of July 1, 2022 for the Plan is provided in a separate report.

Section 1: Actuarial Valuation Summary

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. The funding policy define in the New Jersey Statute meets this standard as long as both State and Local Employers pay the full appropriations. Local Employers have historically contributed the full appropriation over the last ten years. Our understanding is that the State intends on paying the full appropriation for both the fiscal year ending 2023 and 2024.
2. The rate of return on the market value of assets was -10.8% for the State and -6.9% for Local Employers for the plan year ended June 30, 2022. The return on the actuarial value of assets was 3.0% for the State and 5.9% for Local Employers for the same period due to the recognition of prior years' investment gains and losses. This resulted in an actuarial loss for both asset pools when measured against the assumed rate of return of 7.0%. Given the target asset allocation and expectations of future investment returns for various asset classes, we advise the Board to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments of 7.0%.
3. Changes to the following actuarial assumptions were approved by the Board of Trustee in November 2022 and reflected with this valuation, following the completion of an experience study during the period July 1, 2018 through June 30, 2021:
 - Mortality rates and future mortality improvement scales for healthy and disabled lives
 - Retirement rates
 - Ordinary and accidental disability rates
 - Turnover rates
 - Salary scale

As a result of these assumption changes, the normal cost for the State increased by 1.7% and or the Local Employers increased by 1.6%. The actuarial accrued liability for the State and Local Employers decreased by 0.6%.

4. This valuation reflects the provisions of Chapter 9, P.L. 2022 which allows police chiefs of law enforcement agencies and chiefs of fire departments to remain members of the System until the end of the calendar year in which they turn age 67 provided they attain age 65 by April 12, 2024 and that they are approved for this continued service by the appointing authority. This change caused a small decrease in the liability and a small increase in the normal cost but was not material.

Section 1: Actuarial Valuation Summary

Changes from prior valuation

5. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 39.9% for the State, compared to the prior year funded ratio of 38.8%. For Local employers, the funded ratio is 71.3%, compared to the prior year funded ratio of 70.8%. 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 32.9% compared to 35.5% as of the prior valuation date for the State. For Local employers, using market value, the funded ratio is 68.5% compared to 76.7% in the prior year. The decrease in the funded percentage based on the market value of assets for the State and Local Employers is primarily due to the market value investment loss during the year ended June 30, 2022. These measurements are not necessarily appropriate for assessing the sufficiency of the plan assets to cover the estimated cost of settling the Plan's benefit obligation or the need for or the amount of future contributions.
6. The statutory contribution, after State-paid Local cost shifting, for the upcoming year is \$623.7 million for the State and \$1,290.3 million for the Local Employers, both of which are increases over the prior year. The increases are primarily due to the investment loss experience in the year ended June 30, 2022.

Risk

7. It is important to note that this actuarial valuation is based on plan assets as of June 30, 2022. The Plan's funded 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, 2022 due to COVID-19. Segal is available to prepare projections of potential outcomes of market conditions and other demographic experience upon request.
8. 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 Plan's future financial condition, but have included a brief discussion of some risks that may affect the Plan in *Section 2*. A more detailed assessment would provide the Board with a better understanding of the inherent risks and could be important for the Plan because:
 - Relatively small changes in investment performance can produce large swings in the unfunded liabilities
 - Retired participants account for most of the Plan's liabilities, leaving limited options for reducing costs in the event of adverse experience.
 - Recent changes in the plan of benefits may result in participant choices that vary from those assumed.
 - Actual contributions have been less than the ADC for several years in the past (primarily for the State), which may indicate additional funding challenges in the future.

Section 1: Actuarial Valuation Summary

Summary of key valuation results - State

Valuation Date		2022	2021
Fiscal Year Ending (FYE)		2024	2023
Actuarially Determined Contribution:	<ul style="list-style-type: none"> • State Normal Cost at End of Year¹ • Amortization Payment of UAL¹ • Total Statutory Contribution for FYE • Expected Percent Appropriated • State Appropriation for Pension • Lottery Enterprise Contribution Offset • Net State Contribution 	\$138,185,864 485,540,247 623,726,111 100.0% 623,726,111 0 623,726,111	\$132,578,666 476,322,260 608,900,926 100.0% 608,900,926 0 608,900,926
Actuarial accrued liability for plan year beginning July 1:	<ul style="list-style-type: none"> • Retired participants and beneficiaries • Inactive vested participants • Contributing active participants • Non-contributing active participants • Total • Normal cost for plan year beginning July 1 	\$4,110,333,413 1,556,439 1,834,591,186 109,205,857 6,055,686,895 113,000,579	\$3,920,641,097 1,946,589 1,812,423,549 79,542,656 5,814,553,892 111,105,581
Assets for plan year beginning July 1:	<ul style="list-style-type: none"> • Market value of assets (MVA)² • Actuarial value of assets (AVA)² • Actuarial value of assets as a percentage of market value of assets • Actuarial value of assets including Special Asset Value (AVA + SAV)² 	\$1,990,061,291 2,267,954,515 114.0% 2,417,815,516	\$2,063,371,772 2,103,993,000 102.0% 2,254,920,030
Funded status for plan year beginning July 1:	<ul style="list-style-type: none"> • Unfunded/(overfunded) actuarial accrued liability on MVA • Funded percentage on MVA basis • Unfunded/(overfunded) actuarial accrued liability on AVA • Funded percentage on AVA basis • Unfunded/(overfunded) actuarial accrued liability on AVA + SAV • Funded percentage on AVA + SAV basis 	\$4,065,625,604 32.9% \$3,787,732,380 37.5% \$3,637,871,379 39.9%	\$3,751,182,120 35.5% \$3,710,560,892 36.2% \$3,559,633,862 38.8%
Demographic data for plan year beginning July 1:	<ul style="list-style-type: none"> • Number of retired participants and beneficiaries³ • Number of inactive vested participants • Number of contributing active participants • Number of non-contributing participants • Appropriation payroll⁴ • Annual retirement allowances in pay 	7,363 8 5,887 584 \$515,345,604 \$359,258,999	7,073 10 6,445 471 \$506,255,584 \$340,032,441

¹ Includes \$234,210,235 and \$231,575,656 for FYE 2024 and 2023, respectively, for Local obligations payable by the State in accordance with Chapter 109, P.L. 1979, Chapter 511, P.L. 1991, Chapter 247, P.L. 1993, Chapter 428, P.L. 1999, Chapter 86, P.L. 2001, and Chapter 318, P.L. 2001

² Includes discounted State receivable contributions and Lottery proceeds from the upcoming Fiscal Year

³ QDRO recipients are excluded from counts

⁴ Limited annual compensation for contributing actives

Section 1: Actuarial Valuation Summary

Summary of key valuation results – Local Employers

Valuation Date		2022	2021
Fiscal Year Ending (FYE)		2024	2023
Actuarially Determined Contribution:	• Local Employers Normal Cost at End of Year ¹	\$420,333,065	\$411,636,458
	• Amortization Payment of UAL ¹	870,049,987	850,867,925
	• ERI Payments	656,077	645,548
	• Chapter 19, P.L. 2009 Payments	25,175,612	24,931,777
	• Total Statutory Contribution for FYE	1,316,214,741	1,288,081,708
	• Non-Contributory Group Insurance Contribution	41,718,524	38,807,839
Actuarial accrued liability for plan year beginning July 1:	• Retired participants and beneficiaries ²	\$28,799,488,818	\$27,840,642,992
	• Inactive vested participants	14,149,279	12,585,446
	• Contributing active participants	13,580,174,662	13,566,603,784
	• Non-contributing active participants	297,128,657	274,403,617
	• Total	42,690,941,416	41,694,235,840
	• Normal cost for plan year beginning July 1	794,969,828	774,241,048
Assets for plan year beginning July 1:	• Market value of assets (MVA) ³	\$29,253,513,217	\$31,988,407,731
	• Actuarial value of assets (AVA) ³	30,451,072,277	29,499,250,347
	• Actuarial value of assets as a percentage of market value of assets	104.1%	92.2%
Funded status for plan year beginning July 1:	• Unfunded/(overfunded) actuarial accrued liability on MVA	\$13,437,428,199	\$9,705,828,109
	• Funded percentage on MVA basis	68.5%	76.7%
	• Unfunded/(overfunded) actuarial accrued liability on AVA	\$12,239,869,139	\$12,194,985,493
	• Funded percentage on AVA basis	71.3%	70.8%
Demographic data for plan year beginning July 1:	• Number of retired participants and beneficiaries ⁴	41,390	40,445
	• Number of inactive vested participants	52	50
	• Number of contributing active participants	34,004	34,031
	• Number of non-contributing participants	1,341	1,241
	• Appropriation payroll ⁵	\$3,643,886,024	\$3,563,943,590
	• Annual retirement allowances in pay	\$2,575,612,210	\$2,468,834,871

¹ Includes \$234,210,235 and \$231,575,656 for FYE 2024 and 2023, respectively, for Local obligations payable by the State in accordance with Chapter 109, P.L. 1979, Chapter 511, P.L. 1991, Chapter 247, P.L. 1993, Chapter 428, P.L. 1999, Chapter 86, P.L. 2001, and Chapter 318, P.L. 2001

² Includes present value of ERI payments of \$3,165,591 in 2022 and \$3,531,959 in 2021

³ Includes discounted State receivable contributions from the upcoming Fiscal Year

⁴ QDRO recipients are excluded from counts

⁵ Limited annual compensation for contributing actives

Section 1: Actuarial Valuation Summary

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 provisions	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 information	An actuarial valuation for a plan is based on data provided to the actuary by the System. 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.
Financial information	Part of the cost of a plan will be paid from existing assets — the balance will need to come from future contributions and investment income. The valuation is based on the asset values as of the valuation date, typically reported by the System. A snapshot as of a single date may not be an appropriate value for determining a single year's contribution requirement, especially in volatile markets. Plan sponsors often use 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 starts by developing a forecast of the benefits to be paid to existing plan participants for the rest of their lives and the lives of their beneficiaries. This requires actuarial assumptions as to the probability of death, disability, withdrawal, and retirement of participants in each year, as well as forecasts of the plan's benefits for each of those events. In addition, the benefits forecasted for each of those events in each future year reflect actuarial assumptions as to salary increases and cost-of-living adjustments. The forecasted benefits are then discounted to a present value, typically based on an estimate of the rate of return that will be achieved on the plan's assets. All of these factors are uncertain and unknowable. Thus, there will be a range of reasonable assumptions, and the results may vary materially based on which assumptions are selected within that range. That is, there is no right answer (except with hindsight). It is important for any user of an actuarial valuation to understand and accept this constraint. The actuarial model may use approximations and estimates that will have an immaterial impact on our results. In addition, the actuarial assumptions may change over time, and while this can have a significant impact on the reported results, it does not mean that the previous assumptions or results were unreasonable or wrong.

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 at a specific date — it is not a prediction of a plan's future financial condition. Accordingly, Segal did not perform an analysis of the potential range of financial measurements, except where otherwise noted.

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 provisions, but they may be subject to alternative interpretations. The System should look to their other advisors for expertise in these areas.

While Segal maintains extensive quality assurance procedures, an actuarial valuation involves complex computer models and numerous inputs. In the event that an inaccuracy is discovered after presentation of Segal's valuation, Segal may revise that valuation or make an appropriate adjustment in the next valuation.

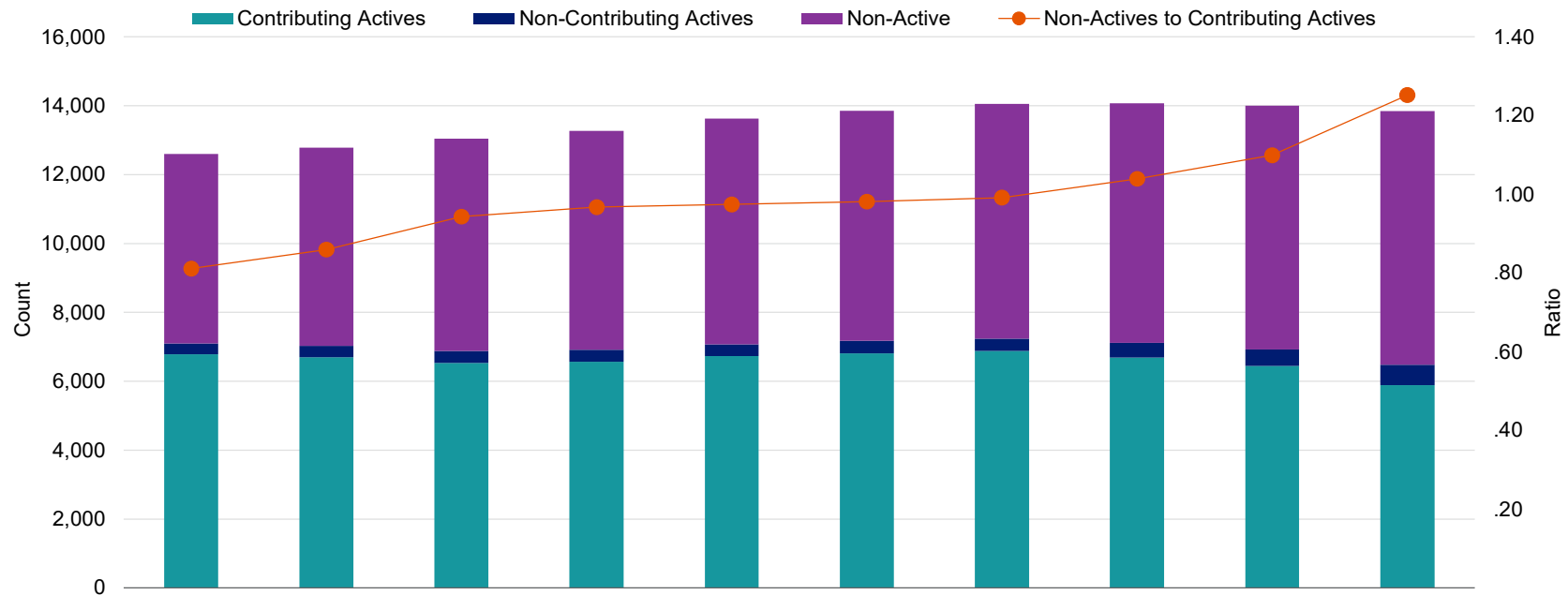
Segal's report shall be deemed to be final and accepted by the System upon delivery and review. Trustees should notify Segal immediately of any questions or concerns about the final content.

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 Plan.

Section 2: Actuarial Valuation Results

Participant information

State Participant Population as of June 30

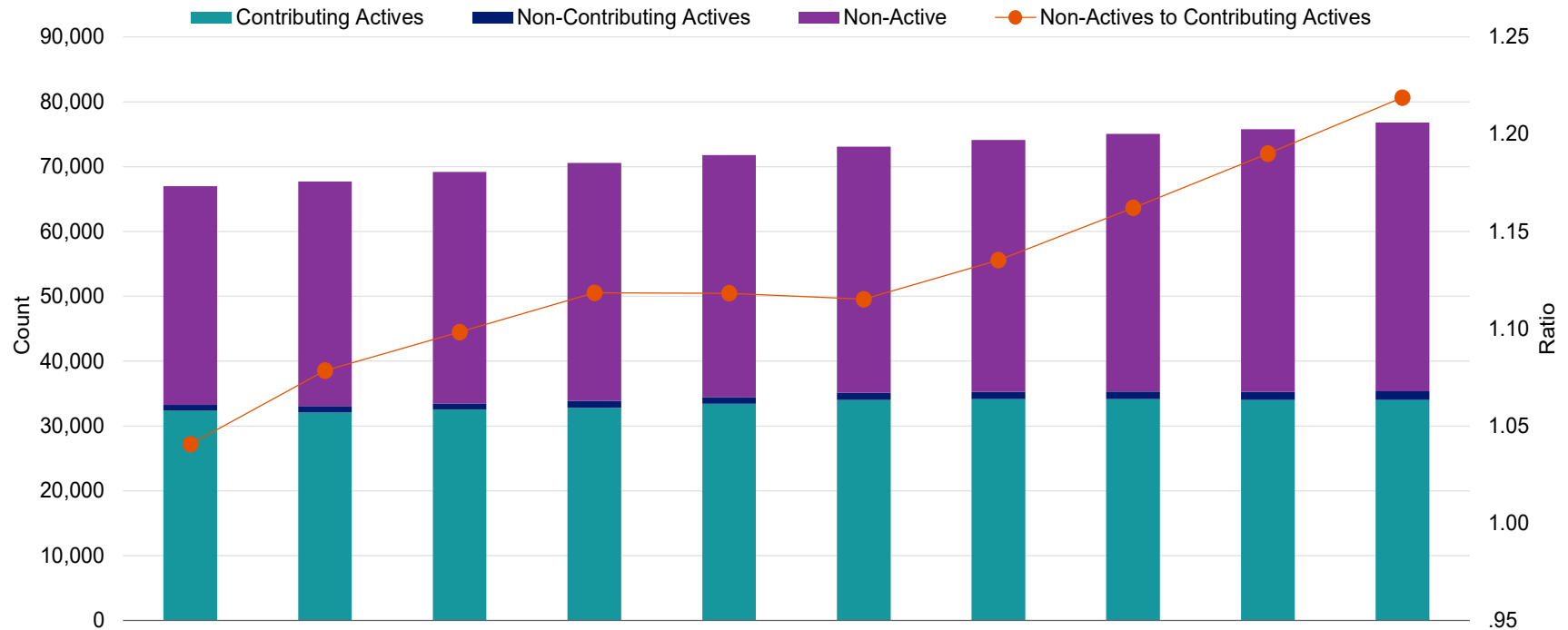


	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-Active ¹	5,496	5,756	6,160	6,354	6,555	6,679	6,816	6,950	7,083	7,371
Non-Contributing Actives	320	330	352	340	342	362	364	426	471	584
Contributing Active	6,778	6,695	6,531	6,571	6,730	6,807	6,875	6,688	6,445	5,887
Ratio of non-actives to contributing actives	0.81	0.86	0.94	0.97	0.97	0.98	0.99	1.04	1.10	1.25

¹ Includes members in pay status and deferred vested participants

Section 3: Supplemental Information

Local Employers Participant Population as of June 30



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Non-Active ¹	33,699	34,633	35,715	36,704	37,757	37,930	38,786	39,688	40,495	41,442
Non-Contributing Actives	894	970	955	1,060	1,037	1,113	1,117	1,168	1,241	1,341
Contributing Active	32,495	32,380	32,111	32,818	33,410	34,013	34,164	34,150	34,031	34,004
Ratio of non-actives to contributing actives	1.04	1.08	1.10	1.12	1.12	1.12	1.14	1.16	1.19	1.22

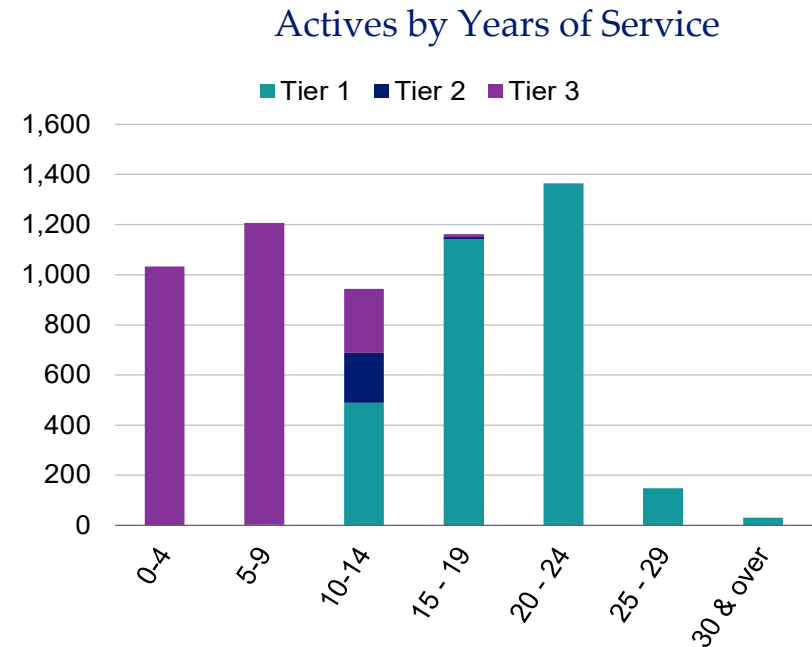
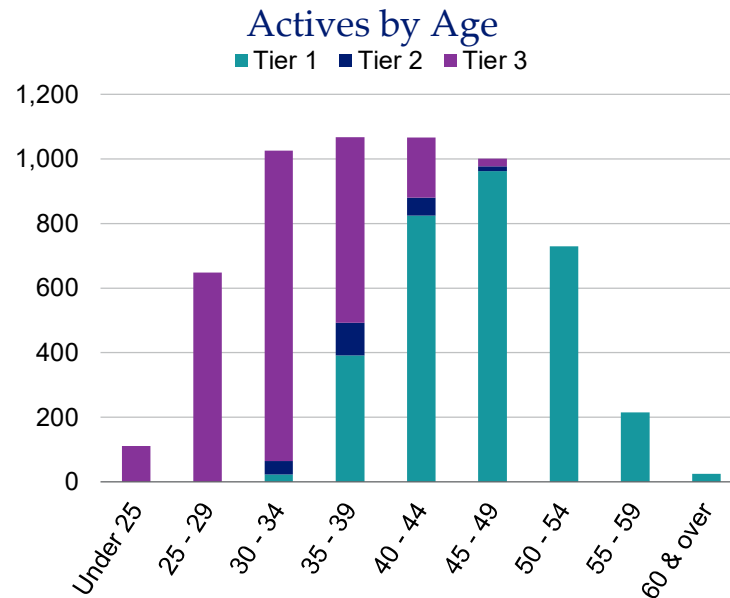
¹ Includes members in pay status and deferred vested participants

