

Police and Firemen's Retirement System of New Jersey

Actuarial Valuation and Review as of July 1, 2021



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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March 31, 2022

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

Dear Board Members:

We are pleased to submit this Actuarial Valuation and Review as of July 1, 2021. It summarizes the actuarial data used in the valuation, analyzes the preceding year's experience, and establishes the funding requirements for fiscal year ending June 30, 2023.

This report was prepared in accordance with generally accepted actuarial principles and practices at the request of the Board to assist in administering the Police and Firemen's Retirement System (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.

The actuarial calculations were directed under the supervision of Jonathan P. Scarpa, FSA, MAAA who is a member of the American Academy of Actuaries and meets the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein. To the best of his knowledge, the information supplied in this actuarial valuation is complete and accurate, except as noted in *Section 4*. Further, in his opinion, the assumptions as approved by the Board of Trustees are reasonably related to the experience of and the expectations for the System.

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

March 31, 2022

Sincerely,
Segal



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



Jonathan P. Scarpa, FSA, MAAA
Vice President and Consulting Actuary
Enrolled Actuary No. 20-08268

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Section 1: Actuarial Valuation Summary

Purpose and basis

This report was prepared by Segal to present a valuation of the Plan as of July 1, 2021. The valuation was performed to determine whether the assets and contributions are sufficient to provide the prescribed benefits. The measurements shown in this actuarial valuation may not be applicable for other purposes. In particular, the measures herein are not necessarily appropriate for assessing the sufficiency of plan assets to cover the estimated cost of settling the Plan's benefit obligations. Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements; and changes in plan provisions or applicable law.

The contribution requirements presented in this report are based on:

- The benefit provisions of the Pension Plan, in accordance with New Jersey Statute and as administered by the Board of Trustees;
- The characteristics of covered active participants, inactive vested participants, and retired participants and beneficiaries as of June 30, 2021, provided by the Division of Pensions and Benefits;
- The assets of the Plan as of June 30, 2021, provided by the State Treasurer;
- Economic assumptions regarding future salary increases and investment earnings;
- Other actuarial assumptions regarding employee terminations, retirement, death, etc. and
- The funding policy in accordance with New Jersey Statute.

Certain disclosure information required by GASB Statements No 67 and 68 as of July 1, 2021 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 and the principal balance. The funding policy adopted by the System meets this standard as long as both State and Local employers pay the full appropriations. Our understanding is that the State intends on paying the full appropriation for both the fiscal year ending 2022 and 2023.
2. The rate of return on the market value of assets was 24.1% for the State and 27.4% for Local employers for the Plan Year ended June 30, 2021. The return on the actuarial value of assets was 6.7% for the State and 9.7% for Local employers for the same period due to the recognition of prior years' investment gains and losses.
3. The funded ratio (the ratio of the actuarial value of assets to actuarial accrued liability) is 38.8%, compared to the prior year funded ratio of 38.3% for the State and 70.8%, compared to the prior year funded ratio of 71.4% for Local Employers. Using the market value of assets, the funded ratio is 35.5%, compared to 30.7% as of the prior valuation date for the State and 76.7%, compared to 67.2% as of the prior year for Local Employers. These measurements are not necessarily appropriate for assessing the sufficiency of the System assets to cover the estimated cost of settling the System's benefit obligation or the need for or the amount of future contributions.
4. The actuarially determined contribution (ADC) for the upcoming year is \$608.9 million for the State and \$1,262.5 million for Local employers, after State-paid Local cost shifting, both of which are higher than in the prior year. This increase is primarily due to a decrease in the net investment return assumption.
5. On advisement from the Chief Financial Officer and adopted by the Board of Trustees, the net investment return assumption was decreased from 7.30% to 7.00% with this valuation. The impact of this change was a 1% decrease in the funded percentage based on the market value of assets for the State portion and just over 2% for the Local portion. Given the low fixed income interest rate environment, target asset allocation and expectations of future investment returns for various classes, we advise the Board to continue to monitor actual and anticipated investment returns relative to the assumed long-term rate of return on investments of 7.00%.
6. This valuation reflects the early retirement window provided under Chapter 52, P.L. 2021 and enhancements to the pre-retirement accidental death benefit made by the Dominick Marino PFRS Enhanced Benefits for Surviving Spouses Act. These plan changes caused a relatively small increase in the unfunded actuarial accrued liability.

Section 1: Actuarial Valuation Summary

7. It is important to note that this actuarial valuation is based on plan assets as of June 30, 2021. The Plan's funded status does not reflect short-term fluctuations of the market, but rather is based on the market values on the last day of the plan year. Moreover, this actuarial valuation does not include any possible short-term or long-term impacts on mortality of the covered population that may emerge after June 30, 2021. While it is impossible to determine how the pandemic will affect market conditions and other demographic experience of the Plan in future valuations, Segal is available to prepare projections of potential outcomes upon request.
8. Since the actuarial valuation results are dependent on a given set of assumptions, there is a risk that emerging results may differ significantly as actual experience proves to be different from the assumptions. We will provide a robust discussion of the Plan's risks separately and have included a brief discussion of some risks that may affect the System and a baseline projection of the System's funding status and future contribution requirements in *Section 2*. A more detailed assessment would provide the Board with a better understanding of the inherent risks.

Section 1: Actuarial Valuation Summary

Summary of key valuation results – State

Valuation Date		2021	2020
Fiscal Year Ending (FYE)		2023	2022
Actuarially Determined Contribution:	• State Normal Cost at End of Year ¹	\$132,578,666	\$126,788,951
	• Amortization Payment of UAL ¹	476,322,260	467,477,652
	• Total Statutory Contribution for FYE	608,900,926	594,266,603
	• Expected Percent Appropriated	100.0%	100.0%
	• State Appropriation for Pension	608,900,926	594,266,603
	• Lottery Enterprise Contribution Offset	0	(13,150,454)
	• Net State Contribution	608,900,926	\$581,116,149
Actuarial accrued liability for plan year beginning July 1:	• Retired participants and beneficiaries	\$3,920,641,097	\$3,731,104,859
	• Inactive vested participants	1,946,589	2,423,425
	• Contributing active participants	1,812,423,549	1,657,078,818
	• Non-contributing active participants	79,542,656	59,263,925
	• Total	5,814,553,892	\$5,449,871,027
	• Normal cost for plan year beginning July 1	111,105,581	105,619,642
Assets for plan year beginning July 1:	• Market value of assets (MVA) ²	\$2,063,371,772	\$1,673,186,247
	• Actuarial value of assets (AVA) ²	2,103,993,000	1,935,340,424
	• Actuarial value of assets as a percentage of market value of assets	102.0%	115.7%
	• Actuarial value of assets including Special Asset Value (AVA + SAV) ²	2,254,920,030	2,086,162,359
Funded status for plan year beginning July 1:	• Unfunded/(overfunded) actuarial accrued liability on MVA	\$3,751,182,120	\$3,776,684,780
	• Funded percentage on MVA basis	35.5%	30.7%
	• Unfunded/(overfunded) actuarial accrued liability on AVA	\$3,710,560,892	\$3,514,530,603
	• Funded percentage on AVA basis	36.2%	35.5%
	• Unfunded/(overfunded) actuarial accrued liability on AVA + SAV	\$3,559,633,862	\$3,363,708,488
	• Funded percentage on AVA + SAV basis	38.8%	38.3%
Key assumptions	• Net investment return	7.00%	7.30%
Demographic data for plan year beginning July 1:	• Number of retired participants and beneficiaries ³	7,073	6,937
	• Number of inactive vested participants	10	13
	• Number of contributing active participants	6,445	6,688
	• Number of non-contributing participants	471	426
	• Appropriation payroll ⁴	\$506,255,584	\$511,392,879
	• Annual retirement allowances in pay	\$340,032,441	\$330,805,742

¹ Includes \$231,575,656 and \$235,029,281 for FYE 2023 and 2022, respectively, for Local obligations payable by the State in accordance with Chapter 109, P.L. 1979, Chapter 511, P.L. 1991, Chapter 247, P.L. 1993, Chapter 428, P.L. 1999, Chapter 86, P.L. 2001, and Chapter 318, P.L. 2001

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

³ QDRO recipients are excluded from counts

⁴ Limited annual compensation for contributing actives

Section 1: Actuarial Valuation Summary

Summary of key valuation results – Local

Valuation Date		2021	2020
Fiscal Year Ending (FYE)		2023	2022
Actuarially Determined Contribution:	• Employer Normal Cost at End of Year ¹	\$411,636,458	\$352,637,446
	• Amortization Payment of UAL ¹	850,867,925	774,507,570
	• ERI Payments	645,548	1,120,317
	• Chapter 19, P.L. 2009 Payments	24,931,777	25,970,285
	• Total Statutory Contribution for FYE	1,288,081,708	\$1,154,235,618
	• Non-Contributory Group Insurance Contribution	38,807,839	38,420,336
Actuarial accrued liability for plan year beginning July 1:	• Retired participants and beneficiaries ²	\$27,840,642,992	\$26,064,045,305
	• Inactive vested participants	12,585,446	11,849,172
	• Contributing active participants	13,566,603,784	12,539,778,322
	• Non-contributing active participants	274,403,617	237,638,802
	• Total	41,694,235,840	\$38,853,311,601
Assets for plan year beginning July 1:	• Normal cost for plan year beginning July 1	774,241,048	718,056,928
	• Market value of assets (MVA) ³	\$31,988,407,731	\$26,099,999,102
	• Actuarial value of assets (AVA) ³	29,499,250,347	27,723,057,451
Funded status for plan year beginning July 1:	• Actuarial value of assets as a percentage of market value of assets	92.2%	106.2%
	• Unfunded/(overfunded) actuarial accrued liability on MVA	\$9,705,828,109	\$12,753,312,499
	• Funded percentage on MVA basis	76.7%	67.2%
	• Unfunded/(overfunded) actuarial accrued liability on AVA	\$12,194,985,493	\$11,130,254,150
Key assumptions	• Funded percentage on AVA basis	70.8%	71.4%
	• Net investment return	7.00%	7.30%
Demographic data for plan year beginning July 1:	• Number of retired participants and beneficiaries ⁴	40,445	39,634
	• Number of inactive vested participants	50	54
	• Number of contributing active participants	34,031	34,150
	• Number of non-contributing participants	1,241	1,168
	• Appropriation payroll ⁵	\$3,563,943,590	\$3,505,375,030
	• Annual retirement allowances in pay	\$2,468,834,871	\$2,374,772,652

¹ Excludes \$231,575,656 and \$235,029,281 for FYE 2023 and 2022, respectively, for Local obligations payable by the State in accordance with Chapter 109, P.L. 1979, Chapter 511, P.L. 1991, Chapter 247, P.L. 1993, Chapter 428, P.L. 1999, Chapter 86, P.L. 2001, and Chapter 318, P.L. 2001

² Includes present value of ERI payments of \$3,531,959 in 2021 and \$4,282,024 in 2020

³ Includes discounted State receivable contributions from the upcoming Fiscal Year

⁴ QDRO recipients are excluded from counts

⁵ Limited annual compensation for contributing actives

Section 1: Actuarial Valuation Summary

Important information about actuarial valuations

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

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

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

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

The actuarial valuation is prepared at the request of the System. Segal is not responsible for the use or misuse of its report, particularly by any other party.

An actuarial valuation is a measurement of the Plan's assets and liabilities at a specific date. Accordingly, except where otherwise noted, Segal did not perform an analysis of the potential range of future financial measures. The actual long-term cost of the Plan will be determined by the actual benefits and expenses paid and the actual investment experience of the Plan.

Actuarial results in this report are not rounded, but that does not imply precision.

If the System is aware of any event or trend that was not considered in this valuation that may materially change the results of the valuation, Segal should be advised, so that we can evaluate it.

Segal does not provide investment, legal, accounting, or tax advice. Segal's valuation is based on our understanding of applicable guidance in these areas and of the Plan's provisions, but they may be subject to alternative interpretations. The System should look to their other advisors for expertise in these areas.

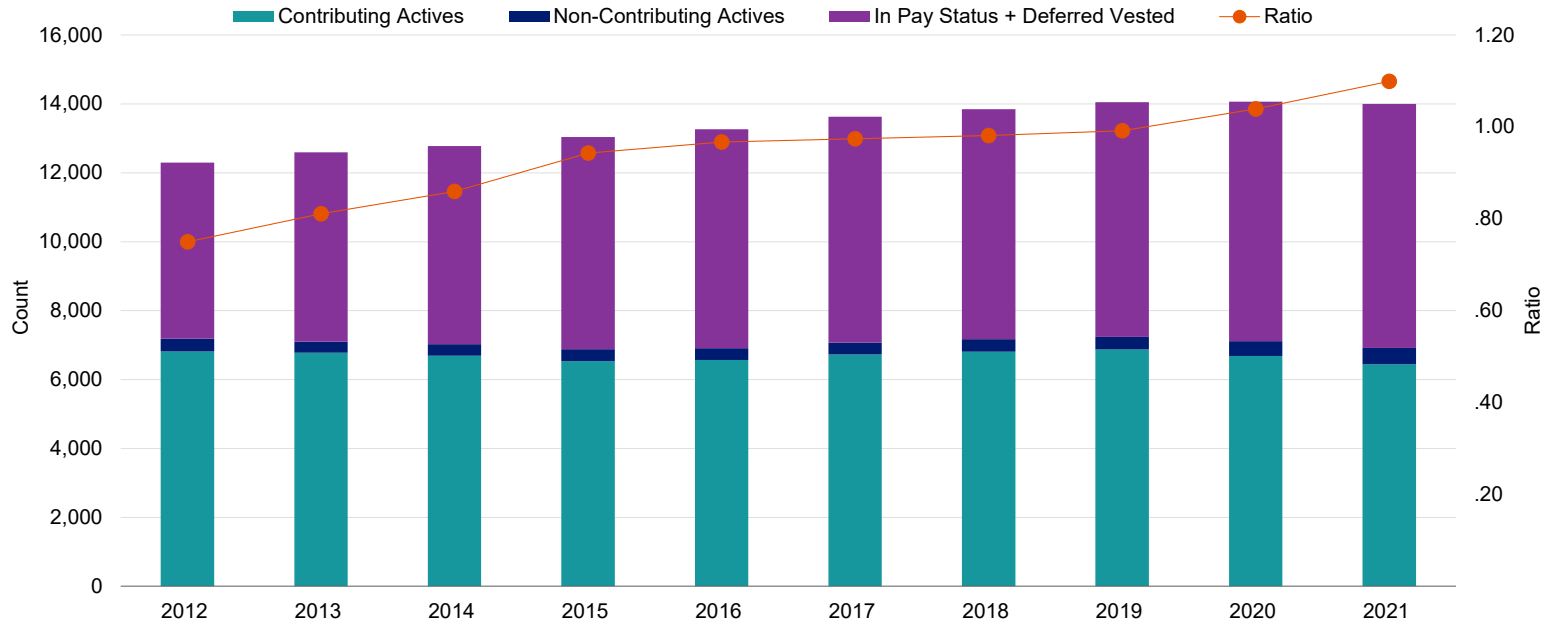
As Segal has no discretionary authority with respect to the management or assets of the Plan, it is not a fiduciary in its capacity as actuaries and consultants with respect to the Plan.

