

Police and Firemen's Retirement System of New Jersey

Actuarial Valuation and Review as of July 1, 2023



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.

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December 22, 2023

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

Dear Board of Trustees Members:

We are pleased to submit this Actuarial Valuation and Review as of July 1, 2023. 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, 2025.

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 Division 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, EA. I am a member of the American Academy of Actuaries and I meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of my 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 my analysis

and recommendations. In my opinion, the assumptions are reasonable and take into account the experience of the System and reasonable expectations. In addition, in my opinion, the combined effect of these assumptions is expected to have no significant bias.

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

Sincerely,
Segal



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



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

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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, 2023. The valuation was performed to determine whether the assets and contributions are 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;
- The characteristics of covered active participants, inactive vested participants, and retired participants and beneficiaries as of June 30, 2023, provided by the Division of Pensions and Benefits;
- The assets of the System as of June 30, 2023, provided by the Division of Pensions and Benefits;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. and
- The funding policy and asset valuation method in accordance with New Jersey Statute

Certain disclosure information required by GASB Statements No. 67 and 68 as of July 1, 2023 for the System 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. The funding policy defined in the New Jersey Statute meets this standard as long as both State and Local Employers pay the full appropriations. However, as discussed later in this report the funding policy results in the unfunded liability being paid off over a long time. See *Section 3, Statutory Pension Contribution* for further discussion.
2. For the State plan, the actuarial loss of \$116.5 million, is due to an investment loss of \$59.0 million, and a loss from sources other than investments of \$56.7 million. The loss from other sources was primarily due to demographic experience for the year. For the Local plan, the actuarial loss of \$586.0 million, is due to an investment loss of \$159.6 million, and a loss from sources other than investments of \$426.4 million. The loss from other sources was primarily due to demographic experience and salary increase greater than assumed for the year.
3. The rate of return on the market value of assets was 7.1% for the State plan and 8.8% for the Local Employer plan for the year ended June 30, 2023. The return on the actuarial value of assets was 3.9% for the State and 6.4% for Local Employers for the same period due to the actuarial smoothing method as defined in the Statute. This resulted in an actuarial loss for both asset pools when measured against the assumed rate of return of 7.0%. The assumed rate of return is chosen based on the direction of the Treasurer and as adopted by the Board. Based on the target allocation and expectations for future investment returns, Segal continues to believe this assumption is reasonable.
4. The actuarial value of assets is 110.8% of the market value of assets for the State plan and 102.1% of the market value of assets for Local Employer plan. The investment experience in the past years has only been partially recognized in the actuarial value of assets. As the deferred net loss is recognized in future years, the cost of the System is likely to increase unless the net loss is offset by future experience.
5. This valuation reflects the provisions of Senate Bill No. 3090, which changed the latest date that eligible participants may retire under the early retirement window provided by Chapter 52, P.L. 2021 from April 30, 2023 to April 30, 2026. This change had a de minimis effect on the System's liability and normal cost.

Section 1: Actuarial Valuation Summary

Changes from Prior Valuation

1. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 41.0% for the State plan (including the Special Asset Value), compared to the prior year funded ratio of 39.9%. For the Local employer plan, the funded ratio is 71.5%, compared to the prior year funded ratio of 71.3%. 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 34.9% compared to 32.9% as of the prior valuation date for the State plan. For the Local employer plan, using market value, the funded ratio is 70.0% compared to 68.5% in the prior year. The increase in the funded percentage based on the market value of assets for the State and Local Employer plans is primarily due to the market value investment gain during the year ended June 30, 2023. 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.
2. The Statutory Pension Contribution, after State-paid Local cost shifting, for the upcoming year is \$637.3 million, or 127.5% of payroll, for the State plan and \$1.44 billion, or 35.8% of payroll, for the Local Employer plan, both of which are increases over the prior year. The increases are primarily due the actuarial investment and demographic loss for each plan during the year ended June 30, 2023.

Section 1: Actuarial Valuation Summary

Risk

1. It is important to note that this actuarial valuation is based on plan assets as of June 30, 2023. The System'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, 2023 due to the long-term effects of the COVID-19 pandemic. Segal is available to prepare projections of potential outcomes of market conditions and other demographic experience upon request.
2. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We have not been engaged to perform a detailed analysis of the potential range of the impact of risk relative to the System's future financial condition, but have included a brief discussion of some risks that may affect the System in *Section 2*.

Although there are projections provided in this report, we recommend a more detailed assessment to provide the Board with a better understanding of the inherent risks and could be important for the System because:

- The outlook for financial markets is uncertain.
- Relatively small changes in investment performance can produce large swings in the unfunded liabilities.
- Retired participants account for most of the System's liabilities, leaving limited options for reducing costs in the event of adverse experience.

Section 1: Actuarial Valuation Summary

Summary of Key Valuation Results – State

Fiscal Year Ending (FYE)		June 30, 2025	June 30, 2024
Statutory Pension Contribution	<ul style="list-style-type: none"> State Normal Cost at End of Year¹ 	\$141,878,177	\$138,185,864
	<ul style="list-style-type: none"> Amortization Payment of UAL¹ 	495,395,002	485,540,247
	<ul style="list-style-type: none"> Total Statutory Contribution for FYE 	637,273,179	623,726,111
	<ul style="list-style-type: none"> Expected Percent Appropriated 	100.0%	100.0%
	<ul style="list-style-type: none"> State Appropriation for Pension 	637,273,179	623,726,111
	<ul style="list-style-type: none"> Expected Lottery Enterprise Contribution Offset 	0	0
	<ul style="list-style-type: none"> Net State Contribution 	637,273,179	623,726,111
Plan Year Beginning		July 1, 2023	July 1, 2022
Actuarial accrued liability for plan year beginning July 1	<ul style="list-style-type: none"> Retired participants and beneficiaries 	\$4,368,805,767	\$4,110,333,413
	<ul style="list-style-type: none"> Inactive vested participants 	2,182,116	1,556,439
	<ul style="list-style-type: none"> Contributing active participants 	1,791,832,834	1,834,591,186
	<ul style="list-style-type: none"> Non-contributing active participants 	97,775,382	109,205,857
	<ul style="list-style-type: none"> Total 	6,260,596,099	6,055,686,895
	<ul style="list-style-type: none"> Normal cost for plan year beginning July 1 	109,553,664	113,000,579
Assets for plan year beginning July 1	<ul style="list-style-type: none"> Market value of assets (MVA)² 	\$2,185,260,627	\$1,990,061,291
	<ul style="list-style-type: none"> Actuarial value of assets (AVA)² 	2,421,317,571	2,267,954,515
	<ul style="list-style-type: none"> Actuarial value of assets as a percentage of market value of assets 	110.8%	114.0%
	<ul style="list-style-type: none"> Actuarial value of assets including Special Asset Value (AVA + SAV)² 	2,569,891,158	2,417,815,516
Funded status for plan year beginning July 1	<ul style="list-style-type: none"> Unfunded/(overfunded) actuarial accrued liability on MVA 	\$4,075,335,472	\$4,065,625,604
	<ul style="list-style-type: none"> Funded percentage on MVA basis 	34.9%	32.9%
	<ul style="list-style-type: none"> Unfunded/(overfunded) actuarial accrued liability on AVA 	\$3,839,278,528	\$3,787,732,380
	<ul style="list-style-type: none"> Funded percentage on AVA basis 	38.7%	37.5%
	<ul style="list-style-type: none"> Unfunded/(overfunded) actuarial accrued liability on AVA + SAV 	\$3,690,704,941	\$3,637,871,379
	<ul style="list-style-type: none"> Funded percentage on AVA + SAV basis 	41.0%	39.9%
Demographic data for plan year beginning July 1	<ul style="list-style-type: none"> Number of retired participants and beneficiaries³ 	7,685	7,363
	<ul style="list-style-type: none"> Number of inactive vested participants 	9	8
	<ul style="list-style-type: none"> Number of contributing active participants 	5,502	5,887
	<ul style="list-style-type: none"> Number of non-contributing active participants 	508	584
	<ul style="list-style-type: none"> Appropriation payroll⁴ 	\$499,740,835	\$515,345,604
	<ul style="list-style-type: none"> Annual retirement allowances in pay 	\$381,195,722	\$359,258,999

¹ Includes \$241,309,891 and \$234,210,235 for FYE 2025 and 2024, respectively, for Local obligations expected to be 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

Fiscal Year Ending (FYE)		June 30, 2025	June 30, 2024
Statutory Pension	• Local Employers Normal Cost at End of Year ¹	\$424,750,441	\$420,333,065
Contribution	• Amortization Payment of UAL ¹	914,934,769	870,049,987
	• ERI Payments	404,278	656,077
	• Chapter 19, P.L. 2009 Payments	25,354,273	25,175,612
	• Total Statutory Contribution for FYE	1,365,443,761	1,316,214,741
	• Non-Contributory Group Insurance Contribution	44,283,147	41,718,524
Plan Year Beginning		July 1, 2023	July 1, 2022
Actuarial accrued liability for plan year beginning July 1	• Retired participants and beneficiaries ²	\$30,082,691,090	\$28,799,488,818
	• Inactive vested participants	13,892,510	14,149,279
	• Contributing active participants	13,731,110,657	13,580,174,662
	• Non-contributing active participants	325,190,881	297,128,657
	• Total	44,152,885,138	42,690,941,416
	• Normal cost for plan year beginning July 1	817,293,678	794,969,828
Assets for plan year beginning July 1	• Market value of assets (MVA) ³	\$30,291,878,881	\$29,253,513,217
	• Actuarial value of assets (AVA) ³	31,560,308,528	30,451,072,277
	• Actuarial value of assets as a percentage of market value of assets	102.1%	104.1%
Funded status for plan year beginning July 1	• Unfunded/(overfunded) actuarial accrued liability on MVA	\$13,231,006,257	\$13,437,428,199
	• Funded percentage on MVA basis	70.0%	68.5%
	• Unfunded/(overfunded) actuarial accrued liability on AVA	\$12,592,576,610	\$12,239,869,139
	• Funded percentage on AVA basis	71.5%	71.3%
Demographic data for plan year beginning July 1	• Number of retired participants and beneficiaries ⁴	42,424	41,390
	• Number of inactive vested participants	57	52
	• Number of contributing active participants	34,054	34,004
	• Number of non-contributing active participants	1,387	1,341
	• Appropriation payroll ⁵	\$3,738,600,013	\$3,643,886,024
	• Annual retirement allowances in pay	\$2,697,293,403	\$2,575,612,210

¹ Includes \$241,309,891 and \$234,210,235 for FYE 2025 and 2024, 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 \$2,763,651 in 2023 and \$3,165,591 in 2022

³ Includes discounted State receivable contributions and Lottery proceeds from the upcoming Fiscal Year

⁴ QDRO recipients are excluded from counts, and individuals without a State or Local division indicated are assumed to be Local (included here).

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.

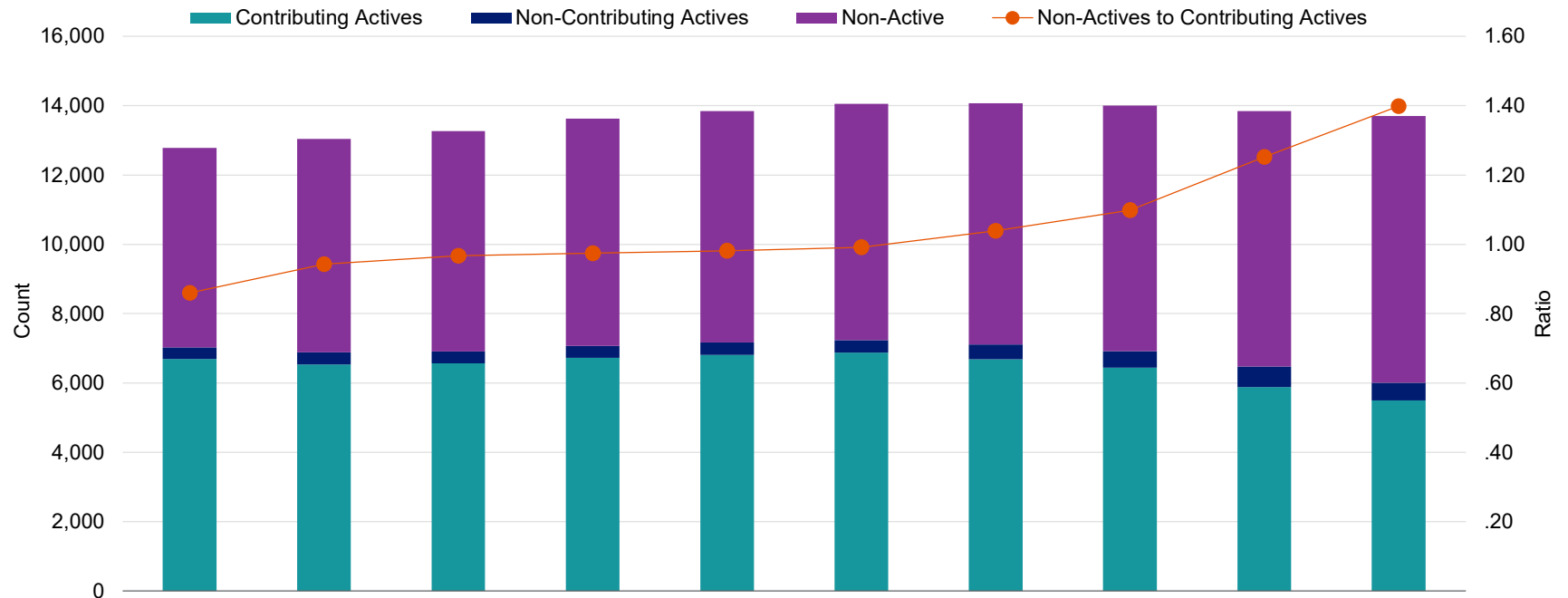
Segal's report shall be deemed to be final and accepted by the System upon delivery and review. Trustees should notify Segal immediately of any questions or concerns about the final content.

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

Section 2: Actuarial Valuation Results

Participant Information

State Participant Population as of June 30

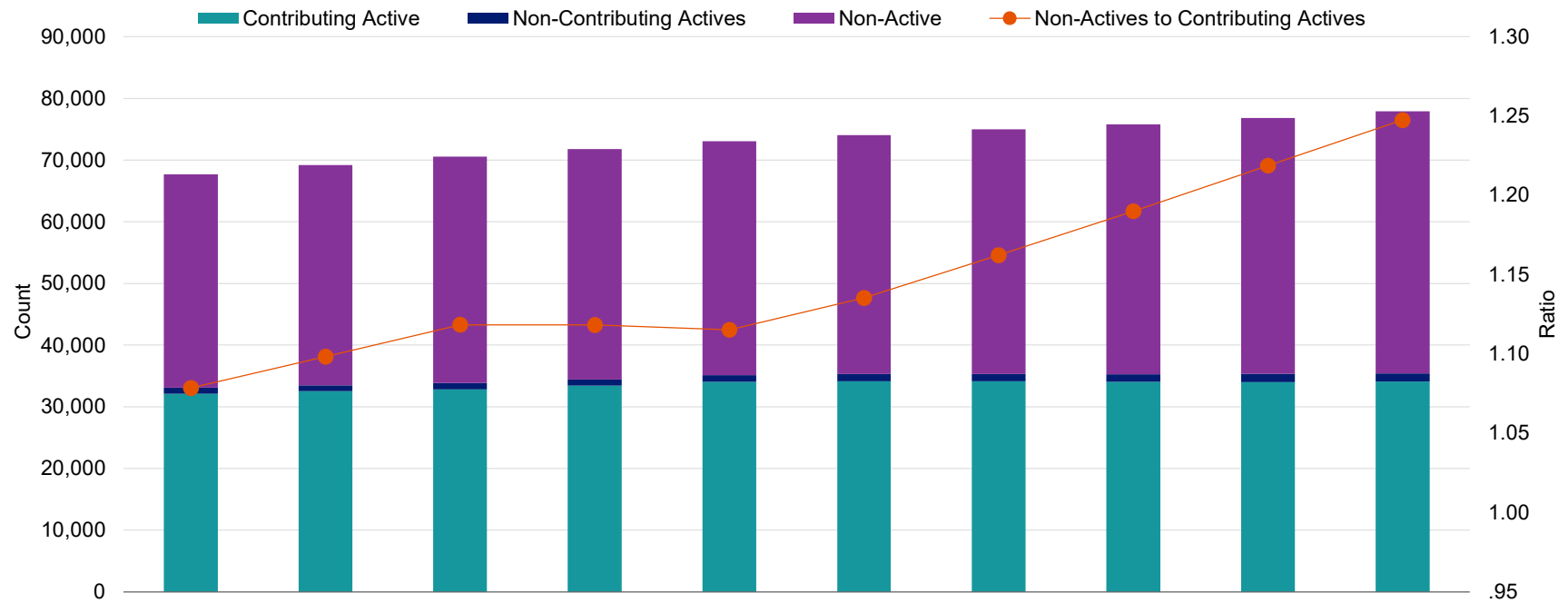


	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Non-Active ¹	5,756	6,160	6,354	6,555	6,679	6,816	6,950	7,083	7,371	7,694
Non-Contributing Actives	330	352	340	342	362	364	426	471	584	508
Contributing Active	6,695	6,531	6,571	6,730	6,807	6,875	6,688	6,445	5,887	5,502
Ratio of non-actives to contributing actives	0.86	0.94	0.97	0.97	0.98	0.99	1.04	1.10	1.25	1.40