Section 3: Supplemental Information

State Contributing Active participants

As of June 30	2022	2021	Change
Active participants	5,887 ¹	6,445	-8.7%
Average age	40.6 ²	40.3	0.3
Average years of service	13.5 ³	13.2	0.3
Average compensation	\$87,556 ⁴	\$78,564	11.4%

Distribution of Active Participants as of June 30, 2022



¹ 3,171, 212, and 2,504, respectively for Tier 1, 2, and 3

² 46.8, 38.6, and 32.8, respectively for Tier 1, 2, and 3

³ 19.7, 11.5, and 5.9, respectively for Tier 1, 2, and 3

⁴ \$100,655, \$90,172, and \$70,747, respectively for Tier 1, 2, and 3

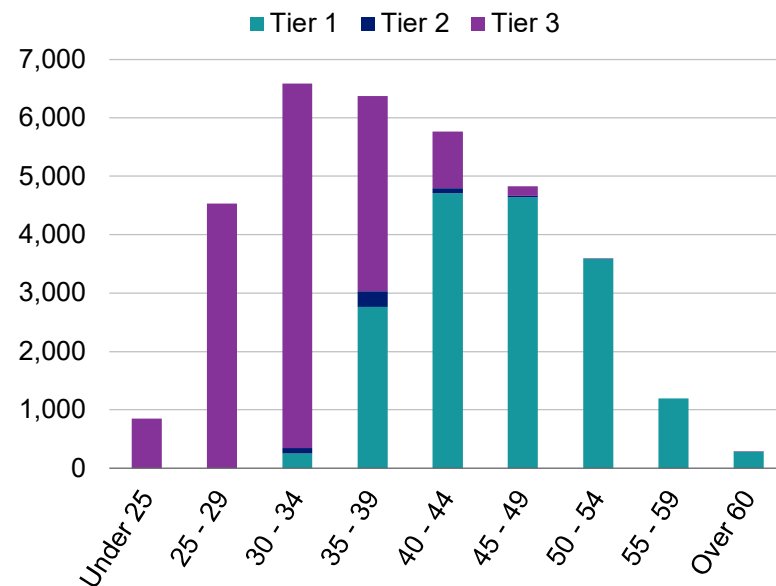
Section 3: Supplemental Information

Local Employers Contributing Active participants

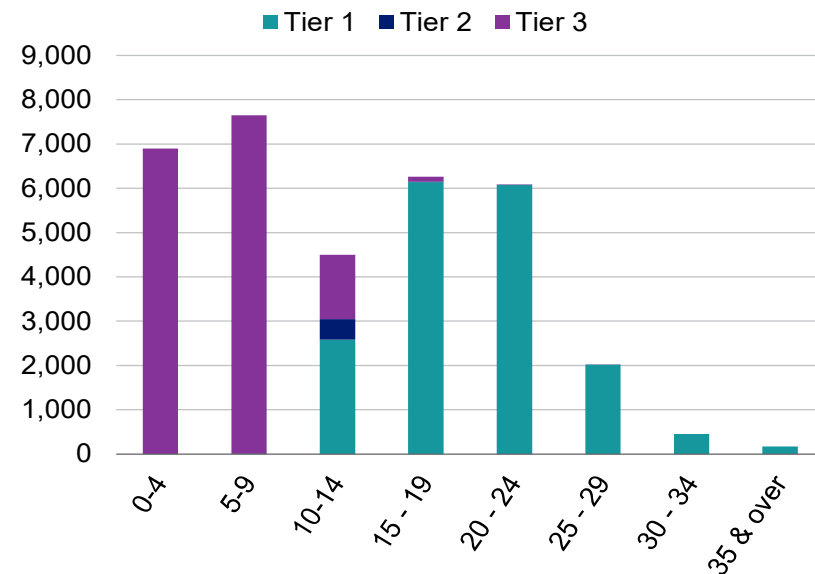
As of June 30,	2022	2021	Change
Active participants	34,004 ¹	34,031	-0.1%
Average age	39.6 ²	39.8	-0.2
Average years of service	13.3 ³	13.5	-0.2
Average compensation	\$107,161 ⁴	\$104,778	2.3%

Distribution of Active Participants as of June 30, 2022

Actives by Age



Actives by Years of Service



¹ 17,430, 482, and 16,092, respectively for Tier 1, 2, and 3

² 46.3, 37.9, and 32.4, respectively for Tier 1, 2, and 3

³ 20.3, 11.8, and 5.8, respectively for Tier 1, 2, and 3

⁴ \$131,980, \$113,780, and \$80,079, respectively for Tier 1, 2, and 3

Section 3: Supplemental Information

Inactive participants and Non-Contributory Active Participants

- In this year's valuation, there were 60¹ inactive participants with a vested right to a deferred or immediate vested benefit, the same number as in the prior year.
- Additionally, this year's valuation includes liabilities for 1,341 Local Employers and 584 State non-contributing active members, as compared to 1,241 and 471 respectively in the prior year. These members are valued as active participants but are assumed to not earn future benefit accruals. The average last reported pay is \$81,226 for Local Employers members and \$69,582 for State members.

¹ 8 State members with average monthly retirement allowance of \$1,701 and 52 Local Employer members with average monthly retirement allowance of \$2,117

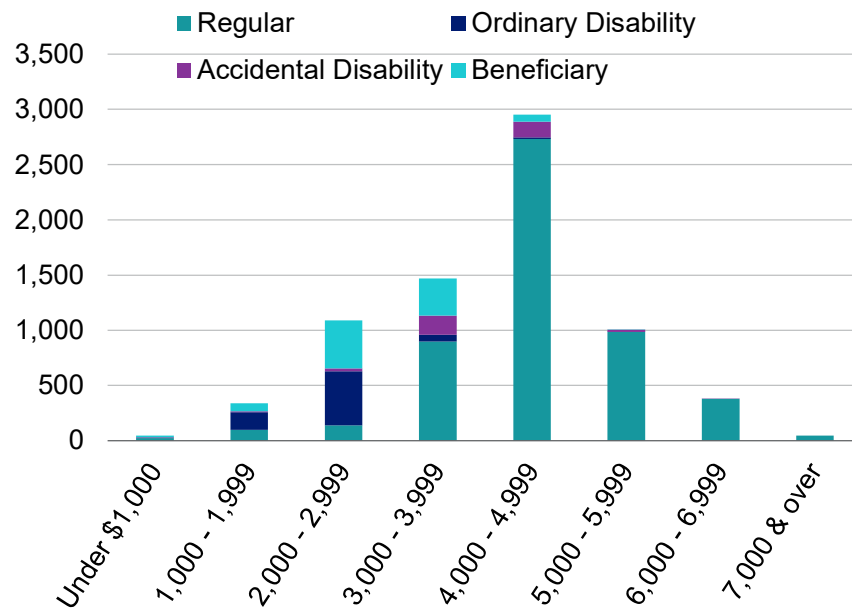
Section 3: Supplemental Information

State Retired participants and beneficiaries

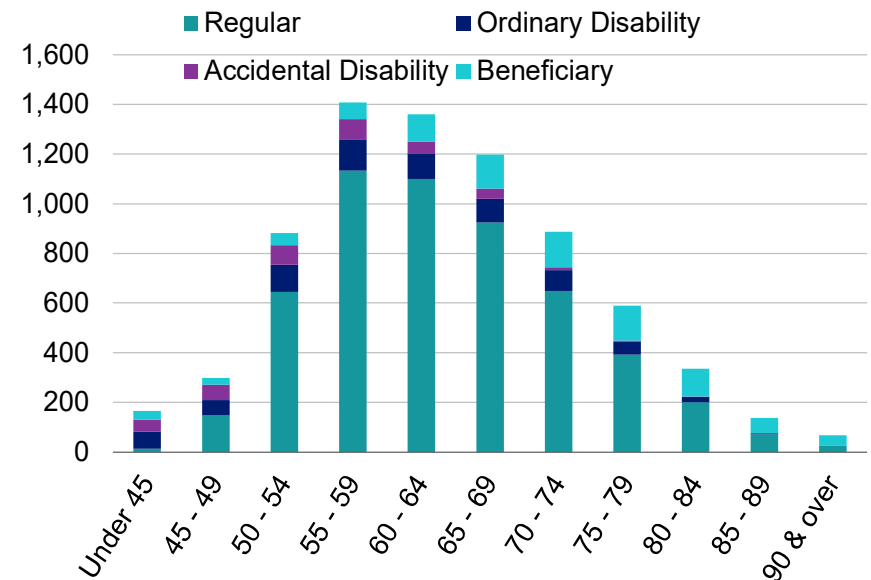
As of June 30,	2022	2021	Change
Retired participants ¹	6,404	6,138	4.3%
Average age	62.7	62.5	0.2
Average retirement allowance	\$4,252 ²	\$4,198	1.3%
Beneficiaries	959	935	2.6%
Total monthly retirement allowance	29,938,241	\$28,336,037	5.7%

Distribution of Retired Participants and Beneficiaries as of June 30, 2022

By Type and Monthly Amount



By Type and Age



¹ As of June 30, 2022, there are 5,299 retirees and 1,105 disabled pensioners as compared to 5,037 and 1,101 in the prior year.

² \$4,266 for police and \$3,740 for firefighters

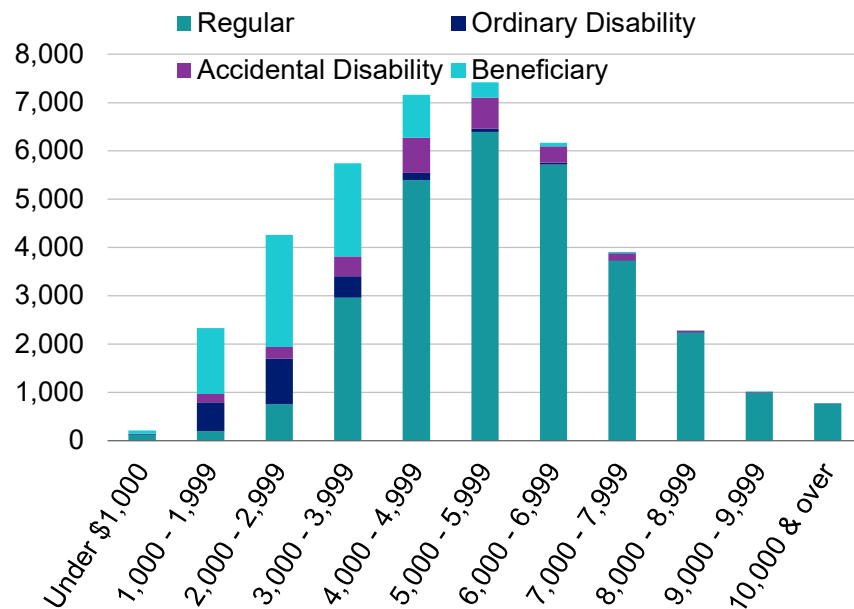
Section 3: Supplemental Information

Local Employers Retired participants and beneficiaries

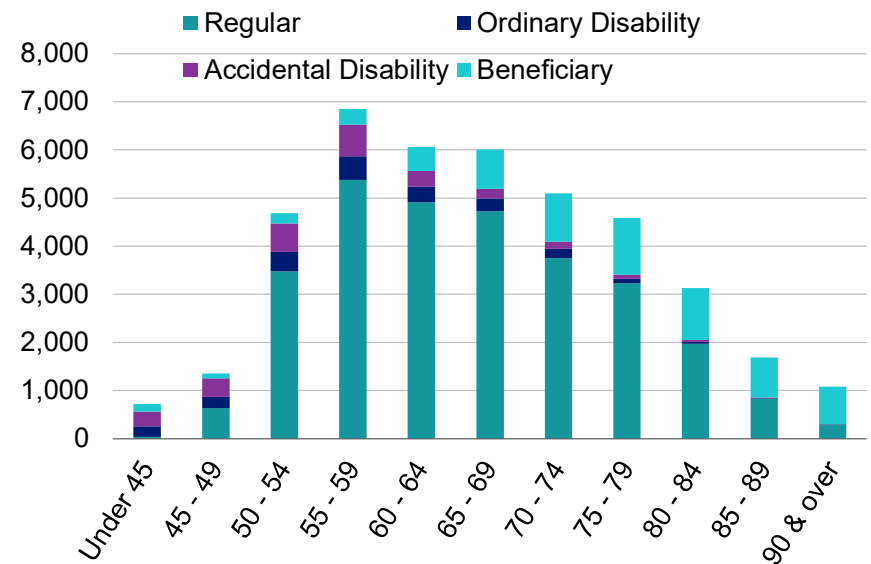
As of June 30,	2022	2021	Change
Retired participants ¹	34,267	33,458	2.4%
Average age	64.4	64.1	0.3
Average retirement allowance	\$5,641 ²	\$5,539	1.8%
Beneficiaries	7,123	6,987	1.9%
Total monthly retirement allowance	214,634,351	205,736,239	4.3%

Distribution of Retired Participants and Beneficiaries as of June 30, 2022

By Type and Monthly Amount



By Type and Age



¹ As of June 30, 2022, there are 29,241 retirees and 5,026 disabled pensioners as compared to 28,514 and 4,944 in the prior year.

² \$5,613 for police and \$5,872 for firefighters

Section 3: Supplemental Information

Schedule of State Retirees and Beneficiaries Added to and Removed From Rolls

Year Ended June 30	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Monthly Allowance ^{1,2,3}	% Increase in Average Monthly Allowance ^{1,2,3}
	Number ^{2,3}	Monthly Allowance	Number ¹²³	Monthly Allowance	Number ^{1,2,3}	Monthly Allowance		
2013	562	\$2,114,693	144	\$330,162	5,841	\$20,357,266	\$3,485	1.7%
2014	411	1,526,646	125	302,008	6,127	21,584,076	3,523	1.1%
2015	597	2,292,186	136	369,001	6,588	23,495,099	3,566	1.2%
2016	407	1,493,013	188	489,017	6,807	24,479,256	3,596	0.8%
2017	372	1,421,383	172	430,209	7,007	25,467,343	3,635	1.1%
2018	256	1,036,585	131	405,610	6,673	26,106,430	3,912	7.6%
2019	249	1,014,037	119	361,530	6,803	26,762,268	3,934	0.6%
2020	271	1,207,265	137	418,754	6,937	27,567,145	3,974	1.0%
2021	286	1,212,191	150	412,041	7,073	28,336,037	4,006	0.8%
2022	453	2,096,228	163	498,737	7,363	29,938,242	4,066	1.5%

¹ Beginning with the 2018 valuation, QDRO records excluded from headcounts and QDRO benefits included with member records. This change resulted in 459 fewer records on the rolls as of July 1, 2018.

² Location 91999 was reclassified as a Local Employer beginning with the 2016 valuation; 30 retirees receiving \$1,361,259 and 6 beneficiaries receiving \$168,613 were added to the Local employer rolls and removed from the State rolls in 2016.

³ Location 91999 was reclassified as a State employer beginning with the 2018 valuation; 29 retirees receiving \$1,398,446 and 5 beneficiaries receiving \$123,147 were added to the State rolls and removed from the Local employer rolls in 2018.

Section 3: Supplemental Information

Schedule of Local Employers Retirees and Beneficiaries Added to and Removed From Rolls

Year Ended June 30	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Monthly Allowance ^{1,2,3}	% Increase in Average Monthly Allowance ^{1,2,3}
	Number ^{2,3}	Monthly Allowance	Number ^{1,2,3}	Monthly Allowance	Number ^{1,2,3}	Monthly Allowance		
2013	2,126	\$10,321,936	1,062	\$2,858,315	35,353	\$144,597,749	\$4,090	2.3%
2014	2,157	10,463,525	1,061	3,101,493	36,449	152,080,017	4,172	2.0%
2015	2,223	11,456,024	1,008	2,880,555	37,664	160,654,194	4,265	2.2%
2016	2,131	10,658,583	977	2,789,886	38,818	168,511,414	4,341	1.8%
2017	1,879	9,957,898	1,157	3,431,423	39,540	175,032,121	4,427	2.0%
2018	1,740	10,106,546	1,169	3,779,983	37,894	181,417,626	4,788	8.2%
2019	1,890	11,175,391	1,050	3,554,518	38,734	189,138,213	4,883	2.0%
2020	2,051	12,596,624	1,151	3,932,059	39,634	197,897,721	4,993	2.3%
2021	1,838	11,658,999	1,027	3,095,844	40,445	205,736,239	5,087	1.9%
2022	2,080	12,915,190	1,135	4,068,310	41,390	214,634,351	5,186	1.9%

¹ Beginning with the 2018 valuation, QDRO records excluded from headcounts and QDRO benefits included with member records. This change resulted in 2,217 fewer records on the rolls as of July 1, 2018.

² Location 91999 was reclassified as a Local employer beginning with the 2016 valuation; 30 retirees receiving \$1,361,259 and 6 beneficiaries receiving \$168,613 were added to the Local employer rolls and removed from the State rolls in 2016.

³ Location 91999 was reclassified as a State employer beginning with the 2018 valuation; 29 retirees receiving \$1,398,446 and 5 beneficiaries receiving \$123,147 were added to the State rolls and removed from the Local employer rolls in 2018.

Section 3: Supplemental Information

Schedule of Total Retirees and Beneficiaries Added to and Removed From Rolls

Year Ended June 30	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Monthly Allowance ^{1,2,3}	% Increase in Average Monthly Allowance ^{1,2,3}
	Number ^{2,3}	Monthly Allowance	Number ^{1,2,3}	Monthly Allowance	Number ^{1,2,3}	Monthly Allowance		
2013	2,688	\$12,436,629	1,206	\$3,188,477	41,194	\$164,955,015	\$4,004	2.2%
2014	2,568	11,990,171	1,186	3,403,501	42,576	173,664,093	4,079	1.9%
2015	2,820	13,748,210	1,144	3,249,556	44,252	184,149,293	4,161	2.0%
2016	2,538	12,151,596	1,165	3,278,903	45,625	192,990,670	4,230	1.7%
2017	2,251	11,379,281	1,329	3,861,632	46,547	200,499,464	4,308	1.8%
2018	1,996	11,143,131	1,300	4,185,593	44,567	207,524,056	4,656	8.1%
2019	2,139	12,189,428	1,169	3,916,048	45,537	215,900,481	4,741	1.8%
2020	2,322	13,803,889	1,288	4,350,813	46,571	225,464,866	4,841	2.1%
2021	2,124	12,916,757	1,175	3,507,885	47,518	234,072,276	4,926	1.8%
2022	2,533	15,011,418	1,298	4,567,047	48,753	244,572,592	5,017	1.8%

¹ Beginning with the 2018 valuation, QDRO records excluded from headcounts and QDRO benefits included with member records. This change resulted in 2,676 fewer records on the rolls as of July 1, 2018.

² Location 91999 was reclassified as a Local employer beginning with the 2016 valuation; 30 retirees receiving \$1,361,259 and 6 beneficiaries receiving \$168,613 were added to the Local employer rolls and removed from the State rolls in 2016.