Section 2: Actuarial Valuation Results

Participant data

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

State Participant Population: 2012 – 2021

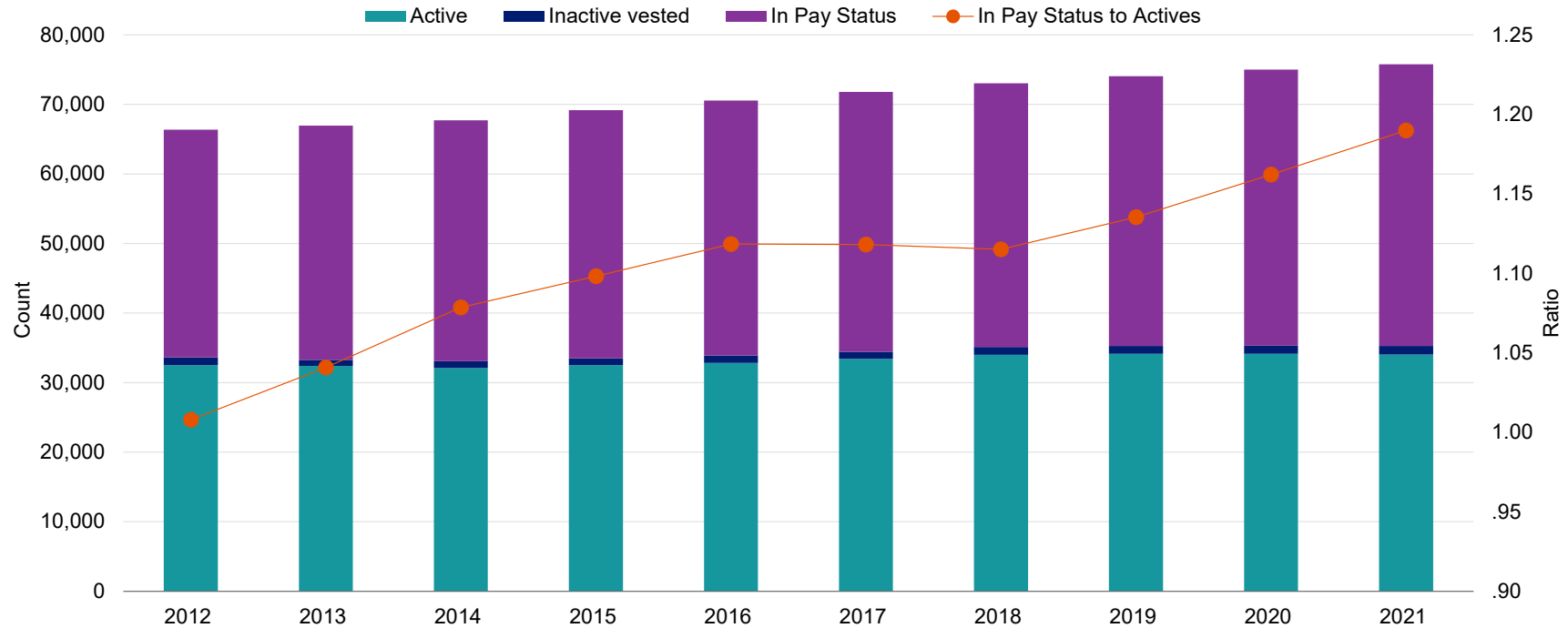


	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-Active ¹	5,112	5,496	5,756	6,160	6,354	6,555	6,679	6,816	6,950	7,083
Non-Contributing Actives	369	320	330	352	340	342	362	364	426	471
Contributing Actives	6,818	6,778	6,695	6,531	6,571	6,730	6,807	6,875	6,688	6,445
Ratio of non-actives to contributing actives	0.75	0.81	0.86	0.94	0.97	0.97	0.98	0.99	1.04	1.10

¹ Includes members in pay status and deferred vested participants

Section 2: Actuarial Valuation Results

Local Participant Population: 2012 – 2021



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Non-Active ¹	32,750	33,699	34,633	35,715	36,704	37,357	37,930	38,786	39,688	40,495
Non-Contributing Actives	1,137	894	970	955	1,060	1,037	1,113	1,117	1,168	1,241
Contributing Actives	32,495	32,380	32,111	32,521	32,818	33,410	34,013	34,164	34,150	34,031
Ratio of non-actives to contributing actives	1.01	1.04	1.08	1.10	1.12	1.12	1.12	1.14	1.16	1.19

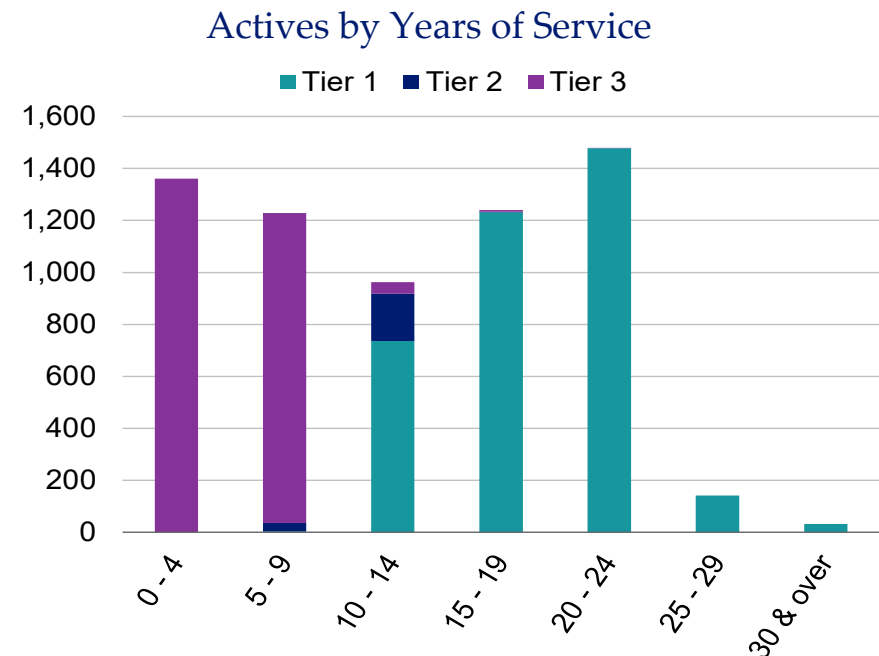
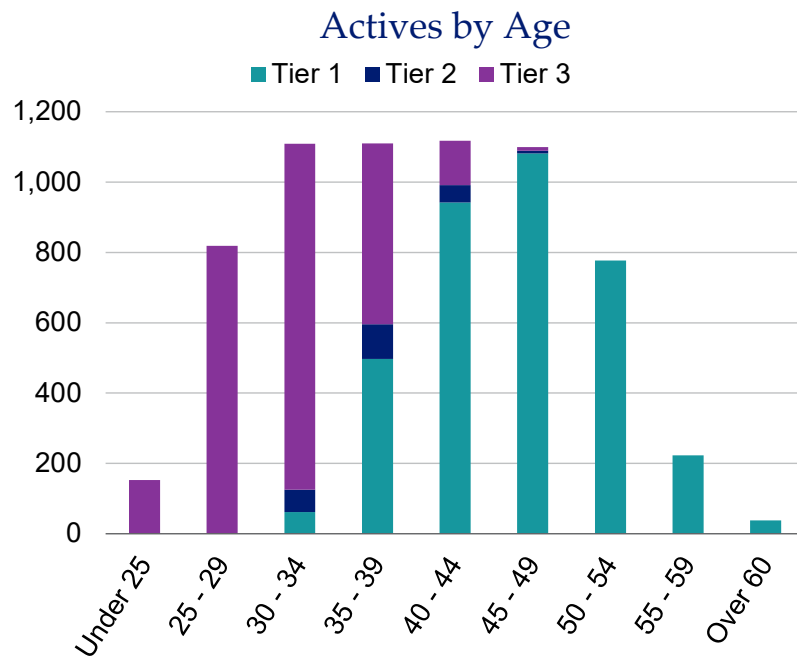
¹ Includes members in pay status and deferred vested participants

Section 2: Actuarial Valuation Results

State Contributing Active participants

As of June 30,	2020	2021	Change
Active participants	6,688	6,445 ¹	-3.6%
Average age	39.9	40.3 ²	0.4
Average years of service	12.8	13.2 ³	0.4
Average compensation	\$76,464	\$78,564 ⁴	2.7%

Distribution of Active Participants as of June 30, 2021



¹ 3,620, 219, and 2,606, respectively for Tier 1, 2, and 3

² 46.4, 37.7, and 31.9, respectively for Tier 1, 2, and 3

³ 19.2, 10.5, and 5.1, respectively for Tier 1, 2, and 3

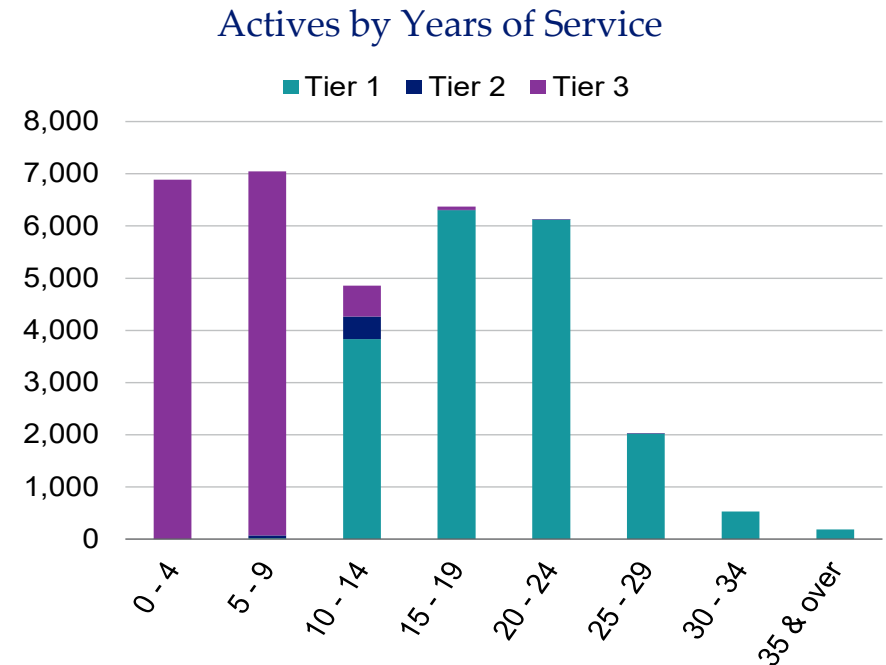
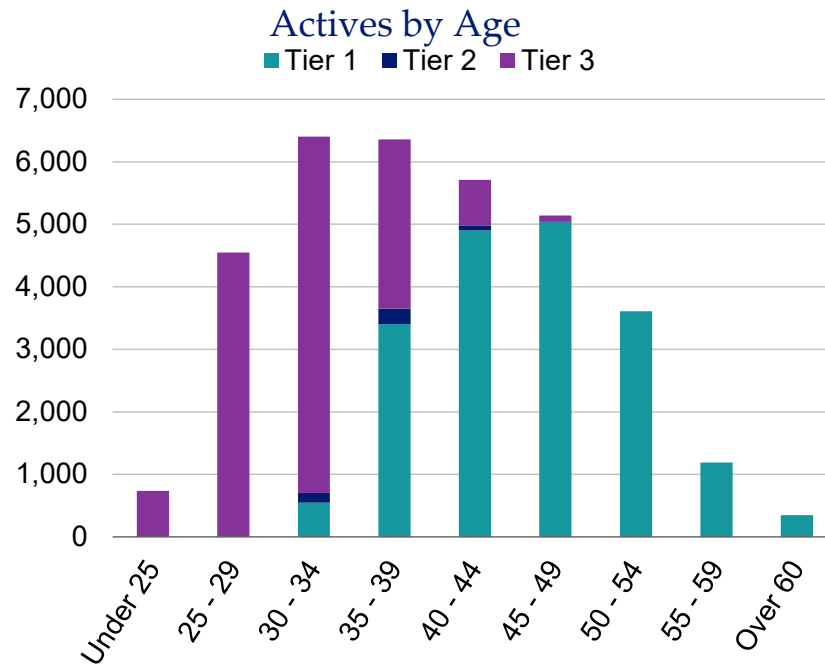
⁴ \$91,574, \$79,488, and \$60,413, respectively for Tier 1, 2, and 3

Section 2: Actuarial Valuation Results

Local Contributing Active participants

As of June 30,	2020	2021	Change
Active participants	34,150	34,031 ¹	-0.3%
Average age	39.8	39.8 ²	0.0
Average years of service	13.5	13.5 ³	0.0
Average compensation	\$102,646	\$104,778 ⁴	2.1%

Distribution of Active Participants as of June 30, 2021



¹ 19,016, 496, and 14,519, respectively for Tier 1, 2, and 3

² 45.8, 37.0, and 32.0, respectively for Tier 1, 2, and 3

³ 19.8, 10.8, and 5.3, respectively for Tier 1, 2, and 3

⁴ \$127,023, \$107,114, and \$75,563, respectively for Tier 1, 2, and 3

Section 2: Actuarial Valuation Results

Inactive participants and Non-Contributory Active Participants

In this year's valuation, there were 60¹ participants with a vested right to a deferred or immediate vested benefit, as compared to 67 as included in the prior valuation.

Additionally, this year's valuation includes liabilities for 1,241 Local and 471 State non-contributing active members, as compared to 1,168 and 426 respectively in the prior year. These members are valued as active participants but are assumed to not earn future benefit accruals. The average last reported pay is \$79,595 for Local members and \$66,147 for State members.

¹ 10 State members with average monthly retirement allowance of \$1,603 and 50 Local members with average monthly retirement allowance of \$2,085

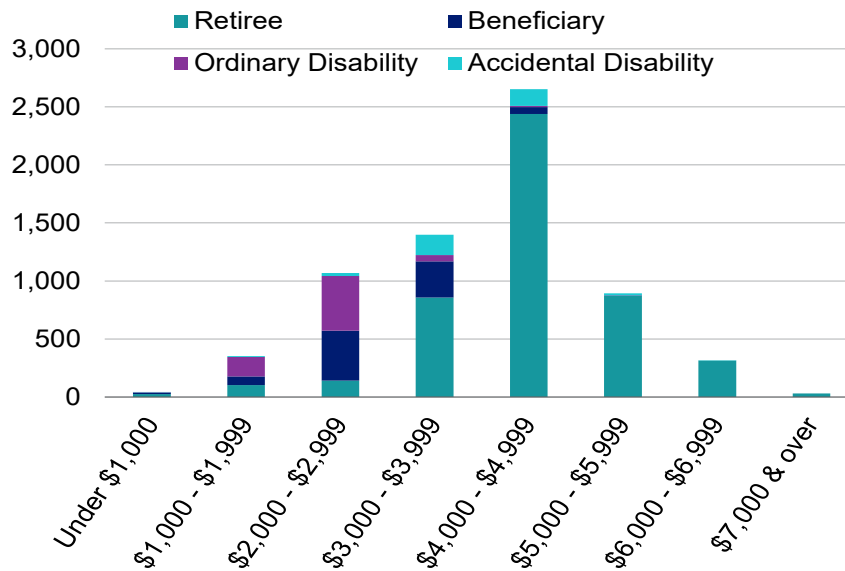
Section 2: Actuarial Valuation Results

State Retired participants and beneficiaries

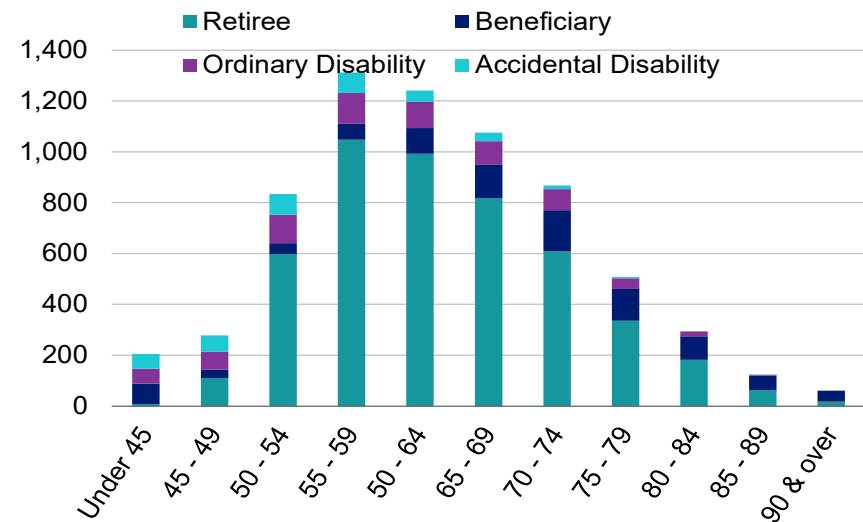
As of June 30,	2020	2021	Change
Retirees ¹	6,042	6,138	1.6%
Average age	N/A	62.5	N/A
Average retirement allowance	\$4,159	\$4,198 ²	0.9%
Beneficiaries	895	935	4.5%
Total monthly retirement allowance	\$27,567,145	\$28,336,037	2.8%

Distribution of Retired Participants as of June 30, 2021

In Pay Participants by Type and Monthly Retirement Allowance



In Pay Participants by Type and Age



¹ As of June 30, 2021, there are 5,037 retirees and 1,101 disabled pensioners as compared to 4,935 and 1,107 in the prior year.

² \$4,196 for police and \$3,569 for firefighters

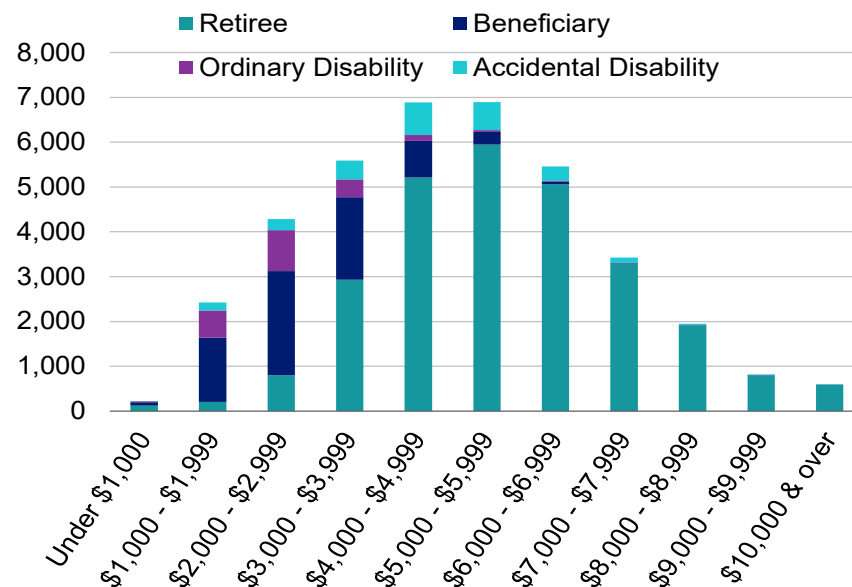
Section 2: Actuarial Valuation Results

Local Retired participants and beneficiaries

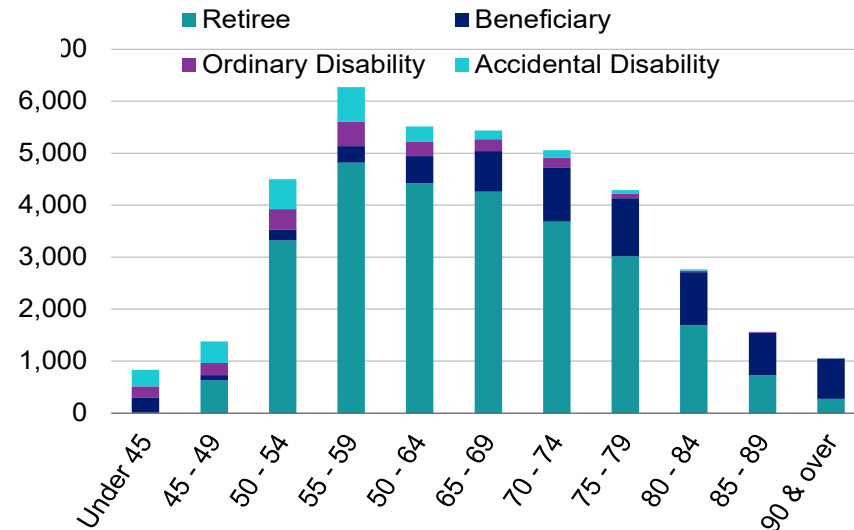
As of June 30,	2020	2021	Change
Retirees ¹	32,848	33,458	1.9%
Average age	N/A	64.1	N/A
Average retirement allowance	\$5,433	\$5,539 ²	2.0%
Beneficiaries	6,786	6,987	3.0%
Total monthly retirement allowance	\$197,897,721	\$205,736,239	4.0%

Distribution of Retired Participants as of June 30, 2021

In Pay Participants by Type and Monthly Retirement Allowance



In Pay Participants by Type and Age



¹ As of June 30, 2021, there are 28,514 retirees and 4,944 disabled pensioners as compared to 27,920 and 4,928 in the prior year.