¹ Includes members in pay status and deferred vested participants

Section 2: Actuarial Valuation Results

Local Employer Participant Population as of June 30



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Non-Active ¹	34,633	35,715	36,704	37,357	37,930	38,786	39,688	40,495	41,442	42,481
Non-Contributing Actives	970	955	1,060	1,037	1,113	1,117	1,168	1,241	1,341	1,387
Contributing Active	32,111	32,521	32,818	33,410	34,013	34,164	34,150	34,031	34,004	34,054
Ratio of non-actives to contributing actives	1.08	1.10	1.12	1.12	1.12	1.14	1.16	1.19	1.22	1.25

¹ Includes members in pay status and deferred vested participants

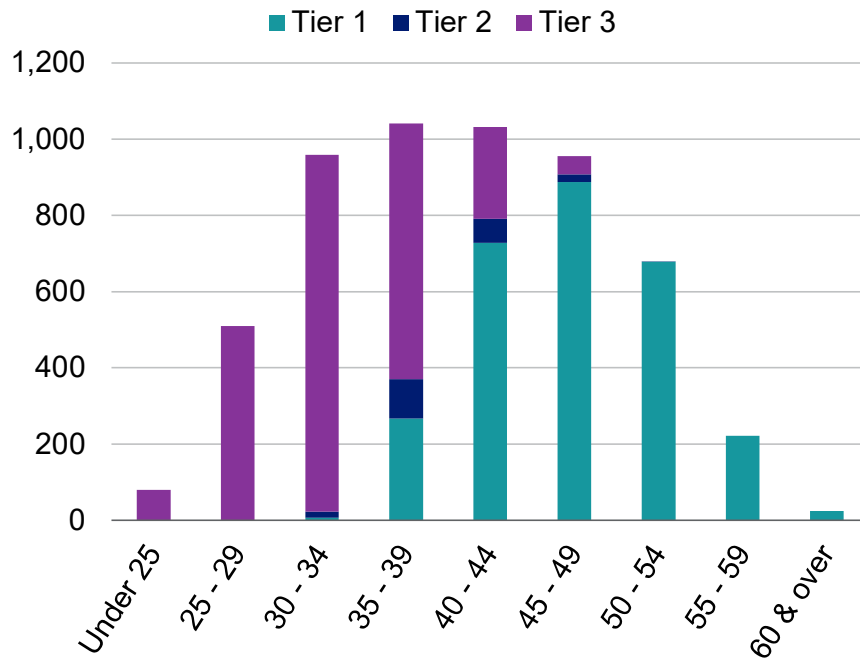
Section 2: Actuarial Valuation Results

State Contributing Active participants

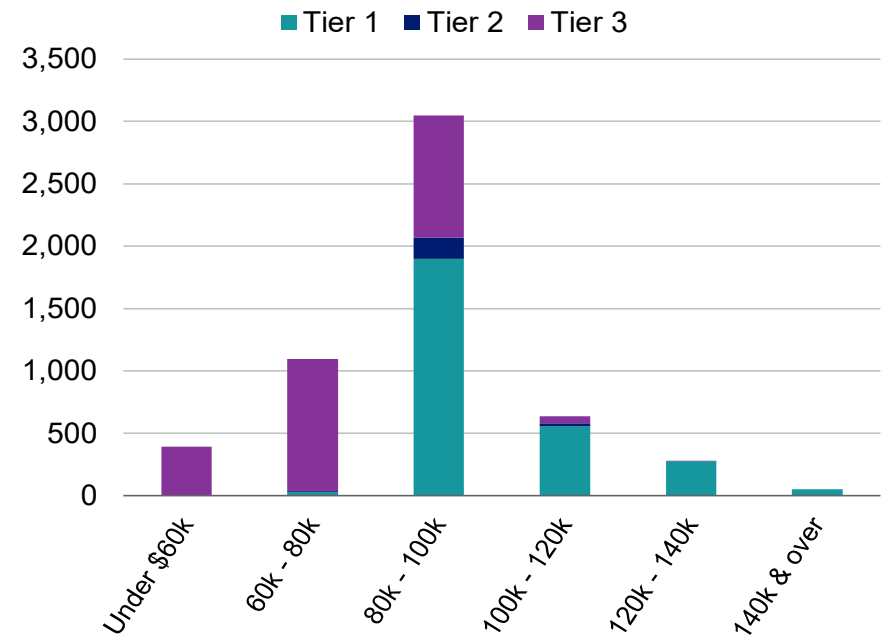
As of June 30,	2023	2022	Change
Active participants	5,502	5,887	-6.5%
Average age	40.9	40.6	0.3
Average years of service	13.8	13.5	0.3
Average compensation	\$90,829	\$87,556	3.7%

Distribution of Active Participants as of June 30, 2023

Actives by Age



Actives by Compensation



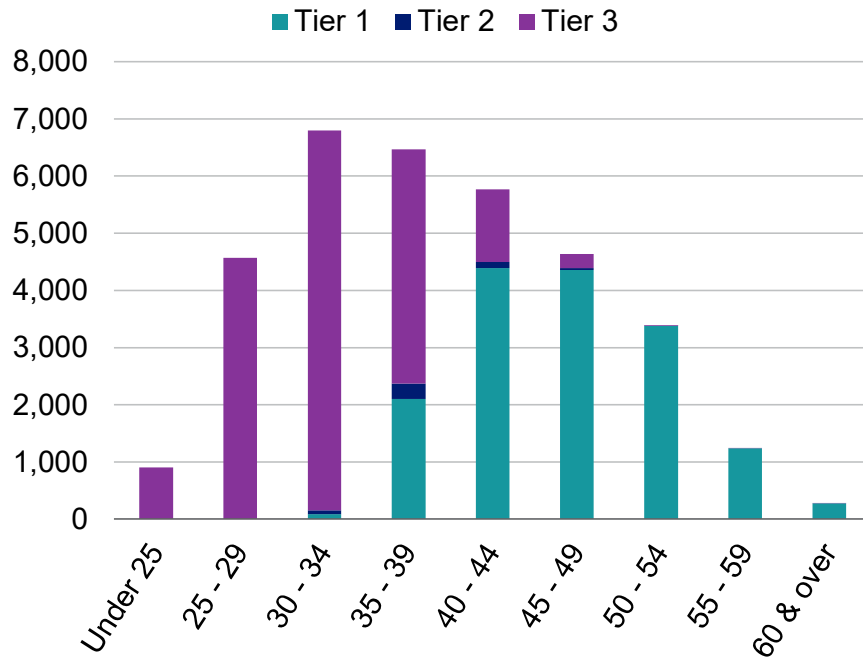
Section 2: Actuarial Valuation Results

Local Employers Contributing Active participants

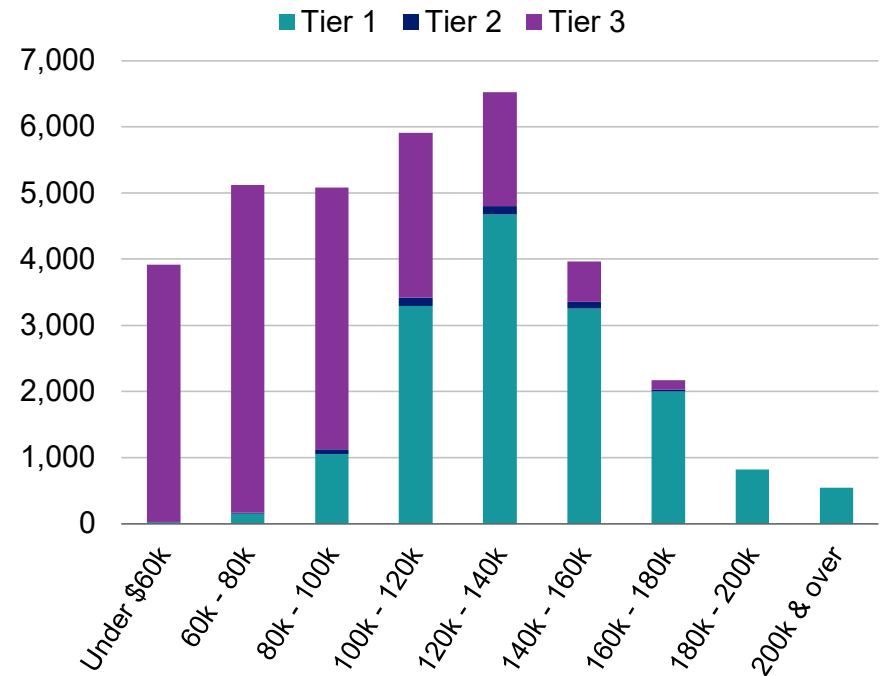
As of June 30,	2023	2022	Change
Active participants	34,054	34,004	0.1%
Average age	39.4	39.6	-0.2
Average years of service	13.1	13.3	-0.2
Average compensation	\$109,784	\$107,161	2.4%

Distribution of Active Participants as of June 30, 2023

Actives by Age



Actives by Compensation



Section 2: Actuarial Valuation Results

Inactive Participants and Non-Contributory Active Participants

- In this year's valuation, there were 66¹ inactive participants with a vested right to a deferred or immediate vested benefit, as compared to 60 in the prior year.
- Additionally, this year's valuation includes liabilities for 1,387 Local Employers and 508 State non-contributing active members, as compared to 1,341 and 584 respectively in the prior year. These members are valued as active participants for liability purposes but are assumed to not earn future benefit accruals. The average last reported pay is \$79,317 for Local Employers members and \$68,636 for State members.

¹ Nine State members with average monthly retirement allowance of \$1,841 and 57 Local Employer members with average monthly retirement allowance of \$2,111

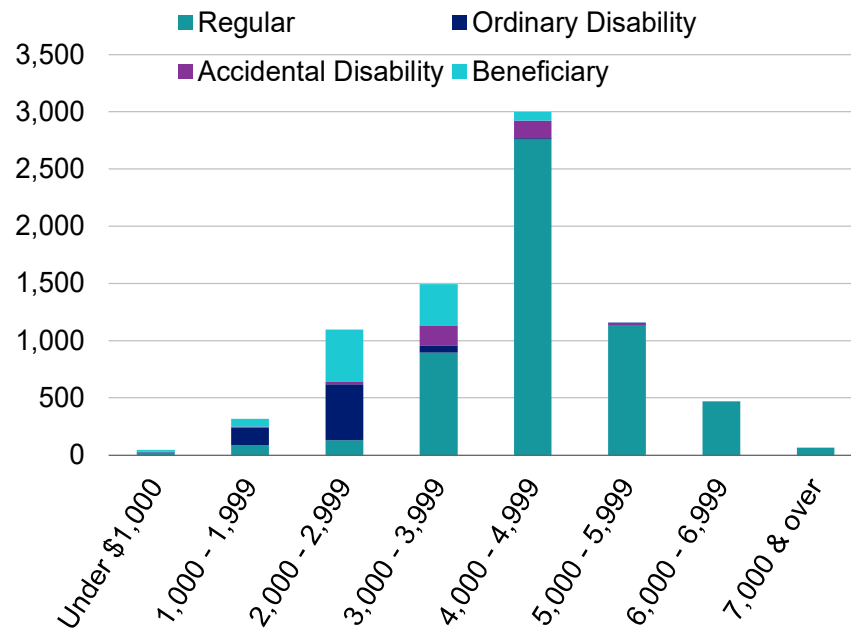
Section 2: Actuarial Valuation Results

State Retired Participants and Beneficiaries

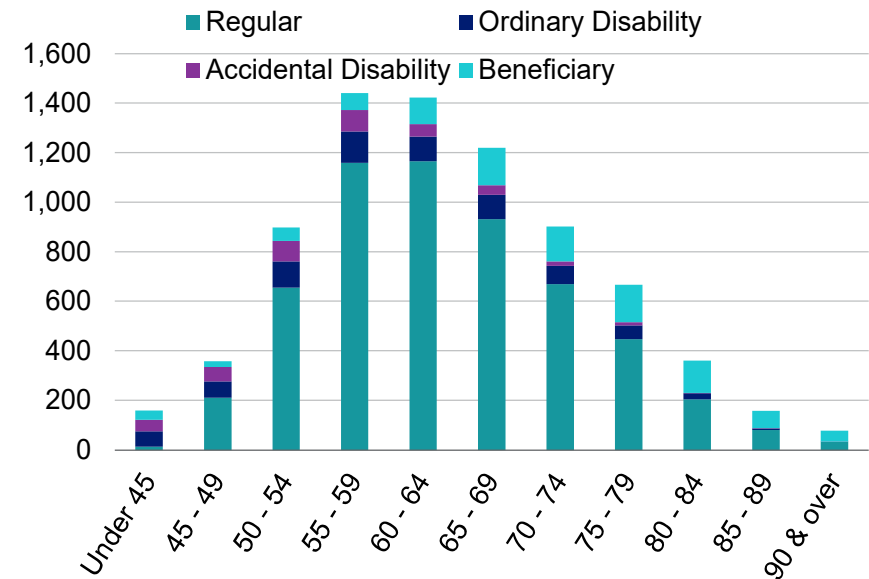
As of June 30,	2023	2022	Change
Retired participants ¹	6,683	6,404	4.4%
Average age	62.8	62.7	0.1
Average retirement allowance	\$4,337 ²	\$4,252	2.0%
Beneficiaries	1,002	959	4.5%
Total monthly retirement allowance	\$31,849,643	\$29,938,241	6.4%

Distribution of Retired Participants and Beneficiaries as of June 30, 2023

By Type and Monthly Amount



By Type and Age



¹ As of June 30, 2023, there are 5,569 retirees and 1,114 disabled pensioners as compared to 5,299 and 1,105 in the prior year.

² \$4,348 for police and \$3,880 for firefighters

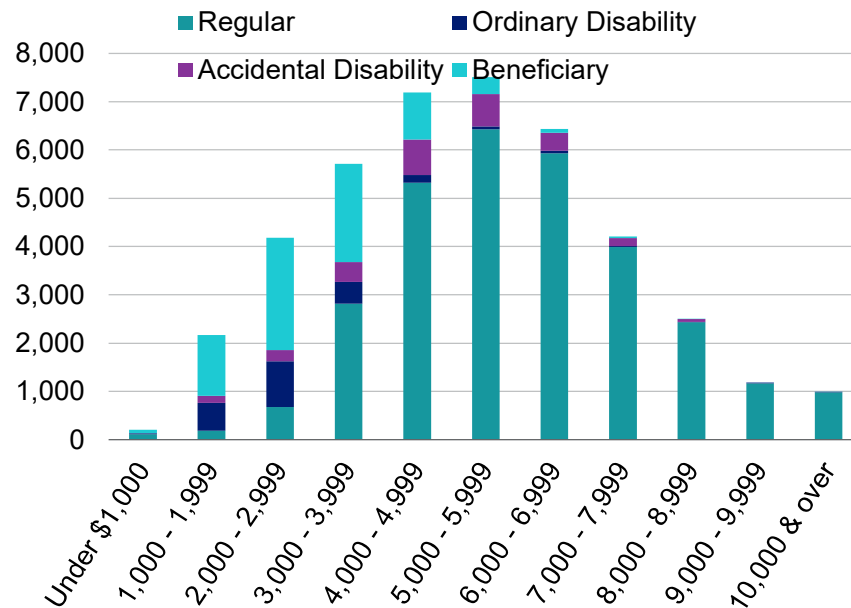
Section 2: Actuarial Valuation Results

Local Employers Retired Participants and Beneficiaries

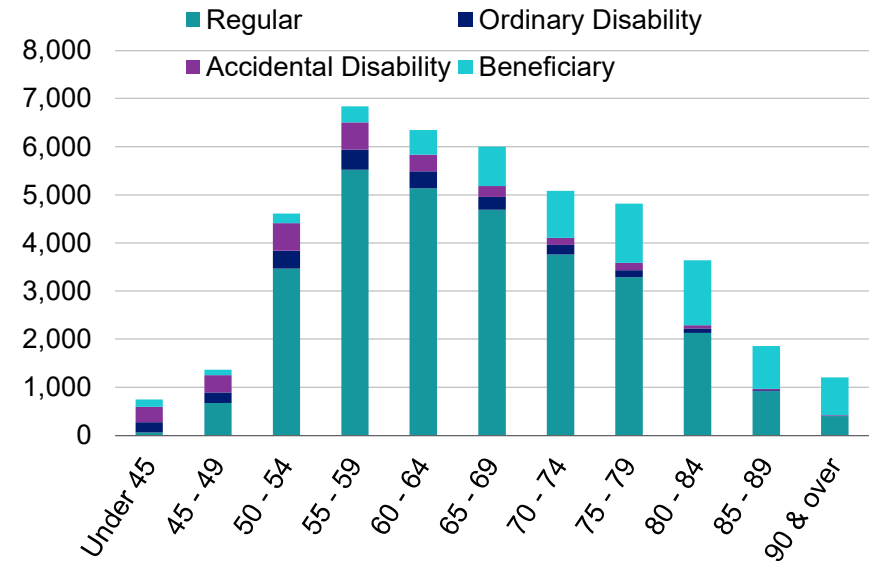
As of June 30,	2023	2022	Change
Retired participants ¹	35,162	34,267	2.6%
Average age	64.7	64.4	0.3
Average retirement allowance	\$5,759 ²	\$5,641	2.1%
Beneficiaries	7,262	7,123	2.0%
Total monthly retirement allowance	224,774,450	214,634,351	4.7%

Distribution of Retired Participants and Beneficiaries as of June 30, 2023

By Type and Monthly Amount



By Type and Age



¹ As of June 30, 2023, there are 30,036 retirees and 5,126 disabled pensioners as compared to 29,241 and 5,026 in the prior year.