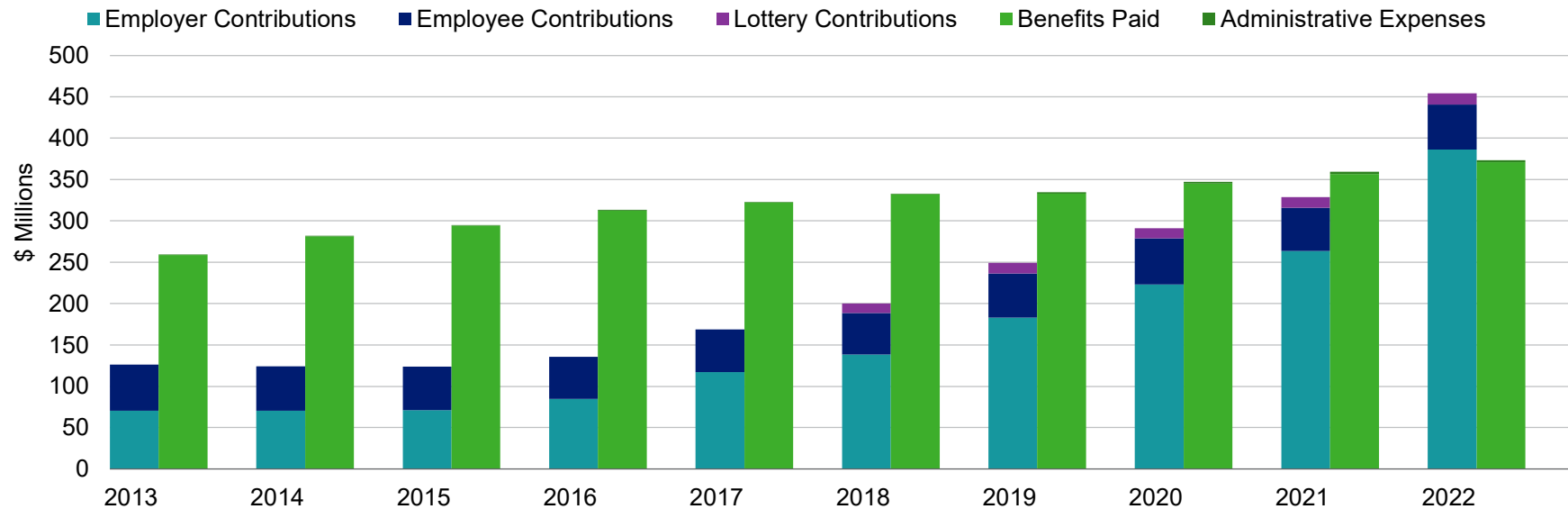
³ Location 91999 was reclassified as a State employer beginning with the 2018 valuation; 29 retirees receiving \$1,398,446 and 5 beneficiaries receiving \$123,147 were added to the State rolls and removed from the Local employer rolls in 2018.

Section 3: Supplemental Information

Financial information

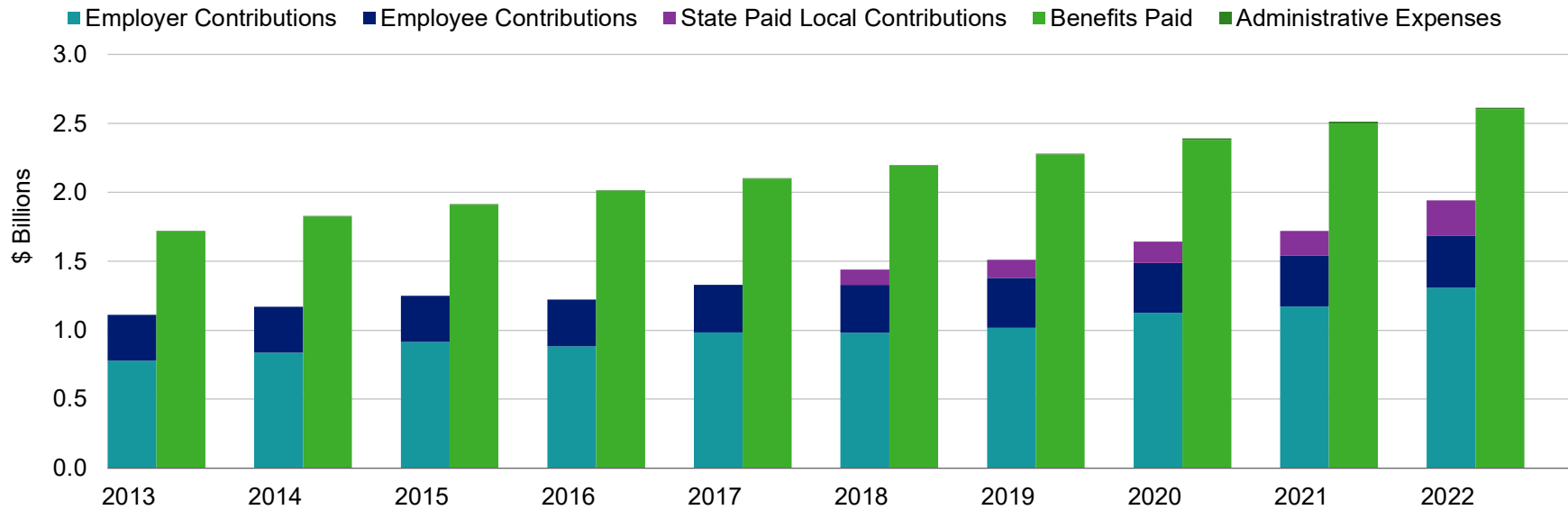
- Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.
- Historically the State net cash flow has been significantly negative. However, in recent years that has changed as the State has appropriated a higher percentage of the statutory contribution.

Comparison of State Contributions Made with Benefits and Expenses Paid
for Years Ended June 30



Section 3: Supplemental Information

Comparison of Local Employers Contributions¹ Made with Benefits and Expenses Paid for Years Ended June 30



¹ State paid local contributions were not reported separately in valuation reports prior to FYE 2018 and as such are included in employer contributions prior to that year

Section 3: Supplemental Information

Assets

It is desirable to have level and predictable plan costs from one year to the next. For this reason, the Board of Trustees 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. As prescribed in the New Jersey Statute, the actuarial value of assets is calculated by recognizing 20% of the difference between the expected actuarial value of assets, based on the long-term investment return assumption, and the market value of assets.

Actuarial Standards of Practice (ASOP) No. 44 describes characteristics of asset valuation methods and provides guidelines to what is considered an appropriate asset valuation method. Some of those are that the asset valuation method should recognize the difference between the actuarial value of assets and market value of assets over a reasonably short period of time, and does not produce actuarial value of assets that is consistently above or below the market value of assets. The asset method required under N.J. Statute may produce an actuarial value that is consistently above or below the market value of assets and the differences between market and actuarial value are not recognized over a reasonably short period of time. Therefore, the asset valuation method may not meet the requirements of ASOP No. 44.

The following tables present the market value as of June 30, 2022 and June 30, 2021, the System's net cash flows for the year ended June 30, 2022, and the development of the AVA as of June 30, 2022.

Section 3: Supplemental Information

Statement of Assets at Market Value

	June 30, 2022	June 30, 2021
Assets:		
• Cash	\$4,764,008	\$4,706,062
• Investment Holdings	27,868,790,184	30,995,169,091
• Employers' Contributions Receivable - State	0	0
• Employers' Contributions Receivable – Chapter 19	32,253,689	52,265,633
• Employers' Contributions Receivable – NCGI State	1,397,781	527,911
• Employers' Contributions Receivable – NCGI Local Employers	38,807,839	38,420,336
• Employers' Contributions Receivable – Common L	1,512,000	1,260,000
• Employers' Contributions Receivable – Local Employers	1,269,738,631	1,127,502,412
• Employers' Contributions Receivable – Local Employers ERI	3,768,905	4,604,270
• Employers' Contributions Receivable – Retroactive Contributions	5,353,393	4,993,053
• Employers' Contributions Receivable – Delayed Enrollments	156,935	248,819
• Employers' Contributions Receivable – Delayed Appropriations	748,495	1,033,208
• Member's Contributions Receivable	57,936,788	53,637,567
• Accrued Interest on Investments	3,187,188	4,136,660
• Accounts Receivable – Other	7,915,519	6,120,518
• New Jersey Mortgage Receivable	1,458,052,167	1,272,108,007
• Loans Receivable	219,923,899	226,833,242
• Interest Receivable on Loans	1,009,290	1,010,844
• Securities Lending Collateral	<u>488,225,326</u>	<u>497,950,329</u>
Total assets	\$31,463,542,037	\$34,292,527,961
Liabilities:		
• Pension Payroll Payable	(201,645,560)	(191,921,524)
• Pension Adjustment Payroll Payable	(14,171,798)	(14,678,542)
• Withholdings Payable	(32,618,222)	(30,757,026)
• Death Benefits Payable	(9,149,443)	(5,759,495)
• Securities Lending Collateral & Rebates Payable	(487,872,453)	(497,747,779)

Section 3: Supplemental Information

	June 30, 2022	June 30, 2021
• Administrative Expenses Payable	0	0
• Accounts Payable - Other	<u>(9,431,150)</u>	<u>(8,410,108)</u>
Total Liabilities	(754,888,627)	(749,274,475)
Preliminary Market Value of Assets	\$30,708,653,410	\$33,543,253,487
Discounted Receivables:		
• Expected Lottery Revenue	\$12,796,107	\$12,723,465
• State Appropriations	583,793,734	557,154,624
Adjustments to Financial Report:		
• Discounting of Local Employers Appropriations Receivable	<u>(62,466,210)</u>	<u>(55,768,897)</u>
• Discounting of Local Employers ERI Contributions Receivable	<u>(260,657)</u>	<u>(329,553)</u>
• True-up of Present Value of Chapter 19, P.L. 2009 Contributions Receivable	54,143,796	52,633,601
• Exclusion of Reserve for Non-Contributory Group Insurance	<u>(53,085,668)</u>	<u>(57,887,220)</u>
Market Value of Assets	\$31,243,574,509	\$34,051,779,507

Section 3: Supplemental Information

Summary Statement of Income and Expenses on a Market Value Basis for FYE June 30, 2022

	State	Local Employers	Total
Preliminary Market Value of Assets at Beginning of Year	\$1,718,831,853	\$31,824,421,630	\$33,543,253,483
Additions:			
Contributions:			
• Member Contributions	\$53,744,938	\$376,540,963	\$430,285,901
• Member Transfer Contributions	592,151	2,366,109	2,958,260
• State and Local Appropriations	374,487,000	1,262,504,384	1,636,991,384
• State Contributions on Behalf of Locals	0	253,611,000	253,611,000
• State Lottery	13,333,020	0	13,333,020
• NCGI Contributions	11,967,601	38,807,839	50,775,440
• Transfers from Other Systems	10,619	241,854	252,473
• Other - Delayed Enrollments	19,442	189,065	208,506
• Other - Delayed Appropriations.	0	1,257,718	1,257,718
• Other – Retroactive	0	5,015,523	5,015,523
• Other – Additional	0	416,245	416,245
• Other - NCGI Adjustment	0	0	0
• Total Contributions	\$454,154,771	\$1,940,950,699	\$2,395,105,469
Net Investment Income	(184,137,196)	(2,059,381,407)	(2,243,518,603)
<i>Total Additions</i>	<i>270,017,575</i>	<i>(118,430,708)</i>	<i>151,586,866</i>
Deductions:			
• Withdrawal of Member Contributions	\$3,776,868	\$8,205,595	\$11,982,463
• Withdrawal of Member Transfer Contributions	100,687	303,599	404,286
• Adjustment for Member Loans	184,514	0	184,514
• Withdrawal of Transfer Contributions	99,095	198,465	297,560
• Retirement Allowances	336,469,554	2,393,845,003	2,730,314,557
• Pension Adjustment Benefits	18,535,407	149,404,070	167,939,477
• Death Benefit Claims	11,967,601	47,835,157	59,802,758
• Administrative Expenses	2,217,299	13,044,029	15,261,328
<i>Total Deductions</i>	<i>373,351,025</i>	<i>2,612,835,918</i>	<i>2,986,186,943</i>
Net Increase/(Decrease)	(\$103,333,450)	(\$2,731,266,627)	(\$2,834,600,077)
Preliminary Market Value of Assets at End of Year	\$1,615,498,403	\$29,093,155,003	\$30,708,653,406

Section 3: Supplemental Information

	State	Local Employers	Total
Discounted Receivables:			
• Expected Lottery Revenue	12,796,107	0	12,796,107
• State Appropriations	361,766,781	222,026,953	583,793,734
• Adjustments to Financial Report:			
• Discounting of Local Employers Appropriations Receivable	0	(62,466,210)	(62,466,210)
• Discounting of Local Employers ERI Contributions Receivable	0	(260,657)	(260,657)
• True-up of Present Value of Chapter 19, P.L. 2009 Contributions Receivable	0	54,143,796	54,143,796
• Exclusion of Reserve for Non-Contributory Group Insurance	0	(53,085,668)	(53,085,668)
Market Value of Assets at End of Year	\$1,990,061,291	\$29,253,513,217	\$31,243,574,509
Approximate Investment Return	-10.8%	-6.9%	-7.1%

Section 3: Supplemental Information

Determination of Actuarial Value of Assets for Year Ended June 30, 2022

	State	Local Employers	Total
1 Preliminary Actuarial Value of Assets as of July 1, 2021 ¹	\$1,759,453,081	\$29,308,579,473	\$31,068,032,554
2 Net Cash Flow excluding investment income ²	80,803,746	(647,059,203)	(566,255,457)
3 Expected Investment Income ³	122,608,106	1,920,895,229	2,043,503,335
4 Expected actuarial value of assets as of July 1, 2022: (1) + (2) + (3)	1,962,864,933	30,582,415,499	32,545,280,432
5 Preliminary market value of assets as of July 1, 2022 ⁴ :	1,615,498,403	29,085,466,674	30,700,965,077
6 20% of difference from MVA: 20% * [(5) - (4)]	(69,473,306)	(299,389,765)	(368,863,071)
7 Preliminary Actuarial Value of Assets as of July 1, 2022: (4) + (6)	\$1,893,391,627	\$30,283,025,734	\$32,176,417,361
8 Discounted Receivables			
• State Appropriations	361,766,781	222,026,953	583,793,734
• Expected Lottery Revenue	12,796,107	0	12,796,107
• Chapter 19, P.L. 2009 Contributions for FYE 2024 and Later	0	62,799,810	62,799,810
Total	374,562,888	284,826,763	659,389,651
9 Adjustments			
• Discounting of Local Employers Appropriations Receivable	0	(62,466,210)	(62,466,210)
• Discounting of Chapter 19, P.L. 2009 Contributions for FYE 2023	0	(1,228,342)	(1,228,342)
• Exclusion of reserve for Non-Contributory Group Insurance	0	(53,085,668)	(53,085,668)
Total	0	(116,780,220)	(116,780,220)
10 Actuarial value of assets as of July 1, 2022: (7) + (8) + (9)	\$2,267,954,515	\$30,451,072,277	\$32,719,026,792
11 Rate of return on actuarial value of assets:	3.0%	5.9%	5.7%
12 Ratio of actuarial value of assets to market value of assets:	114.0%	104.1%	104.7%

¹ Excludes discounted State appropriations receivable, present value of Chapter 19, P.L. 2009, and other adjustments

² Amount for Local Employers includes Chapter 19, P.L. 2009 contribution receivable for FYE 2023 of \$24,826,017

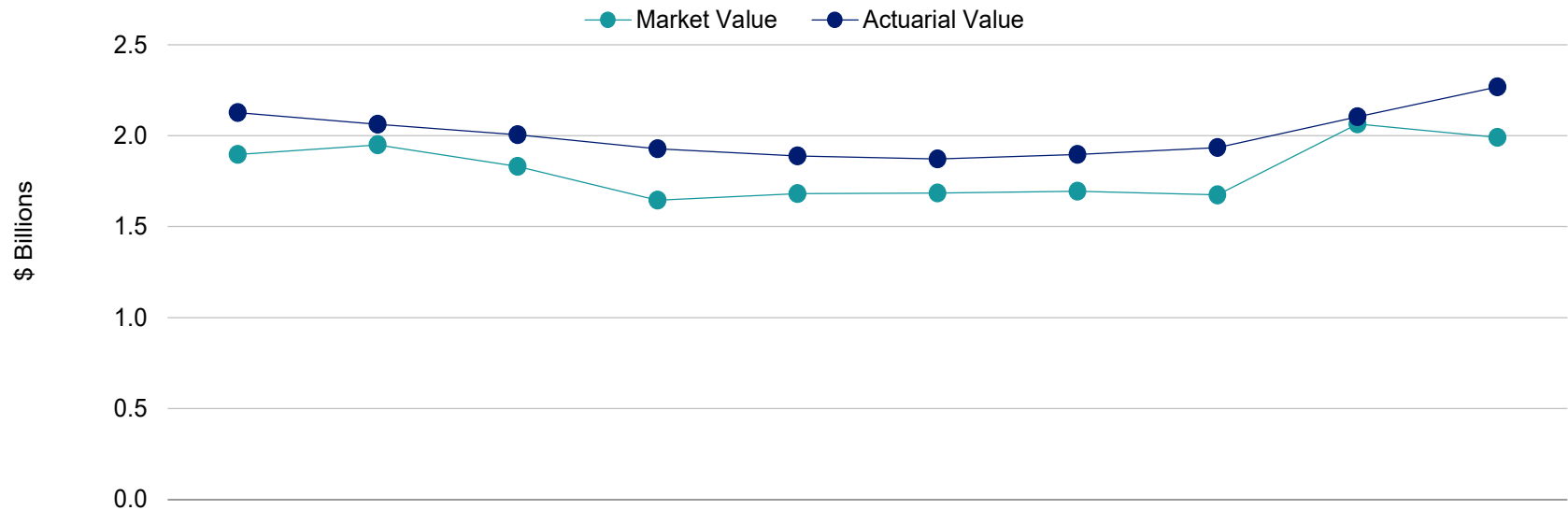
³ Refer to Section 4, Exhibit I for details on the assumed timing of contributions

⁴ Amount for Local employers includes adjustments to June 30, 2022 Financial Report for the interest portion of Local Employers ERI contributions receivable of (\$260,657) and true-up of Chapter 19, P.L. 2009 contributions for FYE 2023 of (\$7,427,672).

Section 3: Supplemental Information

Asset history for years ended June 30

State Actuarial Value of Assets¹ vs Market Value of Assets



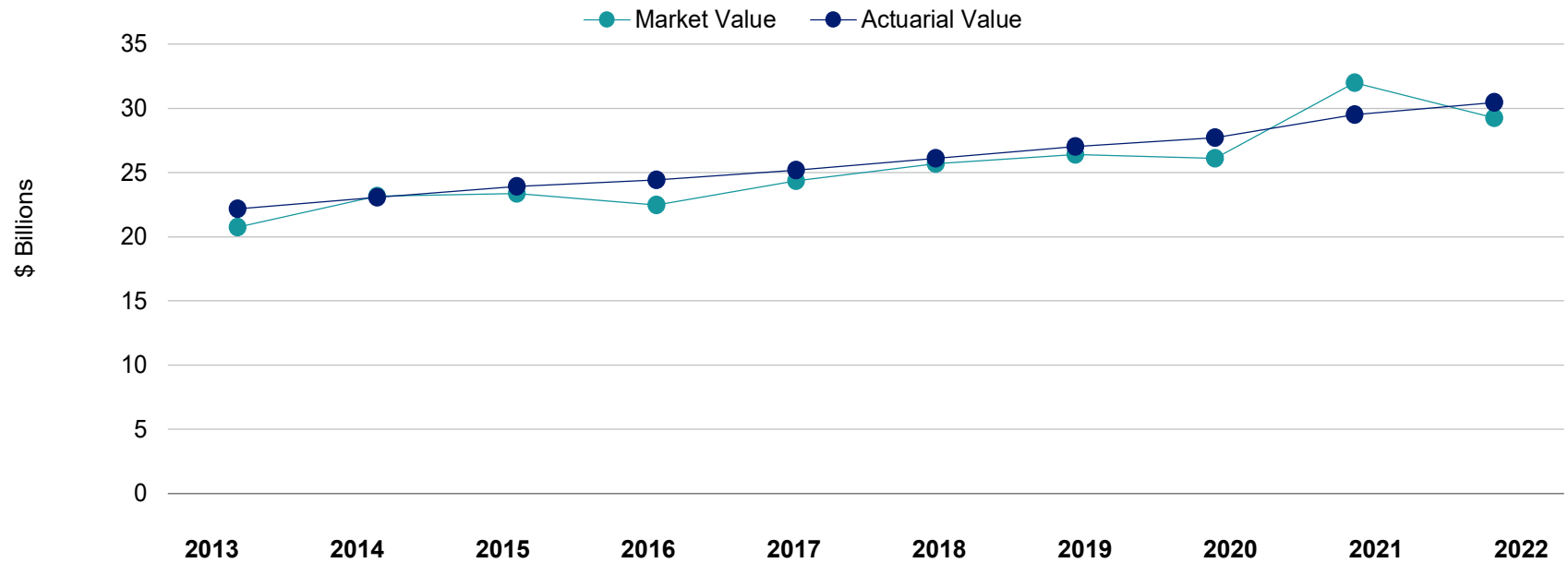
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
■ Actuarial Value ²	\$2.13	\$2.06	\$2.00	\$1.93	\$1.89	\$1.87	\$1.90	\$1.94	\$2.10	\$2.27
■ Market Value ²	1.90	1.95	1.83	1.65	1.68	1.68	1.69	1.67	2.06	1.99
Ratio	1.12	1.06	1.09	1.17	1.12	1.11	1.12	1.16	1.02	1.14