² \$5,493 for police and \$5,753 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 ^{1,2,3}	Monthly Allowance	Number ^{1,2,3}	Monthly Allowance		
2012	483	\$1,828,072	83	\$216,344	5,423	\$18,588,668	\$3,428	1.5%
2013	562	2,114,693	144	330,162	5,841	20,357,266	3,485	1.7%
2014	411	1,526,646	125	302,008	6,127	21,584,076	3,523	1.1%
2015	597	2,292,186	136	369,001	6,588	23,495,099	3,566	1.2%
2016	407	1,493,013	188	489,017	6,807	24,479,256	3,596	0.8%
2017	372	1,421,383	172	430,209	7,007	25,467,343	3,635	1.1%
2018	256	1,036,585	131	405,610	6,673	26,106,430	3,912	7.6%
2019	249	1,014,037	119	361,530	6,803	26,762,268	3,934	0.6%
2020	271	1,207,265	137	418,754	6,937	27,567,145	3,974	1.0%
2021	286	1,212,191	150	412,041	7,073	28,336,037	4,006	0.8%

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 Retirees and Beneficiaries Added to and Removed From Rolls

Year Ended June 30	Added to Rolls		Removed from Rolls		Rolls at End of Year			% 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	Average Monthly Allowance ^{1,2,3}	
2012	2,131	\$9,942,960	855	\$2,460,532	34,289	\$137,061,623	\$3,997	1.9%
2013	2,126	10,321,936	1,062	2,858,315	35,353	144,597,749	4,090	2.3%
2014	2,157	10,463,525	1,061	3,101,493	36,449	152,080,017	4,172	2.0%
2015	2,223	11,456,024	1,008	2,880,555	37,664	160,654,194	4,265	2.2%
2016	2,131	10,658,583	977	2,789,886	38,818	168,511,414	4,341	1.8%
2017	1,879	9,957,898	1,157	3,431,423	39,540	175,032,121	4,427	2.0%
2018	1,740	10,106,546	1,169	3,779,983	37,894	181,417,626	4,788	8.2%
2019	1,890	11,175,391	1,050	3,554,518	38,734	189,138,213	4,883	2.0%
2020	2,051	12,596,624	1,151	3,932,059	39,634	197,897,721	4,993	2.3%
2021	1,838	11,658,999	1,027	3,095,844	40,445	205,736,239	5,087	1.9%

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			% 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	Average Monthly Allowance ^{1,2,3}	
2012	2,614	\$11,771,032	938	\$2,676,876	39,712	\$155,650,291	\$3,920	1.8%
2013	2,688	12,436,629	1,206	3,188,477	41,194	164,955,015	4,004	2.2%
2014	2,568	11,990,171	1,186	3,403,501	42,576	173,664,093	4,079	1.9%
2015	2,820	13,748,210	1,144	3,249,556	44,252	184,149,293	4,161	2.0%
2016	2,538	12,151,596	1,165	3,278,903	45,625	192,990,670	4,230	1.7%
2017	2,251	11,379,281	1,329	3,861,632	46,547	200,499,464	4,308	1.8%
2018	1,996	11,143,131	1,300	4,185,593	44,567	207,524,056	4,656	8.1%
2019	2,139	12,189,428	1,169	3,916,048	45,537	215,900,481	4,741	1.8%
2020	2,322	13,803,889	1,288	4,350,813	46,571	225,464,866	4,841	2.1%
2021	2,124	12,916,757	1,175	3,507,885	47,518	234,072,276	4,926	1.8%

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.

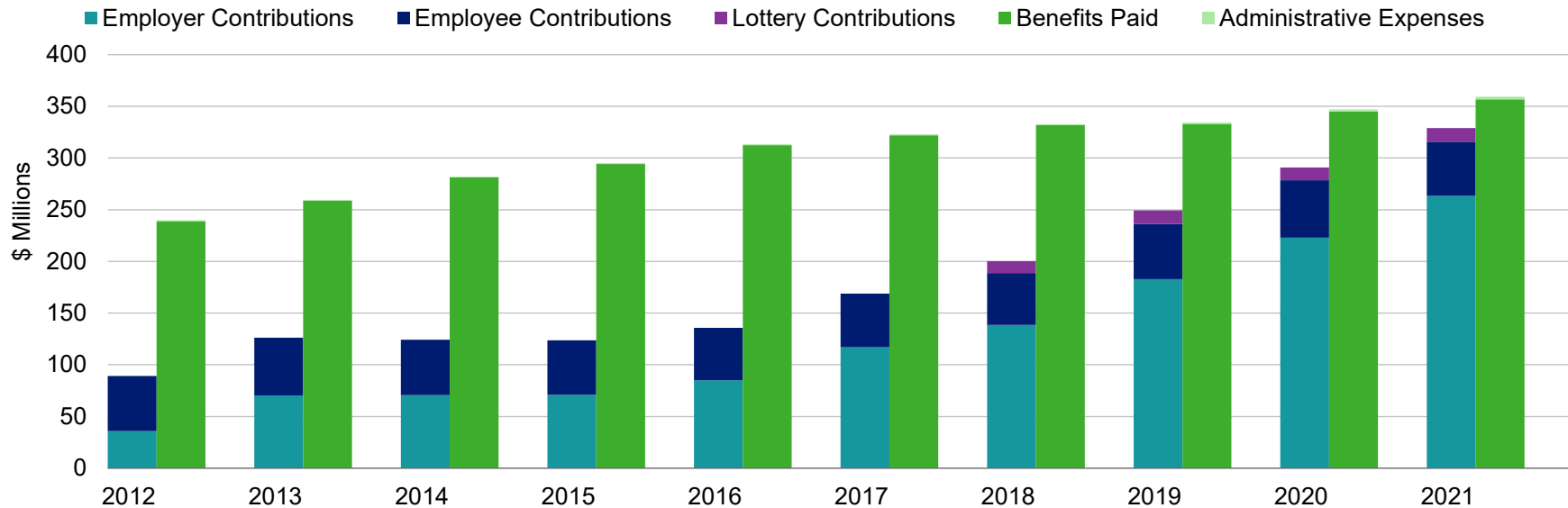
Section 2: Actuarial Valuation Results

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.

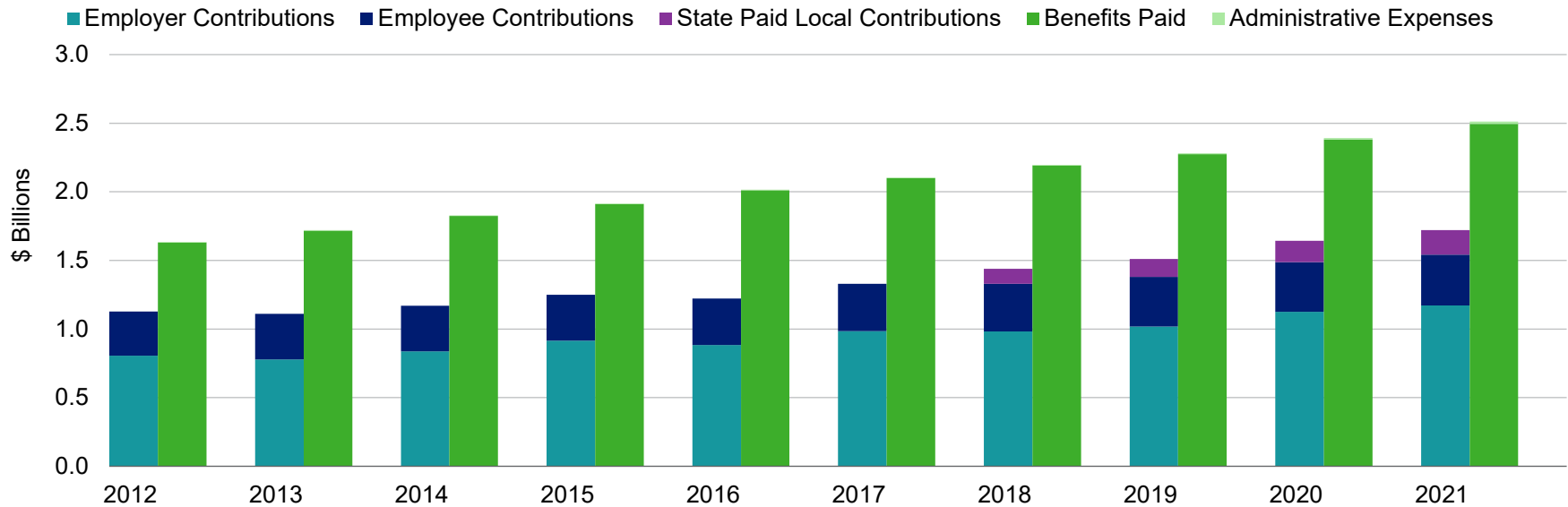
Historically the State net cash flow has been significantly negative. However, in recent years that has changed as the State has appropriated a higher percentage of the statutory contribution.

Comparison of State Contributions with Benefits and Expenses
for Years Ended June 30, 2012 – 2021



Section 2: Actuarial Valuation Results

Comparison of Local Contributions¹ with Benefits and Expenses
for Years Ended June 30, 2012 – 2021



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 are not recognized over a reasonably short period of time. Therefore, the asset valuation method may not meet the requirements of ASOP No. 44.

The following tables present the market value as of June 30, 2021 and June 30, 2020, the System's net cash flows for the year ended June 30, 2021, and the development of the AVA as of June 30, 2021.

Section 2: Actuarial Valuation Results

Statement of Assets at Market Value

	June 30, 2021	June 30, 2020
Assets:		
• Cash	\$4,706,062	\$7,614,664
• Investment Holdings	30,995,169,091	24,753,164,898
• Employers' Contributions Receivable - State	0	92,032,250
• Employers' Contributions Receivable – Chapter 19	52,265,633	70,224,036
• Employers' Contributions Receivable – NCGI State	527,911	780,511
• Employers' Contributions Receivable – NCGI Local Employers	38,420,336	36,964,099
• Employers' Contributions Receivable – Common L	1,260,000	1,968,000
• Employers' Contributions Receivable – Local Employers	1,127,502,412	1,091,858,046
• Employers' Contributions Receivable – Local Employers ERI	4,604,270	6,680,501
• Employers' Contributions Receivable – Retroactive Contributions	4,993,053	5,547,687
• Employers' Contributions Receivable – Delayed Enrollments	248,819	149,858
• Employers' Contributions Receivable – Delayed Appropriations	1,033,208	452,824
• Member's Contributions Receivable	53,637,567	55,812,952
• Accrued Interest on Investments	4,136,660	3,804,535
• Accounts Receivable – Other	6,120,518	5,729,483
• New Jersey Mortgage Receivable	1,272,108,007	1,279,155,633
• Loans Receivable	226,833,242	242,316,293
• Interest Receivable on Loans	1,010,844	1,116,953
• Securities Lending Collateral	<u>497,950,329</u>	<u>464,984,342</u>
Total assets	\$34,292,527,961	\$28,120,357,565
Liabilities:		
• Pension Payroll Payable	(191,921,524)	(183,615,074)
• Pension Adjustment Payroll Payable	(14,678,542)	(15,217,597)
• Withholdings Payable	(30,757,026)	(29,161,076)
• Death Benefits Payable	(5,759,495)	(7,819,466)
• Securities Lending Collateral & Rebates Payable	(497,747,779)	(464,830,543)

Section 2: Actuarial Valuation Results

	June 30, 2021	June 30, 2020
• Administrative Expenses Payable	0	0
• Accounts Payable - Other	<u>(8,410,108)</u>	<u>(7,585,964)</u>
Total Liabilities	(\$749,274,475)	(\$708,229,720)
Preliminary Market Value of Assets	\$33,543,253,487	\$27,412,127,845
Discounted Receivables:		
• Expected Lottery Revenue	\$12,723,465	\$12,585,572
• State Appropriations	557,154,624	412,822,354
Adjustments to Financial Report:		
• Discounting of Local Employers Appropriations Receivable	<u>(55,768,897)</u>	<u>(55,605,478)</u>
• Discounting of Local Employers ERI Contributions Receivable	<u>(329,553)</u>	<u>(479,163)</u>
• True-up of Present Value of Chapter 19, P.L. 2009 Contributions Receivable	52,633,601	54,152,838
• Exclusion of Reserve for Non-Contributory Group Insurance	<u>(57,887,220)</u>	<u>(62,418,619)</u>
Market Value of Assets	\$34,051,779,507	\$27,773,185,349

Section 2: Actuarial Valuation Results

Summary Statement of Income and Expenses on a Market Value Basis for FYE June 30, 2021

	State	Local Employers	Total
Preliminary Market Value of Assets at Beginning of Year	\$1,418,695,081	\$25,993,432,764	\$27,412,127,845
Additions:			
Contributions:			
• Member Contributions	\$51,571,527	\$367,886,668	\$419,458,195
• Member Transfer Contributions	647,320	1,964,499	2,611,819
• State and Local Appropriations	252,748,000	1,127,145,016	1,379,893,016
• State Contributions on Behalf of Locals	0	178,577,000	178,577,000
• State Lottery	13,260,000	0	13,260,000
• NCGI Contributions	10,696,704	38,420,336	49,117,040
• Transfers from Other Systems	26,987	274,102	301,089
• Other - Delayed Enrollments	36,986	149,306	186,292
• Other - Delayed Appropriations	0	966,819	966,819
• Other – Retroactive	0	4,652,327	4,652,327
• Other – Additional	0	355,901	355,901
• Other - NCGI Adjustment	0	0	0
• Total Contributions	\$328,987,524	\$1,720,391,974	\$2,049,379,498
Net Investment Income	<u>330,564,509</u>	<u>6,622,162,496</u>	<u>6,952,727,005</u>
<i>Total Additions</i>	<i>659,552,033</i>	<i>8,342,554,470</i>	<i>9,002,106,503</i>
Deductions:			
• Withdrawal of Member Contributions	\$2,345,558	\$8,613,513	\$10,959,071
• Withdrawal of Member Transfer Contributions	125,052	216,014	341,066
• Adjustment for Member Loans	176,673	0	176,673
• Withdrawal of Transfer Contributions	143,369	119,659	263,028
• Retirement Allowances	323,276,407	2,284,352,082	2,607,628,489
• Pension Adjustment Benefits	19,949,581	155,164,862	175,114,443
• Death Benefit Claims	10,696,704	47,508,295	58,204,999
• Administrative Expenses	<u>2,701,917</u>	<u>15,591,179</u>	<u>18,293,096</u>
<i>Total Deductions</i>	<i>359,415,261</i>	<i>2,511,565,604</i>	<i>2,870,980,865</i>
Net Increase/(Decrease)	\$300,136,772	\$5,830,988,866	\$6,131,125,638
Preliminary Market Value of Assets at End of Year	\$1,718,831,853	\$31,824,421,630	\$33,543,253,483

Section 2: Actuarial Valuation Results

	State	Local Employers	Total
Discounted Receivables:			
• Expected Lottery Revenue	12,723,465	0	12,723,465
• State Appropriations	331,816,454	225,338,170	557,154,624
• Adjustments to Financial Report:			
• Discounting of Local Employers Appropriations Receivable	0	(55,768,897)	(55,768,897)
• Discounting of Local Employers ERI Contributions Receivable	0	(329,553)	(329,553)
• True-up of Present Value of Chapter 19, P.L. 2009 Contributions Receivable	0	52,633,601	52,633,601
• Exclusion of Reserve for Non-Contributory Group Insurance	0	(57,887,220)	(57,887,220)
Market Value of Assets at End of Year	\$2,063,371,772	\$31,988,407,731	\$34,051,779,503
Approximate Return	24.1%	27.4%	27.2%