² \$5,723 for police and \$6,004 for firefighters

Section 2: Actuarial Valuation Results

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		
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%
2023	479	2,394,110	157	505,900	7,685	31,849,643	4,144	1.9%

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 2: Actuarial Valuation Results

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 ¹²³	Monthly Allowance	Number ^{1,2,3}	Monthly Allowance		
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%
2023	2,161	14,065,024	1,127	4,047,907	42,424	224,774,450	5,298	2.2%

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 2: Actuarial Valuation Results

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		
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%
2023	2,640	16,459,134	1,284	4,552,917	50,109	256,624,093	5,121	2.1%

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.

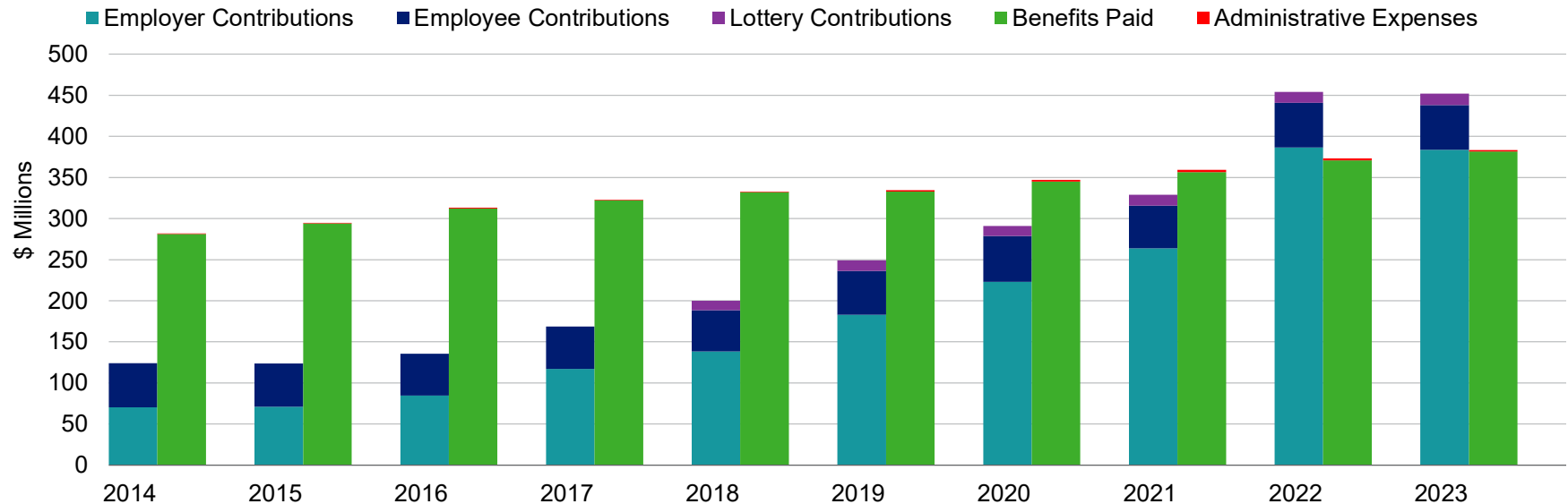
³ Location 91999 was reclassified as a State employer beginning with the 2018 valuation; 29 retirees receiving \$1,398,446 and 5 beneficiaries receiving \$123,147 were added to the State rolls and removed from the Local employer rolls in 2018.

Section 2: Actuarial Valuation Results

Financial Information

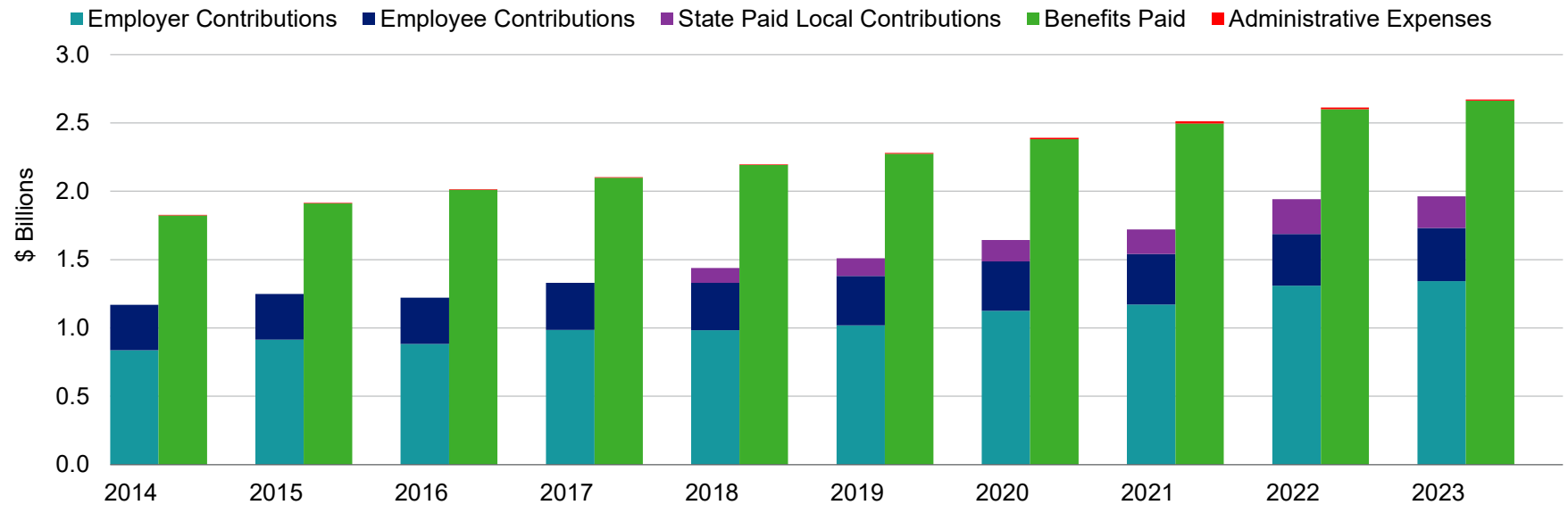
- Retirement plan funding anticipates that, over the long term, both contributions (less administrative expenses) and investment earnings (less investment fees) will be needed to cover benefit payments. Retirement plan assets change as a result of the net impact of these income and expense components.
- Historically the State net cash flow has been significantly negative. However, in recent years that has changed as the State has appropriated 100% of the statutory contribution.

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



Section 2: Actuarial Valuation Results

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



- Despite contributing the full statutory contribution amount, the Local Employer plan has experienced negative cash flow over the prior ten-year period. For the year ended June 30, 2023, the plan had a negative cash flow of approximately \$700 million, or 2.4% of the market value of assets as of the beginning of the year.

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 2: Actuarial Valuation Results

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 may not be 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, 2023 and June 30, 2022, the System's net cash flows for the year ended June 30, 2023, and the development of the actuarial value of assets as of June 30, 2023.

Section 2: Actuarial Valuation Results

Summary of Assets at Market Value

	June 30, 2023	June 30, 2022
Assets:		
• Cash	\$251,031,721	\$4,764,008
• Investment Holdings	29,085,422,999	27,868,790,184
• Employers' Contributions Receivable - State	0	0
• Employers' Contributions Receivable – Chapter 19	11,793,328	32,253,689
• Employers' Contributions Receivable – NCGI State	811,785	1,397,781
• Employers' Contributions Receivable – NCGI Local Employers	41,718,524	38,807,839
• Employers' Contributions Receivable – Common L	1,548,000	1,512,000
• Employers' Contributions Receivable – Local Employers	1,294,294,240	1,269,738,631
• Employers' Contributions Receivable – Local Employers ERI	3,376,720	3,768,905
• Employers' Contributions Receivable – Retroactive Contributions	10,292,620	5,353,393
• Employers' Contributions Receivable – Delayed Enrollments	152,201	156,935
• Employers' Contributions Receivable – Delayed Appropriations	705,054	748,495
• Member's Contributions Receivable	55,871,258	57,936,788
• Accrued Interest on Investments	4,382,153	3,187,188
• Accounts Receivable – Other	35,534,127	7,915,519
• New Jersey Mortgage Receivable	1,831,574,707	1,458,052,167
• Loans Receivable	212,859,388	219,923,899
• Interest Receivable on Loans	1,341,308	1,009,290
• Securities Lending Collateral	<u>570,995,092</u>	<u>488,225,326</u>
Total assets	\$33,413,705,225	\$31,463,542,037
Liabilities:		
• Pension Payroll Payable	(213,598,930)	(201,645,560)
• Pension Adjustment Payroll Payable	(13,663,021)	(14,171,798)

Section 2: Actuarial Valuation Results

	June 30, 2023	June 30, 2022
• Withholdings Payable	(33,725,105)	(32,618,222)
• Death Benefits Payable	(5,338,509)	(9,149,443)
• Securities Lending Collateral & Rebates Payable	(570,785,875)	(487,872,453)
• Administrative Expenses Payable	0	0
• Accounts Payable - Other	<u>(9,359,498)</u>	<u>(9,431,150)</u>
Total Liabilities	(\$846,470,940)	(\$754,888,627)
Preliminary Market Value of Assets	\$32,567,234,286	\$30,708,653,410
Discounted Receivables:		
• Expected Lottery Revenue	\$12,942,516	\$12,796,107
• State Appropriations	598,007,623	583,793,734
Adjustments to Financial Report:		
• Discounting of Local Employers Appropriations Receivable	(63,845,591)	(62,466,210)
• Discounting of Local Employers ERI Contributions Receivable	(233,714)	(260,657)
• True-up of Present Value of Chapter 19, P.L. 2009 Contributions Receivable	55,683,520	54,143,796
• Exclusion of Reserve for Non-Contributory Group Insurance	<u>(62,649,128)</u>	<u>(53,085,668)</u>
Market Value of Assets	\$33,107,139,508	\$31,243,574,509

Note: Figures may not add due to rounding

Section 2: Actuarial Valuation Results

Summary Statement of Income and Expenses on a Market Value Basis for FYE June 30, 2023

	State	Local Employers	Total
Preliminary Market Value of Assets at Beginning of Year	\$1,615,498,403	\$29,093,155,003	\$30,708,653,406
Additions:			
Contributions:			
• Member Contributions	\$53,703,766	\$385,533,004	\$439,236,770
• Member Transfer Contributions	652,870	2,508,641	3,161,512
• State and Local Appropriations	377,325,270	1,290,383,051	1,667,708,321
• State Contributions on Behalf of Locals	0	232,824,730	232,824,730
• State Lottery	14,040,000	0	14,040,000
• NCGI Contributions	6,414,435	41,698,852	48,113,287
• Transfers from Other Systems	0	157,408	157,408
• Other - Delayed Enrollments	6,732	78,693	85,425
• Other - Delayed Appropriations.	0	579,698	579,698
• Other – Retroactive	0	9,954,750	9,954,750
• Other – Additional	0	0	0
• Other - NCGI Adjustment	0	0	0
• Total Contributions	\$452,143,074	\$1,963,718,827	\$2,415,861,901
Net Investment Income	114,414,928	2,383,561,875	2,497,976,803
<i>Total Additions</i>	<i>566,558,002</i>	<i>4,347,280,702</i>	<i>4,913,838,704</i>
Deductions:			
• Withdrawal of Member Contributions	\$3,436,384	7,308,843	\$10,745,227
• Withdrawal of Member Transfer Contributions	222,250	344,228	566,478
• Adjustment for Member Loans	28,834	0	28,834
• Withdrawal of Transfer Contributions	0	0	0
• Retirement Allowances	354,012,338	2,475,335,151	2,829,347,488
• Pension Adjustment Benefits	17,470,297	143,594,026	161,064,324
• Death Benefit Claims	6,414,435	35,851,390	42,265,825
• Administrative Expenses	1,608,481	9,631,172	11,239,652
<i>Total Deductions</i>	<i>383,193,019</i>	<i>2,672,064,809</i>	<i>3,055,257,828</i>
Net Increase/(Decrease)	\$183,364,983	\$1,675,215,893	\$1,858,580,876
Preliminary Market Value of Assets at End of Year	\$1,798,863,386	\$30,768,370,896	\$32,567,234,282

Section 2: Actuarial Valuation Results

	State	Local Employers	Total
Discounted Receivables:			
• Expected Lottery Revenue	12,942,516	0	12,942,516
• State Appropriations	373,454,725	224,552,898	598,007,623
• Adjustments to Financial Report:			
• Discounting of Local Employers Appropriations Receivable	0	(63,845,591)	(63,845,591)
• Discounting of Local Employers ERI Contributions Receivable	0	(233,714)	(233,714)
• True-up of Present Value of Chapter 19, P.L. 2009 Contributions Receivable	0	55,683,520	55,683,520
• Exclusion of Reserve for Non-Contributory Group Insurance	0	(62,649,138)	(62,649,138)
Market Value of Assets at End of Year	\$2,185,260,627	\$30,921,878,881	\$33,107,139,508
Approximate Investment Return	7.1%	8.8%	8.7%

Note: Figures may not add due to rounding

Section 2: Actuarial Valuation Results

Determination of Actuarial Value of Assets for Year Ended June 30, 2023

	State	Local Employers	Total
1 Preliminary Actuarial Value of Assets as of July 1, 2022 ¹	\$1,893,391,627	\$30,283,025,734	\$32,176,417,361
2 Net Cash Flow excluding investment income ²	68,950,055	(683,197,712)	(614,247,658)
3 Expected Investment Income ³	131,592,884	1,979,701,160	2,111,294,044
4 Expected actuarial value of assets as of July 1, 2023: (1) + (2) + (3)	2,093,934,566	31,579,529,181	33,673,463,748
5 Preliminary market value of assets as of July 1, 2023 ⁴ :	1,798,863,386	30,781,492,124	32,580,355,510
6 20% of difference from MVA: 20% * [(5) - (4)]	(59,014,236)	(159,607,412)	(218,621,648)
7 Preliminary Actuarial Value of Assets as of July 1, 2023: (4) + (6)	\$2,034,920,330	\$31,419,921,770	\$33,454,842,100
8 Discounted Receivables			
• State Appropriations	373,454,725	224,552,898	598,007,623
• Expected Lottery Revenue	12,942,516	0	12,942,516
• Chapter 19, P.L. 2009 Contributions for FYE 2025 and Later	0	43,572,865	43,572,865
Total	386,397,241	268,125,763	654,523,004
9 Adjustments			
• Discounting of Local Employers Appropriations Receivable	0	(63,845,591)	(63,845,591)
• Discounting of Chapter 19, P.L. 2009 Contributions for FYE 2024	0	(1,244,286)	(1,244,286)
• Exclusion of reserve for Non-Contributory Group Insurance	0	(62,649,128)	(62,649,128)
Total	0	(127,739,005)	(127,739,005)
10 Actuarial value of assets as of July 1, 2023: (7) + (8) + (9)	\$2,421,317,571	\$31,560,308,528	\$33,981,626,099
11 Rate of return on actuarial value of assets:	3.9%	6.4%	6.3%
12 Ratio of actuarial value of assets to market value of assets:	110.8%	102.1%	102.6%

Note: Figures may not add due to rounding

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 2024 of \$25,148,270

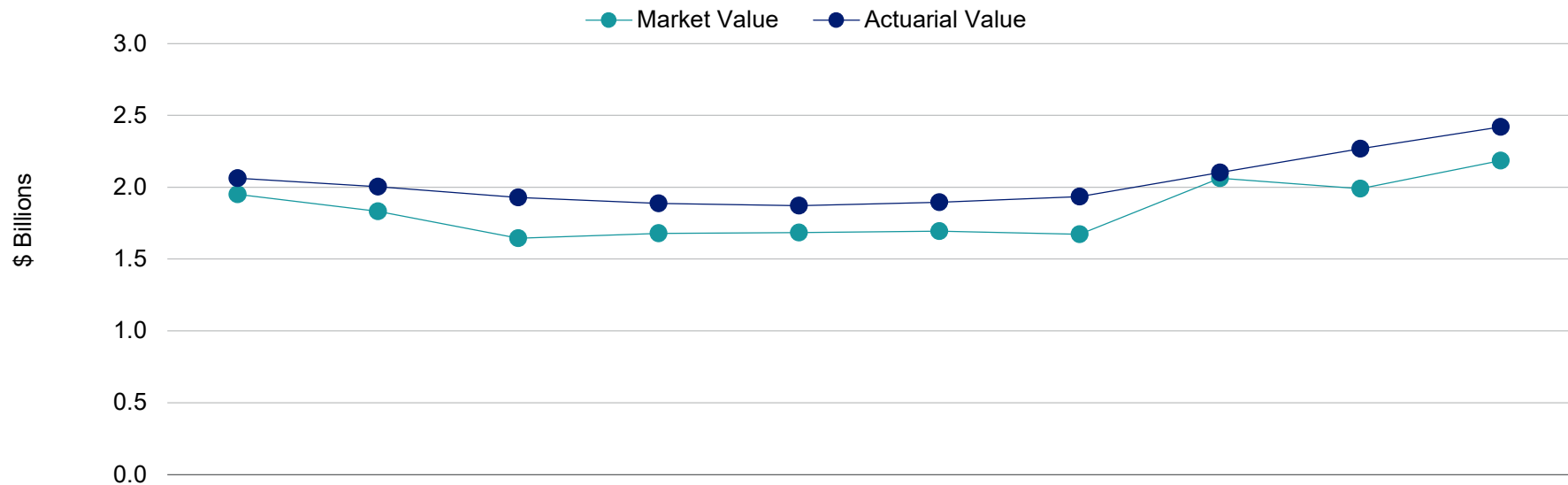
³ Refer to Section 4, Exhibit I for details on the assumed timing of contributions

⁴ Amount for Local employers includes adjustments to June 30, 2023 Financial Report for the interest portion of Local Employers ERI contributions receivable of (\$233,714) and true-up of Chapter 19, P.L. 2009 contributions for FYE 2024 of \$13,354,942.