¹ Excluding Special Value of Assets

² In \$ billions

Section 3: Supplemental Information

Local Employers' Actuarial Value of Assets vs Market Value of Assets



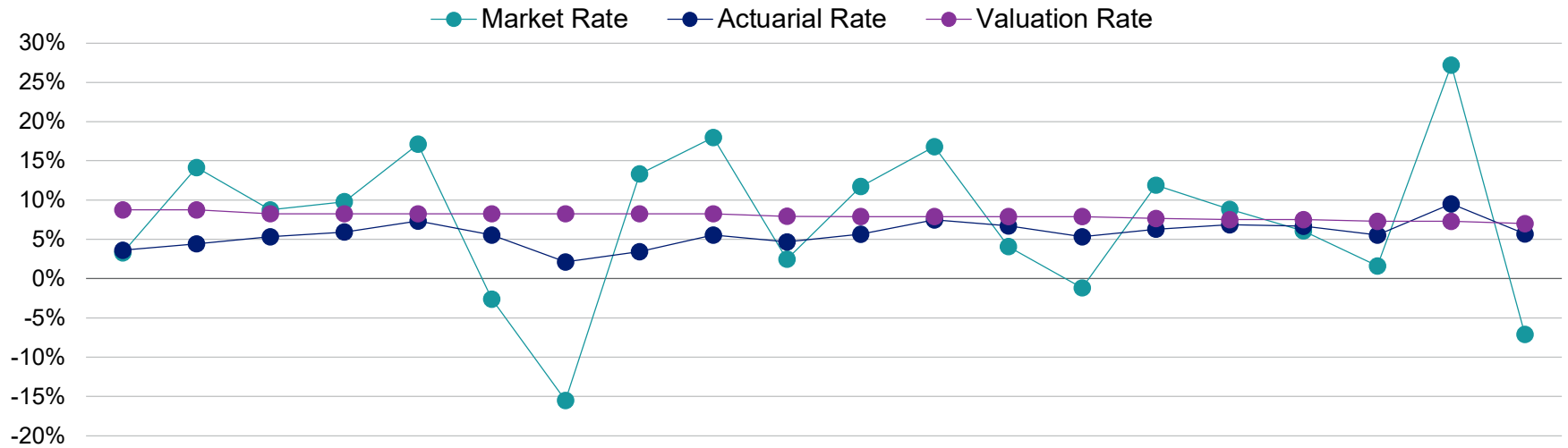
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Actuarial Value ¹	\$22.17	\$23.07	\$23.94	\$24.42	\$25.18	\$26.11	\$27.02	\$27.72	\$29.50	\$30.45
Market Value ¹	20.73	23.14	23.36	22.47	24.35	25.68	26.41	26.10	31.99	29.25
Ratio	1.07	1.00	1.02	1.09	1.03	1.02	1.02	1.06	0.92	1.04

¹ In \$ billions

Section 3: Supplemental Information

Historical investment returns

Market and Actuarial Rates of Return for Years Ended June 30



	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Market rate	3.3%	14.2%	8.8%	9.8%	17.1%	-2.6%	-15.5%	13.3%	18.0%	2.5%	11.7%	16.8%	4.1%	-1.1%	11.9%	8.8%	6.1%	1.6%	27.2%	-7.1%
Actuarial rate	3.6%	4.5%	5.3%	6.0%	7.3%	5.6%	2.1%	3.4%	5.6%	4.7%	5.7%	7.5%	6.7%	5.3%	6.3%	6.9%	6.7%	5.5%	9.5%	5.7%
Valuation rate	8.75%	8.75%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	7.95%	7.90%	7.90%	7.90%	7.90%	7.65%	7.50%	7.50%	7.30%	7.30%	7.00%

Average Rates of Return	Actuarial Value	Market Value
Most recent five-year average return:	6.85%	6.75%
Most recent ten-year average return:	6.57%	7.61%
Most recent 15-year average return:	5.80%	5.86%
20-year average return:	5.68%	7.01%

Section 3: Supplemental Information

Development of Special Asset Value (SAV)

Under the Lottery Enterprise Contribution Act (Chapter 98, P.L. 2017), PFRS receives 1.20% of the proceeds of the Lottery Enterprise for a term of 30 years (through June 30, 2046). The Special Asset Value (SAV) is calculated as the present value of the remaining projected lottery proceeds at the actuarial assumed rate of investment return.

1	Lottery Enterprise Value as of Appraisal Date of June 30, 2017 ¹	\$13,535,103,380
2	Depreciated Value as of end of Valuation Year on June 30, 2022 ¹	<u>13,362,605,911</u>
3	Discounted Value as of July 1, 2022 at 7.00%	12,488,416,739
4	Allocation to PFRS	1.20%
5	Special Asset Value as of July 1, 2022	\$149,861,001

¹ Provided by the Division of Pensions and Benefits

Section 3: Supplemental Information

Actuarial experience

Assumptions should consider experience and should be based on reasonable expectations for the future.

Each year actual experience is compared to that projected by the assumptions. Differences are reflected in the actuarial valuation.

Assumptions are not changed if experience is believed to be a short-term development that will not continue over the long term. On the other hand, if experience is expected to continue, assumptions are changed.

State Actuarial Experience for Year Ended June 30, 2022

1	Net gain/(loss) from investments ¹	(\$69,473,306)
3	Net gain/(loss) from contributions	48,405,821
4	Net gain/(loss) from salary scale	(108,895,414)
5	Net gain/(loss) from other experience	(20,960,220)
6	Net experience gain/(loss): 1 + 2 + 3 + 4 + 5	(\$150,923,119)

Local Employers' Actuarial Experience for Year Ended June 30, 2022

1	Net gain/(loss) from investments ¹	(\$299,389,765)
3	Net gain/(loss) from contributions	94,838,745
4	Net gain/(loss) from salary scale	(155,559,323)
5	Net gain/(loss) from other experience	(41,212,046)
6	Net experience gain/(loss): 1 + 2 + 3 + 4 + 5	(\$401,322,389)

¹ Details on next page

Section 3: Supplemental Information

Investment experience

Actuarial planning is long term. The obligations of a pension plan are expected to continue for the lifetime of all its participants.

The assumed long-term rate of return of 7.00% (recommended by the Chief Financial Officer and adopted by the Board of Trustees) considers past experience, the asset allocation policy of the Board and future expectations.

Investment Experience

	State		Local	
	Market Value	Actuarial Value	Market Value	Actuarial Value
1 Net investment income	(\$184,137,196)	\$53,134,800	(\$2,059,381,407)	\$1,621,505,464
2 Average value of assets	1,710,923,143	1,751,544,371	29,957,202,569	27,441,360,412
3 Rate of return: 1 ÷ 2	(10.76%)	3.03%	(6.87%)	5.91%
4 Assumed rate of return	7.00%	7.00%	7.00%	7.00%
5 Expected investment income: 2 x 4	119,764,620	122,608,106	2,097,004,180	1,920,895,228
6 Investment gain/(loss): 1 - 5	(\$303,901,816)	(\$69,473,306)	(\$4,156,385,587)	(\$299,389,765)

Section 3: Supplemental Information

Non-investment 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:

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

For the year ended June 30, 2021 this other experience resulted in a 1.3% loss for the State plan and a 0.2% loss for the Local plan. The loss for the State plan is considered. Both losses are primarily due to salary increases greater than projected.

Actuarial assumptions

- This valuation reflects the assumption changes recommended in Segal's Experience Study for the period July 1, 2018 – June 30, 2021 that were adopted by the Board in November 2022. The referenced report contains more details on the adopted changes and justifications for such.
- As a result of these assumption changes, the normal cost for the State increased by 1.7% and the normal cost for the Local Employers increased by 1.6%. The actuarial accrued liability for the State decreased by 0.6% and the actuarial accrued liability for the Local Employers decreased by the same amount.

Plan provisions

- This valuation reflects the provisions of Chapter 9, P.L. 2022 which allows police chiefs of law enforcement agencies and chiefs of fire departments to remain members of the System until the end of the calendar year in which they turn age 67 provided they attain age 65 by April 12, 2024 and that they are approved for this continued service by the appointing authority. This change caused a small decrease in the liability and a small increase in the normal cost for Local Employers.

Section 3: Supplemental Information

Unfunded/(Overfunded) Actuarial Accrued Liability

Development of State Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended June 30, 2022

1	Unfunded/(overfunded) actuarial accrued liability at beginning of year ¹	\$3,710,560,891
2	Normal cost at beginning of year	111,105,581
3	Total expected contributions	-407,044,335
4	Interest on 1, 2 & 3	<u>256,298,361</u>
5	Expected unfunded/(overfunded) actuarial accrued liability	\$3,670,920,499
6	Changes due to:	
(a)	Actuarial investment loss	\$69,473,306
(b)	Contributions greater than expected	-48,405,821
(c)	Salary increases greater than expected	108,895,414
(d)	Other actuarial gain/(loss)	20,960,220
(e)	Change in assumptions	-34,111,237
(f)	Change in plan provisions	<u>0</u>
	Total changes	<u>\$116,811,882</u>
7	Unfunded/(overfunded) actuarial accrued liability at end of year ¹	\$3,787,732,381

¹ Excluding Special Asset Value

Section 3: Supplemental Information

Development of Local Employers' Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended June 30, 2022

1	Unfunded/(overfunded) actuarial accrued liability at beginning of year ¹	\$12,194,985,511
2	Normal cost at beginning of year	774,241,048
3	Total expected contributions	-1,668,843,030
4	Interest on 1, 2 & 3	<u>812,671,117</u>
5	Expected unfunded/(overfunded) actuarial accrued liability	\$12,113,054,646
6	Changes due to:	
	(a) Actuarial investment loss	\$299,389,765
	(b) Contributions greater than expected	-94,838,745
	(c) Salary increases greater than expected	155,559,323
	(d) Other actuarial gain/(loss)	41,212,046
	(e) Change in assumptions	-269,985,427
	(f) Change in plan provisions	<u>-4,522,454</u>
	Total changes	<u>\$126,814,493</u>
7	Unfunded/(overfunded) actuarial accrued liability at end of year ¹	\$12,239,869,139

¹ Reflects ERI payments of \$3,531,960 and \$3,165,591 at the beginning and end of the year, respectively.

Section 3: Supplemental Information

Statutory Pension Contribution

The statutory pension contribution for the State and Local employers is equal to the employer normal cost payment and a payment on the unfunded/(overfunded) actuarial accrued liability. For purposes of determining the unfunded actuarial accrued liability for the State the Special Asset Value is not included. There is no explicit cost component related to administrative expenses, instead, they are net of the investment return assumption.

The NJ statute governing the System (Chapter 78, P.L. 2011) prescribes the funding policy used to calculate the actuarially determined contribution. Specifically, the unfunded actuarial liability is amortized over a closed 30-year period as a level dollar amount beginning with the July 1, 2018 actuarial valuation. On July 1, 2028 when the amortization period reaches 20 years, annual increases or decreases in the unfunded actuarial accrued liability will increase or decrease the amortization period unless that period is in excess of 20 years. If so, the unfunded actuarial accrued liability is amortized over 20 years. As of July 1, 2022 there are 26 years remaining on the closed amortization schedule.

The State portion of PFRS receives 1.2% of the annual lottery proceeds for a 30-year period ending June 30, 2046 in accordance with the Lottery Enterprise Contribution Act (Chapter 98, P.L. 2017). The actuarially determined contribution is no longer offset by the projected lottery proceeds in accordance with the Lottery Enterprise Contribution Act (Chapter 98, P.L. 2017).

The contribution requirements for the State and Local Employers developed on the following pages as of July 1, 2022 are based on the data previously described, the actuarial assumptions and plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

Section 3: Supplemental Information

Development of Unfunded Actuarial Liability

	July 1, 2022			July 1, 2021		
	State	Local ¹	Total	State	Local ¹	Total
1 Actuarial Liability	\$6,055,686,895	\$42,690,941,415	\$48,746,628,310	\$5,814,552,892	\$41,694,235,839	\$47,508,788,731
2 Actuarial value of assets ²	\$2,267,954,515	30,451,072,277	32,719,026,792	\$2,103,993,000	\$29,499,250,347	\$31,603,243,347
3 Unfunded Liability						
a. Basic	\$3,623,241,028	\$10,281,743,892	\$13,904,984,921	\$3,548,851,238	\$10,191,732,571	\$13,740,583,809
b. Chapter 204, P.L. 1989	518,424	4,320,589	4,839,013	560,342	4,612,844	5,173,186
c. Chapter 247, P.L. 1993	0	118,653,250	118,653,250	0	123,918,354	123,918,354
d. Chapter 428, P.L. 1999 ³	163,972,927	810,796,812	974,769,738	161,149,312	823,886,459	985,035,771
e. Chapter 109, P.L. 1979	0	665,078,311	665,078,311	0	682,699,372	682,699,372
f. Chapter 511, P.L. 1991	<u>0</u>	<u>359,276,284</u>	<u>359,276,284</u>	<u>0</u>	<u>368,135,891</u>	<u>368,135,891</u>
g. Total	\$3,787,732,380	\$12,239,869,138	\$16,027,601,518	\$3,710,560,892	\$12,194,985,492	\$15,905,546,384
4 Adjustment to Unfunded Actuarial Liability for Phase-In of State-Paid Local Obligations						
a. Chapter 247, P.L. 1993	\$114,943,407	(\$114,943,407)	\$0	\$117,425,009	(\$117,425,009)	\$0
b. Chapter 428, P.L. 1999 ³	600,866,021	(600,866,021)	0	615,737,341	(615,737,341)	0
c. Chapter 109, P.L. 1979	665,078,311	(665,078,311)	0	682,699,372	(682,699,372)	0
d. Chapter 511, P.L. 1991	<u>359,276,284</u>	<u>(359,276,284)</u>	<u>0</u>	<u>368,135,891</u>	<u>(368,135,891)</u>	<u>0</u>
e. Total	1,740,164,023	(1,740,164,023)	\$0	\$1,783,997,614	(\$1,783,997,614)	\$0
5 Net unfunded actuarial liability (3) + (4)	\$5,527,896,402	\$10,499,705,115	\$16,027,601,518	\$5,494,558,506	\$10,410,987,878	\$15,905,546,384

¹ Excludes UAL amounts due to Local Employer ERI programs and Chapter 19, P.L. 2009 Local Employer deferrals because receivables for these amounts are included in the AVA

² Excludes Special Asset Value

³ Includes UAL amounts for Chapter 86, P.L. 2001 and Chapter 318, P.L. 2001. Based on established methodology, the Chapter 428, P.L. 1999 UAL is assumed to be a level percentage of the total UAL excluding amounts attributable to Chapter 86, P.L. 2001, Chapter 318, P.L. 2001, Chapter 109, P.L. 1979 and Chapter 511, P.L. 1991 as well as amounts attributable to the phase-in of State-paid Local obligations associated with Chapter 247, P.L. 1993 and Chapter 428, P.L. 1999. The percentage is 4% for State and 2% for Local.

Section 3: Supplemental Information

Development of Unfunded Actuarial Liability Contribution

	July 1, 2022 Fiscal Year Ending 2024 Payment			July 1, 2021 Fiscal Year Ending 2023 Payment		
	State	Local ¹	Total	State	Local ¹	Total
1 Amortization of UAL						
a. Basic	\$286,341,108	\$812,555,918	\$1,098,897,026	\$276,696,747	\$794,628,758	\$1,071,325,505
b. Chapter 204, P.L. 1989	68,983	574,911	643,894	69,837	574,911	644,748
c. Chapter 247, P.L. 1993	0	9,377,047	9,377,047	0	9,661,663	9,661,663
d. Chapter 428, P.L. 1999 ²	12,958,616	64,076,460	77,035,076	12,564,486	64,236,759	76,801,245
e. Chapter 109, P.L. 1979	0	52,560,473	52,560,473	0	53,228,688	53,228,688
f. Chapter 511, P.L. 1991	<u>0</u>	<u>28,393,245</u>	<u>28,393,245</u>	<u>0</u>	<u>28,702,810</u>	<u>28,702,810</u>
g. Total	\$299,368,707	\$967,538,053	\$1,266,906,760	\$289,331,070	\$951,033,589	\$1,240,364,659
4 Adjustment to UAL Contribution for Phase-In of State-Paid Local Obligations						
a. Chapter 247, P.L. 1993	\$9,377,047	(\$9,377,047)	\$0	\$9,661,663	(\$9,661,663)	0
b. Chapter 428, P.L. 1999 ²	64,076,460	(64,076,460)	0	64,236,759	(64,236,759)	0
c. Chapter 109, P.L. 1979	52,560,473	(52,560,473)	0	53,228,688	(53,228,688)	0
d. Chapter 511, P.L. 1991	<u>28,393,245</u>	<u>(28,393,245)</u>	<u>0</u>	<u>28,702,810</u>	<u>(28,702,810)</u>	<u>0</u>
e. Total	\$154,407,224	(\$154,407,224)	\$0	\$155,829,921	(\$155,829,921)	0
3 UAL Contribution as of Valuation Date (1) + (2)	\$453,775,932	\$813,130,829	\$1,266,906,760	\$445,160,991	\$795,203,668	\$1,240,364,659
4 Interest to Beginning of Fiscal Year	31,764,315	56,919,158	88,683,473	31,161,269	55,664,257	86,825,526
5 UAL Contribution as of Beginning of Fiscal Year (3) + (4)	\$485,540,247	\$870,049,987	\$1,355,590,234	\$476,322,260	\$850,867,925	\$1,327,190,185

¹ Excludes UAL amounts due to Local Employer ERI programs and Chapter 19, P.L. 2009 Local Employer deferrals because receivables for these amounts are included in the AVA

² Includes UAL amounts for Chapter 86, P.L. 2001 and Chapter 318, P.L. 2001.

Section 3: Supplemental Information

Development of Normal Cost Contribution

	July 1, 2022 Fiscal Year Ending 2024 Payment			July 1, 2021 Fiscal Year Ending 2023 Payment		
	State	Local	Total	State	Local	Total
1 Gross Normal Cost, excluding NCGI Premium						
a. Basic	\$103,975,630	\$730,488,982	\$834,464,612	\$102,443,671	\$713,645,122	\$816,088,792
b. Chapter 247, P.L. 1993	0	36,990	36,990	0	56,809	56,809
c. Chapter 428, P.L. 1999	1,099,724	8,051,687	9,151,411	884,328	5,566,033	6,450,361
d. Chapter 109, P.L. 1979 ¹	5,668,802	40,082,746	45,751,548	5,568,811	39,203,379	44,772,191
e. Chapter 511, P.L. 1991	<u>2,256,423</u>	<u>16,309,423</u>	<u>18,565,846</u>	<u>2,208,771</u>	<u>15,769,705</u>	<u>17,978,476</u>
f. Total	\$113,000,579	\$794,969,828	\$907,970,407	\$111,105,581	\$774,241,048	\$885,346,629
2 Expected Member Contributions	(\$48,335,758)	(\$337,654,342)	(\$385,990,100)	(\$47,796,212)	(\$328,938,151)	(\$376,734,363)
3 Employer Normal Cost (1) + (2)	\$64,664,821	\$457,315,486	\$521,980,307	\$63,309,369	\$445,302,897	\$508,612,266
4 Portion of Local Normal Cost Payable by State						
a. Chapter 247, P.L. 1993	\$36,990	(\$36,990)	\$0	\$56,809	(\$56,809)	0
b. Chapter 428, P.L. 1999	8,051,687	(8,051,687)	0	5,566,033	(5,566,033)	0
c. Chapter 109, P.L. 1979	40,082,746	(40,082,746)	0	39,203,379	(39,203,379)	0
d. Chapter 511, P.L. 1991	<u>16,309,423</u>	<u>(16,309,423)</u>	<u>0</u>	<u>15,769,705</u>	<u>(15,769,705)</u>	<u>0</u>
e. Total	\$64,480,846	(\$64,480,846)	\$0	\$60,595,926	(\$60,595,926)	0
5 Normal Cost Contribution as of Valuation Date (3) + (4)	\$129,145,667	\$392,834,640	\$521,980,307	\$123,905,295	\$384,706,971	\$508,612,266
6 Interest to Beginning of Fiscal Year	9,040,197	27,498,425	36,538,621	8,673,371	26,929,488	35,602,859
7 Normal Cost Contribution as of Beginning of Fiscal Year (5) + (6)	\$138,185,864	\$420,333,065	\$558,518,928	\$132,578,666	\$411,636,458	\$544,215,125
8 Non-Contributory Group Insurance Premium at Beginning of Fiscal Year (one-year term cost)	N/A	\$41,718,524	\$41,718,524	N/A	\$38,807,839	\$38,807,839

¹ Per statute, 1.1% of appropriation payroll

Section 3: Supplemental Information

Development of Statutory Pension Contributions

	July 1, 2022 Fiscal Year Ending 2024 Payment			July 1, 2021 Fiscal Year Ending 2023 Payment		
	State	Local	Total	State	Local	Total
1 Normal Cost Contribution ¹						
a. Basic	\$59,534,663	\$420,333,065	\$479,867,728	\$58,472,781	\$411,636,458	\$470,109,239
a. Chapter 247, P.L. 1993	39,579	0	39,579	60,786	0	60,786
b. Chapter 428, P.L. 1999	9,792,010	0	9,792,010	6,901,886	0	6,901,886
c. Chapter 109, P.L. 1979	48,954,156	0	48,954,156	47,906,244	0	47,906,244
d. Chapter 511, P.L. 1991	<u>19,865,455</u>	<u>0</u>	<u>19,865,455</u>	<u>19,236,969</u>	<u>0</u>	<u>19,236,969</u>
e. Total	\$138,185,864	\$420,333,065	\$558,518,928	\$132,578,666	\$411,636,458	\$544,215,125
2 UAL Contribution ^{1,2}						
a. Basic	\$306,384,986	\$869,434,832	\$1,175,819,818	\$296,065,519	\$850,252,771	\$1,146,318,290
b. Chapter 204, P.L. 1989	73,812	615,155	688,967	74,725	615,155	689,880
c. Chapter 247, P.L. 1993	10,033,441	0	10,033,441	10,337,980	0	10,337,980
d. Chapter 428, P.L. 1999	82,427,531	0	82,427,531	82,177,332	0	82,177,332
e. Chapter 109, P.L. 1979	56,239,706	0	56,239,706	56,954,696	0	56,954,696
f. Chapter 511, P.L. 1991	<u>30,380,772</u>	<u>0</u>	<u>30,380,772</u>	<u>30,712,007</u>	<u>0</u>	<u>30,712,007</u>
g. Total	\$485,540,247	\$870,049,987	\$1,355,590,234	\$476,322,260	\$850,867,925	\$1,327,190,185
3 Total Statutory Contribution (1) + (2)	\$623,726,111	\$1,290,383,051	\$1,914,109,162	\$608,900,926	\$1,262,504,384	\$1,871,405,310
4 Lottery Enterprise Contribution Offset	\$0	\$0	\$0	\$0	\$0	\$0
5 Net Pension Contribution (3) + (4)	\$623,726,111	\$1,290,383,051	\$1,914,109,162	\$608,900,926	\$1,262,504,384	\$1,871,405,310
6 Non-Contributory Group Insurance Premium at Beginning of Fiscal Year (one-year term cost)	N/A	\$41,718,524	\$41,718,524	N/A	\$38,807,839	\$38,807,839

¹ State amounts for Chapter 247, P.L. 1993, Chapter 428, P.L. 1999, Chapter 109, P.L. 1979 and Chapter 511, P.L. 1991 include contributions toward State-paid Local obligations, both amounts attributable to the current fiscal year and amounts that were not contributed in prior years due to the phase-in of contributions. The total State-paid Local obligations are \$234,210,235 and \$231,575,656 for the July 1, 2022 and July 1, 2021 valuations, respectively.