Section 2: Actuarial Valuation Results

Determination of Actuarial Value of Assets for Year Ended June 30, 2021

	State	Local Employers	Total
1 Preliminary Actuarial Value of Assets as of July 1, 2020 ¹	\$1,680,849,258	\$27,571,280,713	\$29,252,129,971
2 Net Cash Flow excluding investment income ²	(30,427,737)	(765,263,217)	(795,690,954)
3 Expected Investment Income ³	119,186,867	1,880,272,631	1,999,459,497
4 Expected actuarial value of assets as of July 1, 2021: (1) + (2) + (3)	1,769,608,388	28,686,290,127	30,455,898,514
5 Preliminary market value of assets as of July 1, 2021 ⁴ :	1,718,831,853	31,797,736,857	33,516,568,710
6 20% of difference from MVA: 20% * [(5) - (4)]	(10,155,307)	622,289,346	612,134,039
7 Preliminary Actuarial Value of Assets as of July 1, 2021: (4) + (6)	\$1,759,453,081	\$29,308,579,473	\$31,068,032,554
8 Discounted Receivables			
• State Appropriations	331,816,454	225,338,170	557,154,624
• Expected Lottery Revenue	12,723,465	0	12,723,465
• Chapter 19, P.L. 2009 Contributions for FYE 2023 and Later	0	80,270,817	80,270,817
Total	344,539,919	305,608,987	650,148,906
9 Adjustments			
• Discounting of Local Employers Appropriations Receivable	0	(55,768,897)	(55,768,897)
• Discounting of Chapter 19, P.L. 2009 Contributions for FYE 2022	0	(1,281,996)	(1,281,996)
• Exclusion of reserve for Non-Contributory Group Insurance	0	(57,887,220)	(57,887,220)
Total	0	(114,938,113)	(114,938,113)
10 Actuarial value of assets as of July 1, 2021: (7) + (8) + (9)	\$2,103,993,000	\$29,499,250,347	\$31,603,243,347
11 Rate of return on actuarial value of assets:	6.7%	9.7%	9.5%
12 Ratio of actuarial value of assets to market value of assets:	102.0%	92.2%	92.8%

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 2022 of \$25,910,413

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

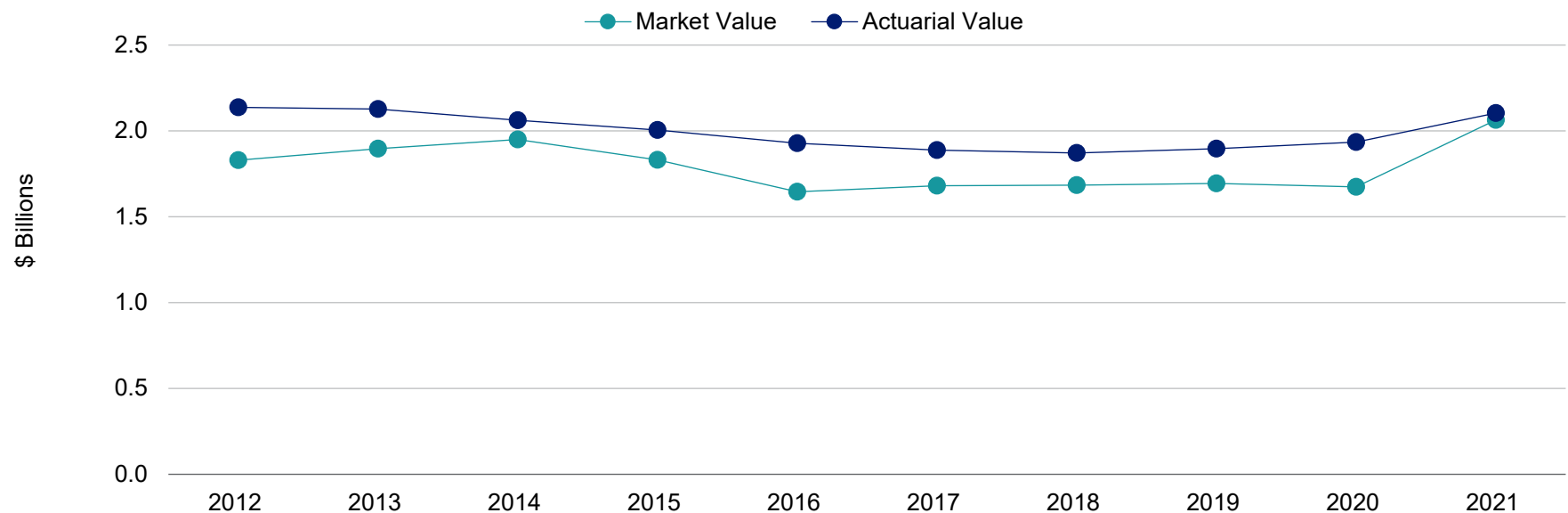
⁴ Amount for Local employers includes adjustments to June 30, 2021 Financial Report for the interest portion of Local employers ERI contributions receivable of (\$329,553) and true-up of Chapter 19, P.L. 2009 contributions for FYE 2022 of (\$26,355,220).

Section 2: Actuarial Valuation Results

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

Although the market value of assets exceeds the actuarial value of assets for the current valuation the actuarial value of assets has been above the market value consistently over the prior nine years.

State Market Value of Assets vs. Actuarial Value of Assets¹



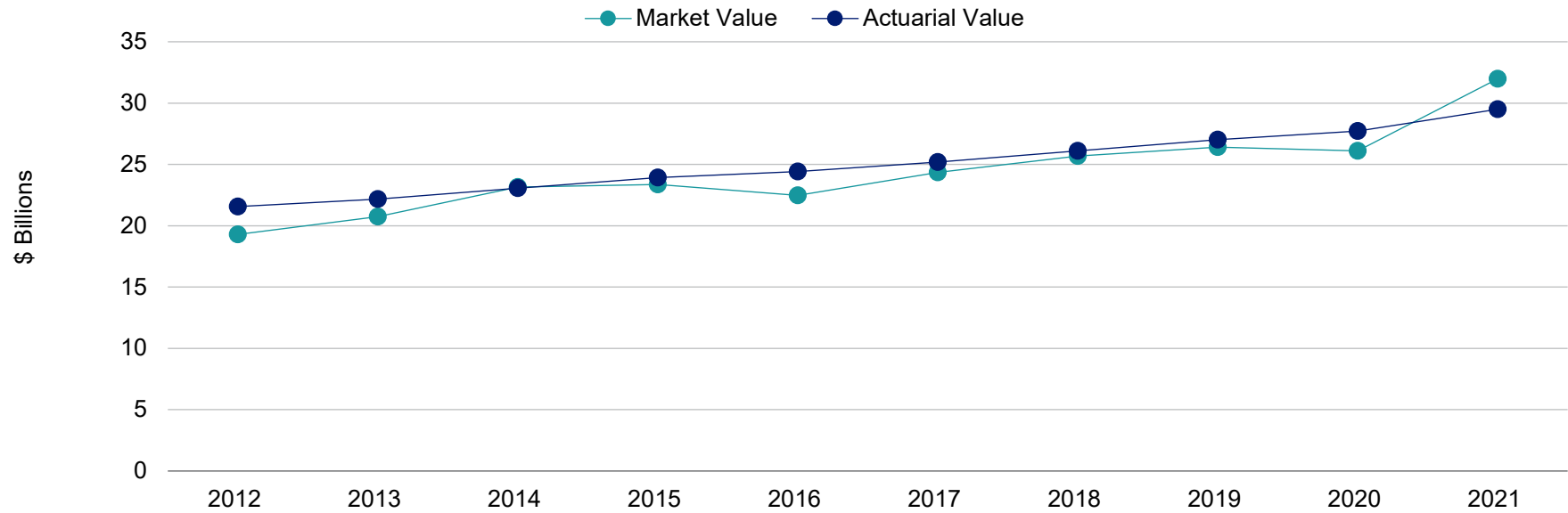
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Market Value ²	\$1.83	\$1.90	\$1.95	\$1.83	\$1.65	\$1.68	\$1.68	\$1.69	\$1.67	\$2.06
Actuarial Value ²	2.14	2.13	2.06	2.00	1.93	1.89	1.87	1.90	1.94	2.10

¹ Excluding Special Asset Value

² In \$ billions

Section 2: Actuarial Valuation Results

Local Market Value of Assets vs. Actuarial Value of Assets



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Market Value ¹	\$19.30	\$20.73	\$23.14	\$23.36	\$22.47	\$24.35	\$25.68	\$26.41	\$26.10	\$31.99
Actuarial Value ¹	21.55	22.17	23.07	23.94	24.42	25.18	26.11	27.02	27.72	29.50

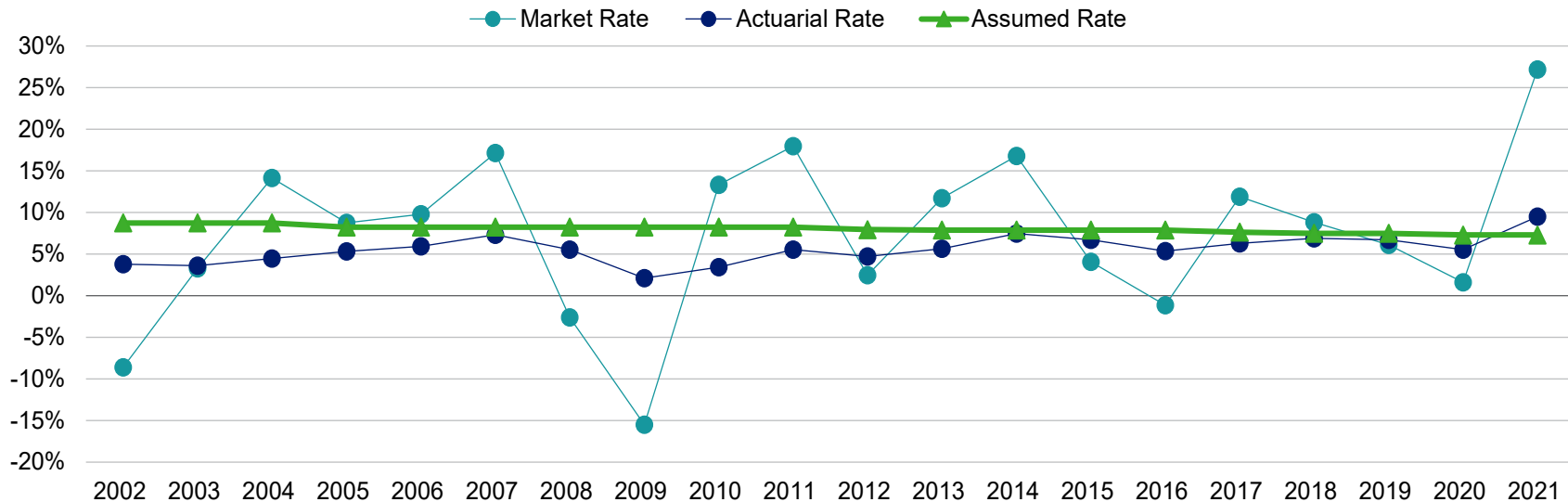
¹ In \$ billions

Section 2: Actuarial Valuation Results

Because actuarial planning is long term, it is useful to see how the assumed investment rate of return has followed actual experience over time. The chart below shows the rate of return on an actuarial basis compared to the actual market value investment return for the last 20 years, including averages over select time periods.

As described earlier in this section, the actuarial asset valuation method recognizes fluctuations in the market value rate of return over time. The goal of this is to stabilize the actuarial rate of return and to produce more level pension plan costs. This is demonstrated in the following graph by the relative difference in the volatility of the market value and actuarial value investment returns over time.

Total Fund Market and Actuarial Rates of Return for Years Ended June 30, 2002 - 2021



	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Market rate ¹	-8.6%	3.3%	14.2%	8.8%	9.8%	17.1%	-2.6%	-15.5%	13.3%	18.0%	2.5%	11.7%	16.8%	4.1%	-1.1%	11.9%	8.8%	6.1%	1.6%	27.2%
Actuarial rate ¹	3.8%	3.6%	4.5%	5.3%	6.0%	7.3%	5.6%	2.1%	3.4%	5.6%	4.7%	5.7%	7.5%	6.7%	5.3%	6.3%	6.9%	6.7%	5.5%	9.5%
Assumed rate	8.75%	8.75%	8.75%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	8.25%	7.95%	7.90%	7.90%	7.90%	7.90%	7.65%	7.50%	7.50%	7.30%	7.30%

¹ As detailed in prior actuary's July 1, 2020 actuarial valuation

Section 2: Actuarial Valuation Results

Average Rates of Return	Actuarial Value	Market Value
Most recent five-year average return:	6.98%	10.81%
Ten-year average return:	6.48%	8.67%
Fifteen-year average return:	5.91%	7.51%
20-year average return:	5.39%	6.92%

Development of Special Asset Value (SAV)

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

1	Lottery Enterprise Value as of Appraisal Date of June 30, 2017 ¹	\$13,535,103,380
2	Depreciated Value as of end of Valuation Year on June 30, 2022 ¹	13,457,660,146
3	Discounted Value as of July 1, 2021 at 7.00%	12,577,252,473
4	Allocation to PFRS	1.20%
5	Special Asset Value as of July 1, 2021	\$150,927,030

¹ Provided by the Division of Pensions and Benefits

Section 2: Actuarial Valuation Results

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

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

Actuarial Balance Sheet as of July 1, 2021

	State	Local Employers	Total
Liabilities			
• Payable from Retirement Fund Reserve (RFR) ¹	\$3,920,641,097	\$27,840,642,992 ²	\$31,761,284,089
• Payable from Members' Contributions Reserve (MCR) and Employers' Contributions Reserve (ECR) ³	1,893,912,794	13,853,592,848	15,747,505,642
Total liabilities	\$5,814,553,891	\$41,694,235,840	\$47,508,789,731
Assets			
Retirement Fund Reserve			
• Credited to Fund with Distribution of Income	\$3,585,594,539	\$26,848,136,122	\$30,433,730,661
• Add/(Deduct) reserve transferable from/(to) ECR ⁴	<u>335,046,558</u>	<u>992,506,869</u>	<u>1,327,553,427</u>
• Adjusted RFR	\$3,920,641,097	\$27,840,642,992 ²	\$31,761,284,089
Members' Contributions Reserve ⁵	\$512,322,328	\$3,672,141,868	\$4,184,464,196
Employers' Contributions Reserve			
• Credited to Fund with Distribution of Income	(\$1,993,923,867)	(\$1,021,027,644)	(\$3,014,951,511)
• Add/(Deduct) reserve transferable from/(to) RFR	<u>(335,046,558)</u>	<u>(992,506,869)</u>	<u>(1,327,553,427)</u>
• Adjusted ECR ⁵	(\$2,328,970,425)	(\$2,013,534,513)	(\$4,342,504,938)
Special Asset Value as of July 1, 2021	\$150,927,030	\$0	\$150,927,030
Present Value of Prospective Contributions by State and Local employers to ECR	\$3,559,633,861	\$12,194,985,493	\$15,754,619,354
Total of current and future assets	<u>\$5,814,553,891</u>	<u>\$41,694,235,840</u>	<u>\$47,508,789,731</u>

¹ Retirees, disableds, and beneficiaries currently receiving benefits

² Includes the present value of ERI payments of \$3,531,959

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

Actuarial experience

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

Taking account of experience gains or losses in one year without making a change in assumptions reflects the belief that experience in a single year was a short-term development and that, over the long term, experience will return to the original assumptions. For contribution requirements to remain stable, assumptions should approximate experience. If assumptions are changed, the contribution requirement is adjusted to take into account a change in experience anticipated for all future years.

State Actuarial Experience for Year Ended June 30, 2021

1	Net gain/(loss) from investments ¹	(\$10,155,307)
2	Net gain/(loss) from administrative expenses	(2,800,537)
3	Net gain/(loss) from contributions	1,697,334
4	Net gain/(loss) from salary scale	10,916,294
5	Net gain/(loss) from other experience	59,224,925
6	Net experience gain/(loss): 1 + 2 + 3 + 4 + 5	\$58,882,709

Local Actuarial Experience for Year Ended June 30, 2021

1	Net gain/(loss) from investments ¹	\$622,289,351
2	Net gain/(loss) from administrative expenses	(16,160,257)
3	Net gain/(loss) from contributions	24,180,021
4	Net gain/(loss) from salary scale	(122,363,372)
5	Net gain/(loss) from other experience	(171,506,048)
6	Net experience gain/(loss): 1 + 2 + 3 + 4 + 5	\$336,439,695

¹ Details on next page

Section 2: Actuarial Valuation Results

Investment experience

A major component of projected asset growth is the assumed rate of return. The assumed return should represent the expected long-term rate of return, based on the Plan's assumption recommended by the Chief Financial Officer and adopted by the Board of Trustees.

For valuation purposes, the assumed rate of return on the actuarial value of assets for the prior year was 7.30%.

Investment Experience

	State		Local	
	Market Value	Actuarial Value	Market Value	Actuarial Value
1 Net investment income	\$330,564,509	\$109,031,560	\$6,622,162,495	\$2,502,561,959
2 Average value of assets	1,370,542,628	1,632,696,805	24,179,311,075	25,757,159,024
3 Rate of return: 1 ÷ 2	24.12%	6.68%	27.39%	9.72%
4 Assumed rate of return as of prior year	7.30%	7.30%	7.30%	7.30%
5 Expected investment income: 2 x 4	100,049,612	119,186,867	1,765,089,708	1,880,272,609
6 Actuarial gain/(loss): 1 - 5	<u>\$230,514,897</u>	<u>(\$10,155,307)</u>	<u>\$4,857,072,788</u>	<u>\$622,289,350</u>

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:

- 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), and
- mortality experience (more or fewer deaths than projected)

For the year ended June 30, 2021 this other experience was 1.3% for the State plan and 0.7% for the Local plan and both are considered not significant.