Section 2: Actuarial Valuation Results

Asset History for Years Ended June 30

State Actuarial Value of Assets¹ vs Market Value of Assets



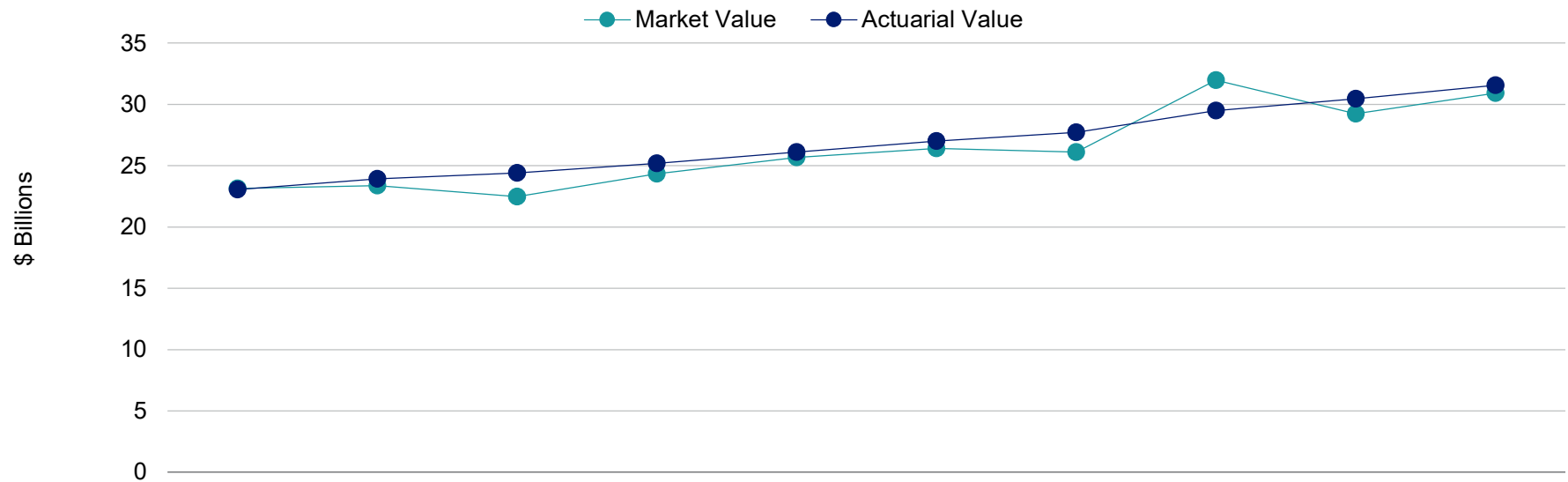
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Actuarial value ²	\$2.06	\$2.00	\$1.93	\$1.89	\$1.87	\$1.90	\$1.94	\$2.10	\$2.27	\$2.42
Market value ²	1.95	1.83	1.65	1.68	1.68	1.69	1.67	2.06	1.99	2.19
Ratio	1.06	1.09	1.17	1.12	1.11	1.12	1.16	1.02	1.14	1.11

¹ Excluding Special Asset Value

² In \$ billions

Section 2: Actuarial Valuation Results

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



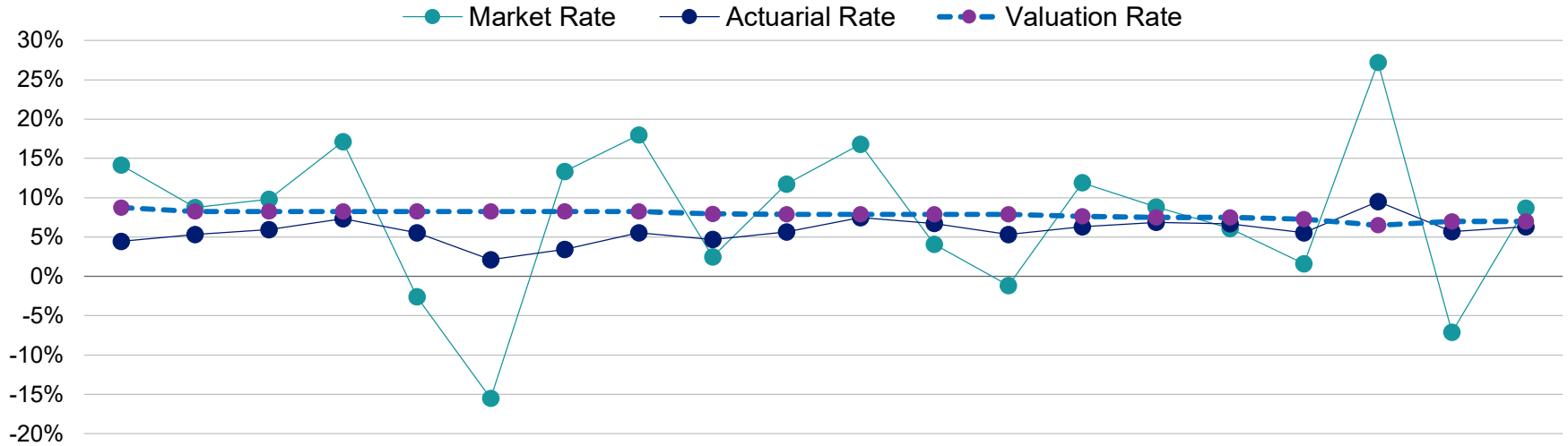
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Actuarial value ¹	\$23.07	\$23.94	\$24.42	\$25.18	\$26.11	\$27.02	\$27.72	\$29.50	\$30.45	\$31.56
Market value ¹	23.14	23.36	22.47	24.35	25.68	26.41	26.10	31.99	29.25	30.92
Ratio	1.00	1.02	1.09	1.03	1.02	1.02	1.06	0.92	1.04	1.02

¹ In \$ billions

Section 2: Actuarial Valuation Results

Historical Investment Returns

Market and Actuarial Rates of Return for Years Ended June 30



	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Market rate	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%	8.7%
Actuarial rate	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%	6.3%
Assumed rate	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%	7.00%

Average Rates of Return	Actuarial Value	Market Value
Most recent five-year average return:	6.73%	6.73%
Most recent ten-year average return:	6.63%	7.32%
Most recent 15-year average return:	5.85%	6.64%
20-year average return:	5.82%	7.28%

Section 2: Actuarial Valuation Results

Development of Special Asset Value (SAV)

Under the Lottery Enterprise Contribution Act (Chapter 98, P.L. 2017), the State portion of 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, 2023 ¹	13,247,811,507
3	Discounted Value as of July 1, 2023 at 7.00%	12,381,132,250
4	Allocation to PFRS	1.20%
5	Special Asset Value as of July 1, 2023 3 x 4	\$148,573,587

¹ Provided by the Division of Pensions and Benefits

Section 2: Actuarial Valuation Results

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, 2023

1	Net gain/(loss) from investments ¹	(\$59,014,236)
2	Net gain/(loss) from administrative expenses	(1,663,826)
3	Net gain/(loss) from contributions	13,653,062
4	Net gain/(loss) from salary scale	(3,840,300)
5	Net gain/(loss) from other experience	(65,586,200)
6	Net experience gain/(loss): 1 + 2 + 3 + 4 + 5	(\$116,451,500)

Local Employer Actuarial Experience for Year Ended June 30, 2023

1	Net gain/(loss) from investments ¹	(\$159,607,412)
2	Net gain/(loss) from administrative expenses	(9,968,263)
3	Net gain/(loss) from contributions	53,205,638
4	Net gain/(loss) from salary scale	(170,730,416)
5	Net gain/(loss) from other experience	(298,908,634)
6	Net experience gain/(loss): 1 + 2 + 3 + 4 + 5	(\$586,009,087)

¹ Details on next page

Section 2: Actuarial Valuation Results

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%, as recommended by the Treasurer and adopted by the Board of Trustees, considers past experience, the asset allocation policy of the Board and future expectations.

Investment Experience

	State		Local Employers	
	Market Value	Actuarial Value	Market Value	Actuarial Value
1 Net investment income	\$114,414,928	\$72,578,648	\$2,383,561,875	\$1,820,093,748
2 Average value of assets	1,602,005,126	1,879,898,350	27,091,574,407	28,261,445,138
3 Rate of return: 1 ÷ 2	7.14%	3.86%	8.80%	6.44%
4 Assumed rate of return	7.00%	7.00%	7.00%	7.00%
5 Expected investment income: 2 x 4	112,140,359	131,592,884	1,896,410,208	1,979,701,160
6 Investment gain/(loss): 1 - 5	\$2,274,569	(\$59,014,236)	\$487,151,667	(\$159,607,412)

Note: Figures may not add due to rounding

Section 2: Actuarial Valuation Results

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, 2023 this other experience resulted in a 0.9% loss for the State plan and a 0.9% loss for the Local plan, neither of which is considered significant. For the State plan, the primary source of the non-investment loss for the year ended June 30, 2023 was due to mortality experience (fewer deaths than expected). For the Local Employer plan, the primary source was mortality experience (fewer deaths than expected) and salary increase greater than expected.

Actuarial Assumptions

- There are no assumption changes reflected in this report.

Plan Provisions

- This valuation reflects the provisions of Senate Bill No. 3090, which changed the latest date that eligible participants may retire under the early retirement window provided by Chapter 52, P.L. 2021 from April 30, 2023 to April 30, 2026. This change had a de minimis effect on the System's liability and normal cost.

Section 2: Actuarial Valuation Results

Unfunded/(Overfunded) Actuarial Accrued Liability

Development of State Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended June 30, 2023

1	Unfunded/(overfunded) actuarial accrued liability at beginning of year		\$3,787,732,380
2	Normal cost at beginning of year		113,000,579
3	Interest on 1 & 2		273,051,307
4	Total expected contributions with interest to end of year		-450,957,238
5	Expected unfunded/(overfunded) actuarial accrued liability		\$3,722,827,028
6	Changes due to:		
	(a) Actuarial investment loss	\$59,014,236	
	(b) Contributions greater than expected	-13,653,062	
	(c) Salary increases greater than expected	3,840,300	
	(f) Other actuarial loss	<u>67,250,026</u>	
	Total changes		<u>\$116,451,500</u>
7	Unfunded/(overfunded) actuarial accrued liability at end of year		\$3,839,278,528

Section 2: Actuarial Valuation Results

Development of Local Employers' Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended June 30, 2023

1	Unfunded/(overfunded) actuarial accrued liability at beginning of year	\$12,239,869,139
2	Normal cost at beginning of year	794,969,828
3	Interest on 1 & 2	912,438,729
4	Total expected contributions with interest to end of year	-1,940,710,189
5	Expected unfunded/(overfunded) actuarial accrued liability	\$12,006,567,507
6	Changes due to:	
	(a) Actuarial investment loss	\$159,607,412
	(b) Contributions greater than expected	-53,205,638
	(c) Salary increases greater than expected	170,730,416
	(f) Other actuarial loss	308,876,913
	Total changes	\$586,009,103
7	Unfunded/(overfunded) actuarial accrued liability at end of year	\$12,592,576,610

Section 2: Actuarial Valuation Results

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. There is no explicit cost component related to administrative expenses, instead, they are net of the investment return assumption. The current methodology is intended to result in predictable employer contributions that provide benefit security to plan participants while balancing the needs of current and future contributors to the plan.

The NJ statute governing the System (Chapter 78, P.L. 2011) prescribes the funding policy used to calculate the statutory pension 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 has 20 years remaining, 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, 2023 there are 25 years remaining on the closed amortization schedule. As noted, effective July 1, 2028, the amortization period may remain open, therefore, the unfunded liability for both the State and Local Employer plans will not be fully amortized over the next 30 years. Over that time period, 39% of the unfunded liability for the State plan and 25% of the unfunded liability for the Local Employer plan is projected to be paid off.

As previously mentioned in this report, the actuarial value of assets as defined in the New Jersey Statute may not converge to the market value of assets over a reasonable time period and therefore may not comply with the requirements of Actuarial Standard of Practice No. 44. As a result of these same factors, there is a risk that calculating the statutory pension contribution based on this asset methodology may create a mismatch between the System's cash flow needs and what would usually be recommended as an actuarially determined contribution. For this reason, we have also provided a determination of the statutory pension contributions based on the market value of assets as an illustration of an actuarially determined contribution. If the market value of assets had been used to develop the statutory contribution for the fiscal year ending 2025, the State portion would be \$658.6 million and the Local Employer portion would be \$1.39 billion, or 3.4% and 4.0% greater than based on the actuarial value of assets respectively.

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 statutory pension contribution is no longer offset by the projected lottery proceeds in accordance with the Lottery Enterprise Contribution Act (Chapter 98, P.L. 2017). For purposes of determining the unfunded actuarial accrued liability for the State the Special Asset Value is not included.

The contribution requirement for the State and Local Employer plans developed on the following pages as of July 1, 2023 are based on the data previously described, the actuarial assumptions, methods 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.