² Excludes UAL amounts due to Local Employer ERI programs and Chapter 19, P.L. 2009 Local Employer deferrals because receivables for these amounts are included in the AVA. Refer to Section 5 for additional information regarding these payments.

Section 3: Supplemental Information

The following tables present the State and Local Employers' statutory contributions¹ as a percentage of appropriation payroll for FYE 2024 compared to FYE 2023 both in total and broken out by chapter. The increases in the statutory contribution amounts as a percentage of appropriations payroll are primarily due to the investment losses for the year ended 2022.

	July 1, 2022 Fiscal Year Ending 2024 Payment			July 1, 2021 Fiscal Year Ending 2023 Payment		
	State	Local	Total	State	Local	Total
Prior to Statutory State-Paid Local Adjustments and Prior to Lottery Enterprise Contribution Offset						
Normal Cost Contribution Rate	13.426%	13.429%	13.428%	13.381%	13.369%	13.371%
UAL Contribution Rate ²	<u>62.157%</u>	<u>28.411%</u>	<u>32.592%</u>	<u>61.152%</u>	<u>28.553%</u>	<u>32.607%</u>
Total Pension Contribution Rate	75.583%	41.840%	46.021%	74.533%	41.922%	45.978%
Non-Contributory Group Insurance Premium Rate	N/A	1.145%	N/A	N/A	1.089%	N/A
After Statutory State-Paid Local Adjustments and Prior to Lottery Enterprise Contribution Offset						
Normal Cost Contribution Rate	26.814%	11.535%	13.428%	26.188%	11.550%	13.371%
UAL Contribution Rate ²	<u>94.216%</u>	<u>23.877%</u>	<u>32.592%</u>	<u>94.087%</u>	<u>23.874%</u>	<u>32.607%</u>
Total Pension Contribution Rate	121.031%	35.412%	46.021%	120.275%	35.424%	45.978%
Non-Contributory Group Insurance Premium Rate	N/A	1.145%	N/A	N/A	1.089%	N/A

¹ Excludes UAL amounts due to Local Employer ERI programs and Chapter 19, P.L. 2009 Local Employer deferrals because receivables for these amounts are included in the AVA

² In order to demonstrate the total costs of the System, these rates include the contributions associated with Chapter 204, P.L. 1989. However, the Chapter 204, P.L. 1989 contributions are payable by individual employers.

Section 3: Supplemental Information

	July 1, 2022 Fiscal Year Ending 2024 Payment		July 1, 2021 Fiscal Year Ending 2023 Payment	
	State	Local	State	Local
Normal Cost Contribution Rate¹				
Basic Allowances	11.552%	11.535%	11.550%	11.550%
Chapter 247, P.L. 1993				
PERS Local normal rate for individuals without past service	N/A	16.370%	N/A	16.370%
PERS Local normal rate for individuals with past service	N/A	2.606%	N/A	2.606%
Portion of Municipalities and Local Group costs payable by the State	0.007%	N/A	0.011%	N/A
Chapter 428, P.L. 1999	1.900%	N/A	1.363%	N/A
Chapter 109, P.L. 1979	9.499%	N/A	9.463%	N/A
Chapter 511, P.L. 1991	3.855%	N/A	3.800%	N/A
UAL Contribution Rate^{1,2}				
Basic Allowances	59.452%	23.860%	58.481%	23.874%
Chapter 204, P.L. 1989 ³	--	--	--	--
Chapter 247, P.L. 1993	1.947%	N/A	2.042%	N/A
Chapter 428, P.L. 1999 ⁴	15.995%	N/A	16.232%	N/A
Chapter 109, P.L. 1979	10.913%	N/A	11.250%	N/A
Chapter 511, P.L. 1991	5.895%	N/A	6.067%	N/A
Non-Contributory Group Insurance Premium Rate	N/A	1.145%	N/A	1.089%

¹ State rates for Chapter 247, P.L. 1993, Chapter 428, P.L. 1999, Chapter 109, P.L. 1979 and Chapter 511, P.L. 1991 include contributions toward State-paid Local obligations, both amounts attributable to the current fiscal year and amounts that were not contributed in prior years due to the phase-in of contributions.

² Excludes UAL contributions due to Local Employer ERI programs and Chapter 19, P.L. 2009 Local Employer deferrals because receivables for these amounts are included in the AVA.

³ Employer specific costs under Chapter 204 detailed on next page.

⁴ Includes UAL contribution rates for Chapter 86, P.L. 2001 and Chapter 318, P.L. 2001.

Section 3: Supplemental Information

The table below details the recommended Chapter 204, P.L. 1989 payment for applicable locations. See the *Legislation History* section of this report for a description of this legislation.

Chapter 204, P.L. 1989 Payment Schedule

Location Number	Location Name	July 1, 2022 Fiscal Year Ending 2024		July 1, 2021 Fiscal Year Ending 2023	
		Payment as of Beginning of Fiscal Year	Years Remaining	Payment as of Beginning of Fiscal Year	Years Remaining
State Locations					
00053	Juvenile Justice Comm/Community Program	\$2,121	10	\$2,147	11
00323	Dept Div of Human Resources	68,128	10	68,971	11
00498	Rutgers Biomedical	<u>3,564</u>	<u>10</u>	<u>3,608</u>	<u>11</u>
	Total	\$73,812		\$74,725	
Municipalities and Local Groups					
21202	Camden City	\$89,552	10	\$89,552	11
39300	Belmar Borough	11,979	10	11,979	11
46800	Roxbury Township	22,670	10	22,670	11
49700	Wes Windsor Township	33,627	10	33,627	11
57700	Sea Isle City	6,084	10	6,084	11
62400	NJ Institute of Technology	97,015	10	97,015	11
62500	Brookdale Community College	105,421	10	105,421	11
62700	Essex County College	31,682	10	31,682	11
75000	Lakewood Twp Fire District #1	16,825	10	16,825	11
75700	Middlesex County College	117,181	10	117,181	11
76200	Lower Camden Co Reg HS Dist #1	2,530	10	2,530	11
77500	Hopewell Twp Fire District #1	10,427	10	10,427	11
78600	South Jersey Transit Authority	51,174	10	51,174	11
78700	Washington Twp Bd of Fire Comm	17,901	10	17,901	11
79600	Upper Freehold Township	<u>1,088</u>	<u>10</u>	<u>1,088</u>	<u>11</u>
	Total	\$615,155		\$615,155	

Section 3: Supplemental Information

Fiscal Year Ending 2024 Contributions for State College Locations

Location	Location Name	Number of Members	2022 Appropriation Payroll	Normal Cost Contribution	UAL Contribution	Net FYE 2024 Pension Contribution ¹
00410	Rowan University	30	\$2,265,202	\$607,396	\$2,133,868	\$2,741,264
00412	Kean University	15	1,027,203	275,436	967,647	1,243,083
00413	William Paterson University of NJ	22	1,510,322	404,981	1,422,755	1,827,736
00414	Montclair State University	28	2,572,373	689,762	2,423,230	3,112,991
00415	The College of New Jersey	12	913,932	245,064	860,943	1,106,007
00421	Stockton University	17	1,080,377	289,695	1,017,738	1,307,433
00498	Rutgers University	108	9,722,029	2,606,885	9,161,920	11,768,806
62400	NJ Institute of Technology	26	<u>2,191,952</u>	<u>587,755</u>	<u>2,161,880</u>	<u>2,749,635</u>
	Total	258	\$21,283,390	\$5,706,973	\$20,149,982	\$25,856,955

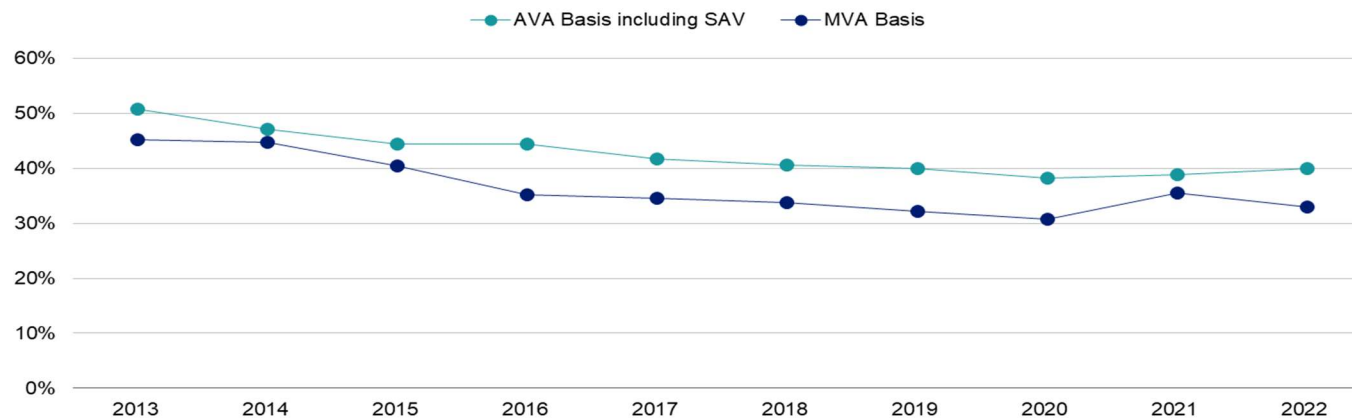
¹ The lottery enterprise contribution is no longer used to offset the pension contribution.

Section 3: Supplemental Information

Schedule of State funding progress through June 30, 2022

Actuarial Valuation Date	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Compensation ² (c)	UAAL as a Percentage of Covered Compensation [(b) - (a)] / (c)
07/01/2013	\$2,127,491,585	\$4,188,523,037	\$2,061,031,452	50.79%	\$532,147,062	387.30%
07/01/2014	2,062,185,965	4,365,609,664	2,303,423,699	47.24%	529,501,284	435.02%
07/01/2015	2,004,579,109	4,516,438,165	2,511,859,056	44.38%	518,087,705	484.83%
07/01/2016	1,928,447,404	4,676,642,040	2,748,194,636	41.24%	507,802,380	541.19%
07/01/2017	1,887,486,318	4,873,081,731	2,985,595,413	38.73%	504,025,065	592.35%
07/01/2018	1,872,048,766	4,983,733,970	3,111,685,204	37.56%	479,941,514	648.35%
07/01/2019	1,896,362,754	5,261,107,456	3,364,744,702	36.04%	487,025,462	690.88%
07/01/2020	1,935,340,424	5,449,871,027	3,514,530,603	35.51%	511,392,879	687.25%
07/01/2021	2,103,993,000	5,814,553,891	3,710,560,891	36.18%	506,255,584	732.94%
07/01/2022	2,267,954,515	6,055,686,895	3,787,732,380	37.45%	515,345,604	734.99%

State Funded Ratio History for Years Ended June 30, 2013 – 2022



¹ Including receivables but excluding SAV

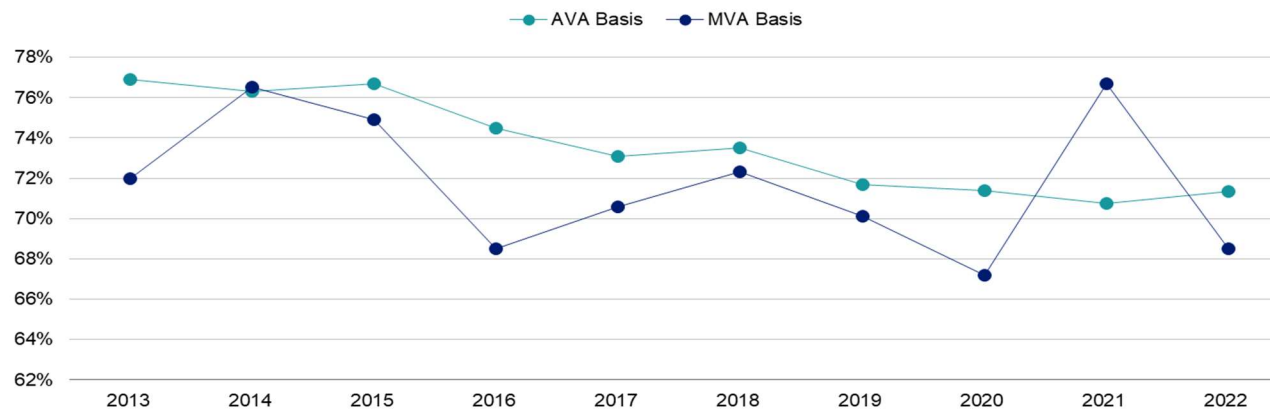
² Includes non-contributing actives prior to July 1, 2018

Section 3: Supplemental Information

Schedule of Local Employers funding progress through June 30, 2022

Actuarial Valuation Date	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (c)	UAAL as a Percentage of Covered Compensation [(b) - (a)] / (c)
07/01/2013	\$22,170,221,173	\$28,811,698,272	\$6,641,477,099	76.95%	\$3,233,135,473	205.42%
07/01/2014	23,066,498,788	30,239,286,907	7,172,788,119	76.28%	3,246,344,549	220.95%
07/01/2015	23,935,037,150	31,205,965,303	7,270,928,153	76.70%	3,272,560,644	222.18%
07/01/2016	24,420,145,823	32,793,439,210	8,373,293,387	74.47%	3,320,721,980	252.15%
07/01/2017	25,183,776,588	34,474,127,537	9,290,350,949	73.05%	3,399,605,586	273.28%
07/01/2018	26,109,128,660	35,523,376,524	9,414,247,864	73.50%	3,390,777,193	277.64%
07/01/2019	27,023,458,408	37,671,711,185	10,648,252,777	71.73%	3,450,951,747	308.56%
07/01/2020	27,723,057,451	38,853,311,601	11,130,254,150	71.35%	3,505,375,030	317.52%
07/01/2021	29,499,250,329	41,694,235,840	12,194,985,511	70.75%	3,563,943,590	342.18%
07/01/2022	30,451,072,277	42,690,941,416	12,239,869,139	71.33%	3,643,886,024	335.90%

Local Employers' Funded Ratio History for Years Ended June 30, 2013 – 2022



¹ Including receivables

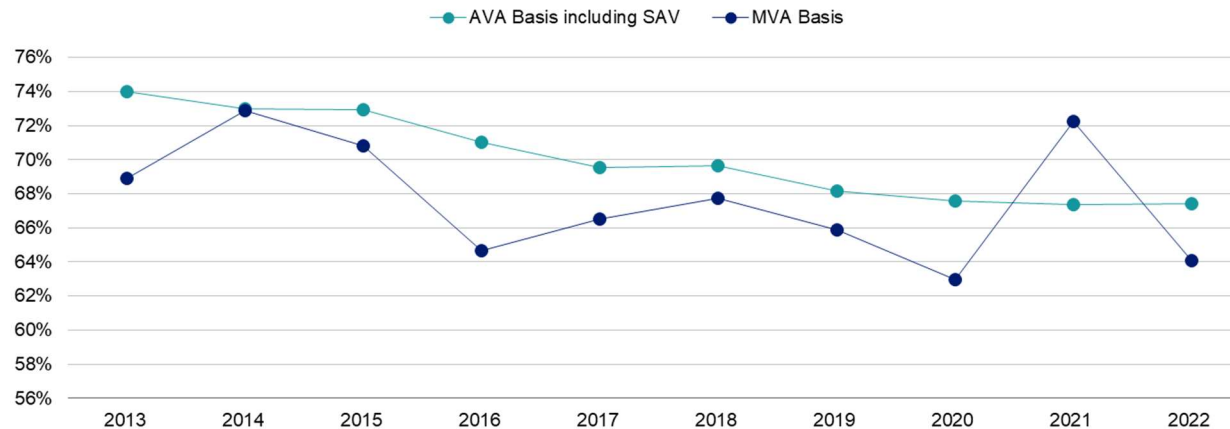
² Includes non-contributing actives prior to July 1, 2018

Section 3: Supplemental Information

Schedule of Total funding progress through June 30, 2022

Actuarial Valuation Date	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded/ (Overfunded) AAL (UAAL) (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (c)	UAAL as a Percentage of Covered Payroll* [(b) - (a)] / (c)
07/01/2013	\$24,297,712,758	\$33,000,221,309	\$8,702,508,551	73.63%	\$3,765,282,535	231.12%
07/01/2014	\$25,128,684,753	\$34,604,896,571	\$9,476,211,818	72.62%	\$3,775,845,833	250.97%
07/01/2015	\$25,939,616,259	\$35,722,403,468	\$9,782,787,209	72.61%	\$3,790,648,349	258.08%
07/01/2016	\$26,348,593,227	\$37,470,081,250	\$11,121,488,023	70.32%	\$3,828,524,360	290.49%
07/01/2017	\$27,071,262,906	\$39,347,209,268	\$12,275,946,362	68.80%	\$3,903,630,651	314.48%
07/01/2018	\$27,981,177,426	\$40,507,110,494	\$12,525,933,068	69.08%	\$3,870,718,707	323.61%
07/01/2019	\$28,919,821,162	\$42,932,818,641	\$14,012,997,479	67.36%	\$3,937,977,209	355.84%
07/01/2020	\$29,658,397,875	\$44,303,182,628	\$14,644,784,753	66.94%	\$4,016,767,909	364.59%
07/01/2021	\$31,603,243,329	\$47,508,789,731	\$15,905,546,402	66.52%	\$4,070,199,174	390.78%
07/01/2022	\$32,719,026,792	\$48,746,628,310	\$16,027,601,518	67.12%	\$4,159,231,628	385.35%

Total Funded Ratio History for Years Ended June 30, 2013 – 2022



¹ Including receivables but excluding SAV

² Includes non-contributing actives prior to July 1, 2018

Section 3: Supplemental Information

History of employer contributions

History of State Employer Contributions¹: 2013 – 2022

Fiscal Year Ended June 30	Actuarially Determined Employer Contribution (ADC)		Actual Employer Contribution			
	Amount	Percentage of Payroll	State Pension Contribution	Percentage of Payroll	Lottery Revenue	Percent Contributed
2014	\$389,689,529	\$73.23%	\$115,623,000	21.73%	\$0	29.7%
2015	414,316,953	78.25%	139,297,000	26.31%	0	33.6%
2016	461,081,051	89.00%	138,324,000	26.70%	0	30.0%
2017	483,877,347	95.29%	195,221,000	38.44%	0	40.3%
2018	502,917,964	99.78%	239,446,000	47.51%	11,712,026	49.9%
2019	529,722,755	110.37%	307,999,000	64.17%	13,260,000	60.6%
2020	544,579,266	111.82%	368,129,000	75.59%	12,180,000	69.8%
2021	569,662,114	111.39%	431,325,000	84.34%	13,260,000	78.0%
2022	594,266,603	117.38%	628,098,000	124.06%	13,333,020	107.9%
2023 ²	608,900,926	118.15%	608,900,926	118.15%	13,236,396	102.2%

¹ Excludes contributions for NCGI and includes Local obligations payable by the State

² Reflects a State appropriation of 100% of the Statutory pension contribution and expected Lottery revenue

Section 3: Supplemental Information

History of Local Employers' Contributions¹: 2013 – 2022

Fiscal Year Ended June 30	Actuarially Determined Employer Contribution (ADC)		Actual Employer Contribution		
	Amount	Percentage of Payroll	Amount	Percentage of Payroll	Percent Contributed
2014	\$726,928,577	22.48%	\$726,928,577	22.48%	100.00%
2015	760,533,458	23.43%	760,533,458	23.43%	100.00%
2016	804,063,662	24.57%	804,063,662	24.57%	100.00%
2017	807,438,390	24.32%	807,438,390	24.32%	100.00%
2018	877,147,545	25.80%	877,147,545	25.80%	100.00%
2019	968,867,296	28.57%	968,540,115	28.56%	99.97%
2020	991,786,398	28.74%	991,786,398	28.74%	100.00%
2021	1,108,329,223	31.62%	1,108,329,223	31.62%	100.00%
2022	1,154,235,618	32.39%	1,154,235,618	32.39%	100.00%
2023	1,262,504,384	34.65%	1,262,504,384	34.65%	100.00%

¹ Excludes contributions for NCGI and includes adjustments for Local obligations payable by the State

Section 3: Supplemental Information

Risk

The actuarial valuation results are dependent on a single set of assumptions; however, there is a risk that emerging results may differ significantly as actual experience proves to be different from the current assumptions.