Actuarial assumptions

- This valuation reflects a decrease in the net investment return assumption from 7.30% to 7.00% as recommended by the Chief Financial Officer and adopted by the Board of Trustees.

Details on actuarial assumptions and methods are in *Section 4*.

Plan provisions

Between July 1, 2020 and June 30, 2021 the State Assembly has adopted the following plan amendments that are reflected in this valuation:

- An early retirement granting enhanced benefits is available to a certain class of participants defined in State Assembly bill S1017 who retire by May 1, 2023.
- The Dominick Marino PFRS Enhanced Benefit for Surviving Spouses Act instituted a \$50,000 annual minimum for the pre-retirement accidental death benefit for members who die after enactment

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

Section 2: Actuarial Valuation Results

Development of State Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended June 30, 2021

1	Unfunded/(overfunded) actuarial accrued liability at beginning of year ¹	\$3,514,530,603
2	Normal cost at beginning of year	105,619,642
3	Total expected contributions with interest	-336,893,718
4	Interest on 1 & 2	264,270,968
5	Expected unfunded/(overfunded) actuarial accrued liability	\$3,547,527,495
6	Changes due to:	
	(a) Actuarial investment loss	\$10,155,307
	(b) Contributions greater than expected	(1,697,334)
	(c) Salary increases less than expected	(10,916,294)
	(d) Other actuarial gain/(loss)	(58,121,721)
	(e) Change in net investment return assumption	199,097,476
	(f) Change in plan provisions	<u>24,515,962</u>
	Total changes	<u>\$163,033,396</u>
7	Unfunded/(overfunded) actuarial accrued liability at end of year ¹	<u>\$3,710,560,891</u>

¹ Excluding Special Asset Value

Section 2: Actuarial Valuation Results

Development of Local Unfunded/(Overfunded) Actuarial Accrued Liability for Year Ended June 30, 2021

1	Unfunded/(overfunded) actuarial accrued liability at beginning of year ¹	\$11,130,254,150
2	Normal cost at beginning of year	718,056,928
3	Total expected contributions with interest	-1,714,600,066
4	Interest on 1 & 2	864,926,709
5	Expected unfunded/(overfunded) actuarial accrued liability	\$10,998,637,721
6	Changes due to:	
	(a) Actuarial investment gain	(\$622,289,351)
	(b) Contributions greater than expected	(24,180,021)
	(c) Salary increases greater than expected	122,363,372
	(d) Other actuarial gain/(loss)	171,506,048
	(e) Change in net investment return assumption	1,410,056,593
	(f) Change in plan provisions	146,910,913
	Total changes	\$1,196,347,790
7	Unfunded/(overfunded) actuarial accrued liability at end of year ¹	<u>\$12,194,985,511</u>

¹ Reflects ERI payments of \$4,282,024 and \$3,531,960 at the beginning and end of the year, respectively.

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. For purposes of determining the unfunded actuarial accrued liability for the State the Special Asset Value is not included. There is no explicit cost component related to administrative expenses. They are therefore, net of the investment return assumption.

The NJ statute governing the System (Chapter 78, P.L. 2011) prescribes the funding policy used to calculate the actuarially determined contribution. Specifically, the unfunded actuarial liability is amortized over a closed 30-year period as a level dollar amount beginning with the July 1, 2018 actuarial valuation. On July 1, 2028 when the amortization period reaches 20 years, annual increases or decreases in the unfunded actuarial accrued liability will increase or decrease the amortization period unless that period is in excess of 20 years. If so, the unfunded actuarial accrued liability is amortized over 20 years. As of July 1, 2021 there are 27 years remaining on the closed amortization schedule.

The State portion of PFRS receives 1.2% of the annual lottery proceeds for a 30-year period ending June 30, 2046 in accordance with the Lottery Enterprise Contribution Act (Chapter 98, P.L. 2017). Beginning with this valuation (for the FYE 2023 contribution), the actuarially determined contribution is not offset by the projected lottery proceeds in accordance with the Lottery Enterprise Contribution Act (Chapter 98, P.L. 2017).

The contribution requirements for the State and Local employers developed on the following pages as of July 1, 2021 are based on the data previously described, the actuarial assumptions and plan provisions described in *Section 4*, including all changes affecting future costs adopted at the time of the actuarial valuation, actuarial gains and losses, and changes in the actuarial assumptions.

Section 2: Actuarial Valuation Results

Development of Unfunded Actuarial Liability

	July 1, 2021			July 1, 2020		
	State	Local ¹	Total	State	Local ¹	Total
1 Actuarial Liability	\$5,814,552,892	\$41,694,235,839	\$47,508,788,731	\$5,449,871,027	\$38,853,311,601	\$44,303,182,628
2 Actuarial value of assets ²	\$2,103,993,000	\$29,499,250,347	\$31,603,243,347	\$1,935,340,424	\$27,723,057,451	\$29,658,397,875
3 Unfunded Liability						
a. Basic	\$3,548,851,238	\$10,191,732,571	\$13,740,583,809	\$3,360,477,736	\$9,126,926,260	\$12,487,403,996
b. Chapter 204, P.L. 1989	560,342	4,612,844	5,173,186	592,911	4,880,927	5,473,838
c. Chapter 247, P.L. 1993	0	123,918,354	123,918,354	0	125,489,565	125,489,565
d. Chapter 428, P.L. 1999 ³	161,149,312	823,886,459	985,035,771	153,459,956	809,583,664	963,043,620
e. Chapter 109, P.L. 1979	0	682,699,372	682,699,372	0	690,845,279	690,845,279
f. Chapter 511, P.L. 1991	<u>0</u>	<u>368,135,891</u>	<u>368,135,891</u>	<u>0</u>	<u>372,528,445</u>	<u>372,528,455</u>
g. Total	\$3,710,560,892	\$12,194,985,492	\$15,905,546,384	\$3,514,530,603	\$11,130,254,150	\$14,644,784,753
4 Adjustment to Unfunded Actuarial Liability for Phase-In of State-Paid Local Obligations						
a. Chapter 247, P.L. 1993	\$117,425,009	(\$117,425,009)	\$0	\$118,826,114	(\$118,826,114)	\$0
b. Chapter 428, P.L. 1999 ³	615,737,341	(615,737,341)	0	623,084,263	(623,084,263)	0
c. Chapter 109, P.L. 1979	682,699,372	(682,699,372)	0	690,845,279	(690,845,279)	0
d. Chapter 511, P.L. 1991	<u>368,135,891</u>	<u>(368,135,891)</u>	<u>0</u>	<u>372,528,455</u>	<u>(372,528,455)</u>	<u>0</u>
e. Total	\$1,783,997,614	(\$1,783,997,614)	\$0	\$1,805,284,111	(\$1,805,284,111)	\$0
5 Net unfunded actuarial liability (3) + (4)	\$5,494,558,506	\$10,410,987,878	\$15,905,546,384	\$5,319,814,714	\$9,324,970,039	\$14,644,784,753

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, 2021 Fiscal Year Ending 2023 Payment			July 1, 2020 Fiscal Year Ending 2022 Payment		
	State	Local ¹	Total	State	Local ¹	Total
1 Amortization of UAL						
a. Basic	\$276,696,747	\$794,628,758	\$1,071,325,505	\$265,553,587	\$721,233,170	\$986,786,757
b. Chapter 204, P.L. 1989	69,837	574,911	644,748	70,686	581,900	652,586
c. Chapter 247, P.L. 1993	0	9,661,663	9,661,663	0	9,916,508	9,916,508
d. Chapter 428, P.L. 1999 ²	12,564,486	64,236,759	76,801,245	12,126,800	63,975,382	76,102,182
e. Chapter 109, P.L. 1979	0	53,228,688	53,228,688	0	54,592,369	54,592,369
f. Chapter 511, P.L. 1991	<u>0</u>	<u>28,702,810</u>	<u>28,702,810</u>	<u>0</u>	<u>29,438,156</u>	<u>29,438,156</u>
g. Total	\$289,331,070	\$951,033,589	\$1,240,364,659	\$277,751,073	\$879,737,485	\$1,157,488,558
4 Adjustment to UAL Contribution for Phase-In of State-Paid Local Obligations						
a. Chapter 247, P.L. 1993	\$9,661,663	(\$9,661,663)	0	\$9,916,508	(\$9,916,508)	\$0
b. Chapter 428, P.L. 1999 ²	64,236,759	(64,236,759)	0	63,975,382	(63,975,382)	0
c. Chapter 109, P.L. 1979	53,228,688	(53,228,688)	0	54,592,369	(54,592,369)	0
d. Chapter 511, P.L. 1991	<u>28,702,810</u>	<u>(28,702,810)</u>	<u>0</u>	<u>29,438,156</u>	<u>(29,438,156)</u>	<u>0</u>
e. Total	\$155,829,921	(\$155,829,921)	0	\$157,922,415	(\$157,922,415)	\$0
3 UAL Contribution as of Valuation Date (1) + (2)	\$445,160,991	\$795,203,668	\$1,240,364,659	\$435,673,488	\$721,815,070	\$1,157,488,558
4 Interest to Beginning of Fiscal Year	31,161,269	55,664,257	86,825,526	31,804,164	52,692,500	84,496,664
5 UAL Contribution as of Beginning of Fiscal Year (3) + (4)	\$476,322,260	\$850,867,925	\$1,327,190,185	\$467,477,652	\$774,507,570	\$1,241,985,222

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, 2021 Fiscal Year Ending 2023 Payment			July 1, 2020 Fiscal Year Ending 2022 Payment		
	State	Local	Total	State	Local	Total
1 Gross Normal Cost, excluding NCGI Premium						
a. Basic	\$102,443,671	\$713,645,122	\$816,088,792	\$96,607,376	\$656,939,940	\$753,547,316
b. Chapter 247, P.L. 1993	0	56,809	56,809	0	54,740	54,740
c. Chapter 428, P.L. 1999	884,328	5,566,033	6,450,361	1,426,634	8,786,815	10,213,449
d. Chapter 109, P.L. 1979 ¹	5,568,811	39,203,379	44,772,191	5,625,322	38,559,125	44,184,447
e. Chapter 511, P.L. 1991	<u>2,208,771</u>	<u>15,769,705</u>	<u>17,978,476</u>	<u>1,960,310</u>	<u>13,716,308</u>	<u>15,676,618</u>
f. Total	\$111,105,581	\$774,241,048	\$885,346,629	\$105,619,642	\$718,056,928	\$823,676,570
2 Expected Member Contributions	(\$47,796,212)	(\$328,938,151)	(\$376,734,363)	(\$48,573,583)	(\$328,293,672)	(\$376,867,255)
3 Employer Normal Cost (1) + (2)	\$63,309,369	\$445,302,897	\$508,612,266	\$57,046,059	\$389,763,256	\$446,809,315
4 Portion of Local Normal Cost Payable by State						
a. Chapter 247, P.L. 1993	\$56,809	(\$56,809)	0	\$54,740	(\$54,740)	\$0
b. Chapter 428, P.L. 1999	5,566,033	(5,566,033)	0	8,786,815	8,786,815)	0
c. Chapter 109, P.L. 1979	39,203,379	(39,203,379)	0	38,559,125	(\$38,559,125)	0
d. Chapter 511, P.L. 1991	<u>15,769,705</u>	<u>(15,769,705)</u>	<u>0</u>	<u>13,716,308</u>	<u>(13,716,308)</u>	<u>0</u>
e. Total	\$60,595,926	(\$60,595,926)	0	\$61,116,988	(\$61,116,988)	\$0
5 Normal Cost Contribution as of Valuation Date (3) + (4)	\$123,905,295	\$384,706,971	\$508,612,266	\$118,163,047	\$328,646,268	\$446,809,315
6 Interest to Beginning of Fiscal Year	8,673,371	26,929,488	35,602,859	8,625,904	23,991,178	32,617,082
7 Normal Cost Contribution as of Beginning of Fiscal Year (5) + (6)	\$132,578,666	\$411,636,458	\$544,215,125	\$126,788,951	\$352,637,446	\$479,426,397
8 Non-Contributory Group Insurance Premium at Beginning of Fiscal Year (one-year term cost)	N/A	\$38,807,839	\$38,807,839	N/A	\$38,420,336	\$38,420,336

¹ Per statute, 1.1% of appropriation payroll

Section 2: Actuarial Valuation Results

Development of Statutory Pension Contributions

	July 1, 2021 Fiscal Year Ending 2023 Payment			July 1, 2020 Fiscal Year Ending 2022 Payment		
	State	Local	Total	State	Local	Total
1 Normal Cost Contribution ¹						
a. Basic	\$58,472,781	\$411,636,458	\$470,109,239	\$51,540,260	\$352,637,446	\$404,177,706
a. Chapter 247, P.L. 1993	60,786	0	60,786	58,736	0	58,736
b. Chapter 428, P.L. 1999	6,901,886	0	6,901,886	10,959,032	0	10,959,032
c. Chapter 109, P.L. 1979	47,906,244	0	47,906,244	47,409,912	0	47,409,912
d. Chapter 511, P.L. 1991	<u>19,236,969</u>	<u>0</u>	<u>19,236,969</u>	<u>16,821,011</u>	<u>0</u>	<u>16,821,011</u>
e. Total	\$132,578,666	\$411,636,458	\$544,215,125	\$126,788,951	\$352,637,446	\$479,426,397
2 UAL Contribution ^{1,2}						
a. Basic	\$296,065,519	\$850,252,771	\$1,146,318,290	\$284,983,999	\$773,883,191	\$1,058,822,190
b. Chapter 204, P.L. 1989	74,725	615,155	689,880	75,846	624,379	700,225
c. Chapter 247, P.L. 1993	10,337,980	0	10,337,980	10,640,413	0	10,640,413
d. Chapter 428, P.L. 1999	82,177,332	0	82,177,332	81,657,641	0	81,657,641
e. Chapter 109, P.L. 1979	56,954,696	0	56,954,696	58,577,612	0	58,577,612
f. Chapter 511, P.L. 1991	<u>30,712,007</u>	<u>0</u>	<u>30,712,007</u>	<u>31,587,141</u>	<u>0</u>	<u>31,587,141</u>
g. Total	\$476,322,260	\$850,867,925	\$1,327,190,185	\$467,477,652	\$774,507,570	\$1,241,985,222
3 Total Statutory Contribution (1) + (2)	\$608,900,926	\$1,262,504,384	\$1,871,405,310	\$594,266,603	\$1,127,145,016	\$1,721,411,619
4 Lottery Enterprise Contribution Offset	\$0	\$0	\$0	(\$13,150,454)	\$0	(\$13,150,454)
5 Net Pension Contribution (3) + (4)	\$608,900,926	\$1,262,504,384	\$1,871,405,310	\$581,116,149	\$1,127,145,016	\$1,708,261,165
6 Non-Contributory Group Insurance Premium at Beginning of Fiscal Year (one-year term cost)	N/A	\$38,807,839	\$38,807,839	N/A	\$38,420,336	\$38,420,336

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 \$231,514,871 and \$235,029,281 for the July 1, 2021 and July 1, 2020 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

The following tables present the State and Local employers' statutory contributions¹ as a percentage of appropriation payroll for FYE 2023 compared to FYE 2022 both in total and broken out by chapter. The increase in the statutory contribution amounts as a percentage of appropriations payroll are primary due to the change in the investment return assumption.