Section 2: Actuarial Valuation Results

Development of Unfunded Actuarial Liability

	July 1, 2023			July 1, 2022		
	State	Local ¹	Total	State	Local ¹	Total
1 Actuarial Liability	\$6,260,596,099	\$44,152,885,138	\$50,413,481,237	\$6,055,686,895	\$42,690,941,415	\$48,746,628,310
2 Actuarial value of assets ²	\$2,421,317,571	\$31,560,308,528	\$33,981,626,099	\$2,267,954,515	\$30,451,072,277	\$32,719,026,792
3 Unfunded Liability						
a. Basic	\$3,672,944,336	\$10,655,099,677	\$14,328,044,013	\$3,623,241,028	\$10,281,743,892	\$13,904,984,921
b. Chapter 204, P.L. 1989	480,902	4,007,875	4,488,777	518,424	4,320,589	4,839,013
c. Chapter 247, P.L. 1993	0	115,662,456	115,662,456	0	118,653,250	118,653,250
d. Chapter 428, P.L. 1999 ³	165,853,289	809,212,503	975,065,792	163,972,927	810,796,812	974,769,738
e. Chapter 109, P.L. 1979	0	654,823,687	654,823,687	0	665,078,311	665,078,311
f. Chapter 511, P.L. 1991	<u>0</u>	<u>353,770,411</u>	<u>353,770,411</u>	<u>0</u>	<u>359,276,284</u>	<u>359,276,284</u>
g. Total	3,839,278,528	12,592,576,610	16,431,855,138	\$3,787,732,380	\$12,239,869,138	\$16,027,601,518
4 Adjustment to Unfunded Actuarial Liability for Phase-In of State-Paid Local Obligations						
a. Chapter 247, P.L. 1993	\$113,209,741	(\$113,209,741)	\$0	\$114,943,407	(\$114,943,407)	\$0
b. Chapter 428, P.L. 1999 ³	591,686,040	(\$591,686,040)	0	600,866,021	(\$600,866,021)	0
c. Chapter 109, P.L. 1979	654,823,687	(\$654,823,687)	0	665,078,311	(\$665,078,311)	0
d. Chapter 511, P.L. 1991	<u>353,770,411</u>	<u>(\$353,770,411)</u>	<u>0</u>	<u>359,276,284</u>	<u>(\$359,276,284)</u>	<u>0</u>
e. Total	1,713,489,879	(\$1,713,489,879)	0	1,740,164,023	(\$1,740,164,023)	\$0
5 Net unfunded actuarial liability (3) + (4)	\$5,552,768,407	\$10,879,086,731	\$16,431,855,138	\$5,527,896,402	\$10,499,705,115	\$16,027,601,518

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 2: Actuarial Valuation Results

Development of Unfunded Actuarial Liability Contribution

	July 1, 2023 Fiscal Year Ending 2025 Payment			July 1, 2022 Fiscal Year Ending 2024 Payment		
	State	Local ¹	Total	State	Local ¹	Total
1 Amortization of UAL						
a. Basic	\$294,558,181	\$854,504,312	\$1,149,062,493	\$286,341,108	\$812,555,918	\$1,098,897,026
b. Chapter 204, P.L. 1989	68,983	574,911	643,894	68,983	574,911	643,894
c. Chapter 247, P.L. 1993	0	9,275,753	9,275,753	0	9,377,047	9,377,047
d. Chapter 428, P.L. 1999 ²	13,300,894	64,896,209	78,197,103	12,958,616	64,076,460	77,035,076
e. Chapter 109, P.L. 1979	0	52,514,728	52,514,728	0	52,560,473	52,560,473
f. Chapter 511, P.L. 1991	<u>0</u>	<u>28,371,235</u>	<u>28,371,235</u>	<u>0</u>	<u>28,393,245</u>	<u>28,393,245</u>
g. Total	307,928,058	1,010,137,148	1,318,065,206	\$299,368,707	\$967,538,053	\$1,266,906,760
4 Adjustment to UAL Contribution for Phase-In of State-Paid Local Obligations						
a. Chapter 247, P.L. 1993	\$9,275,753	(\$9,275,753)	\$0	\$9,377,047	(\$9,377,047)	0
b. Chapter 428, P.L. 1999 ²	64,896,209	(64,896,209)	0	64,076,460	(64,076,460)	0
c. Chapter 109, P.L. 1979	52,514,728	(52,514,728)	0	52,560,473	(52,560,473)	0
d. Chapter 511, P.L. 1991	<u>28,371,235</u>	<u>(28,371,235)</u>	<u>0</u>	<u>28,393,245</u>	<u>(28,393,245)</u>	<u>0</u>
e. Total	155,057,925	(155,057,925)	0	\$154,407,224	(\$154,407,224)	0
3 UAL Contribution as of Valuation Date (1) + (2)	\$462,985,983	\$855,079,223	\$1,318,065,206	\$453,775,932	\$813,130,829	\$1,266,906,760
4 Interest to Beginning of Fiscal Year	32,409,019	59,855,546	92,264,565	31,764,315	56,919,158	88,683,473
5 UAL Contribution as of Beginning of Fiscal Year (3) + (4)	\$495,395,002	\$914,934,769	\$1,410,329,771	\$485,540,247	\$870,049,987	\$1,355,590,234

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 2: Actuarial Valuation Results

Development of Normal Cost Contribution

	July 1, 2023 Fiscal Year Ending 2025 Payment			July 1, 2022 Fiscal Year Ending 2024 Payment		
	State	Local	Total	State	Local	Total
1 Gross Normal Cost, excluding NCGI Premium						
a. Basic	\$100,184,700	\$746,828,340	\$847,013,040	\$103,975,630	\$730,488,982	\$834,464,612
b. Chapter 247, P.L. 1993	0	35,801	35,801	0	36,990	36,990
c. Chapter 428, P.L. 1999	1,704,679	12,744,326	14,449,005	1,099,724	8,051,687	9,151,411
d. Chapter 109, P.L. 1979 ¹	5,497,149	41,124,600	46,621,749	5,668,802	40,082,746	45,751,548
e. Chapter 511, P.L. 1991	<u>2,167,136</u>	<u>16,560,611</u>	<u>18,727,747</u>	<u>2,256,423</u>	<u>16,309,423</u>	<u>18,565,846</u>
f. Total	109,553,664	817,293,678	926,847,342	\$113,000,579	\$794,969,828	\$907,970,407
2 Expected Member Contributions	(\$47,422,575)	(\$349,865,311)	(\$397,287,886)	(\$48,335,758)	(\$337,654,342)	(\$385,990,100)
3 Employer Normal Cost (1) + (2)	\$62,131,089	\$467,428,367	\$529,559,456	\$64,664,821	\$457,315,486	\$521,980,307
4 Portion of Local Normal Cost Payable by State						
a. Chapter 247, P.L. 1993	\$35,801	(\$35,801)	\$0	\$36,990	(\$36,990)	\$0
b. Chapter 428, P.L. 1999	12,744,326	(\$12,744,326)	0	8,051,687	(8,051,687)	0
c. Chapter 109, P.L. 1979	41,124,600	(\$41,124,600)	0	40,082,746	(40,082,746)	0
d. Chapter 511, P.L. 1991	16,560,611	(\$16,560,611)	0	16,309,423	(16,309,423)	0
e. Total	70,465,338	(\$70,465,338)	\$0	\$64,480,846	(\$64,480,846)	\$0
5 Normal Cost Contribution as of Valuation Date (3) + (4)	\$132,596,427	\$396,963,029	\$529,559,456	\$129,145,667	\$392,834,640	\$521,980,307
6 Interest to Beginning of Fiscal Year	9,281,750	27,787,412	37,069,162	9,040,197	27,498,425	36,538,621
7 Normal Cost Contribution as of Beginning of Fiscal Year (5) + (6)	\$141,878,177	\$424,750,441	\$566,628,618	\$138,185,864	\$420,333,065	\$558,518,928
8 Non-Contributory Group Insurance Premium at Beginning of Fiscal Year (one-year term cost)	N/A	\$44,283,147	\$44,283,147	N/A	\$41,718,524	\$41,718,524

¹ Per statute, 1.1% of appropriation payroll

Section 2: Actuarial Valuation Results

Development of Statutory Pension Contribution

	July 1, 2023 Fiscal Year Ending 2025 Payment			July 1, 2022 Fiscal Year Ending 2024 Payment		
	State	Local	Total	State	Local	Total
1 Normal Cost Contribution ¹						
a. Basic	\$56,455,474	\$424,750,441	\$481,205,915	\$59,534,663	\$420,333,065	\$479,867,728
a. Chapter 247, P.L. 1993	38,307	0	38,307	39,579	0	39,579
b. Chapter 428, P.L. 1999	15,460,435	0	15,460,435	9,792,010	0	9,792,010
c. Chapter 109, P.L. 1979	49,885,272	0	49,885,272	48,954,156	0	48,954,156
d. Chapter 511, P.L. 1991	<u>20,038,689</u>	<u>0</u>	<u>20,038,689</u>	<u>19,865,455</u>	<u>0</u>	<u>19,865,455</u>
e. Total	\$141,878,177	\$424,750,441	\$566,628,618	\$138,185,864	\$420,333,065	\$558,518,928
2 UAL Contribution ^{1,2}						
a. Basic	\$315,177,254	\$914,319,614	\$1,229,496,868	\$306,384,986	\$869,434,832	\$1,175,819,818
b. Chapter 204, P.L. 1989	73,812	615,155	688,967	73,812	615,155	688,967
c. Chapter 247, P.L. 1993	9,925,055	0	9,925,055	10,033,441	0	10,033,441
d. Chapter 428, P.L. 1999	83,670,900	0	83,670,900	82,427,531	0	82,427,531
e. Chapter 109, P.L. 1979	56,190,759	0	56,190,759	56,239,706	0	56,239,706
f. Chapter 511, P.L. 1991	<u>30,357,222</u>	<u>0</u>	<u>30,357,222</u>	<u>30,380,772</u>	<u>0</u>	<u>30,380,772</u>
g. Total	\$495,395,002	\$914,934,769	\$1,410,329,771	\$485,540,247	\$870,049,987	\$1,355,590,234
3 Total Statutory Contribution (1) + (2)	\$637,273,179	\$1,339,685,210	\$1,976,958,389	\$623,726,111	\$1,290,383,051	\$1,914,109,162
4 Lottery Enterprise Contribution Offset	\$0	\$0	\$0	\$0	\$0	\$0
5 Net Pension Contribution (3) + (4)	\$637,273,179	\$1,339,685,210	\$1,976,958,389	\$623,726,111	\$1,290,383,051	\$1,914,109,162
6 Non-Contributory Group Insurance Premium at Beginning of Fiscal Year (one-year term cost)	N/A	\$44,283,147	\$44,283,147	N/A	\$41,718,524	\$41,718,524

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 \$241,309,891 and \$234,210,235 for the July 1, 2023 and July 1, 2022 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 2: Actuarial Valuation Results

Reconciliation of Statutory Pension Contribution

Reconciliation of State Statutory Pension Contribution¹
from July 1, 2022 to July 1, 2023

	Amount	% of Payroll
1 Statutory pension contribution as of July 1, 2022	\$376,559,209	73.07%
2 Effect of contributions (more)/less than actuarially determined contribution	-1,132,606	-0.22%
3 Effect of investment (gain)/loss	4,895,594	0.95%
4 Effect of other gains and losses on accrued liability	4,764,775	0.92%
5 Net effect of other changes, including composition and number of participants	-2,513,748	-0.49%
6 Total change	\$6,014,015	1.16%
7 Total change in percentage due to payroll change		2.32%
8 Statutory pension contribution as of July 1, 2023	\$382,573,224	76.55%

¹ Before adjustments for State-paid Local obligations

Section 2: Actuarial Valuation Results

Reconciliation of Local Employers' Statutory Pension Contribution¹ from July 1, 2022 to July 1, 2023

	Amount	% of Payroll
1 Statutory Pension Contribution as of July 1, 2022	\$1,473,036,992	41.84%
2 Effect of contributions (more)/less than actuarially determined contribution	-4,411,211	-0.12%
3 Effect of investment (gain)/loss	13,232,845	0.36%
4 Effect of other gains and losses on accrued liability	35,352,414	0.97%
5 Net effect of other changes, including composition and number of participants	<u>10,320,459</u>	<u>0.29%</u>
6 Total change	\$54,494,507	1.50%
7 Total change in percentage due to payroll change		-1.05%
8 Actuarially determined Contribution as of July 1, 2023	\$1,527,531,499	42.29%

¹ Before adjustments for State-paid Local obligations

Section 2: Actuarial Valuation Results

The following tables present the State and Local Employers' statutory contributions¹ as a percentage of appropriation payroll for FYE 2025 compared to FYE 2024 both in total and broken out by chapter. The increase in the statutory contribution amounts as a percentage of appropriations payroll are primarily due to the experience losses for the year ended June 30, 2023. These increases were mitigated by increases in the Local Employers' appropriation payroll and compounded by decreases in the State appropriation payroll.

	July 1, 2023 Fiscal Year Ending 2025 Payment			July 1, 2022 Fiscal Year Ending 2024 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	13.303%	13.378%	13.369%	13.426%	13.429%	13.428%
UAL Contribution Rate ²	<u>65.931%</u>	<u>28.910%</u>	<u>33.276%</u>	<u>62.157%</u>	<u>28.411%</u>	<u>32.592%</u>
Total Pension Contribution Rate	79.234%	42.288%	46.645%	75.583%	41.840%	46.021%
Non-Contributory Group Insurance Premium Rate	N/A	1.184%	N/A	N/A	1.145%	N/A
After Statutory State-Paid Local Adjustments and Prior to Lottery Enterprise Contribution Offset						
Normal Cost Contribution Rate	28.391%	11.361%	13.369%	26.814%	11.535%	13.428%
UAL Contribution Rate ²	<u>99.130%</u>	<u>24.473%</u>	<u>33.276%</u>	<u>94.216%</u>	<u>23.877%</u>	<u>32.592%</u>
Total Pension Contribution Rate	127.521%	35.834%	46.645%	121.031%	35.412%	46.021%
Non-Contributory Group Insurance Premium Rate	N/A	1.184%	N/A	N/A	1.145%	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 2: Actuarial Valuation Results

	July 1, 2023 Fiscal Year Ending 2025 Payment		July 1, 2022 Fiscal Year Ending 2024 Payment	
	State	Local	State	Local
Normal Cost Contribution Rate¹				
Basic Allowances	11.297%	11.361%	11.552%	11.535%
Chapter 247, P.L. 1993				
PERS Local normal rate for individuals without past service	N/A	16.863%	N/A	16.370%
PERS Local normal rate for individuals with past service	N/A	3.125%	N/A	2.606%
Portion of Municipalities and Local Group costs payable by the State	0.007%	N/A	0.007%	N/A
Chapter 428, P.L. 1999	3.094%	N/A	1.900%	N/A
Chapter 109, P.L. 1979	9.982%	N/A	9.499%	N/A
Chapter 511, P.L. 1991	4.010%	N/A	3.855%	N/A
UAL Contribution Rate^{1,2}				
Basic Allowances	63.068%	24.456%	59.452%	23.860%
Chapter 204, P.L. 1989 ³	--	--	--	--
Chapter 247, P.L. 1993	1.986%	N/A	1.947%	N/A
Chapter 428, P.L. 1999 ⁴	16.743%	N/A	15.995%	N/A
Chapter 109, P.L. 1979	11.244%	N/A	10.913%	N/A
Chapter 511, P.L. 1991	6.075%	N/A	5.895%	N/A
Non-Contributory Group Insurance Premium Rate	N/A	1.184%	N/A	1.145%

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 2: Actuarial Valuation Results

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, 2023 Fiscal Year Ending 2025		July 1, 2022 Fiscal Year Ending 2024	
		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	9	\$2,121	10
00323	Dept Division of Human Resources	68,128	9	68,128	10
00498	Rutgers Biomedical	<u>3,564</u>	9	<u>3,564</u>	10
	Total	\$73,812		\$73,812	
Municipalities and Local Groups					
21202	Camden City	\$89,552	9	\$89,552	10
39300	Belmar Borough	11,979	9	11,979	10
46800	Roxbury Township	22,670	9	22,670	10
49700	Wes Windsor Township	33,627	9	33,627	10
57700	Sea Isle City	6,084	9	6,084	10
62400	NJ Institute of Technology	97,015	9	97,015	10
62500	Brookdale Community College	105,421	9	105,421	10
62700	Essex County College	31,682	9	31,682	10
75000	Lakewood Twp Fire District #1	16,825	9	16,825	10
75700	Middlesex County College	117,181	9	117,181	10
76200	Lower Camden Co Reg HS District #1	2,530	9	2,530	10
77500	Hopewell Twp Fire District #1	10,427	9	10,427	10
78600	South Jersey Transit Authority	51,174	9	51,174	10
78700	Washington Twp Bd of Fire Comm	17,901	9	17,901	10
79600	Upper Freehold Township	<u>1,088</u>	9	<u>1,088</u>	10
	Total	\$615,155		\$615,155	

Section 2: Actuarial Valuation Results

Fiscal Year Ending 2025 Contributions for State College Locations

Location Number	Location Name	Number of Members	2023 Appropriation Payroll	Normal Cost Contribution	UAL Contribution	Net FYE 2025 Pension Contribution ¹
00410	Rowan University	32	\$2,442,023	\$693,299	\$2,420,426	\$3,113,725
00412	Kean University	13	992,795	281,858	984,015	1,265,873
00413	William Paterson University of NJ	18	1,351,162	383,600	1,339,212	1,722,812
00414	Montclair State University	28	2,371,496	673,276	2,350,523	3,023,799
00415	The College of New Jersey	12	954,989	271,125	946,543	1,217,668
00421	Stockton University	13	799,764	227,056	792,691	1,019,747
00498	Rutgers University	120	10,707,810	3,039,985	10,616,675	13,656,660
62400	NJ Institute of Technology	19	<u>1,701,032</u>	<u>482,929</u>	<u>1,783,003</u>	<u>2,265,932</u>
	Total	255	\$21,321,071	\$6,053,127	\$21,233,089	\$27,286,216

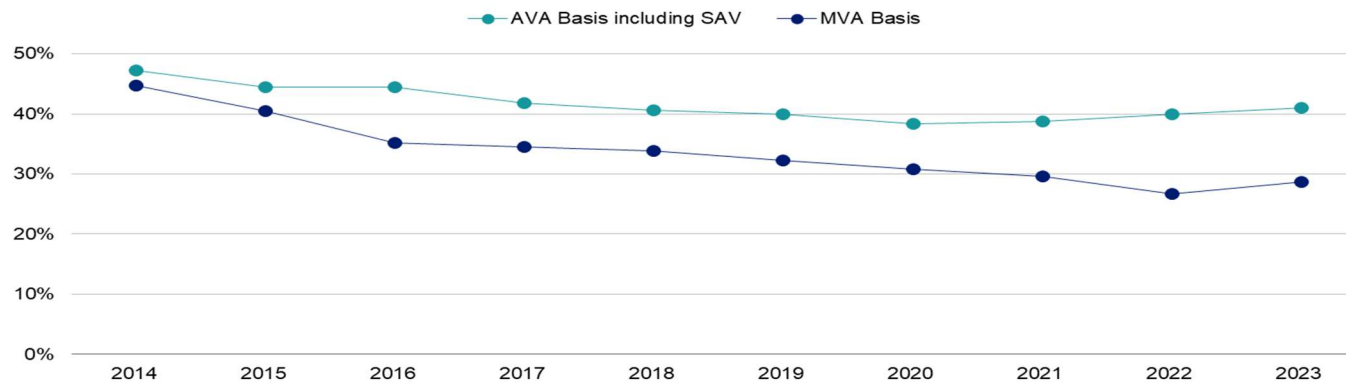
¹ The lottery enterprise contribution is no longer used to offset the pension contribution.