We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the Plan's future financial condition but have included a brief discussion of some risks that may affect the Plan:

- Economic and Other Related Risks. Potential implications for the Plan due to the following economic effects (that were not reflected as of the valuation date) include:
 - Volatile financial markets and investment returns lower than assumed
 - High inflationary environment impacting salary increases
 - Lingering direct and indirect effects of the COVID-19 pandemic
- Investment Risk (the risk that returns will be different than expected)
 - Over the past ten years, the market value investment return has ranged from a low -7.1% to a high of 27.2%.
- 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)
 - The Plan's funding policy requires payment of the actuarially determined contribution. As long as this policy is adhered to, 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. The value of retirement plan benefits is sensitive to the rate of benefit accruals and any early retirement subsidies that apply.
- More or less active participant turnover than assumed.
- Salary increases more or less than expected

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

- The funded percentage on the actuarial value of assets has ranged from a low of 66.5% to a high of 72.3% since 2013.

Section 3: Supplemental Information

Maturity Measures

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

We recommend a more detailed assessment of the risks to provide the Board with a better understanding of the risks inherent in the Plan. This assessment may include scenario testing, sensitivity testing, stress testing, and stochastic modeling

A detailed risk assessment could be important for the Plan because:

- Relatively small changes in investment performance can produce large swings in the unfunded liabilities since the assets and liabilities are of similar size.
- Retired participants account for most of the Plan's liabilities, leaving limited options for reducing plan costs in the event of adverse experience.
- Actual contributions have been less than the ADC for several years in the past (primarily for the State), which may indicate additional funding challenges in the future.

As a baseline, the projections on the following pages show the projected funded status and projected statutory pension contribution assuming the following:

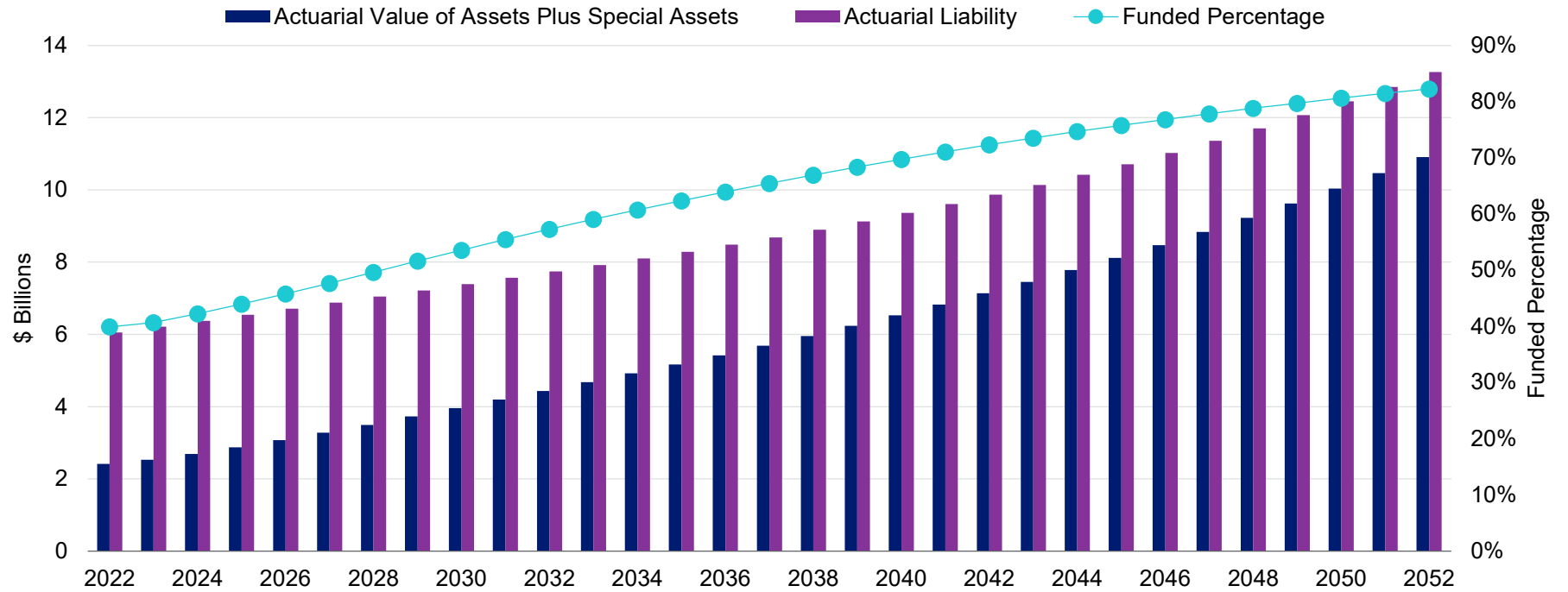
- All actuarial assumptions including the net investment return of 7.00% as recommended by the Chief Financial Officer are exactly met.
- State and Local appropriations are paid in full each year according to the assumptions detailed in this report
- NCGI reserves, contributions, and benefit payments are disregarded
- Annual administrative expenses are assumed to increase 2.75% per year from the level paid in FYE 2022 and limited to 15% of benefit payments
- Contributing active population remains level in all future years.
- New entrants are assumed to join in the middle of the plan year with the same demographic characteristics as new hires in the last three years. Salary at plan entry is based on new hires reported in 2022 valuation data (increased 3.25% each future year)

For both the State and Local portions of the system the funded percentage is projected to increase each year in the future. The State portion is projected to reach 80% funded in 2049 and Local portion is projected to reach 80% funded in 2036. Additional scenarios would highlight the sensitivity of these variables to the risks mentioned above.

For the state plan, the statutory contribution is projected to increase to \$428.1 million in year ended June 30, 2030 and level off thereafter. The statutory contribution for Local Employers is projected to slowly increase in all future years.

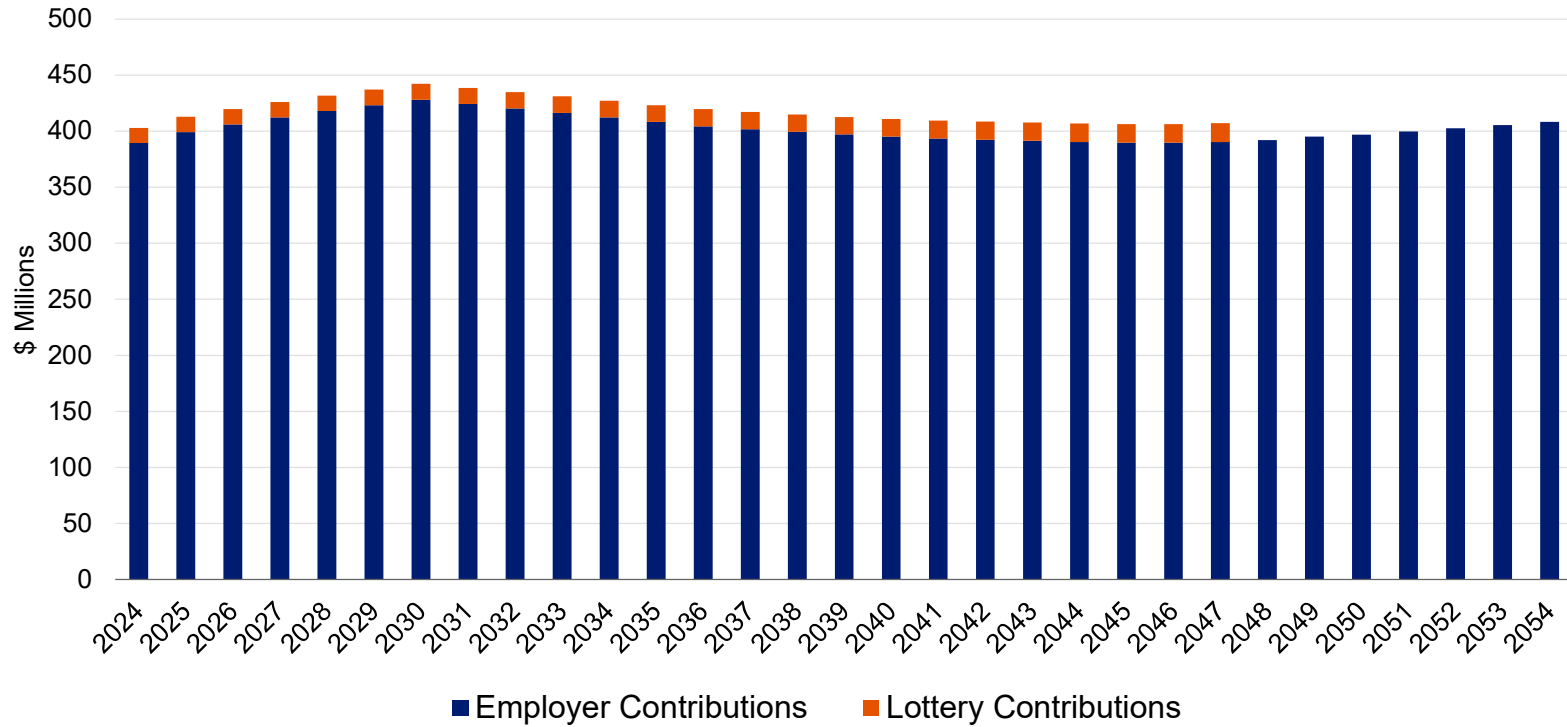
Section 3: Supplemental Information

Projection of Funded Percentage for State Plan



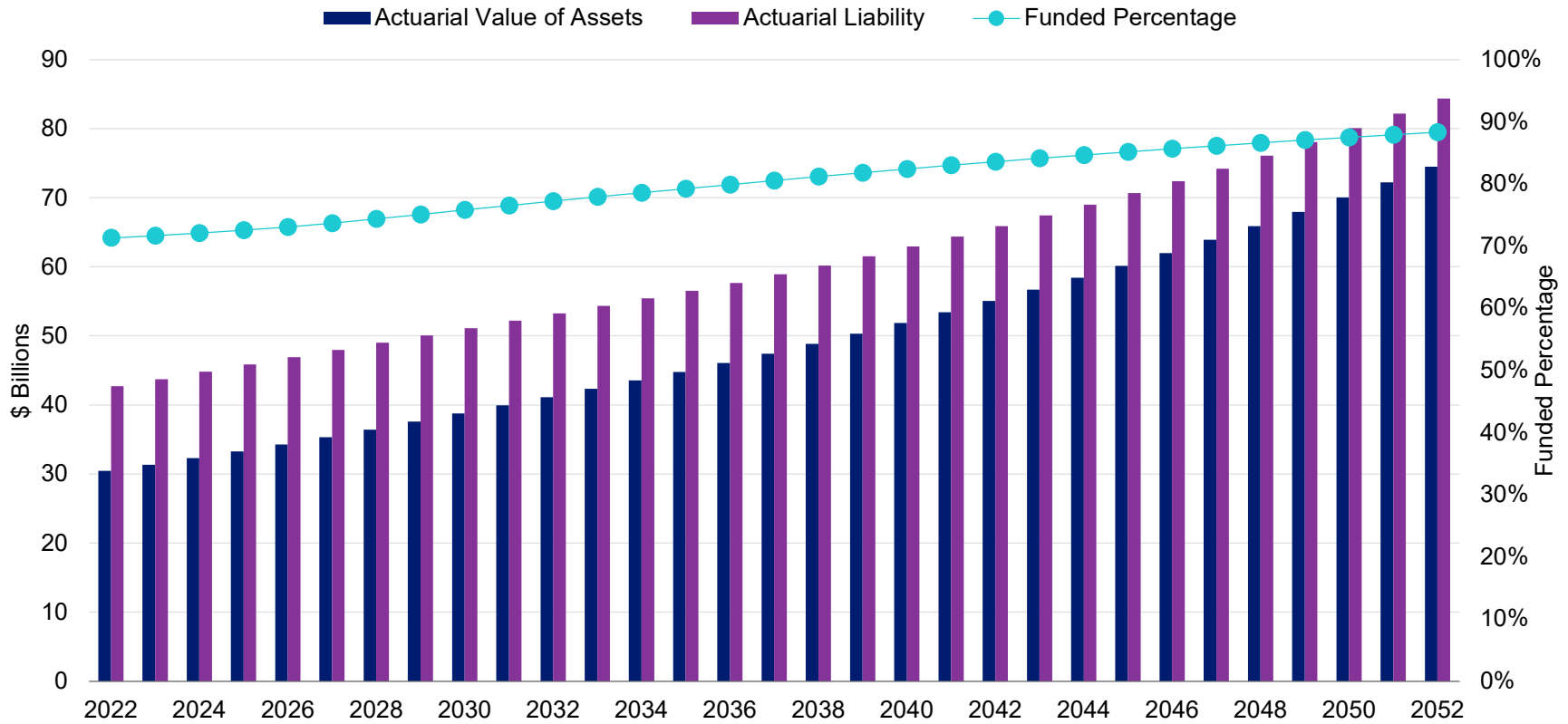
Section 3: Supplemental Information

Projected Aggregate Employer Contributions and Lottery Revenue for the State Plan



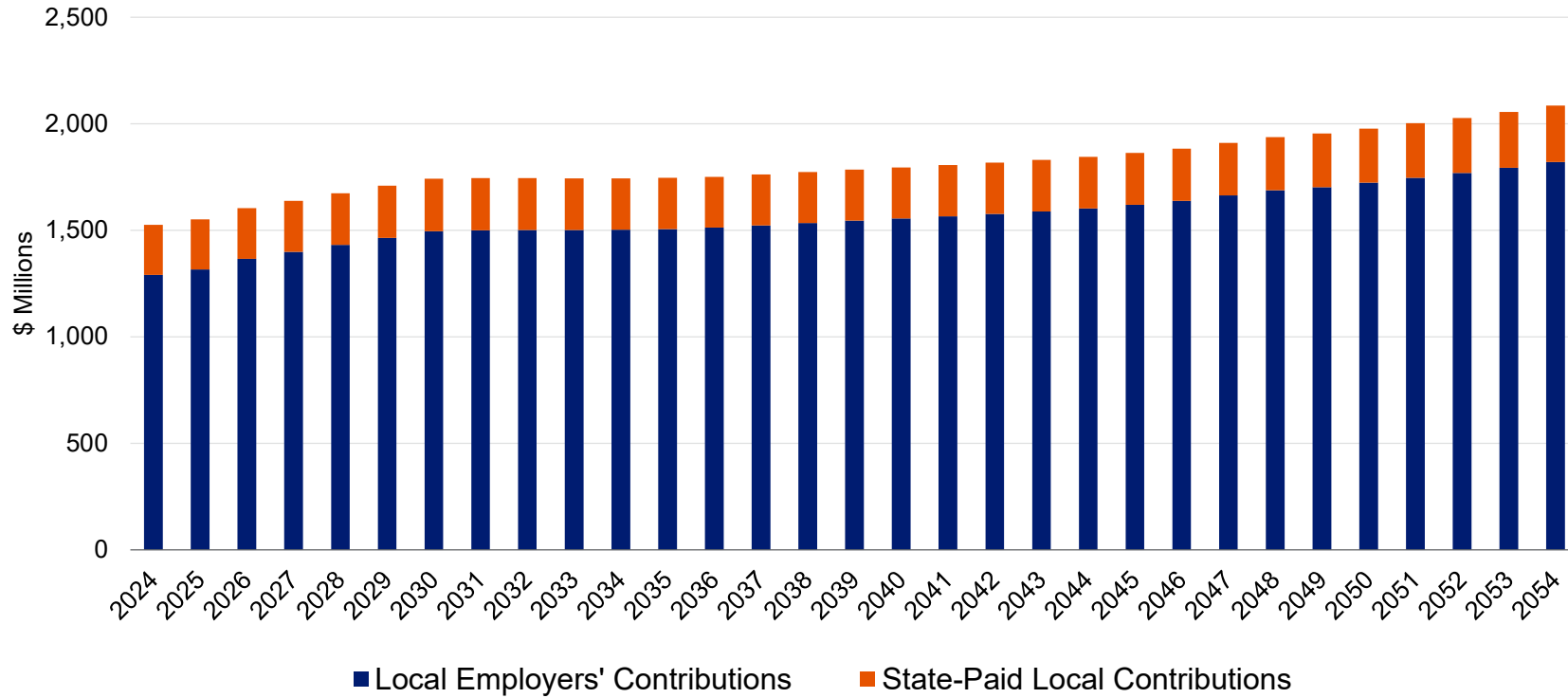
Section 3: Supplemental Information

Projection of Funded Percentage for Local Employers' Plan



Section 3: Supplemental Information

Projected Aggregate Employer Contributions for the Local Employers' Plan



Section 3: Supplemental Information

GFOA funded liability by type

The Actuarial Accrued Liability represents the present value of benefits earned, calculated using the Plan's actuarial cost method. The Actuarial Value of Assets reflects the financial resources available to liquidate the liability. The portion of the liability covered by assets reflects the extent to which accumulated plan assets are sufficient to pay future benefits, and is shown for liabilities associated with employee contributions, pensioner liabilities, and other liabilities. The Government Finance Officers Association (GFOA) recommends that the funding policy aim to achieve a funded ratio of 100 percent.

State GFOA Funded Liability by Type as of June 30

	2022	2021
Actuarial accrued liability (AAL)		
Active ¹ member contributions	\$541,989,022	\$554,728,220
Retirees and beneficiaries	4,110,333,413	3,920,641,097
Active and inactive members (employer-financed)	<u>1,403,364,460</u>	<u>1,339,184,574</u>
Total	\$6,055,686,895	\$5,814,553,891
Actuarial value of assets		
Actuarial value of assets	2,267,954,515	2,103,993,000
Cumulative portion of AAL covered		
Active member contributions	100.00%	100.00%
Retirees and beneficiaries	41.99%	39.52%
Active and inactive members (employer-financed)	0.00%	0.00%

¹ Includes contributing and non-contributing actives

Section 3: Supplemental Information

Local Employers' GFOA Funded Liability by Type as of June 30

	2022	2021
Actuarial accrued liability (AAL)		
Active ¹ member contributions	\$3,628,536,483	\$3,578,741,084
Retirees and beneficiaries	28,799,488,818	27,840,642,992
Active and inactive members (employer-financed)	<u>10,262,916,115</u>	<u>10,274,851,764</u>
Total	\$42,690,941,416	\$41,694,235,840
Actuarial value of assets	30,451,072,277	29,499,250,347
Cumulative portion of AAL covered		
Active member contributions	100.00%	100.00%
Retirees and beneficiaries	93.14%	93.10%
Active and inactive members (employer-financed)	0.00%	0.00%

¹ Includes contributing and non-contributing actives

Section 3: Supplemental Information

Actuarial balance sheet

An overview of the Plan's funding is given by an Actuarial Balance Sheet. In this approach, first the amount and timing of all future payments that will be made by the Plan for current participants is determined. Then these payments are discounted at the valuation interest rate to the date of the valuation, thereby determining the present value, referred to as the "liability" of the Plan.