	July 1, 2021 Fiscal Year Ending 2023 Payment			July 1, 2020 Fiscal Year Ending 2022 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	13.381%	13.369%	13.371%	11.969%	11.931%	11.936%
UAL Contribution Rate ²	<u>61.152%</u>	<u>28.553%</u>	<u>32.607%</u>	<u>58.277%</u>	<u>26.929%</u>	<u>30.920%</u>
Total Pension Contribution Rate	74.533%	41.922%	45.978%	70.246%	38.860%	42.856%
Non-Contributory Group Insurance Premium Rate	N/A	1.089%	N/A	N/A	1.096%	N/A
After Statutory State-Paid Local Adjustments and Prior to Lottery Enterprise Contribution Offset						
Normal Cost Contribution Rate	26.188%	11.550%	13.371%	24.793%	10.060%	11.936%
UAL Contribution Rate ²	<u>94.087%</u>	<u>23.874%</u>	<u>32.607%</u>	<u>91.413%</u>	<u>22.095%</u>	<u>30.920%</u>
Total Pension Contribution Rate	120.275%	35.424%	45.978%	116.206%	32.155%	42.856%
Non-Contributory Group Insurance Premium Rate	N/A	1.089%	N/A	N/A	1.096%	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, 2021 Fiscal Year Ending 2023 Payment		July 1, 2020 Fiscal Year Ending 2022 Payment	
	State	Local	State	Local
Normal Cost Contribution Rate¹				
Basic Allowances	11.550%	11.550%	10.078%	10.057%
Chapter 247, P.L. 1993				
PERS Local normal rate for individuals without past service	N/A	16.370%	N/A	15.768%
PERS Local normal rate for individuals with past service	N/A	2.606%	N/A	2.182%
Portion of Municipalities and Local Group costs payable by the State	0.011%	N/A	0.011%	N/A
Chapter 428, P.L. 1999	1.363%	N/A	2.143%	N/A
Chapter 109, P.L. 1979	9.463%	N/A	9.271%	N/A
Chapter 511, P.L. 1991	3.800%	N/A	3.289%	N/A
UAL Contribution Rate^{1,2}				
Basic Allowances	58.481%	23.874%	55.718%	22.093%
Chapter 204, P.L. 1989 ³	--	--	--	--
Chapter 247, P.L. 1993	2.042%	N/A	2.081%	N/A
Chapter 428, P.L. 1999 ⁴	16.232%	N/A	15.968%	N/A
Chapter 109, P.L. 1979	11.250%	N/A	11.455%	N/A
Chapter 511, P.L. 1991	6.067%	N/A	6.177%	N/A
Non-Contributory Group Insurance Premium Rate	N/A	1.089%	N/A	1.096%

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, 2021 Fiscal Year Ending 2023		July 1, 2020 Fiscal Year Ending 2022	
		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	\$2,147	11	\$2,179	12
00323	Dept Div of Human Resources	68,971	11	70,005	12
00498	Rutgers Biomedical	<u>3,608</u>	<u>11</u>	<u>3,662</u>	<u>12</u>
	Total	\$74,725		\$75,846	
Municipalities and Local Groups					
21202	Camden City	\$89,552	11	\$90,895	12
39300	Belmar Borough	11,979	11	12,159	12
46800	Roxbury Township	22,670	11	23,010	12
49700	Wes Windsor Township	33,627	11	34,131	12
57700	Sea Isle City	6,084	11	6,175	12
62400	NJ Institute of Technology	97,015	11	98,470	12
62500	Brookdale Community College	105,421	11	107,002	12
62700	Essex County College	31,682	11	32,157	12
75000	Lakewood Twp Fire District #1	16,825	11	17,077	12
75700	Middlesex County College	117,181	11	118,938	12
76200	Lower Camden Co Reg HS Dist #1	2,530	11	2,568	12
77500	Hopewell Twp Fire District #1	10,427	11	10,583	12
78600	South Jersey Transit Authority	51,174	11	51,941	12
78700	Washington Twp Bd of Fire Comm	17,901	11	18,169	12
79600	Upper Freehold Township	<u>1,088</u>	<u>11</u>	<u>1,104</u>	<u>12</u>
	Total	\$615,155		\$624,379	

Section 2: Actuarial Valuation Results

Fiscal Year Ending 2023 Contributions for State College Locations

Location	Location Name	Number of Members	2021 Appropriation Payroll	Normal Cost Contribution	UAL Contribution	Net FYE 2023 Pension Contribution ¹
00410	Rowan University	33	\$2,381,611	\$623,698	\$2,240,442	\$ 2,864,141
00412	Kean University	18	1,175,690	307,891	1,106,002	1,413,892
00413	William Paterson University of NJ	22	1,612,679	422,330	1,517,088	1,939,418
00414	Montclair State University	32	2,824,036	739,561	2,656,643	3,396,204
00415	The College of New Jersey	14	975,018	255,339	917,224	1,172,563
00421	Stockton University	21	1,284,661	336,428	1,208,513	1,544,942
00498	Rutgers University	121	9,584,931	2,510,110	9,020,397	11,530,507
62400	NJ Institute of Technology	<u>23</u>	<u>1,910,446</u>	<u>500,309</u>	<u>1,894,220</u>	<u>2,394,530</u>
	Total	284	\$21,749,072	\$5,695,666	\$20,560,530	\$26,256,196

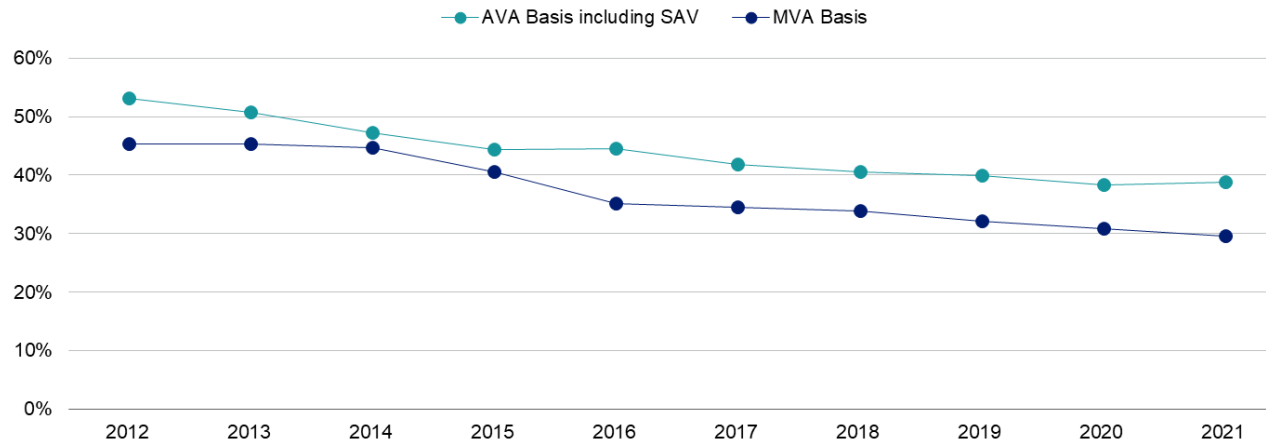
¹ Beginning with the 2023 FYE contribution the lottery enterprise contribution is no longer used to offset the pension contribution.

Section 2: Actuarial Valuation Results

Schedule of State funding progress through June 30, 2021

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)
07/01/2012	\$2,137,727,566	\$4,026,954,882	\$1,889,227,316	53.09%	\$542,344,707	348.34%
07/01/2013	2,127,491,585	4,188,523,037	2,061,031,452	50.79%	532,147,062	387.30%
07/01/2014	2,062,185,965	4,365,609,664	2,303,423,699	47.24%	529,501,284	435.02%
07/01/2015	2,004,579,109	4,516,438,165	2,511,859,056	44.38%	518,087,705	484.83%
07/01/2016	1,928,447,404	4,676,642,040	2,748,194,636	41.24%	507,802,380	541.19%
07/01/2017	1,887,486,318	4,873,081,731	2,985,595,413	38.73%	504,025,065	592.35%
07/01/2018	1,872,048,766	4,983,733,970	3,111,685,204	37.56%	479,941,514	648.35%
07/01/2019	1,896,362,754	5,261,107,456	3,364,744,702	36.04%	487,025,462	690.88%
07/01/2020	1,935,340,424	5,449,871,027	3,514,530,603	35.51%	511,392,879	687.25%
07/01/2021	2,103,993,000	5,814,553,891	3,710,560,891	36.18%	506,255,584	732.94%

State Funded Ratio History for Years Ended June 30, 2012 – 2021



¹ Including receivables but excluding SAV

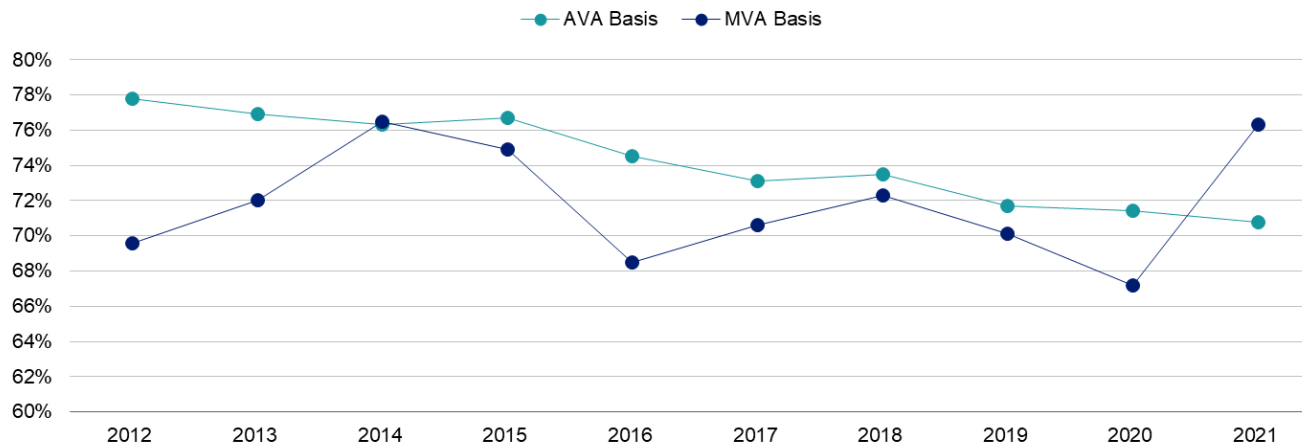
² Includes non-contributing actives prior to July 1, 2018

Section 2: Actuarial Valuation Results

Schedule of Local funding progress through June 30, 2021

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)
07/01/2012	\$21,549,327,079	\$27,705,168,437	\$6,155,841,358	77.78%	\$3,218,932,891	191.24%
07/01/2013	22,170,221,173	28,811,698,272	6,641,477,099	76.95%	3,233,135,473	205.42%
07/01/2014	23,066,498,788	30,239,286,907	7,172,788,119	76.28%	3,246,344,549	220.95%
07/01/2015	23,935,037,150	31,205,965,303	7,270,928,153	76.70%	3,272,560,644	222.18%
07/01/2016	24,420,145,823	32,793,439,210	8,373,293,387	74.47%	3,320,721,980	252.15%
07/01/2017	25,183,776,588	34,474,127,537	9,290,350,949	73.05%	3,399,605,586	273.28%
07/01/2018	26,109,128,660	35,523,376,524	9,414,247,864	73.50%	3,390,777,193	277.64%
07/01/2019	27,023,458,408	37,671,711,185	10,648,252,777	71.73%	3,450,951,747	308.56%
07/01/2020	27,723,057,451	38,853,311,601	11,130,254,150	71.35%	3,505,375,030	317.52%
07/01/2021	29,499,250,329	41,694,235,840	12,194,985,511	70.75%	3,563,943,590	342.18%

Local Funded Ratio History for Years Ended June 30, 2012 – 2021



¹ Including receivables

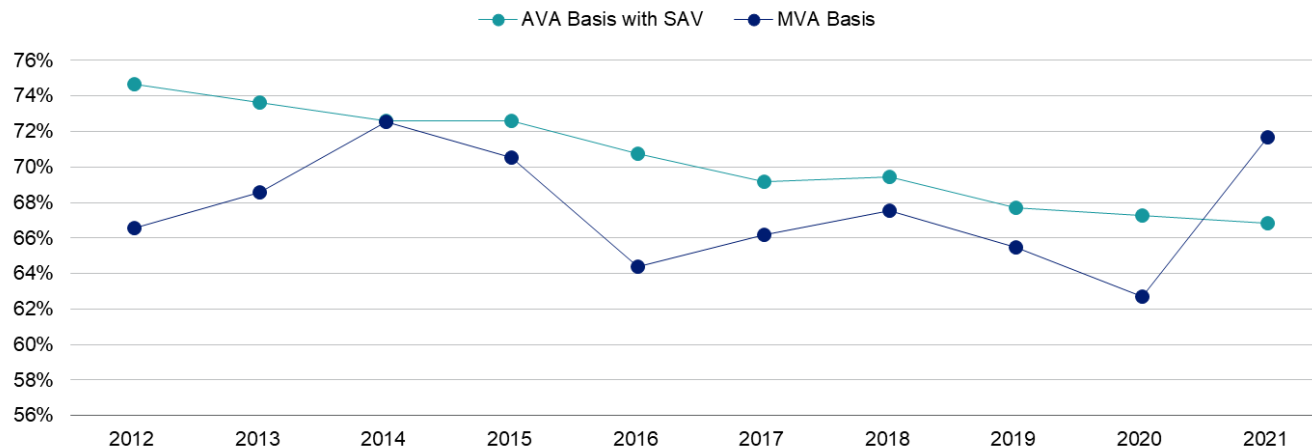
² Includes non-contributing actives prior to July 1, 2018

Section 2: Actuarial Valuation Results

Schedule of Total funding progress through June 30, 2021

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)
07/01/2012	\$23,687,054,645	\$31,732,123,319	\$8,045,068,674	74.65%	\$3,761,277,598	213.89%
07/01/2013	\$24,297,712,758	\$33,000,221,309	\$8,702,508,551	73.63%	\$3,765,282,535	231.12%
07/01/2014	\$25,128,684,753	\$34,604,896,571	\$9,476,211,818	72.62%	\$3,775,845,833	250.97%
07/01/2015	\$25,939,616,259	\$35,722,403,468	\$9,782,787,209	72.61%	\$3,790,648,349	258.08%
07/01/2016	\$26,348,593,227	\$37,470,081,250	\$11,121,488,023	70.32%	\$3,828,524,360	290.49%
07/01/2017	\$27,071,262,906	\$39,347,209,268	\$12,275,946,362	68.80%	\$3,903,630,651	314.48%
07/01/2018	\$27,981,177,426	\$40,507,110,494	\$12,525,933,068	69.08%	\$3,870,718,707	323.61%
07/01/2019	\$28,919,821,162	\$42,932,818,641	\$14,012,997,479	67.36%	\$3,937,977,209	355.84%
07/01/2020	\$29,658,397,875	\$44,303,182,628	\$14,644,784,753	66.94%	\$4,016,767,909	364.59%
07/01/2021	\$31,603,243,329	\$47,508,789,731	\$15,905,546,402	66.52%	\$4,070,199,174	390.78%

Total Funded Ratio History for Years Ended June 30, 2012 – 2021



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

A history of the most recent years of contributions is shown below.

History of State Employer Contributions¹: 2012 – 2021

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
2013	\$393,637,547	72.58%	\$112,468,000	20.74%	\$0	28.6%
2014	389,689,529	73.23%	115,623,000	21.73%	0	29.7%
2015	414,316,953	78.25%	139,297,000	26.31%	0	33.6%
2016	461,081,051	89.00%	138,324,000	26.70%	0	30.0%
2017	483,877,347	95.29%	195,221,000	38.44%	0	40.3%
2018	502,917,964	99.78%	239,446,000	47.51%	11,712,026	49.9%
2019	529,722,755	110.37%	307,999,000	64.17%	13,260,000	60.6%
2020	544,579,266	111.82%	368,129,000	75.59%	12,180,000	69.8%
2021	569,662,114	111.39%	431,325,000	84.34%	13,036,855	78.0%
2022 ²	594,266,603	117.38%	594,266,603	117.38%	13,260,000	102.2%

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

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

Section 2: Actuarial Valuation Results

History of Local Employer Contributions: 2012 – 2021

Fiscal Year Ended June 30	Actuarially Determined Employer Contribution (ADC)		Actual Employer Contribution		
	Amount	Percentage of Payroll	Amount	Percentage of Payroll	Percent Contributed
2013	\$776,511,374	24.12%	\$776,511,374	24.12%	100.00%
2014	726,928,577	22.48%	726,928,577	22.48%	100.00%
2015	760,533,458	23.43%	760,533,458	23.43%	100.00%
2016	804,063,662	24.57%	804,063,662	24.57%	100.00%
2017	807,438,390	24.32%	807,438,390	24.32%	100.00%
2018	877,147,545	25.80%	877,147,545	25.80%	100.00%
2019	968,867,296	28.57%	968,540,115	28.56%	99.97%
2020	991,786,398	28.74%	991,786,398	28.74%	100.00%
2021	1,108,329,223	31.62%	1,108,329,223	31.62%	100.00%
2022	1,154,235,618	32.39%	1,154,235,618	32.39%	100.00%

¹ Excludes contributions for NCGI and Local obligations payable by the State and includes ERIs and Chapter 19, P.L. 2009 payments

Section 2: Actuarial Valuation Results

Risk

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

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

- Investment Risk (the risk that returns will be different than expected)
- Longevity Risk (the risk that mortality experience will be different than expected)
- Contribution Risk (the risk that actual contributions will be different from ADC)
- 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

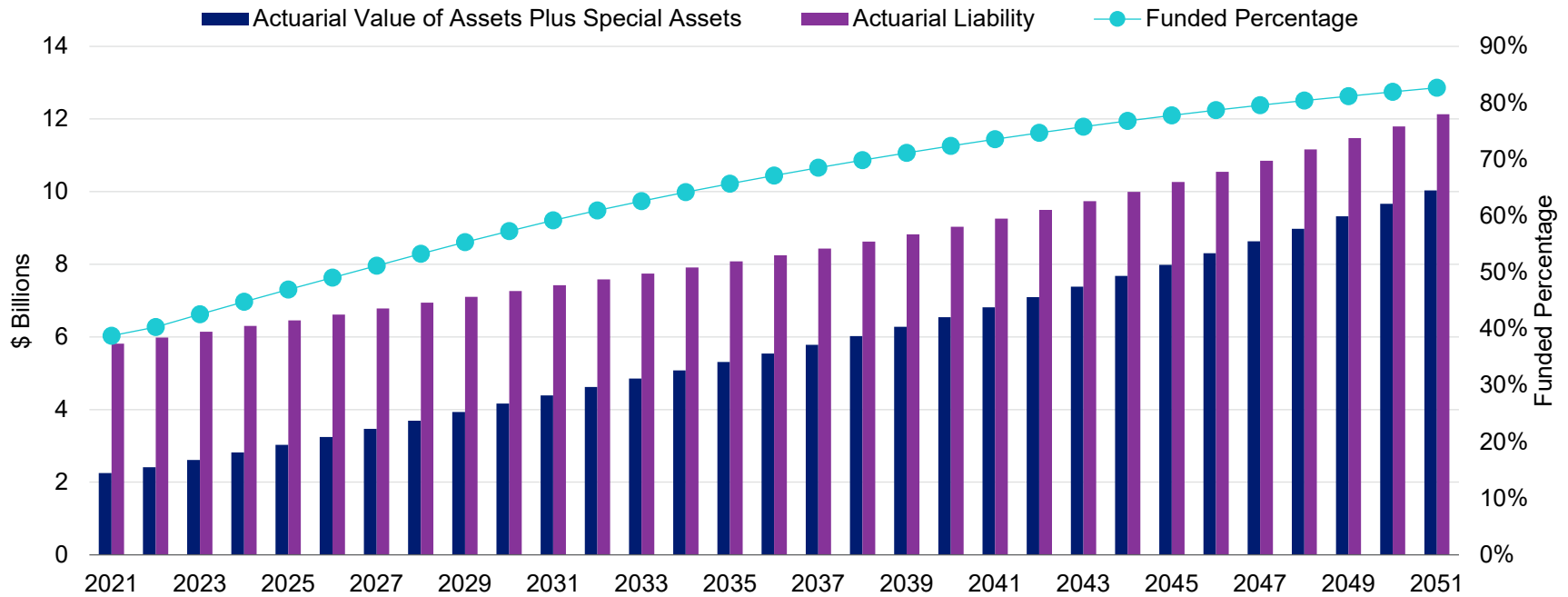
As a baseline, the projections on the following page show the projected funded status and statutory pension contribution assuming the following:

- All actuarial assumptions including the net investment return of 7.00% as recommended by the Chief Financial Officer are exactly met.
- State and Local appropriations are paid in full each year according to the assumptions detailed in this report
- NCGI reserves, contributions, and benefit payments are disregarded
- Annual administrative expenses are assumed to increase 2.75% per year from the level paid in FYE 2021 and limited to 15% of benefit payments
- Contributing active population remains at 2021 level. New entrants are assumed to join mid-year with demographics based on last 3 years of new hires and salary based on most recent hires reported in 2021 data (increased 3.25% each future year)

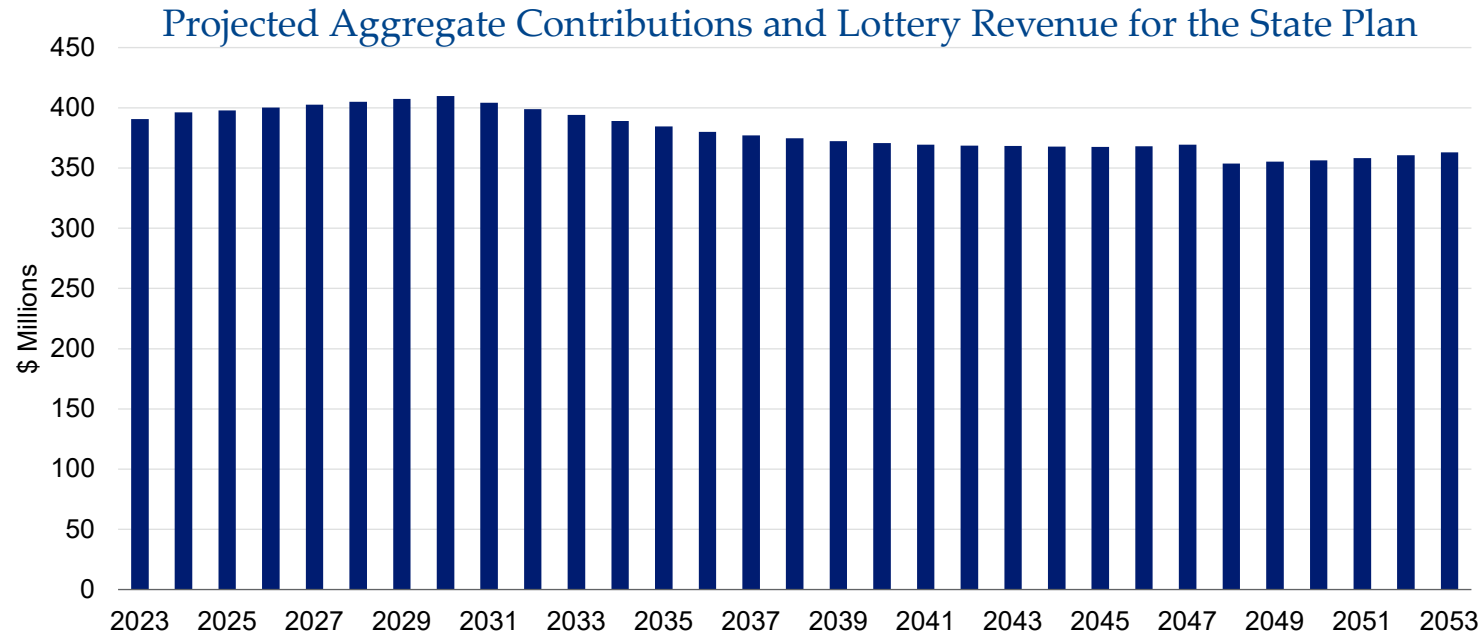
Section 2: Actuarial Valuation Results

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 2045 and Local portion is projected to reach 80% funded in 2039. Additional scenarios would highlight the sensitivity of these variables to the risks mentioned above.

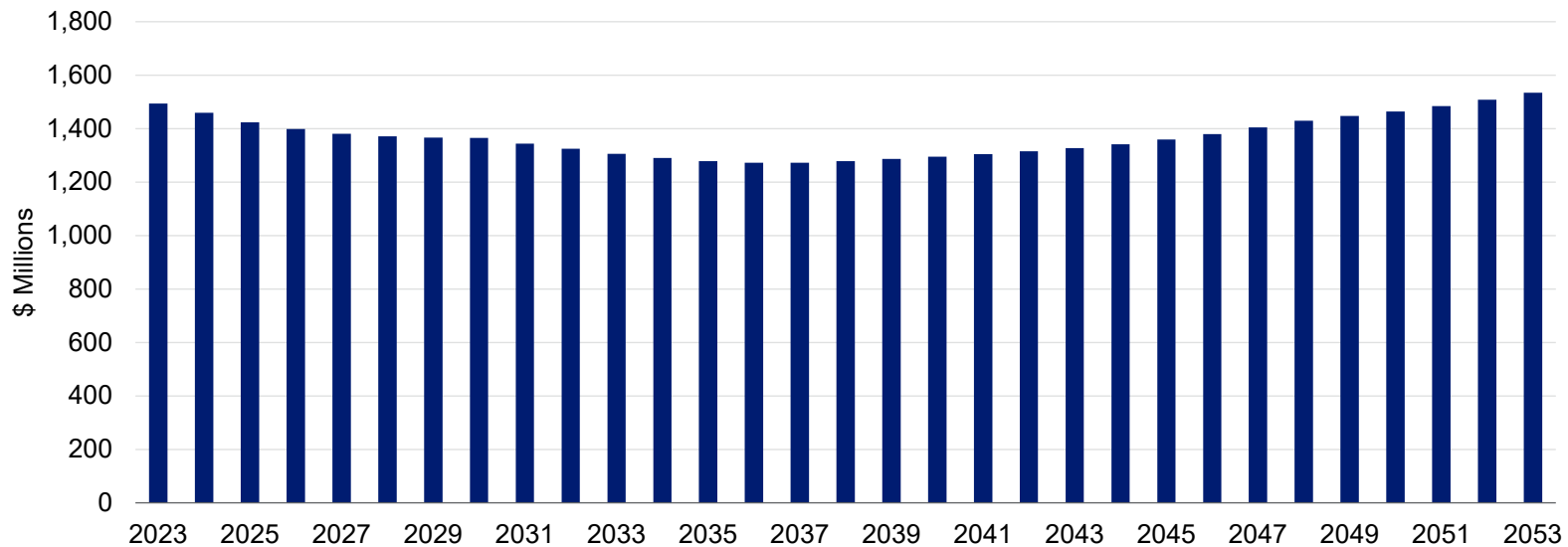
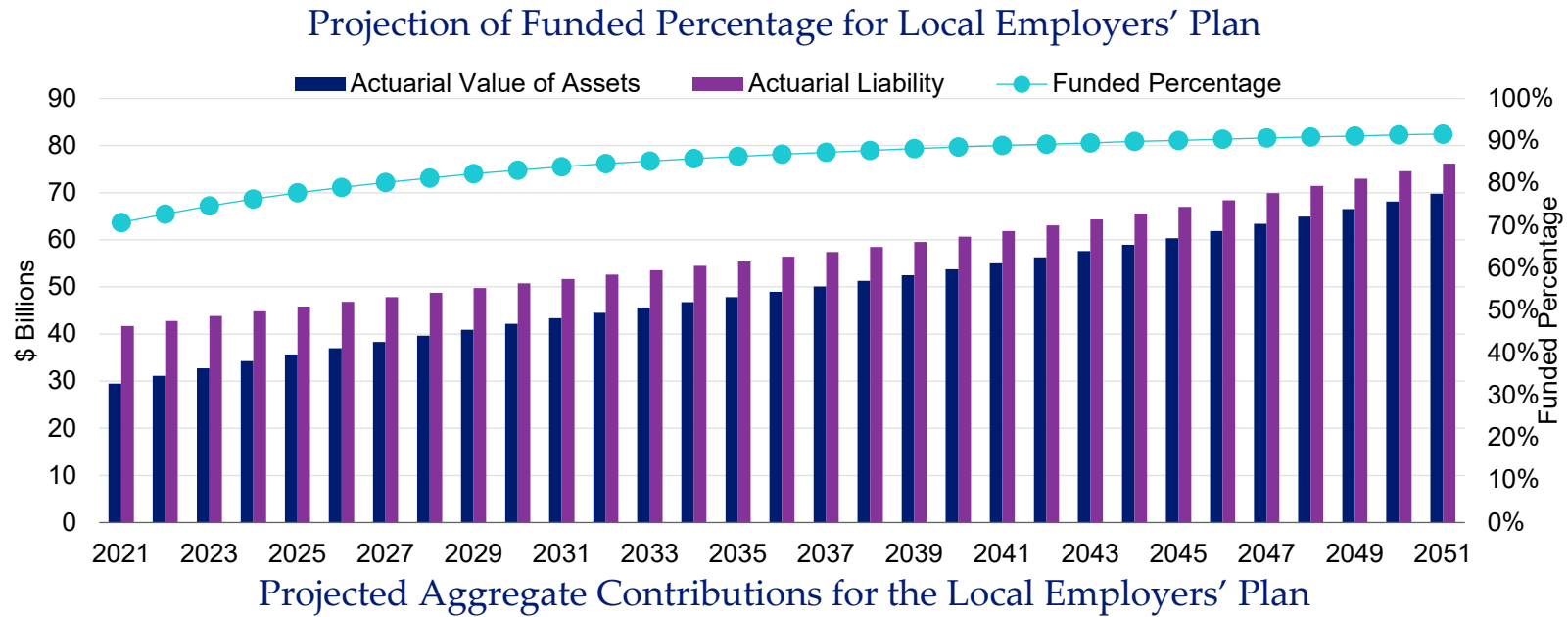
Projection of Funded Percentage for State Plan



Section 2: Actuarial Valuation Results



Section 2: Actuarial Valuation Results



Section 2: Actuarial Valuation Results

Active liability by type

The tables below show the Actuarial Liability by Tier for contributing and non-contributing active members, respectively, for State and Local employers as of July 1, 2021

Contributing Actives by Tier

	Number of Members	Appropriation Payroll ¹	Actuarial Liability	Gross Normal Cost
State				
• Tier 1	3,620	\$331,410,531	\$1,614,040,834	\$77,661,462
• Tier 2	219	17,407,921	34,898,452	3,254,135
• Tier 3	<u>2,606</u>	<u>157,437,132</u>	<u>163,484,264</u>	<u>30,189,985</u>
Total	6,445	\$506,255,584	\$1,812,423,549	\$111,105,581
Local				
• Tier 1	19,016	\$2,413,850,371	\$12,230,757,916	\$553,274,841
• Tier 2	496	53,128,486	110,509,985	10,051,061
• Tier 3	<u>14,519</u>	<u>1,096,964,733</u>	<u>1,225,335,884</u>	<u>210,915,145</u>
Total	34,031	\$3,563,943,590	\$13,556,603,784	\$774,241,048

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

Section 2: Actuarial Valuation Results

Non-Contributing Actives by Tier

	Number of Members	Last Reported Payroll ¹	Actuarial Liability	Gross Normal Cost
State				
• Tier 1	261	\$18,693,672	\$70,989,404	\$0
• Tier 2	8	550,723	841,903	0
• Tier 3	<u>202</u>	<u>10,467,483</u>	<u>7,711,349</u>	<u>0</u>
Total	471	\$29,711,878	\$79,542,656	\$0
Local				
• Tier 1	770	\$67,038,489	\$250,718,667	\$0
• Tier 2	12	1,099,944	2,046,415	0
• Tier 3	<u>459</u>	<u>26,964,861</u>	<u>21,638,535</u>	<u>0</u>
Total	1,241	\$95,103,294	\$274,403,617	\$0

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

Section 3: Supplemental Information

Exhibit A: Table of Plan Demographics for State

Category	Year Ended June 30		Change From Prior Year
	2021	2020	
Contributing Active¹ participants in valuation:			
• Number	6,445	6,688	-3.6%
• Average age	40.3	39.8	0.5
• Average years of service	13.2	12.8	0.4
• Projected total payroll for police	\$503,120,897	\$508,153,401	-1.0%
• Projected average payroll for police	\$78,637	\$76,518	2.8%
• Projected total payroll for firefighters	\$3,221,495	\$3,239,478	-0.6%
• Projected average payroll for firefighters	\$68,542	\$68,925	-0.6%
Non-Contributing Active¹ Participants	471	426	10.6%
Inactive Vested participants	10	13	-23.1%
• Average monthly benefit	\$1,603	\$1,491	7.5%
Retired participants:			
• Number in pay status	5,037	4,935	2.1%
• Average age	63.5	N/A	N/A
• Average monthly benefit	\$4,488	\$4,455	0.7%
Ordinary Disabled participants:			
• Number in pay status	721	732	-1.5%
• Average age	59.1	N/A	N/A
• Average monthly benefit	\$2,343	\$2,322	0.9%
Accidental Disabled participants:			
• Number in pay status	380	375	1.3%
• Average age	53.5	N/A	N/A
• Average monthly benefit	\$3,866	\$3,838	0.7%
Beneficiaries:			
• Number in pay status	935	895	4.5%
• Average age	69.4	N/A	N/A
• Average monthly benefit	\$2,749	\$2,728	0.8%

¹ See Section 2 for Tier breakouts for active demographics

Section 3: Supplemental Information

Exhibit B: Table of Plan Demographics for Local

Category	Year Ended June 30		Change From Prior Year
	2021	2020	
Contributing Active¹ participants in valuation:			
• Number	34,031	34,150	-0.3%
• Average age	39.8	39.8	0.0
• Average years of service	13.5	13.5	0.0
• Projected total payroll for police	\$2,875,097,908	\$2,830,430,380	1.6%
• Projected average payroll for police	\$105,024	\$102,809	2.2%
• Projected total payroll for firefighters	\$688,845,682	\$674,944,650	2.1%
• Projected average payroll for firefighters	\$103,763	\$101,971	1.8%
Non-Contributing Active¹ Participants	1,241	1,168	6.3%
Inactive Vested participants			
• Average monthly benefit	\$2,085	\$1,996	4.5%
Retired participants:			
• Number in pay status	28,514	27,920	2.1%
• Average age	65.4	N/A	N/A
• Average monthly benefit	\$5,853	\$5,745	1.9%
Ordinary Disabled participants:			
• Number in pay status	2,242	2,233	0.4%
• Average age	57.2	N/A	N/A
• Average monthly benefit	\$2,645	\$2,566	3.1%
Accidental Disabled participants:			
• Number in pay status	2,702	2,695	0.3%
• Average age	54.7	N/A	N/A
• Average monthly benefit	\$4,627	\$4,575	1.1%
Beneficiaries:			
• Number in pay status	6,987	6,786	3.0%
• Average age	74.7	N/A	N/A
• Average monthly benefit	\$2,923	\$2,865	2.0%

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, 2021 by Age, Years of Service, and Average Payroll

Age	Years of Service										
	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over	Unknown
Under 25	153	151	2	--	--	--	--	--	--	--	--
	\$46,148	\$45,993	\$57,855	--	--	--	--	--	--	--	--
25 - 29	819	618	200	1	--	--	--	--	--	--	--
	54,551	51,625	63,502	72,312	--	--	--	--	--	--	--
30 - 34	1,109	426	564	115	4	--	--	--	--	--	--
	64,667	53,356	69,903	80,427	77,843	--	--	--	--	--	--
35 - 39	1,110	156	342	432	175	5	--	--	--	--	--
	77,115	53,735	72,321	84,713	87,754	105,601	--	--	--	--	--
40 - 44	1,117	10	111	285	468	241	2	--	--	--	--
	88,691	57,855	72,566	86,356	91,407	94,865	91,167	--	--	--	--
45 - 49	1,099	--	10	108	359	596	26	--	--	--	--
	92,718	--	75,583	86,447	90,530	95,135	100,148	--	--	--	--
50 - 54	777	--	--	22	214	447	86	8	--	--	--
	92,787	--	--	88,084	88,699	93,667	99,500	93,760	--	--	--
55 - 59	223	--	--	--	20	169	21	11	2	--	--
	92,965	--	--	--	88,285	93,178	92,284	99,934	90,615	--	--
60 - 64	38	--	--	--	--	21	6	7	1	3	--
	92,114	--	--	--	--	90,317	89,096	87,472	73,926	127,628	--
Total	6,445	1,361	1,229	963	1,240	1,479	141	26	3	3	--
	\$78,564	\$51,830	\$69,801	\$84,946	\$90,076	\$94,390	\$97,983	\$94,679	\$85,052	\$127,628	\$0