Section 2: Actuarial Valuation Results

Schedule of State Funding Progress through June 30, 2023

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)
07/01/2014	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%
07/01/2023	2,421,317,571	6,260,596,099	3,839,278,528	38.68%	499,740,835	768.25%

State Funded Ratio History for Years Ended June 30, 2014 – 2023



¹ Including receivables but excluding SAV

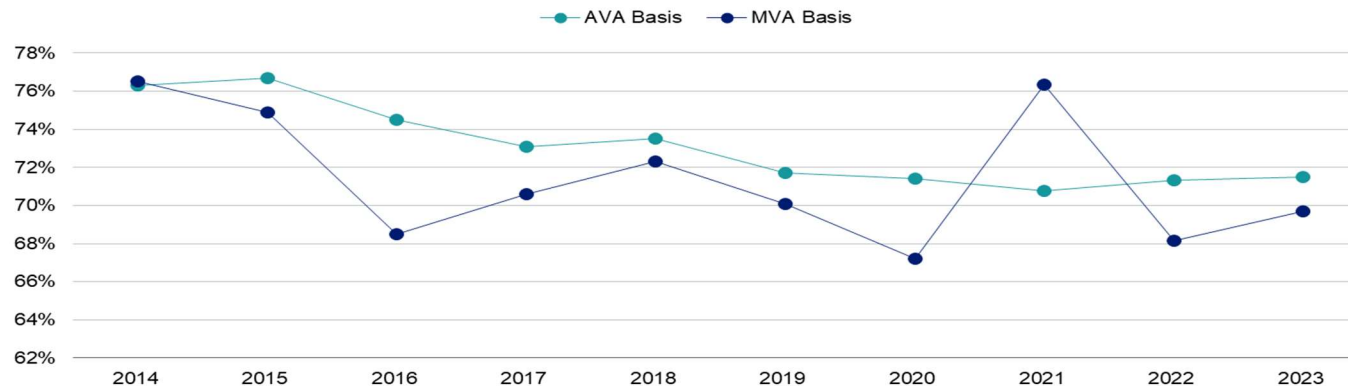
² Includes non-contributing actives prior to July 1, 2018

Section 2: Actuarial Valuation Results

Schedule of Local Employers' Funding Progress through June 30, 2023

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)
07/01/2014	\$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%
07/01/2023	31,560,308,528	44,152,885,138	12,592,576,610	71.48%	3,738,600,013	336.83%

Local Employers' Funded Ratio History for Years Ended June 30, 2014 – 2023



¹ Including receivables but excluding SAV

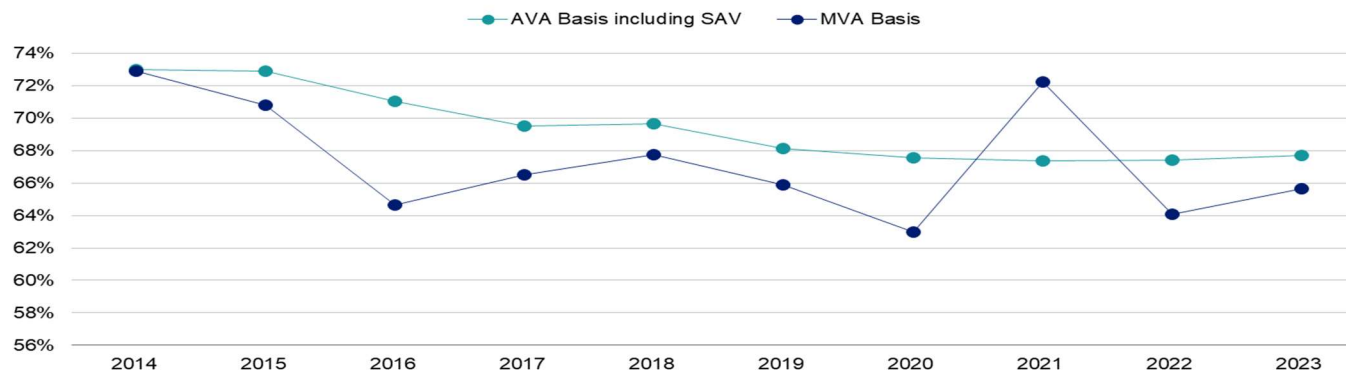
² Includes non-contributing actives prior to July 1, 2018

Section 2: Actuarial Valuation Results

Schedule of Total funding progress through June 30, 2023

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)
07/01/2014	\$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%
07/01/2023	\$33,981,626,099	\$50,413,481,237	\$16,431,855,138	67.41%	\$4,238,340,848	387.70%

Total Funded Ratio History for Years Ended June 30, 2014 – 2023



¹ Including receivables but excluding SAV

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

Section 2: Actuarial Valuation Results

History of Employer Contributions

History of State Employer Contributions:¹ 2014 – 2023

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
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	608,900,926	118.35%	610,150,000	118.40%	14,040,000	102.5%
2024 ²	623,726,111	124.81%	623,726,711	124.81%	13,387,843	102.1%

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

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

Section 2: Actuarial Valuation Results

History of Local Employers' Contributions¹: 2014 – 2023

Fiscal Year Ended June 30	Actuarially Determined Employer Contribution (ADC)		Actual Employer Contribution		
	Amount	Percentage of Payroll	Amount	Percentage of Payroll	Percent Contributed
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%
2024	1,290,383,051	35.51%	1,290,383,051	35.51%	100.00%

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

Section 2: Actuarial Valuation Results

Low-Default-Risk Obligation Measure (LDRM)

In December 2021, the Actuarial Standards Board issued a revision of Actuarial Standard of Practice No. 4 (ASOP 4) *Measuring Pension Obligations and Determining Pension Plan Costs or Contributions*. One of the revisions to ASOP 4 requires the disclosure of a Low-Default-Risk Obligation Measure (LDRM) when performing a funding valuation. The LDRM presented in this report is calculated using the same methodology and assumptions used to determine the Actuarial Accrued Liability (AAL) used for funding, except for the discount rate. The LDRM is required to be calculated using “a discount rate...derived from low-default-risk fixed income securities whose cash flows are reasonably consistent with the pattern of benefits expected to be paid in the future.”

The LDRM is a calculation assuming a plan’s assets are invested in an all-bond portfolio, generally lowering expected long-term investment returns. The discount rate selected and used for this purpose is the Bond Buyer General Obligation 20-year Municipal Bond Index Rate, published at the end of each week. The last published rate in June of the measurement period is 3.65% for use effective June 30, 2023. This is the rate used to determine the discount rate for valuing reported public pension plan liabilities in accordance with Governmental Accounting Standards when plan assets are projected to be insufficient to make projected benefit payments, and the 20-year period reasonably approximates the duration of such plans. The LDRM is not used to determine the system’s funded status or Statutory Pension Contribution. The system’s expected return on assets, currently 7.00%, is used for these calculations.

As of June 30, 2023, the LDRM for the system is \$79,285,172,881. The difference between the plan’s AAL of \$50,413,481,237 and the LDRM can be thought of as the increase in the AAL if the entire portfolio were invested in low-default-risk securities. Alternatively, this difference could also be viewed as representing the expected savings from investing in the plan’s diversified portfolio compared to investing only in low-default-risk securities.

ASOP 4 requires commentary to help the intended user understand the significance of the LDRM with respect to the funded status of the plan, plan contributions, and the security of participant benefits. In general, if plan assets were invested exclusively in low-default-risk securities, the funded status would be lower, and the Statutory Pension Contribution would be higher. While investing in a portfolio with low-default-risk securities may be more likely to reduce investment volatility and the volatility of employer contributions, it also may be more likely to result in higher employer contributions or lower benefits.

Section 2: Actuarial Valuation Results

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 System's future financial condition but have included a brief discussion of some risks that may affect the System.

- Economic and Other Related Risks. Potential implications for the System 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)

The market value rate of return over the last 10 years has ranged from a low of -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 the statutory pension contribution)

The System's funding policy requires payment of the Statutory Pension Contribution. As long as this policy is adhered to, contribution risk is minimized. However, as noted earlier in the report, the funding policy as defined in the Statute may result in the unfunded liability being paid off over a longer period of time.

- 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.

Section 2: Actuarial Valuation Results

- There are external factors including legislative or financial reporting changes that could impact the System's funding and disclosure requirements. While we do not assume any changes in such external factors, it is important to understand that they could have significant consequences for the System.

- Actuarial experience over the last ten year's:

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

- The funded percentage for the System has ranged from a high of 72.62% on July 1, 2014 to a low of 66.52% on July 1, 2021

- 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 System's asset allocation is aligned to meet emerging pension liabilities.

- Detailed Risk Assessment

Although projections are provided in this report, we recommend a more detailed assessment of the risks to provide the Board with a better understanding of the risks inherent in the System. This assessment may include scenario testing, sensitivity testing, stress testing, and stochastic modeling.

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

- The outlook for financial markets is uncertain.
- Relatively small changes in investment performance can produce large swings in the unfunded liabilities.
- Retired participants account for most of the System's liabilities, leaving limited options for reducing plan costs in the event of adverse experience.

Section 2: Actuarial Valuation Results

Projections

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 Treasurer 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 2023 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 2023 valuation data (increased 3.25% each future year)

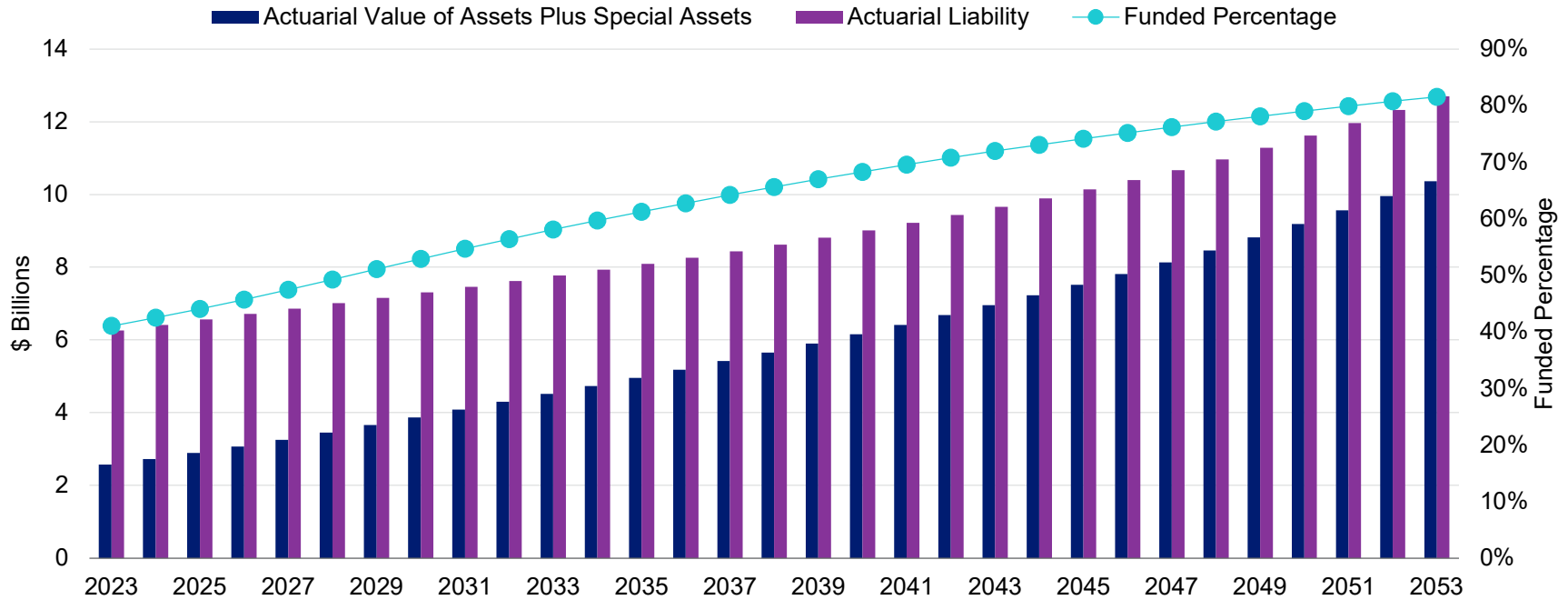
For both the State and Local portions of the system the funded percentage is projected to increase each year in the future. The State portion is projected to reach 80% funded in 2051 and Local portion is projected to reach 80% funded in 2035. Neither the State nor the Local Employer portions of the System are projected to reach 100% funded over the next 30 years.

For the State plan, the statutory contribution is projected to increase to \$422.7 million in year ended June 30, 2030 before ultimately decreasing and leveling off at approximately \$390 million. For the Local Employer plan, the aggregate employer statutory contribution (including both contributions payable by the State and Local Employers) is projected to gradually increase over the next thirty years to a high of \$2.0 billion in 2055.

Additional scenarios would highlight the sensitivity of these variables to the risks mentioned above.