Second, this liability is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the Plan, the present value of future member contributions, the present value of future employer normal cost contributions, and the present value of future employer amortization payments for the unfunded actuarial accrued liability.

Section 3: Supplemental Information

Actuarial Balance Sheet as of July 1, 2022

	State	Local Employers	Total
Liabilities			
• Payable from Retirement Fund Reserve (RFR) ¹	\$4,110,333,413	\$28,799,488,818 ²	\$32,909,822,231
• Payable from Members' Contributions Reserve (MCR) and Employers' Contributions Reserve (ECR) ³	1,945,353,482	13,891,452,598	15,836,806,080
Total liabilities	\$6,055,686,895	\$42,690,941,146	\$48,746,628,041
Assets			
Retirement Fund Reserve			
• Credited to Fund with Distribution of Income	\$3,897,028,240	\$28,828,240,776	\$32,725,269,016
• Add/(Deduct) reserve transferable from/(to) ECR ⁴	<u>213,305,173</u>	<u>(28,751,958)</u>	<u>184,553,215</u>
• Adjusted RFR	\$4,110,333,413	\$28,799,488,818 ²	\$32,909,822,231
Members' Contributions Reserve ⁵	\$501,262,032	\$3,710,290,549	\$4,211,552,581
Employers' Contributions Reserve			
• Credited to Fund with Distribution of Income	(\$2,130,335,757)	(\$2,087,459,064)	(\$4,217,794,821)
• Add/(Deduct) reserve transferable from/(to) RFR	<u>(213,305,173)</u>	<u>28,751,974</u>	<u>(184,553,199)</u>
• Adjusted ECR ⁵	(\$2,343,640,930)	(\$2,058,707,090)	(\$4,402,348,020)
Special Asset Value as of July 1, 2022	\$149,861,001	\$0	\$149,861,001
Present Value of Prospective Contributions by State and Local employers to ECR	\$3,637,871,379	\$12,239,869,139	\$15,877,740,518
Total of current and future assets	<u>\$6,055,686,895</u>	<u>\$42,690,941,146</u>	<u>\$48,746,628,041</u>

¹ Retirees, disableds, and beneficiaries currently receiving benefits

² Includes the present value of ERI payments of \$3,165,591

³ Active and terminated vested members due a future benefit

⁴ It is recommended that the RFR is put into balance each year by transferring assets from the ECR to the RFR so that the RFR will contain sufficient assets to cover the retiree and beneficiary liability

⁵ Actuarial value of assets equals RFR + MCR + ECR

Section 3: Supplemental Information

Active liability by type

The tables below show the Actuarial Liability by Tier for contributing and non-contributing active members, respectively, for State and Local employers as of July 1, 2022

Contributing Actives by Tier

	Number of Members	Appropriation Payroll ¹	Actuarial Liability	Gross Normal Cost
State				
• Tier 1	3,171	\$319,078,686	\$1,571,600,025	\$73,722,397
• Tier 2	212	19,116,401	43,212,880	3,697,307
• Tier 3	<u>2,504</u>	<u>177,150,517</u>	<u>219,778,282</u>	<u>35,580,874</u>
Total	5,887	\$515,345,604	\$1,834,591,186	\$113,00,579
Local				
• Tier 1	17,430	\$2,300,418,376	\$11,812,300,450	\$524,245,421
• Tier 2	482	54,841,948	127,406,339	10,642,857
• Tier 3	<u>16,092</u>	<u>1,288,625,700</u>	<u>1,640,467,873</u>	<u>260,081,550</u>
Total	34,004	\$3,643,886,024	\$13,580,174,662	\$794,969,828

¹ Excludes pay for members who attain the mandatory retirement age of 65 prior to midyear for State (Pay is included for Local Employers' for this year in order to estimate impact of Chapter 9, P.L. 2022). Tier 1 members limited to the 401(a)(17) pay limit. Tier 2 and Tier 3 members limited to the Social Security Wage Base

Section 3: Supplemental Information

Non-Contributing Actives by Tier

	Number of Members	Last Reported Payroll ¹	Actuarial Liability	Gross Normal Cost
State				
• Tier 1	307	\$23,173,681	\$95,549,517	\$0
• Tier 2	13	976,634	1,843,151	0
• Tier 3	<u>264</u>	<u>14,644,759</u>	<u>11,813,188</u>	<u>0</u>
Total	584	\$38,795,074	\$109,205,857	\$0
Local				
• Tier 1	770	\$68,312,642	\$258,237,853	\$0
• Tier 2	24	2,276,306	4,963,283	0
• Tier 3	<u>547</u>	<u>34,410,594</u>	<u>33,927,521</u>	<u>0</u>
Total	1,341	\$104,999,542	\$297,128,657	\$0

¹ Excludes pay for members who attain the mandatory retirement age of 65 prior to midyear. Tier 1 members limited to the 401(a)(17) pay limit. Tier 2 and Tier 3 members limited to the Social Security Wage Base

Section 3: Supplemental Information

Exhibit A: Table of Plan Demographics for State

Category	Year Ended June 30		Change From Prior Year
	2022	2021	
Contributing Active¹ participants in valuation:			
• Number	5,887	6,445	-8.7%
• Average age	40.6	40.3	0.3
• Average years of service	13.5	13.2	0.3
• Projected total payroll for police	\$512,070,814	\$503,120,897	1.8%
• Projected average payroll for police	\$87,700	\$78,637	11.5%
• Projected total payroll for firefighters	\$3,274,790	\$3,221,495	1.7%
• Projected average payroll for firefighters	\$69,676	\$68,542	1.7%
Non-Contributing Active¹ Participants	584	471	24.0%
Inactive Vested participants	8	10	-20.0%
• Average monthly benefit	\$1,701	\$1,603	6.1%
Retired participants:			
• Number in pay status	5,299	5,037	5.2%
• Average age	63.7	63.5	0.2
• Average monthly benefit	\$4,539	\$4,488	1.1%
Ordinary Disabled participants:			
• Number in pay status	725	721	0.6%
• Average age	59.3	59.1	0.2
• Average monthly benefit	\$2,361	\$2,343	0.8%
Accidental Disabled participants:			
• Number in pay status	380	380	0.0%
• Average age	54.4	53.5	0.9
• Average monthly benefit	\$3,865	\$3,866	-0.3%
Beneficiaries:			
• Number in pay status	959	935	2.6%
• Average age	67.7	69.4	-1.7
• Average monthly benefit	\$2,818	\$2,749	2.5%

¹ See Section 2 for Tier breakouts for active demographics

Section 3: Supplemental Information

Exhibit B: Table of Plan Demographics for Local

Category	Year Ended June 30		Change From Prior Year
	2022	2021	
Contributing Active¹ participants in valuation:			
• Number	34,004	34,031	-0.1%
• Average age	39.6	39.8	-0.2
• Average years of service	13.3	13.5	-0.2
• Projected total payroll for police	\$2,929,887,536	\$2,875,097,908	1.9%
• Projected average payroll for police	\$107,298	\$105,024	2.2%
• Projected total payroll for firefighters	\$713,998,488	\$688,845,682	3.7%
• Projected average payroll for firefighters	\$106,599	\$103,763	2.7%
Non-Contributing Active¹ Participants	1,341	1,241	8.1%
Inactive Vested participants	52	50	4.0%
• Average monthly benefit	\$2,117	\$2,085	1.5%
Retired participants:			
• Number in pay status	29,241	28,514	2.5%
• Average age	65.6	65.4	0.2
• Average monthly benefit	\$5,953	\$5,853	1.7%
Ordinary Disabled participants:			
• Number in pay status	2,296	2,242	2.4%
• Average age	57.7	57.2	0.5
• Average monthly benefit	\$2,780	\$2,645	5.1%
Accidental Disabled participants:			
• Number in pay status	2,730	2,702	1.1%
• Average age	55.2	54.7	0.5
• Average monthly benefit	\$4,705	\$4,627	1.7%
Beneficiaries:			
• Number in pay status	7,123	6,987	1.9%
• Average age	73.6	74.7	-1.1
• Average monthly benefit	\$2,995	\$2,923	2.5%

¹ See Section 2 for Tier breakouts for active demographics

Section 3: Supplemental Information

Exhibit C: State Participants in Active Service as of June 30, 2022 by Age, Years of Service, and Average Compensation¹

Age	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	111	110	1	-	-	-	-	-	-	-
	\$51,912	52,021	40,000	-	-	-	-	-	-	-
25 - 29	648	445	200	3	-	-	-	-	-	-
	\$62,568	58,506	71,285	84,041	-	-	-	-	-	-
30 - 34	1,025	329	549	147	-	-	-	-	-	-
	\$73,424	61,144	76,719	88,599	-	-	-	-	-	-
35 - 39	1,067	135	324	423	179	6	-	-	-	-
	\$85,078	61,596	79,260	92,284	95,770	100,527	-	-	-	-
40 - 44	1,066	13	119	264	441	225	4	-	-	-
	\$96,585	67,486	79,921	94,376	99,732	103,248	110,965	-	-	-
45 - 49	1,001	-	14	92	333	533	28	1	-	-
	\$101,604	-	87,416	95,544	99,688	103,804	109,632	98,235	-	-
50 - 54	729	-	-	15	184	438	82	10	-	-
	\$101,594	-	-	97,965	98,673	101,634	107,355	111,777	-	-
55 - 59	215	-	-	-	26	155	23	9	2	-
	\$101,430	-	-	-	98,275	101,302	104,853	104,413	99,565	-
60 - 64	25	-	-	-	-	7	10	4	1	3
	\$102,618	-	-	-	-	100,382	99,052	97,540	76,913	135,061
Total	5,887	1,032	1,207	944	1,163	1,364	147	24	3	3
	\$87,556	\$59,173	\$76,910	\$92,677	\$98,909	\$102,699	\$106,930	\$106,078	\$92,014	\$135,061

¹ Compensation is annualized for those hired during the prior plan year

Section 3: Supplemental Information

Exhibit D: Local Employers' Participants in Active Service as of June 30, 2022 by Age, Years of Service, and Average Compensation¹

Age	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over
Under 25	851	848	3	-	-	-	-	-	-	-
	\$53,677	53,649	61,607	-	-	-	-	-	-	-
25 - 29	4,534	3,372	1,155	7	-	-	-	-	-	-
	\$66,289	61,677	79,575	95,713	-	-	-	-	-	-
30 - 34	6,583	1,996	3,801	757	29	-	-	-	-	-
	\$85,023	64,182	91,224	107,972	107,545	-	-	-	-	-
35 - 39	6,373	620	1,970	2,315	1,430	38	-	-	-	-
	\$105,674	65,684	93,962	115,184	123,185	126,973	-	-	-	-
40 - 44	5,765	55	631	1,009	2,764	1,295	11	-	-	-
	\$122,730	68,380	96,485	113,665	126,462	136,713	147,577	-	-	-
45 - 49	4,825	2	84	356	1,349	2,543	482	9	-	-
	\$133,308	89,814	100,731	112,174	124,431	137,781	155,680	151,462	-	-
50 - 54	3,596	2	1	49	652	1,648	1,060	182	2	-
	\$138,033	102,890	67,016	110,831	119,634	132,694	154,211	165,697	180,308	-
55 - 59	1,194	-	-	-	35	503	382	206	66	2
	\$145,593	-	-	-	131,035	131,622	151,125	161,973	176,258	158,602
60 - 64	280	-	-	1	2	50	74	52	77	24
	\$153,392	-	-	147,000	107,144	124,102	140,675	162,355	171,348	180,716
65 - 69	3	-	-	-	-	-	1	-	2	-
	\$195,983	-	-	-	-	-	181,856	-	203,046	-
Total	34,004	6,895	7,645	4,494	6,261	6,077	2,010	449	147	26
	\$107,161	\$61,849	\$90,693	\$113,319	\$124,497	\$135,484	\$153,456	\$163,316	\$174,105	\$179,015

¹ Compensation is annualized for those hired during the prior plan year

Section 3: Supplemental Information

Exhibit E: Reconciliation of Participant Data

	Contributing Actives	Non-Contrib Actives	Deferred Vested	Retired	Disabled	Beneficiaries	Total
Number as of July 1, 2021	40,476	1,712	60	33,551	6,045	7,922	89,766
• New or previously unreported participants	1,962	86	0	5	0	156	2,209
• Terminations – with vested rights	0	(8)	8	N/A	N/A	N/A	0
• Terminations – without vested rights	(192)	(232)	0	N/A	N/A	N/A	(424)
• Retirements	(1,716)	(33)	(8)	1,757	0	N/A	0
• New disabilities	(88)	(84)	0	(43)	215	N/A	0
• Return to work	0	0	0	0	0	N/A	0
• Died with beneficiary	(34)	(9)	0	(341)	(59)	443	0
• Died without beneficiary	(7)	(17)	0	(389)	(70)	(396)	(879)
• Active started contributing	298	(298)	N/A	N/A	N/A	N/A	0
• Active stopped contributing	(808)	808	N/A	N/A	N/A	N/A	0
• Certain period expired	N/A	N/A	0	0	0	(40)	(40)
• Data adjustments	0	0	0	0	0	0	0
Number as of July 1, 2022	39,891	1,925	60	34,540	6,131	8,085	90,632

Section 4: Actuarial Valuation Basis

Exhibit I: Actuarial Assumptions, Methods and Models

Rationale for 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 Study for the period July 1, 2018 through June 30, 2021. Current data is reviewed in conjunction with each annual valuation. Based on professional judgment, no assumption changes beyond those recommended in the aforementioned experience study are warranted at this time.	
Net Investment Return:	7.00%. The net investment return assumption is chosen based on direction from the Chief Financial Officer and as adopted by the Board of Trustees.	
Salary Increases:	<u>Service</u>	<u>Rate (%)</u>
	0	16.25
	1	14.00
	2 – 4	12.00
	5	11.00
	6	10.00
	7	9.00
	8	8.00
	9	7.00
	10	6.00
	11 – 12	5.00
	13 – 16	4.00
	17+	3.25
	Salary increases include an assumed inflation rate of 2.75% and assumed non-inflationary increases of 0.50%.	
Pay Limits:	401(a)(17) pay limit is assumed to increase 2.75% per year and social security wage base is assumed to increase 3.25% per year	

Section 4: Actuarial Valuation Basis

Cost-of-Living Adjustments:

No future COLAs are assumed. COLAs earned prior to the valuation date are included in the valuation data.

Mortality Rates:

Employee: Pub-2010 Safety Employee amount-weighted mortality tables, projected generationally from 2010 with Scale MP-2021. 5% of deaths are assumed to be accidental

Healthy Annuitant: Pub-2010 Safety Retiree Below Median amount-weighted mortality tables, projected generationally from 2010 with Scale MP-2021

Disabled: 144.0% of Safety Disabled Retiree amount-weighted mortality table for males and 100.0% of Safety Disabled Retiree amount-weighted mortality table for females, projected generationally from 2010 with Scale MP-2021

Contingent Annuitant: Pub-2010 General Retiree Below-Median amount-weighted mortality tables projected generationally from 2010 with Scale MP-2018

Termination Rates Before Retirement:

<u>Service</u>	<u>Withdrawal Rate¹</u>
0 - 4	2.00
5 - 6	1.60
7 - 9	1.00
10 - 11	0.60
12 - 13	0.25
14 - 24	0.20
25+	0.00

¹Withdrawal rates do not apply at or beyond early retirement age. All future terminating members assumed to elect a refund of contributions.

<u>Age</u>	<u>Ordinary Disability²</u>	<u>Accidental Disability</u>
20	0.010%	0.010%
30	0.050%	0.040%
40	0.320%	0.260%
50	0.150%	0.260%
60	0.050%	0.050%

²No ordinary disability is assumed prior to ordinary disability eligibility at four years of service

No members are assumed to receive the involuntary disability retirement benefit

Section 4: Actuarial Valuation Basis

Retirement Rates for Active Participants:

For those with less than 25 years of service:

Age	Retirement Probability
40-43	1.00%
44-46	2.50
47	3.75
48	4.00
49	5.00
50	6.00
51-56	7.00
57-61	8.00
62-64	13.00
65 and older	100.00

For those with 25 years of service:

Age	Retirement Probability
54 and younger	45.00%
55-57	50.00
58-61	55.00
62-63	70.00
64	90.00
65 and older	100.00

For those with 26 or more years of service:

Age	Retirement Probability
53 and younger	22.00%
54-60	24.00
61	28.00
62	30.00
63	20.00
64	60.00
65 and older	100.00

Rates shown do not reflect adjustments for early retirement window under Chapter 52, P.L. 2021 or delayed mandatory retirement available to certain chiefs under Chapter 9, P.L. 2022

Weighted Average Retirement Age:

Age 54, determined as follows: The weighted average retirement age for each participant is calculated as the sum of the product of each potential current or future retirement age times the probability of surviving from current age to that age and then retiring at that age, assuming no other decrements. The overall weighted retirement age is the average of the individual retirement ages based on all the active participants included in the July 1, 2022 actuarial valuation.

Section 4: Actuarial Valuation Basis

Retirement Age for Inactive Vested Participants:	55
Non-Contributory Group Insurance:	All benefits paid as lump sums
Unknown Data for Participants:	Same as those exhibited by participants with similar known characteristics. If not specified, participants are assumed to be male.
Percent Married:	90%
Age of Spouse:	Spouses of male participants are female and three years younger and spouses of female participants are male and three years older.
Family Composition:	<p>Retirees with a beneficiary allowance reported in the data are assumed to be married. None are assumed to have dependent children or parents.</p> <p>Current dependents receiving a pre-retirement accidental death benefit under age 24 are assumed to receive a benefit until age 24 while those over age 24 are assumed to receive a benefit for their lifetime.</p> <p>Current dependents receiving a benefit other than a pre-retirement accidental benefit under age 19 are assumed to receive a benefit until age 19 while those over age 19 are assumed to receive a benefit for their lifetime.</p>
Actuarial Value of Assets:	Sum of actuarial value at beginning of year and increase in cost value during year excluding realized appreciation or losses plus 20 percent of market value at end of year in excess of that preliminary value. The asset method provides a degree of conservatism to increase the likelihood that benefits are funded.
Actuarial Cost Method:	Projected Unit Credit Actuarial Cost Method. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and allocated linearly by service.
Administrative Expense	None
Contribution Timing	<p>State contributions are assumed to be made on a quarterly basis with the first contribution 15 months after the associated valuation date, in line with the requirements of Chapter 83, P.L. 2016 which requires the State to pay at least 25% by September 30, at least 50% by December 31, at least 75% by March 31, and at least 100% by June 30.</p> <p>Local employers' contributions are expected to be paid on April 1st, 21 months after the valuation date.</p> <p>Member's contributions and lottery revenue are expected to be received monthly</p> <p>Contributions payable in the fiscal year starting on the valuation date are included in the actuarial value of assets as receivable contributions, discounted by the applicable valuation interest rate.</p>
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.

Section 4: Actuarial Valuation Basis

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:**

This valuation reflects the recommended changes detailed in Segal's Experience Study for the period July 1, 2018 – June 30, 2022 which have been adopted by the Board of Trustess. More information on these changes including justifications is included in that report.

Section 4: Actuarial Valuation Basis

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
Membership Tiers:	Tier 1: Hired on or before May 21, 2010 Tier 2: Hired between May 21, 2010 and June 28, 2011 Tier 3: Hired after June 28, 2011
Compensation	Base salary upon which contributions by a Member were made to the Annuity Savings Fund in the last year of service limited to the compensation limit under IRC Section 401(a)(17) for Tier 1 members and the annual maximum wage base for Social Security for Tier 2 and Tier 3 members
Final Compensation	Tier 1 members: Annual compensation received by the Member in the last 12 months of Creditable Service preceding their retirement. Tier 2 and Tier 3 members: Average annual compensation for the three fiscal years of membership providing the largest benefit
Service Retirement:	<ul style="list-style-type: none">• Requirement for Members enrolled as of January 18, 2000: Age 55 or 20 Years of Creditable Service• Requirement for Members enrolled after January 18, 2000: Age 55• Base Amount: 2% of Final Compensation for each year of creditable service up to 30 years plus 1% of Final Compensation for each year of Creditable Service over 30 years• 20-Year Amount: In lieu of the base amount, 50% of Final Compensation if the member has 20 or more years of Creditable Service• Special Catch-up Amount: In lieu of the amounts above, members enrolled as of January 18, 2000 who reach mandatory retirement age of 65 and have between 20 and 25 years of Creditable Service will receive 50% of Final Compensation plus 3% of Final Compensation for each year of Creditable Service over 20 years.
Special Retirement:	<ul style="list-style-type: none">• Service Requirement: 25 Years of Creditable Service• Amount for Tier 1 and Tier 2 members: 65% of Final Compensation plus 1% of Final Compensation for each year of Creditable Service in excess of 25 years with a maximum of 70% of Final Compensation, unless the member had 30 or more years of Creditable Service on June 30, 1979• Amount for Tier 3 members: 60% of Final Compensation plus 1% of Final Compensation for each year of Creditable Service in excess of 25 years with a maximum of 65% of Final Compensation
Deferred Retirement	<ul style="list-style-type: none">• Age Requirement: 55 and terminated service prior to age 55

Section 4: Actuarial Valuation Basis

	<ul style="list-style-type: none"> • Service Requirement: 10 Years of Creditable Service • Amount: At member's election the choice of a refund of aggregate member contributions paid at termination or 2% of Final Compensation for each year of creditable service up to 30 years plus 1% of Final Compensation for each year of Creditable Service over 30 years.
Ordinary Disability:	<ul style="list-style-type: none"> • Service Requirement: Four years of Creditable Service • Other Requirement: Totally and permanently incapacitated from the performance of usual or available duties • Amount: Greater of 40% of Final Compensation or 1.5% of Final Compensation for each year of Creditable Service
Involuntary Ordinary Disability:	<ul style="list-style-type: none"> • Requirement: Same as Ordinary Disability except retirement applied for by employer • Amount: Same as Ordinary Disability unless the member has between 20 and 25 years of Creditable Service, in which case, 50% of Final Compensation plus 3% of Final Compensation for each year of Creditable Service over 20 years.
Accidental Disability	<ul style="list-style-type: none"> • Requirement: Totally and permanently disabled as a direct result of a traumatic event occurring during and a result of regular or assigned duties and such member is mentally or physically incapacitated for the performance of his usual duties. Special rules may apply to duties regarding World Trade Center rescue, recovery, or cleanup operations. • Amount: 2/3 of annual compensation at the time of the traumatic event (or at the time of retirement if greater)
Special Disability:	<ul style="list-style-type: none"> • Age Requirement: Under age 55 • Service Requirement: 5 Years of Creditable Service • Other Requirement: Received heart transplant • Amount: 50% of Final Compensation
Ordinary Pre-Retirement Death Benefits (active members or inactive vested members who elected a deferred pension during deferral period)	<ul style="list-style-type: none"> • Non-Contributory Group Life Insurance Benefit: Lump sum of 350% of Compensation • Pension Amount: 50% of Final Compensation payable to surviving spouse or dependent children in equal shares. If no surviving spouse or dependent children, 25% payable to a dependent parent (or 40% payable to two dependent parents). If no surviving spouse, dependent children, or dependent parents, refund of aggregate contributions. Inactive vested participants who die during the deferral period for a deferred pension are only entitled to a refund of aggregate contributions.
Accidental Pre-Retirement Death Benefits (active member who dies in or from performance of duties)	<ul style="list-style-type: none"> • Non-Contributory Group Life Insurance Benefit: Lump sum of 350% of Compensation • Pension Amount: The greater of \$50,000 or 70% of Compensation payable to surviving spouse. If no surviving spouse, 70% of Compensation payable to dependent children in equal shares. If no surviving spouse or dependent children, 25% payable to a dependent parent (or 40% payable to two dependent parents). If no surviving spouse, dependent children, or dependent parents, refund of aggregate contributions
Post-Retirement Death Benefits:	<ul style="list-style-type: none"> • Non-Contributory Group Life Insurance Benefit: Lump sum of 50% of Compensation except for disabled retirees who die before age 55 in which case a lump sum of 350% of Compensation • <i>Pension Amount:</i> The greater of \$4,500 per year or 50% of Final Compensation plus 15% of Final Compensation for one dependent child (or plus 25% of Final Compensation for two dependent children) payable to surviving spouse. If

Section 4: Actuarial Valuation Basis

no surviving spouse, 20% of Final Compensation payable to one dependent child (or 35% for two children or 50% for three children). Previously granted COLAs also apply.

Changes in Plan Provisions:

The following plan provisions were changed between July 1, 2021 and July 1, 2022 and are reflected in this valuation:

- Chapter 9, P.L. 2022 allows police chiefs of law enforcement agencies and chiefs of fire departments to remain members of the System until the end of the calendar year in which they turn age 67 provided they attain age 65 by April 12, 2024 and that they are approved for this continued service by the appointing authority.

Section 4: Actuarial Valuation Basis

Exhibit III: Contribution Rates

Member Contribution Rates	10% of base salary
Employer Contribution Rates	Statutory pension contribution as determined in Section 2 of this report

Section 4: Actuarial Valuation Basis

Exhibit IV: Legislation History

Early Retirement Incentive Program	<p>Chapter 59, P.L. 1999, Chapter 126, P.L. 2000 and Chapter 130, P.L. 2003 provided additional retirement benefits to certain employees of Local employers. These enhanced benefits are funded by the Local employer that elects to participate based on an amortization period elected by that Local employer so long as it is in accordance with New Jersey Statute.</p>
	<p>Chapter 59, P.L. 1999 allowed municipalities, counties and other local units of government to offer incentive programs for retirement or termination for employees affect by consolidation agreements. Consolidation agreements are the result of these municipalities, counties and other local units of government who merge together.</p>
	<p>County ERI Section 44 of Chapter 126, P.L. 2000 allowed local early retirement or termination incentive programs to certain employees of county governing bodies.</p>
	<p>Chapter 130, P.L. 2003 extended the Early Retirement Incentive Program offered by the State under Chapter 23, P.L. 2002 to members of Local employer locations.</p>
	<p>Section 5 lists all applicable locations and summarizes the contribution requirements under Chapter 59, Chapter 126 and Chapter 130.</p>
Chapter 109, P.L. 1979	<p>Chapter 109, P.L. 1979: For members who retire with 25 years of service the special retirement benefit increased from 50% to 60% of average final compensation. The State is liable for the funding the cost of the increase in the normal contribution through an additional State contribution of 1.1% of covered salary in accordance with Chapter 109.</p>
Chapter 204, P.L. 1989	<p>Chapter 204 extended membership in PFRS to certain members who were previously excluded on the basis of their job. The unfunded actuarial accrued liability associated with this legislation must be funded by the Employers of these employees.</p> <p>This valuation reflects the additional actuarial liability for three State locations and fifteen Municipality and Local Group locations who have members participating in the System under the provisions of this legislation. Section 2 lists all applicable locations and the required contributions.</p>
Chapter 511, P.L. 1991	<p>Chapter 511 provided the following additional benefits:</p> <ul style="list-style-type: none">• The benefit payable to the surviving spouse of a retiree was increase from 35% to 50% of the retiree's average final compensation.• The minimum annual spouse's benefit increased from \$1,600 to \$4,500 for benefits granted prior to January 14, 1992. <p>In accordance with Chapter 511 the normal cost and actuarial liability contribution attributable to this chapter are required to be separately determined. The actuarial liability contribution was eliminated with Chapter 115 P.L. 1997. However, because the required State contributions was not fully appropriated for fiscal years 2004 through 2021 the remaining statutory contributions not appropriated made are reflected as an unfunded actuarial liability attributable to Chapter 511.</p>

Section 4: Actuarial Valuation Basis

Chapter 247, P.L. 1993 and Chapter 201, P.L. 2001

Chapter 247 requires the State to fund the difference in the normal cost contribution between PFRS and PERS for select members who transferred into PFRS on January 1, 1992 or later.

Chapter 201, P.L. 2001 Although the increase in liability as a result of Chapter 247 was paid for by market investment gains, because the State paid less than the full statutory pension contribution for fiscal years 2001 through 2004, the unpaid liability as a result of Chapter 247 is added to future State statutory pension contributions.

Chapter 428, P.L. 1999

Chapter 428, P.L. 1999 provided for the following enhanced benefits.

- Compensation for purposes of determining member benefits for service retirements was revised from 3-year average to final compensation.
- Service retirement was enhanced to include a benefit of 3% of final compensation per year of service greater than 20 years if the member retires with less than 25 years of service.
- For members as of the date of enactment who retire with 20 years of service and for all other members at age 55 with 20 years of service a Service retirement benefit of 50% of final compensation was added.
- The service requirement for ordinary disability retirement was decreased from 5 years to 4 years.
- Added the special involuntary disability benefit
- The preretirement death benefit was revised from a refund of contributions to an annuity payable to the spouse of 50% of final compensation.

Chapter 8, P.L. 2000 requires the State to fund the cost of the enhanced benefits if assets are insufficient to fund additional normal cost and actuarial liability costs as a result of Chapter 428, P.L. 1999. For the current valuation, valuation assets were not sufficient to fund the costs attributable to Chapter 428. In addition, because the State paid less than the full statutory pension contribution for fiscal years 2001 through 2004, the remaining required contributions which were not paid have been added to future State contributions.

Chapter 86, P.L. 2001 revised the active death benefits provided to a beneficiary of a member who died in active duty on or after January 1, 1998 and before January 18, 2000. The eligible beneficiary was required to apply for the increased benefits within 90 days of enactment and return the member's aggregate contributions to the System. The State is required to fund these costs.

Chapter 318, P.L. 2001 amended the active death benefits provided to a beneficiary of a For a member with 10 or more years of service who died in active service between June 1, 1995 and January 1, 1998 and whose beneficiary had, on May 1, 2001, an appeal of a denial of a benefit related to death in the line of duty pending before the Board of Trustees the benefits provided to that beneficiary were revised. The State is required to fund these costs.

Chapter 19, P.L. 2009

Chapter 19 reduced for certain Local employers the normal and actuarial liability contributions to 50% of the amount determined for fiscal year 2009. The unpaid 50% is paid by that Local employer over a period of 15 years beginning with the fiscal year ended June 20, 2012. A Local employer could opt to pay 100% of the fiscal year 2009 contribution. Those Local employers who paid the full fiscal year 2009 contribution were eligible to elect to pay 50% of their fiscal year 2010 contribution. The remaining 50% of unpaid contribution will be paid off with the same method as those who chose to pay 50% of their 2009 fiscal year contribution.

Section 5: Additional Required Exhibits

Exhibit 1: Early Retirement Incentive Program ERI 1 Contribution Schedules

Payment amounts calculated assuming a payment date 21 months after the valuation date. The present value as of July 1, 2022 excludes expected payments for 2023 fiscal year.

Location	Location Name	Fiscal Year 2024 Payment	Present Value as of 7/1/2022
22100	East Rutherford Borough	\$91,079	\$678,777
25500	Glen Ridge Borough	65,490	488,077
34600	Wallington Borough	42,818	319,107
38800	Phillipsburg Town	12,818	95,521
43400	Bound Brook Borough	38,059	283,627
54400	Linwood City	59,674	444,736
57100	Mine Hill Township	20,804	155,047
61200	Raritan Township	62,716	467,399
	Total	\$393,456	\$2,932,291

Section 5: Additional Required Exhibits

Exhibit 2: Recent ERI Legislation Contribution Schedules

Payment amounts calculated assuming a payment date 21 months after the valuation date. The Present value as of July 1, 2022 excludes expected payments for 2023 fiscal year.

Location	Location Name	Years and Form of Payment	Fiscal Year 2024 Payment	Present Value as of 7/1/2022
Chapter 126, P.L. 2000				
72000	Union County	15 Year - Level	\$48,845	\$43,392
72001	Union County	15 Year - Level	17,465	15,516
72003	Union County (Effective 2006)	15 Year - Level	196,311	174,391
Total			\$262,621	\$233,299

Section 5: Additional Required Exhibits

Exhibit 3: Chapter 19, P.L. 2009 Deferral and Payment Schedules

Payment amounts calculated assuming a payment date 21 months after the valuation date. The present value as of July 1, 2022 excludes expected payments for 2023 fiscal year.

Location	Location Name	Fiscal Year 2024 Payment	Present Value as of 7/1/2022
20300	Bayonne City	\$616,312	\$1,537,373
20400	Salem City	24,325	60,679
20600	Plainfield City	352,491	879,278
21001	Elizabeth City	492,400	1,228,277
21002	Elizabeth City	352,481	879,253
21101	Newark City	1,839,467	4,588,496
21102	Newark City	898,163	2,240,442
21202	Camden City	305,857	762,952
21300	North Plainfield Borough	109,851	274,021
21600	Somerville Borough	43,473	108,442
21800	Roselle Borough	141,468	352,887
22000	Freehold Borough	52,469	130,882
22400	Union City	299,226	746,410
22501	Passaic City	266,956	665,913
22502	Passaic City	177,124	441,829
22800	Metuchen Borough	38,469	95,960
23000	West New York Town	173,698	433,284
23200	Oradell Borough	34,477	86,002
23301	Hoboken City	217,269	541,971
23302	Hoboken City	208,975	521,282
23400	Audubon Borough	25,141	62,713
23800	East Orange City	541,718	1,351,299
23900	Maplewood Township	156,451	390,262
24100	Hightstown Borough	19,770	49,316
24200	West Milford Township	79,189	197,536

Section 5: Additional Required Exhibits

24400	Saddle Brook Township	66,647	166,248
24500	Perth Amboy City	269,814	673,043
24600	Secaucus Town	102,863	256,588
24800	Lyndhurst Township	88,905	221,772
24900	Orange City	248,998	621,117
25500	Glen Ridge Borough	36,718	91,591
25600	Guttenberg Town	30,316	75,621
25801	Collingswood Borough	43,300	108,011
25802	Collingswood Borough	18,557	46,291
26100	Dunellen Borough	18,549	46,269
26600	Fairview Borough	52,834	131,792
26700	Keansburg Borough	44,154	110,141
27300	New Milford Borough	57,084	142,395
27400	Paramus Borough	184,669	460,652
27600	South Amboy City	37,366	93,207
27700	Weehawken Township	90,761	226,401
28000	Hackensack City	383,425	956,442
28500	Penns Grove Borough	18,531	46,225
28600	Matawan Borough	33,235	82,904
28700	Cedar Grove Township	50,423	125,780
28900	Bogota Borough	21,434	53,466
29100	Irvington Township	445,772	1,111,966
29200	Cinnaminson Township	63,730	158,973
29500	Little Ferry Borough	28,577	71,284
29700	Garwood Borough	23,020	57,422
30701	Paterson City	482,585	1,203,793
30702	Paterson City	381,888	952,608
30801	Atlantic City	473,188	1,180,353
30802	Atlantic City	350,751	874,938
31100	Fanwood Borough	28,021	69,896
31300	East Hanover Township	61,418	153,204
31600	Rutherford Borough	70,308	175,381
31800	Harrison Township	160,935	401,448

Section 5: Additional Required Exhibits

32200	Gloucester City	72,623	181,157
32600	Union Township	353,175	880,984
32700	Bloomfield Township	332,564	829,572
32900	Morristown Town	123,702	308,570
33200	Asbury Park City	185,185	461,940
33401	Trenton City	469,610	1,171,427
33402	Trenton City	350,666	874,726
33800	Lakewood Township	190,749	475,819
34100	Rahway City	204,994	511,351
34200	Verona Township	48,580	121,182
34301	Hillside Township	109,022	271,952
34302	Hillside Township	75,421	188,135
34600	Wallington Borough	39,471	98,460
34700	East Newark Borough	6,929	17,284
34800	Clifton City	468,266	1,168,076
34900	Wildwood City	79,034	197,149
35000	Palisades Park Borough	53,657	133,846
35100	Pleasantville City	159,460	397,768
35400	Belleville Township	284,739	710,274
35500	Dover Town	62,307	155,424
35600	South Orange Village	147,711	368,460
35900	Linden City	389,218	970,893
36200	Bridgeton City	86,562	215,927
36400	Washington Borough	17,393	43,387
36700	Fairfield Township	58,059	144,826
36900	Middlesex Borough	46,463	115,900
37000	Middletown Township	166,689	415,800
37400	Maywood Borough	44,869	111,925
37700	Piscataway Township	134,590	335,731
38101	Jersey City	1,239,700	3,092,395
38102	Jersey City Fire Dept.	939,876	2,344,493
38500	Runnemede Borough	28,041	69,947
39500	Mountainside Borough	35,875	89,488

Section 5: Additional Required Exhibits

39900	Long Branch City	167,192	417,056
40400	Wanaque Borough	36,240	90,401
41000	Manville Borough	36,209	90,323
41400	Oceanport Borough	23,873	59,552
41500	Haworth Borough	19,266	48,058
41600	Little Falls Twp	32,432	80,901
41900	North Haledon Borough	25,829	64,429
42000	Haledon Borough	26,633	66,435
42500	Wharton Borough	30,443	75,940
43000	West Paterson Borough	38,855	96,922
43100	Ewing Township	140,515	350,511
43400	Bound Brook Borough	34,316	85,601
43500	Emerson Borough	33,909	84,586
43600	Roseland Borough	40,993	102,257
43700	Norwood Borough	23,389	58,344
43800	Prospect Park Borough	22,678	56,570
44100	Englewood Cliffs Borough	59,275	147,859
44800	Englishtown Borough	5,455	13,606
44900	Ringwood Borough	33,717	84,106
46300	Borough of Lake Como	13,800	34,425
46400	Aberdeen Township	46,604	116,253
46600	West Long Branch Borough	26,666	66,518
46700	Pt Pleasant Beach Borough	38,918	97,080
47300	Brooklawn Borough	6,056	15,106
47800	Hopatcong Borough	40,195	100,266
47900	West Deptford Township	54,105	134,963
48200	South Bound Brook Borough	19,545	48,754
48600	Gloucester Township	150,845	376,278
48800	Upper Saddle River Boro	32,882	82,023
49100	Willingboro Township	113,707	283,638
50000	Brielle Borough	25,124	62,672
50700	South Brunswick Township	125,579	313,253
51100	Jefferson Township	58,477	145,868

Section 5: Additional Required Exhibits

51600	Wall Township	127,310	317,571
52800	Berlin Borough	23,477	58,563
53500	Winslow Township	109,260	272,546
53900	Berkeley Township Municipal Bld	122,173	304,758
54100	Mansfield Township	17,081	42,608
54300	Lebanon Township	11,541	28,788
54700	Seaside Heights Borough	31,945	79,686
54800	Manchester Township	88,921	221,810
55100	Pine Hill Borough	26,466	66,019
55300	Lindenwold Borough	56,110	139,965
55700	Bloomingtondale Borough	24,853	61,995
56000	Howell Township	155,562	388,044
56200	Plainsboro Township	57,873	144,361
56300	Marlboro Township	130,575	325,715
56500	Franklin Township	34,457	85,951
58200	Egg Harbor Township	121,060	301,981
58400	Holmdel Township	70,835	176,695
58500	Milltown Borough	22,501	56,129
58900	Buena Borough	6,997	17,455
59000	Eastampton Township	22,300	55,625
59800	Chesilhurst Borough	8,313	20,736
59900	Egg Harbor City	14,692	36,650
60000	Harrison Township	16,892	42,136
60100	Woodbury Heights Borough	7,713	19,239
60600	Waterfront Comm of NY Harbor	1,904	4,749
61000	Somerdale Borough	14,661	36,572
61200	Raritan Township	54,756	136,587
62300	NJ Transit Corporation	264,334	659,373
63100	Allentown Borough	7,036	17,552
63300	Barneget Township	38,884	96,995
67700	Lambertville City	9,869	24,618
68000	Lawnside Borough	7,761	19,360
68800	Mount Arlington Borough	13,682	34,130

Section 5: Additional Required Exhibits

69000	National Park Borough	4,425	11,038
70404	Camden County Regional	537,597	1,341,020
71600	Passaic County	890,893	2,222,306
71603	Passaic County	127,395	317,783
72000	Union County	415,860	1,037,350
72001	Union County	68,431	170,700
72003	Union County	320,341	799,080
72700	South Toms River Borough	7,360	18,360
73500	Union Beach Borough	12,499	31,178
74000	West Amwell Township	3,354	8,366
74100	Winfield Township	5,943	14,826
74400	Hamilton Twp Fire Comm Dist	10,242	25,548
75000	Lakewood Twp Fire District #1	5,006	12,487
75900	Gloucester Twp Fire District #2	3,402	8,485
79000	North Hudson Reg Fire & Rescue	516,151	1,287,522
	Total	\$25,175,612	\$62,799,811

Appendix A: 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

Appendix A: Definition of Pension Terms

	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 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: <u>Investment return</u> - the rate of investment yield that the Plan will earn over the long-term future; <u>Mortality rates</u> - the rate or probability of death at a given age for employees and retirees; <u>Retirement rates</u> - the rate or probability of retirement at a given age or service; <u>Disability rates</u> - the rate or probability of disability retirement at a given age; <u>Withdrawal rates</u> - the rate or probability at which employees of various ages are expected to leave employment for reasons other than death, disability, or retirement; <u>Salary increase rates</u> - the rates of salary increase due to inflation, real wage growth and merit and promotion increases.

Appendix A: Definition of Pension Terms

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, if applicable, 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.

Appendix A: Definition of Pension Terms

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.
Service Costs:	The portions of the actuarial present value of projected benefit payments that are attributed to valuation years.
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.