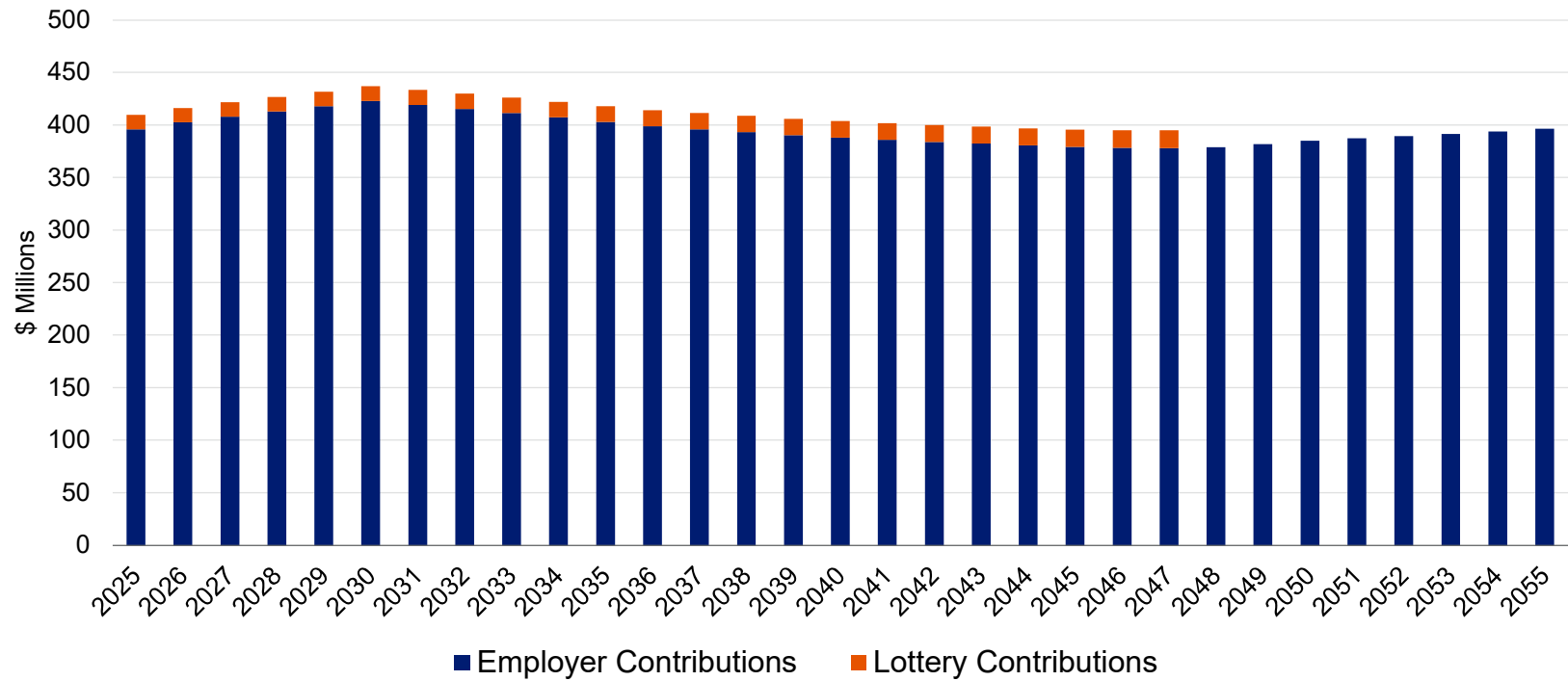
Section 2: Actuarial Valuation Results

Projection of Funded Percentage for State Plan



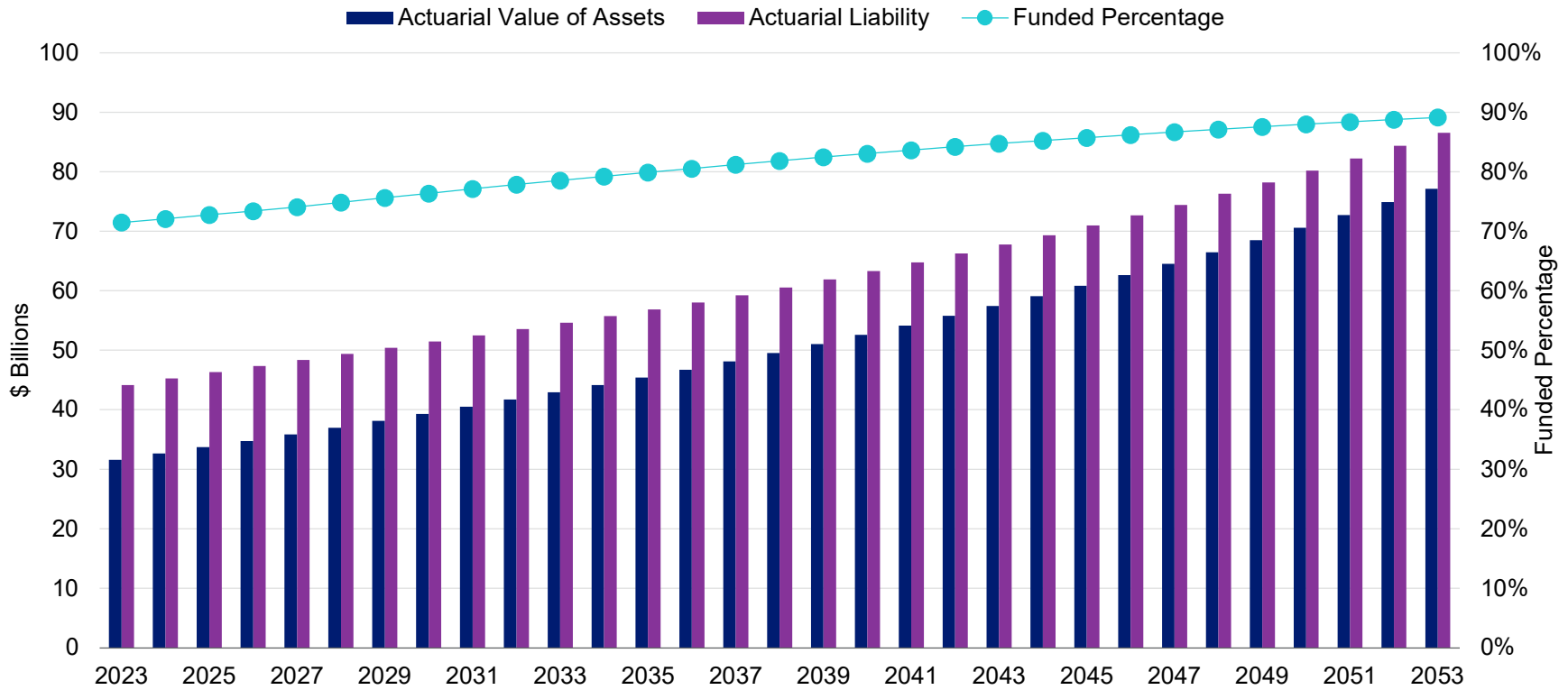
Projected Aggregate Employer Contributions and Lottery Revenue for the State Plan

Section 2: Actuarial Valuation Results



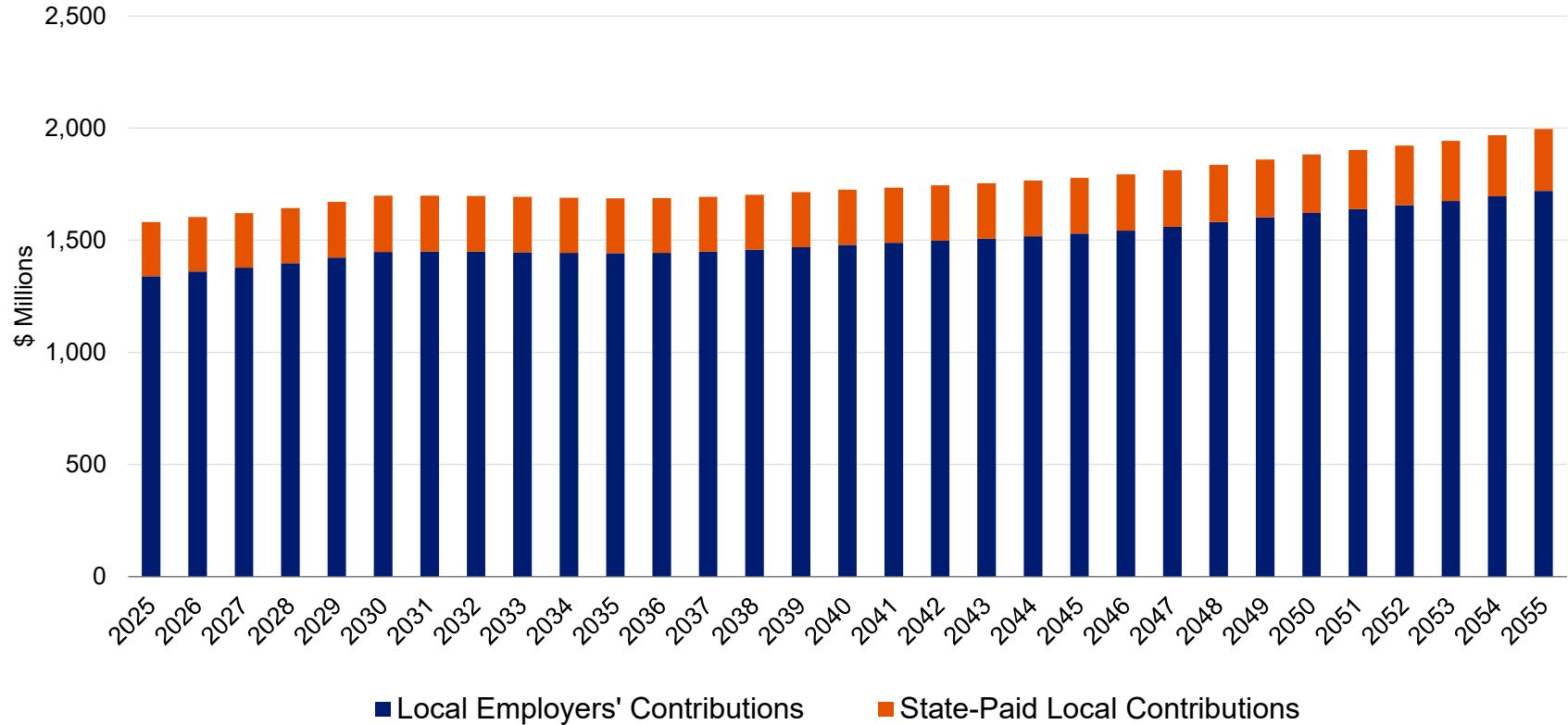
Section 2: Actuarial Valuation Results

Projection of Funded Percentage for the Local Employer Plan



Section 2: Actuarial Valuation Results

Projected Aggregate Employer Contributions for the Local Employer Plan



Section 2: Actuarial Valuation Results

GFOA Funded Liability by Type

The Actuarial Accrued Liability represents the present value of benefits earned, calculated using the System'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

	2023	2022
Actuarial accrued liability (AAL)		
Active member contributions ¹	\$524,847,464	\$541,989,022
Retirees and beneficiaries	4,368,805,767	4,110,333,413
Active and inactive members (employer-financed)	<u>1,366,942,868</u>	<u>1,403,364,460</u>
Total	\$6,260,596,099	\$6,055,686,895
Actuarial value of assets	2,421,317,571	2,267,954,515
Cumulative portion of AAL covered		
Active member contributions	100.00%	100.00%
Retirees and beneficiaries	43.41%	41.99%
Active and inactive members (employer-financed)	0.00%	0.00%

¹ Includes contributing and non-contributing actives

Section 2: Actuarial Valuation Results

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

	2023	2022
Actuarial accrued liability (AAL)		
Active member contributions ¹	\$3,667,556,030	\$3,628,536,483
Retirees and beneficiaries	30,082,691,090	28,799,488,818
Active and inactive members (employer-financed)	<u>10,402,638,018</u>	<u>10,262,916,115</u>
Total	\$44,152,885,138	\$42,690,941,416
Actuarial value of assets	31,560,308,528	30,451,072,277
Cumulative portion of AAL covered		
Active member contributions	100.00%	100.00%
Retirees and beneficiaries	92.72%	93.14%
Active and inactive members (employer-financed)	0.00%	0.00%

¹ Includes contributing and non-contributing actives

Section 2: Actuarial Valuation Results

Actuarial Balance Sheet

An overview of the System'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 System 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 System.

Second, this liability is compared to the assets. The "assets" for this purpose include the net amount of assets already accumulated by the System, 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 2: Actuarial Valuation Results

Actuarial Balance Sheet as of July 1, 2023

	State	Local Employers	Total
Liabilities			
• Payable from Retirement Fund Reserve (RFR) ¹	\$4,368,805,767	\$30,082,691,090 ²	\$34,451,496,857
• Payable from Members' Contributions Reserve (MCR) and Employers' Contributions Reserve (ECR) ³	1,891,790,332	14,070,194,048	15,961,984,380
Total liabilities	\$6,260,596,099	\$44,152,885,138	\$50,413,481,237
Assets			
Retirement Fund Reserve			
• Credited to Fund with Distribution of Income	\$4,168,053,435	\$30,006,519,653	\$34,174,573,088
• Add/(Deduct) reserve transferable from/(to) ECR ⁴	<u>200,752,332</u>	<u>76,171,437</u>	<u>276,933,769</u>
• Adjusted RFR	\$4,368,805,767	\$30,082,691,090	\$34,451,496,857
Members' Contributions Reserve ⁵	\$467,389,554	\$3,696,907,963	\$4,164,297,517
Employers' Contributions Reserve			
• Credited to Fund with Distribution of Income	(\$2,214,115,418)	(\$2,143,119,088)	(\$4,357,234,519)
• Add/(Deduct) reserve transferable from/(to) RFR	<u>(200,752,332)</u>	<u>(76,171,437)</u>	<u>(276,933,769)</u>
• Adjusted ECR ⁵	(\$2,414,877,750)	(\$2,219,290,525)	(\$4,634,168,275)
Special Asset Value as of July 1, 2023	\$148,573,587	\$0	\$148,573,587
Present Value of Prospective Contributions by State and Local employers to ECR	\$3,690,704,941	\$12,592,576,610	\$16,283,281,551
Total of current and future assets	\$6,260,596,099	\$44,152,885,138	\$50,413,481,237

¹ Retirees, disableds, and beneficiaries currently receiving benefits

² Includes the present value of ERI payments of \$2,763,561

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 2: Actuarial Valuation Results

Active Liability by Type

The tables on the following pages show the demographics, normal cost and actuarial liability by tier for contributing and non-contributing active members, respectively, for State and Local employers as of July 1, 2023

Contributing Actives by Tier

	Number of Members	Appropriation Payroll ¹	Average Age	Average Years of Service	Average Salary	Actuarial Liability	Gross Normal Cost
State							
• Tier 1	2,814	\$292,510,116	47.3	20.1	\$103,948	\$1,485,107,630	\$68,967,537
• Tier 2	204	19,808,003	39.7	12.6	97,098	49,070,953	3,858,579
• Tier 3	<u>2,484</u>	<u>187,422,716</u>	33.7	6.7	75,452	<u>257,654,251</u>	<u>36,727,548</u>
Total	5,502	\$499,740,835	40.9	13.8	90,829	\$1,791,832,834	\$109,553,664
Local							
• Tier 1	15,828	\$2,175,745,704	46.8	20.8	\$137,462	\$11,524,678,384	\$505,421,616
• Tier 2	478	57,957,820	38.8	12.8	121,251	148,002,553	11,412,793
• Tier 3	<u>17,748</u>	<u>1,504,896,489</u>	32.8	6.2	84,792	<u>2,058,429,720</u>	<u>300,459,269</u>
Total	34,054	\$3,738,600,013	39.4	13.1	109,784	\$13,731,110,657	\$817,293,678

¹ Excludes pay for members who attain the mandatory retirement age of 65 prior to midyear for State (Pay is included for certain members working 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 2: Actuarial Valuation Results

Non-Contributing Actives by Tier

	Number of Members	Last Reported Payroll	Average Age	Average Years of Service	Average Last Reported Salary	Actuarial Liability	Gross Normal Cost
State							
• Tier 1	255	\$19,254,955	51.9	16.0	\$75,510	\$82,292,884	\$0
• Tier 2	14	1,185,921	40.6	10.4	84,709	2,396,603	0
• Tier 3	<u>239</u>	<u>14,426,396</u>	31.9	4.1	60,361	<u>13,085,895</u>	<u>0</u>
Total	508	\$34,867,272	42.1	10.3	68,636	\$97,775,382	\$0
Local							
• Tier 1	776	\$69,013,252	51.4	15.7	\$88,934	\$282,215,204	\$0
• Tier 2	23	2,372,216	40.4	10.9	103,140	4,950,503	0
• Tier 3	<u>588</u>	<u>38,628,568</u>	32.1	4.2	65,695	<u>38,025,174</u>	<u>0</u>
Total	1,387	\$110,014,036	43.0	10.8	79,318	\$325,190,881	\$0

Section 3: Supplemental Information

Exhibit A: Table of Plan Demographics for State

Category	Year Ended June 30		Change From Prior Year
	2023	2022	
Contributing Active¹ participants in valuation:			
• Number	5,502	5,887	-6.5%
• Average age	40.9	40.6	0.3
• Average years of service	13.8	13.5	0.3
• Projected total payroll for police	\$496,719,064	\$512,070,814	-3.0%
• Projected average payroll for police	\$90,958	\$87,700	3.7%
• Projected total payroll for firefighters	\$3,021,771	\$3,274,790	-7.7%
• Projected average payroll for firefighters	\$73,702	\$69,676	5.8%
Non-Contributing Active¹ Participants	508	584	-13.0%
Inactive Vested participants	9	8	12.5%
• Average monthly benefit	\$1,841	\$1,701	8.2%
Retired participants:			
• Number in pay status	5,569	5,299	5.1%
• Average age	63.7	63.7	0.0
• Average monthly benefit	\$4,621	\$4,539	1.8%
Ordinary Disabled participants:			
• Number in pay status	720	725	-0.7%
• Average age	60.3	59.3	0.5
• Average monthly benefit	\$2,381	\$2,361	0.8%
Accidental Disabled participants:			
• Number in pay status	394	380	3.7%
• Average age	55.6	54.4	0.7
• Average monthly benefit	\$3,895	\$3,865	0.8%
Beneficiaries:			
• Number in pay status	1,002	959	4.5%
• Average age	68.6	67.7	0.9
• Average monthly benefit	\$2,860	\$2,818	1.5%

¹ See Section 2 for Tier breakouts for active demographics

Section 3: Supplemental Information

Exhibit B: Table of Plan Demographics for Local Employers

Category	Year Ended June 30		Change From Prior Year
	2023	2022	
Contributing Active¹ participants in valuation:			
• Number	34,054	34,004	0.1%
• Average age	39.4	39.6	-0.2
• Average years of service	13.1	13.3	-0.2
• Projected total payroll for police	\$3,000,087,277	\$2,929,887,536	2.4%
• Projected average payroll for police	\$110,010	\$107,298	2.5%
• Projected total payroll for firefighters	\$738,512,736	\$713,998,488	3.4%
• Projected average payroll for firefighters	\$108,877	\$106,599	2.1%
Non-Contributing Active¹ Participants	1,387	1,341	3.4%
Inactive Vested participants	57	52	9.6%
• Average monthly benefit	\$2,111	\$2,117	-0.3%
Retired participants:			
• Number in pay status	30,036	29,241	2.7%
• Average age	65.8	65.6	0.2
• Average monthly benefit	\$6,072	\$5,953	2.0%
Ordinary Disabled participants:			
• Number in pay status	2,306	2,296	0.4%
• Average age	59.5	57.7	1.3
• Average monthly benefit	\$2,826	\$2,780	1.7%
Accidental Disabled participants:			
• Number in pay status	2,820	2,730	3.3%
• Average age	57.1	55.2	1.4
• Average monthly benefit	\$4,815	\$4,705	2.3%
Beneficiaries:			
• Number in pay status	7,262	7,123	2.0%
• Average age	73.9	73.6	0.3
• Average monthly benefit	\$3,069	\$2,995	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, 2023 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	80	78	2	--	--	--	--	--	--	--
	\$52,836	\$52,368	\$71,078	--	--	--	--	--	--	--
25 - 29	509	322	187	--	--	--	--	--	--	--
	64,941	59,807	73,781	--	--	--	--	--	--	--
30 - 34	959	237	576	146	--	--	--	--	--	--
	76,116	62,632	78,216	\$89,722	--	--	--	--	--	--
35 - 39	1,041	102	335	412	187	4	1	--	--	--
	87,293	61,671	79,918	94,029	\$99,580	\$94,328	--	--	--	--
40 - 44	1,032	13	127	231	469	189	3	--	--	--
	98,802	63,740	81,380	96,327	102,616	106,103	\$122,708	--	--	--
45 - 49	955	--	14	92	315	491	43	--	--	--
	105,026	--	89,134	97,701	102,352	107,288	119,634	--	--	--
50 - 54	679	--	--	10	153	416	89	11	--	--
	104,080	--	--	100,321	101,524	103,975	108,783	\$108,960	--	--
55 - 59	222	--	--	1	13	163	32	10	3	--
	103,762	--	--	--	97,400	103,996	104,907	105,462	\$102,119	--
60 - 64	25	--	--	--	--	4	11	5	4	1
	104,916	--	--	--	--	105,307	107,013	109,623	94,231	--
Total	5,502	752	1,241	892	1,137	1,267	179	26	7	1
	\$90,829	\$60,246	\$78,443	\$94,375	\$101,837	\$105,553	\$110,603	\$107,742	\$97,611	--

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, 2023 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	906	893	13	--	--	--	--	--	--	--
	\$55,297	\$55,051	\$72,218	--	--	--	--	--	--	--
25 - 29	4,575	3,304	1,263	8	--	--	--	--	--	--
	68,223	62,647	82,665	\$90,854	--	--	--	--	--	--
30 - 34	6,797	1,880	4,089	818	10	--	--	--	--	--
	87,668	64,902	93,249	111,783	\$112,690	--	--	--	--	--
35 - 39	6,467	607	2,086	2,349	1,385	40	--	--	--	--
	108,405	64,917	97,160	118,303	126,931	\$132,025	--	--	--	--
40 - 44	5,768	76	638	975	2,778	1,293	8	--	--	--
	126,349	74,158	99,923	115,445	131,130	140,156	\$167,182	--	--	--
45 - 49	4,633	--	103	308	1,314	2,434	471	3	--	--
	137,529	--	104,747	115,961	128,630	142,070	159,983	\$165,855	--	--
50 - 54	3,389	1	1	37	658	1,529	1,002	156	5	--
	142,837	--	--	117,909	123,447	138,569	158,675	170,647	\$163,326	--
55 - 59	1,240	1	1	1	46	511	405	202	72	1
	148,835	--	--	--	132,759	135,460	153,037	168,150	177,524	--
60 - 64	276	--	--	1	2	47	77	44	76	29
	160,569	--	--	--	108,152	135,393	149,981	163,238	177,912	\$183,613
65 - 69	3	--	--	--	--	--	--	--	2	1
	182,072	--	--	--	--	--	--	--	208,858	--
Total	34,054	6,762	8,194	4,497	6,193	5,854	1,963	405	155	31
	\$109,784	\$62,618	\$93,240	\$116,296	\$128,819	\$140,034	\$157,519	\$168,561	\$177,661	\$181,696

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, 2022	39,891	1,925	60	34,540	6,131	8,085	90,632
• New or previously unreported participants	1,995	67	0	1	0	150	2,213
• Terminations – with vested rights	(3)	(15)	18	N/A	N/A	N/A	0
• Terminations – without vested rights	(140)	(222)	0	N/A	N/A	N/A	(362)
• Retirements	(1,757)	(37)	(11)	1,805	0	N/A	0
• New disabilities	(103)	(116)	0	(11)	230	N/A	0
• Return to work	0	0	0	0	0	N/A	0
• Died with beneficiary	(14)	(5)	0	(386)	(60)	400	0
• Died without beneficiary	(6)	(9)	(1)	(345)	(61)	(368)	(822)
• Active started contributing	342	(342)	N/A	N/A	N/A	N/A	0
• Active stopped contributing	(649)	649	N/A	N/A	N/A	N/A	0
• Certain period expired	N/A	N/A	0	0	0	(33)	(36)
• Data adjustments	0	0	0	0	0	0	0
Number as of July 1, 2023	39,556	1,895	66	35,605	6,240	8,264	91,626

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 are warranted at this time.	
Net Investment Return:	7.00%. The net investment return assumption is chosen based on direction from the Treasurer and as adopted by the Board of Trustees.	
Salary Increases:	Years since Hire	Rate (%)
	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	
Cost-of-Living Adjustments:	No future COLAs are assumed. COLAs earned prior to the valuation date are included in the valuation data.	

Section 4: Actuarial Valuation Basis

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-2021

Termination Rates Before Retirement:

Years since Hire	Withdrawal Rate ¹
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.

Age	Ordinary Disability ²	Accidental Disability
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 (10% retirement at first eligibility for early retirement window and 5% each year thereafter until window closes) or delayed mandatory retirement available to certain chiefs under Chapter 9, P.L. 2022 (70% of contributing actives from Local employers' projected to reach mandatory retirement age by closing of window and all contributing actives from local employers at or over mandatory retirement age at valuation date assumed to defer retirement to age 68)

Section 4: Actuarial Valuation Basis

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, 2023 actuarial valuation.
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

Section 4: Actuarial Valuation Basis

Contribution Timing

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.

Local employers' contributions are expected to be paid on April 1st, 21 months after the valuation date.

Member's contributions and lottery revenue are expected to be received monthly

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.

Models

Segal valuation results are based on proprietary actuarial modeling software. The actuarial valuation models generate a comprehensive set of liability and cost calculations that are presented to meet regulatory, legislative and client requirements. Deterministic cost projections are based on a proprietary forecasting model. Our Actuarial Technology and Systems unit, comprised of both actuaries and programmers, is responsible for the initial development and maintenance of these models. The models have a modular structure that allows for a high degree of accuracy, flexibility and user control. The client team programs the assumptions and the plan provisions, validates the models, and reviews test lives and results, under the supervision of the responsible actuary.

Section 4: Actuarial Valuation Basis

Exhibit II: Summary of Plan Provisions

This exhibit summarizes the major provisions of the System 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
Dependent Children and Parents	Parents receiving at least one-half support from member in the year preceding death or accident that led to death in the case of accidental death benefit and children who meet any one of the four following conditions: <ol style="list-style-type: none">1. Under the age of 182. 18 years of age or older and enrolled in high school3. Any age and, at the time of member's death, is disabled because of mental or physical incapacity and is incapable of substantial future gainful employment because of the impairment. Incapacity must last or be expected to last for a continuous period of not less than 12 months as determined by the Medical Review board4. In the case of an accidental death benefit, unmarried and under the age of 24 if enrolled in college in a degree program for at least 12 hours per semester
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

Section 4: Actuarial Valuation Basis

	<ul style="list-style-type: none"> 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 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

Section 4: Actuarial Valuation Basis

	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 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:	<p>The following plan provision changes are reflected in this valuation:</p> <ul style="list-style-type: none">• Senate Bill No. 3090 revises the latest date that eligible participants may retire under the early retirement window provided by Chapter 52, P.L. 2021 from April 30, 2023 to April 30, 2026.

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

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.

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.

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.

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.

Section 5 lists all applicable locations and summarizes the contribution requirements under Chapter 59, Chapter 126 and Chapter 130.

Chapter 109, P.L. 1979

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.

Chapter 204, P.L. 1989

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.

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.

Chapter 511, P.L. 1991

Chapter 511 provided the following additional benefits:

- 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.

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.

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, 2023 excludes expected payments for 2024 fiscal year.

Location	Location Name	Fiscal Year 2025 Payment	Present Value as of 7/1/2023
22100	East Rutherford Borough	\$93,584	\$639,718
25500	Glen Ridge Borough	67,291	459,993
34600	Wallington Borough	43,995	300,745
38800	Phillipsburg Town	13,170	90,024
43400	Bound Brook Borough	39,106	267,305
54400	Linwood City	61,315	419,146
57100	Mine Hill Township	21,376	146,126
61200	Raritan Township	64,441	440,504
	Total	\$404,278	\$2,763,561

Section 5: Additional Required Exhibits

Exhibit 2: Recent ERI Legislation Contribution Schedules

The liability associated with Chapter 126, P.L. 2000, which was the only remaining contribution schedule under this exhibit, has been fully amortized as of July 1, 2023.

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, 2023 excludes expected payments for 2024 fiscal year.

Location	Location Name	Fiscal Year 2025 Payment	Present Value as of 7/1/2023
20300	Bayonne City	\$621,361	\$1,067,846
20400	Salem City	24,524	42,146
20600	Plainfield City	355,378	610,740
21001	Elizabeth City	496,434	853,151
21002	Elizabeth City	355,368	610,722
21101	Newark City	1,854,535	3,187,132
21102	Newark City	905,520	1,556,192
21202	Camden City	308,362	529,940
21300	North Plainfield Borough	110,751	190,332
21600	Somerville Borough	43,829	75,323
21800	Roselle Borough	142,627	245,113
22000	Freehold Borough	52,899	90,910
22400	Union City	301,677	518,451
22501	Passaic City	269,143	462,538
22502	Passaic City	178,575	306,892
22800	Metuchen Borough	38,784	66,653
23000	West New York Town	175,121	300,956
23200	Oradell Borough	34,759	59,736
23301	Hoboken City	219,049	376,449
23302	Hoboken City	210,687	362,078
23400	Audubon Borough	25,347	43,560
23800	East Orange City	546,155	938,602
23900	Maplewood Township	157,733	271,073
24100	Hightstown Borough	19,932	34,254
24200	West Milford Township	79,838	137,206

Section 5: Additional Required Exhibits

Location	Location Name	Fiscal Year 2025 Payment	Present Value as of 7/1/2023
24400	Saddle Brook Township	67,193	115,475
24500	Perth Amboy City	272,024	467,490
24600	Secaucus Town	103,706	178,224
24800	Lyndhurst Township	89,633	154,040
24900	Orange City	251,038	431,424
25500	Glen Ridge Borough	37,019	63,619
25600	Guttenberg Town	30,564	52,527
25801	Collingswood Borough	43,655	75,023
25802	Collingswood Borough	18,709	32,153
26100	Dunellen Borough	18,701	32,139
26600	Fairview Borough	53,267	91,542
26700	Keansburg Borough	44,516	76,503
27300	New Milford Borough	57,552	98,906
27400	Paramus Borough	186,182	319,965
27600	South Amboy City	37,672	64,742
27700	Weehawken Township	91,504	157,256
28000	Hackensack City	386,566	664,337
28500	Penns Grove Borough	18,683	32,108
28600	Matawan Borough	33,507	57,584
28700	Cedar Grove Township	50,836	87,365
28900	Bogota Borough	21,610	37,137
29100	Irvington Township	449,424	772,362
29200	Cinnaminson Township	64,252	110,421
29500	Little Ferry Borough	28,811	49,514
29700	Garwood Borough	23,209	39,885
30701	Paterson City	486,538	836,145
30702	Paterson City	385,016	661,674
30801	Atlantic City	477,064	819,864
30802	Atlantic City	353,624	607,725
31100	Fanwood Borough	28,251	48,550
31300	East Hanover Township	61,921	106,415

Section 5: Additional Required Exhibits

Location	Location Name	Fiscal Year 2025 Payment	Present Value as of 7/1/2023
31600	Rutherford Borough	70,884	121,818
31800	Harrison Township	162,253	278,842
32200	Gloucester City	73,218	125,829
32600	Union Township	356,068	611,925
32700	Bloomfield Township	335,288	576,213
32900	Morristown Town	124,715	214,331
33200	Asbury Park City	186,702	320,859
33401	Trenton City	473,457	813,664
33402	Trenton City	353,538	607,577
33800	Lakewood Township	192,312	330,499
34100	Rahway City	206,673	355,181
34200	Verona Township	48,978	84,172
34301	Hillside Township	109,915	188,896
34302	Hillside Township	76,039	130,677
34600	Wallington Borough	39,794	68,389
34700	East Newark Borough	6,986	12,005
34800	Clifton City	472,102	811,336
34900	Wildwood City	79,681	136,937
35000	Palisades Park Borough	54,097	92,968
35100	Pleasantville City	160,766	276,287
35400	Belleville Township	287,071	493,350
35500	Dover Town	62,817	107,956
35600	South Orange Village	148,921	255,930
35800	Garfield City	108,128	185,824
35900	Linden City	392,406	674,374
36200	Bridgeton City	87,271	149,981
36400	Washington Borough	17,535	30,136
36700	Fairfield Township	58,535	100,595
36900	Middlesex Borough	46,844	80,504
37000	Middletown Township	168,054	288,812
37400	Maywood Borough	45,237	77,742

Section 5: Additional Required Exhibits

Location	Location Name	Fiscal Year 2025 Payment	Present Value as of 7/1/2023
38101	Jersey City	1,249,855	2,147,952
38102	Jersey City Fire Dept.	947,575	1,628,465
38500	Runnemede Borough	28,271	48,585
39500	Mountainside Borough	36,169	62,158
39900	Long Branch City	168,562	289,683
40400	Wanaque Borough	36,537	62,791
41000	Manville Borough	36,506	62,737
41400	Oceanport Borough	24,069	41,363
41500	Haworth Borough	19,424	33,381
41600	Little Falls Twp	32,698	56,193
41900	North Haledon Borough	26,041	44,752
42000	Haledon Borough	26,851	46,145
42500	Wharton Borough	30,692	52,747
43000	West Paterson Borough	39,173	67,322
43100	Ewing Township	141,666	243,462
43400	Bound Brook Borough	34,597	59,457
43500	Emerson Borough	34,187	58,752
43600	Roseland Borough	41,329	71,026
43700	Norwood Borough	23,581	40,525
43800	Prospect Park Borough	22,864	39,293
44100	Englewood Cliffs Borough	59,761	102,702
44800	Englishtown Borough	5,500	9,452
44900	Ringwood Borough	33,993	58,419
46300	Borough of Lake Como	13,913	23,910
46400	Aberdeen Township	46,986	80,748
46600	West Long Branch Borough	26,884	46,203
46700	Pt Pleasant Beach Borough	39,237	67,431
47300	Brooklawn Borough	6,106	10,493
47800	Hopatcong Borough	40,524	69,643
47900	West Deptford Township	54,548	93,744
48200	South Bound Brook Borough	19,705	33,864

Section 5: Additional Required Exhibits

Location	Location Name	Fiscal Year 2025 Payment	Present Value as of 7/1/2023
48600	Gloucester Township	152,081	261,360
48800	Upper Saddle River Boro	33,151	56,973
49100	Willingboro Township	114,638	197,013
50000	Brielle Borough	25,330	43,531
50700	South Brunswick Township	126,608	217,583
51100	Jefferson Township	58,956	101,320
51600	Wall Township	128,353	220,582
52800	Berlin Borough	23,669	40,677
53500	Winslow Township	110,155	189,308
53900	Berkeley Township Municipal Bld	123,174	211,682
54100	Mansfield Township	17,221	29,595
54300	Lebanon Township	11,636	19,996
54700	Seaside Heights Borough	32,207	55,349
54800	Manchester Township	89,649	154,068
55100	Pine Hill Borough	26,683	45,856
55300	Lindenwold Borough	56,570	97,218
55700	Bloomingtondale Borough	25,057	43,061
56000	Howell Township	156,836	269,533
56200	Plainsboro Township	58,347	100,273
56300	Marlboro Township	131,645	226,239
56500	Franklin Township	34,739	59,702
58200	Egg Harbor Township	122,052	209,753
58400	Holmdel Township	71,415	122,731
58500	Milltown Borough	22,685	38,986
58900	Buena Borough	7,054	12,123
59000	Eastampton Township	22,483	38,638
59800	Chesilhurst Borough	8,381	14,403
59900	Egg Harbor City	14,812	25,456
60000	Harrison Township	17,030	29,268
60100	Woodbury Heights Borough	7,776	13,364
60600	Waterfront Comm of NY Harbor	1,920	3,299

Section 5: Additional Required Exhibits

Location	Location Name	Fiscal Year 2025 Payment	Present Value as of 7/1/2023
61000	Somerdale Borough	14,781	25,402
61200	Raritan Township	55,205	94,872
62300	NJ Transit Corporation	266,499	457,995
63100	Allentown Borough	7,094	12,191
63300	Barnegat Township	39,203	67,372
67700	Lambertville City	9,950	17,099
68000	Lawnside Borough	7,825	13,447
68800	Mount Arlington Borough	13,794	23,706
69000	National Park Borough	4,461	7,667
70404	Camden County Regional	542,001	931,461
71600	Passaic County	898,191	1,543,596
71603	Passaic County	128,439	220,730
72000	Union County	419,267	720,535
72001	Union County	68,992	118,566
72003	Union County	322,965	555,035
72700	South Toms River Borough	7,420	12,752
73500	Union Beach Borough	12,601	21,656
74000	West Amwell Township	3,381	5,811
74100	Winfield Township	5,992	10,297
74400	Hamilton Twp Fire Comm Dist	10,326	17,746
75000	Lakewood Twp Fire District #1	5,047	8,674
75900	Gloucester Twp Fire District #2	3,430	5,894
79000	North Hudson Reg Fire & Rescue	520,379	894,303
	Total	\$25,354,273	\$43,572,865

Note: Figures may not add due to rounding

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	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	The value of the System'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 System.
Actuarially determined contribution	The employer's contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the System'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 System is calculated, including: <u>Investment return</u> - the rate of investment yield that the System 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 System 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 System 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.