Section 3: Supplemental Information

Exhibit D: Local Participants in Active Service as of June 30, 2021 by Age, Years of Service, and Average Payroll

Age	Years of Service										
	Total	0-4	5-9	10-14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 & over	Unknown
Under 25	737	734	3	--	--	--	--	--	--	--	--
	\$52,775	\$52,750	\$58,801	--	--	--	--	--	--	--	--
25 - 29	4,546	3,461	1,074	11	--	--	--	--	--	--	--
	64,503	59,858	79,243	86,584	--	--	--	--	--	--	--
30 - 34	6,404	2,012	3,516	836	40	--	--	--	--	--	--
	82,492	62,230	88,780	103,670	106,349	--	--	--	--	--	--
35 - 39	6,359	626	1,801	2,401	1,499	31	1	--	--	--	--
	103,451	62,955	91,888	111,759	120,542	124,114	69,264	--	--	--	--
40 - 44	5,708	54	575	1,099	2,782	1,188	10	--	--	--	--
	119,366	66,093	93,527	110,392	123,143	133,564	141,759	--	--	--	--
45 - 49	5,138	--	78	427	1,359	2,738	530	6	--	--	--
	129,572	--	98,075	108,622	120,373	134,228	150,406	148,164	--	--	--
50 - 54	3,603	1	1	80	639	1,630	1,022	229	1	--	--
	133,525	83,824	62,448	108,472	117,513	128,128	148,990	156,710	171,040	--	--
55 - 59	1,192	--	--	--	48	463	371	228	80	2	--
	141,869	--	--	--	120,100	127,966	145,715	158,643	168,298	200,238	--
60 - 64	343	--	1	--	2	77	94	66	75	28	--
	145,897	--	142,800	--	106,154	121,001	133,426	158,071	166,476	175,364	--
65 - 69	1	--	1	--	--	--	--	--	--	--	--
	132,236	--	132,236	--	--	--	--	--	--	--	--
Total	34,031	6,888	7,050	4,854	6,369	6,127	2,028	529	156	30	--
	\$104,778	\$60,127	\$88,609	\$109,669	\$121,241	\$131,786	\$147,964	\$157,616	\$167,439	\$177,023	\$0

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, 2020	40,838	1,594	67	32,855	6,035	7,681	89,070
• New or previously unreported participants	1,654	128	0	7	4	158	1,951
• Terminations – with vested rights	(1)	(2)	3	N/A	0	0	0
• Terminations – without vested rights	(136)	(227)	0	N/A	N/A	N/A	(363)
• Retirements	(1,428)	(39)	(9)	1,476	0	N/A	0
• New disabilities	(68)	(69)	0	(3)	140	N/A	0
• Return to work	0	0	0	0	0	N/A	0
• Died with beneficiary	(29)	0	0	(384)	(62)	475	0
• Died without beneficiary	(12)	(5)	0	(391)	(67)	(334)	(809)
• Active started contributing	265	(265)	N/A	N/A	N/A	N/A	0
• Active stopped contributing	(607)	607	N/A	N/A	N/A	N/A	0
• Certain period expired	N/A	N/A	0	0	0	(58)	(58)
• Data adjustments	0	(10)	(1)	(9)	(5)	0	(25)
Number as of July 1, 2021	40,476	1,712	60	33,551	6,045	7,922	89,766

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Exhibit F: Definition of Pension Terms

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

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

Section 3: Supplemental Information

	Actuarial Present Value of Future Benefits includes the liabilities for active members, retired members, beneficiaries receiving benefits, and inactive members entitled to either a refund of member contributions or a future retirement benefit. Expressed another way, it is the value that would have to be invested on the valuation date so that the amount invested plus investment earnings would provide sufficient assets to pay all projected benefits and expenses when due.
Actuarial Valuation:	The determination, as of a valuation date, of the Normal Cost, Actuarial Accrued Liability, Actuarial Value of Assets, and related Actuarial Present Values for a plan, as well as Actuarially Determined Contributions.
Actuarial Value of Assets (AVA):	The value of the Plan's assets as of a given date, used by the actuary for valuation purposes. This may be the market or fair value of plan assets, but commonly plans use a smoothed value in order to reduce the year-to-year volatility of calculated results, such as the funded ratio and the Actuarially Determined Contribution.
Actuarially Determined:	Values that have been determined utilizing the principles of actuarial science. An actuarially determined value is derived by application of the appropriate actuarial assumptions to specified values determined by provisions of the Plan.
Actuarially Determined Contribution (ADC):	The employer's periodic required contributions, expressed as a dollar amount or a percentage of covered plan compensation, determined under the Plan's funding policy. The ADC consists of the Employer Normal Cost and the Amortization Payment.
Amortization Method:	A method for determining the Amortization Payment. The most common methods used are level dollar and level percentage of payroll. Under the Level Dollar method, the Amortization Payment is one of a stream of payments, all equal, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the Amortization Payment is one of a stream of increasing payments, whose Actuarial Present Value is equal to the Unfunded Actuarial Accrued Liability. Under the Level Percentage of Pay method, the stream of payments increases at the assumed rate at which total covered payroll of all active members will increase.
Amortization Payment:	The portion of the pension plan contribution, or ADC, that is intended to pay off the Unfunded Actuarial Accrued Liability.
Assumptions or Actuarial Assumptions:	The estimates upon which the cost of the Plan is calculated, including: <u>Investment return</u> - the rate of investment yield that the Plan will earn over the long-term future; <u>Mortality rates</u> - the rate or probability of death at a given age for employees and retirees; <u>Retirement rates</u> - the rate or probability of retirement at a given age or service; <u>Disability rates</u> - the rate or probability of disability retirement at a given age;

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	<p><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;</p> <p><u>Salary increase rates</u> - the rates of salary increase due to inflation, real wage growth and merit and promotion increases.</p>
Closed Amortization Period:	A specific number of years that is counted down by one each year, and therefore declines to zero with the passage of time. For example, if the amortization period is initially set at 20 years, it is 19 years at the end of one year, 18 years at the end of two years, etc. See Open Amortization Period.
Decrements:	Those causes/events due to which a member's status (active-inactive-retiree-beneficiary) changes, that is: death, retirement, disability, or withdrawal.
Defined Benefit Plan:	A retirement plan in which benefits are defined by a formula based on the member's compensation, age and/or years of service.
Defined Contribution Plan:	A retirement plan, such as a 401(k) plan, a 403(b) plan, or a 457 plan, in which the contributions to the plan are assigned to an account for each member, the plan's earnings are allocated to each account, and each member's benefits are a direct function of the account balance.
Employer Normal Cost:	The portion of the Normal Cost to be paid by the employer. This is equal to the Normal Cost less expected member contributions.
Experience Study:	A periodic review and analysis of the actual experience of the Plan that may lead to a revision of one or more actuarial assumptions. Actual rates of decrement and salary increases are compared to the actuarially assumed values and modified based on recommendations from the Actuary.
Funded Ratio:	The ratio of the Actuarial Value of Assets (AVA) to the Actuarial Accrued Liability (AAL). Plans sometimes also calculate a market funded ratio, using the Market Value of Assets (MVA), rather than the AVA.
Investment Return:	The rate of earnings of the Plan from its investments, including interest, dividends and capital gain and loss adjustments, computed as a percentage of the average value of the fund. For actuarial purposes, the investment return often reflects a smoothing of the capital gains and losses to avoid significant swings in the value of assets from one year to the next.
Normal Cost:	The portion of the Actuarial Present Value of Future Benefits and expenses allocated to a valuation year by the Actuarial Cost Method. Any payment with respect to an Unfunded Actuarial Accrued Liability is not part of the Normal Cost (see Amortization Payment). For pension plan benefits that are provided in part by employee contributions, Normal Cost refers to the total of member contributions and employer Normal Cost unless otherwise specifically stated.

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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.
Unfunded Actuarial Accrued Liability:	The excess of the Actuarial Accrued Liability over the Actuarial Value of Assets. This value may be negative, in which case it may be expressed as a negative Unfunded Actuarial Accrued Liability, also called the Funding Surplus or an Overfunded Actuarial Accrued Liability.
Valuation Date or Actuarial Valuation Date:	The date as of which the value of assets is determined and as of which the Actuarial Present Value of Future Benefits is determined. The expected benefits to be paid in the future are discounted to this date.

Section 4: Actuarial Valuation Basis

Exhibit I: Actuarial Assumptions and Actuarial Cost Method

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, 2013 – June 30, 2018 as completed by Cheiron. Current data is reviewed in conjunction with each annual valuation. Based on professional judgment, the assumptions outlined in that report remain reasonable for long-term funding purposes and no changes in assumptions are warranted at this time. The net investment return assumption is recommended by the Chief Financial Officer.	
Net Investment Return:	7.00%. The net investment return assumption is chosen based on direction from the Chief Financial Officer and as adopted by the Board of Trustees.	
Salary Increases:	Service	Rate (%)
	0-1	15.25
	2	12.75
	3	10.75
	4	10.25
	5	9.25
	6	8.25
	7	7.25
	8	5.75
	9	5.25
	10	4.75
	11	4.25
	12	3.75
	13+	3.25
	Salary increases include an assumed inflation rate of 2.75%	

Section 4: Actuarial Valuation Basis

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.
Mortality Rates:	<p><i>Employee:</i> 105.6% of Pub-2010 Safety Employee amount-weighted mortality table for males and 102.5% of Safety Employee amount-weighted mortality table for females, projected generationally from 2010 with Scale MP-2018. 5% of deaths are assumed to be accidental</p> <p><i>Healthy Annuitant:</i> 96.7% of Pub-2010 Safety Retiree Below Median amount-weighted mortality table for males and 96.0% of Pub-2010 Safety Retiree Below Median amount-weighted mortality table for females, projected generationally from 2010 with Scale MP-2018</p> <p><i>Disabled:</i> 152.0% of Safety Disabled Retiree amount-weighted mortality table for males and 109.3% of Safety Disabled Retiree amount-weighted mortality table for females, projected generationally from 2010 with Scale MP-2018</p> <p><i>Contingent Annuitant:</i> Pub-2010 General Retiree Below-Median amount-weighted mortality table projected generationally from 2010 with Scale MP-2018</p>

Termination Rates Before Retirement:

Service	Withdrawal Rate ¹	Service	Withdrawal Rate ¹	Service	Withdrawal Rate ¹
0	2.00	7	1.40	14	0.35
1	2.00	8	1.00	15	0.30
2	1.90	9	0.80	16	0.25
3	1.80	10	0.80	17	0.20
4	1.70	11	0.50	18	0.15
5	1.60	12	0.45	19	0.10
6	1.50	13	0.40	20+	0.00

¹ Withdrawal 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	0.030%	0.020%
30	0.105%	0.100%
40	0.345%	0.400%
50	0.240%	0.180%
59+	0.500%	0.160%

Section 4: Actuarial Valuation Basis

² No 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

Retirement Rates for Active Participants:

For those with less than 25 years of service:

Age	Retirement Probability
40-49	2.00%
50-57	3.00
58	3.50
59	4.25
60	5.00
61	8.00
62	10.00
63	12.00
64	14.00
65 and older	100.00

For those with 25 years of service:

Age	Retirement Probability
48 and younger	45.00%
49-54	50.00
55-59	55.00
60	60.00
61	65.00
62	70.00
63	75.00
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%
54-59	24.00
60	26.00
61	28.00
62-63	30.00
64	40.00
65 and older	100.00

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, 2021 actuarial valuation.

Section 4: Actuarial Valuation Basis

Retirement Age for Inactive Vested Participants:	55
Non-Contributory Group Insurance:	All benefits paid as lump sums
Unknown Data for Participants:	Same as those exhibited by participants with similar known characteristics. If not specified, participants are assumed to be male.
Percent Married:	90%
Age of Spouse:	Females three years younger than males
Family Composition:	<p>Retirees with a beneficiary allowance reported in the data are assumed to be married. None are assumed to have dependent children or parents.</p> <p>Current dependents receiving a pre-retirement accidental death benefit under age 24 are assumed to receive a benefit until age 24 while those over age 24 are assumed to receive a benefit for their lifetime.</p> <p>Current dependents receiving a benefit other than a pre-retirement accidental benefit under age 19 are assumed to receive a benefit until age 19 while those over age 19 are assumed to receive a benefit for their lifetime.</p>
Actuarial Value of Assets:	Sum of actuarial value at beginning of year and increase in cost value during year excluding realized appreciation or losses plus 20 percent of market value at end of year in excess of that preliminary value. The asset method provides a degree of conservatism to increase the likelihood that benefits are funded.
Actuarial Cost Method:	Projected Unit Credit Actuarial Cost Method. Normal Cost and Actuarial Accrued Liability are calculated on an individual basis and allocated linearly by service.
Administrative Expense	None
Contribution Timing	<p>State contributions are assumed to be made on a quarterly basis with the first contribution 15 months after the associated valuation date, in line with the requirements of Chapter 83, P.L. 2016 which requires the State to pay at least 25% by September 30, at least 50% by December 31, at least 75% by March 31, and at least 100% by June 30.</p> <p>Local employers' contributions are expected to be paid on April 1st, 21 months after the valuation date.</p> <p>Member's contributions and lottery revenue are expected to be received monthly</p> <p>Contributions payable in the fiscal year starting on the valuation date are included in the actuarial value of assets as receivable contributions, discounted by the applicable valuation interest rate.</p>
Justification for Change in Actuarial Assumptions:	On recommendation from the Chief Financial Officer, the net investment return was decreased from 7.30% to 7.00% with this valuation.

Section 4: Actuarial Valuation Basis

Exhibit II: Summary of Plan Provisions

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

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

Section 4: Actuarial Valuation Basis

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

Section 4: Actuarial Valuation Basis

Changes in Plan Provisions:

The following plan provisions were changed between July 1, 2020 and July 1, 2021 and are reflected in this valuation:

- Chapter 52, P.L. 2021 allows member enrolled between January 18, 2000 and April 19, 2021 to retire prior to age 55 if they have attained 20 Years of Creditable Service and retire by May 1, 2023.
- The Dominick Marino PFRS Enhanced Benefits for Surviving Spouses Act placed a \$50,000 annual minimum on the pension on the pre-retirement accidental death benefit for surviving spouses.

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

This exhibit summarizes additional benefits and/or funding requirements which are included in this valuation and are described as follows:

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

Section 4: Actuarial Valuation Basis

remaining statutory contributions not appropriated made are reflected as an unfunded actuarial liability attributable to Chapter 511.

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 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 fifteen years 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

Section 4: Actuarial Valuation Basis

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, 2021 excludes expected payments for 2022 fiscal year.

Location	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
22100	East Rutherford Borough	\$88,641	\$713,114
25500	Glen Ridge Borough	63,737	512,767
34600	Wallington Borough	41,672	335,250
38800	Phillipsburg Town	12,475	100,354
43400	Bound Brook Borough	37,040	297,976
54400	Linwood City	58,077	467,233
57100	Mine Hill Township	20,247	162,890
61200	Raritan Township	61,037	491,043
	Total	\$382,927	\$3,080,626

Section 5: Additional Required Exhibits

Exhibit 2: Recent ERI Legislation Contribution Schedules

Payment amounts calculated assuming a payment date 21 months after the valuation date. The Present value as of July 1, 2021 excludes expected payments for 2022 fiscal year. Note that Chapter 130, P.L. 2003 amortizations are \$0 beginning with the year ending 2023

Location	Location Name	Years and Form of Payment	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
Chapter 126, P.L. 2000				
72000	Union County	15 Year - Level	\$48,845	\$83,944
72001	Union County	15 Year - Level	17,465	30,016
72003	Union County (Effective 2006)	15 Year - Level	196,311	337,373
Total			\$262,621	\$451,333

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, 2021 excludes expected payments for 2022 fiscal year.

Location	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
20300	Bayonne City	\$607,754	\$1,956,736
20400	Salem City	23,987	77,230
20600	Plainfield City	347,596	1,119,127
21001	Elizabeth City	485,562	1,563,326
21002	Elizabeth City	347,586	1,119,096
21101	Newark City	1,813,924	5,840,143
21102	Newark City	885,691	2,851,589
21202	Camden City	301,610	971,069
21300	North Plainfield Borough	108,326	348,768
21600	Somerville Borough	42,869	138,023
21800	Roselle Borough	139,503	449,147
22000	Freehold Borough	51,740	166,583
22400	Union City	295,071	950,015
22501	Passaic City	263,249	847,561
22502	Passaic City	174,664	562,351
22800	Metuchen Borough	37,935	122,136
23000	West New York Town	171,286	551,474
23200	Oradell Borough	33,998	109,462
23301	Hoboken City	214,252	689,810
23302	Hoboken City	206,073	663,477
23400	Audubon Borough	24,792	79,820
23800	East Orange City	534,195	1,719,906
23900	Maplewood Township	154,278	496,717
24100	Hightstown Borough	19,496	62,769
24200	West Milford Township	78,090	251,419

Section 5: Additional Required Exhibits

24400	Saddle Brook Township	65,721	211,597
24500	Perth Amboy City	266,067	856,635
24600	Secaucus Town	101,434	326,580
24800	Lyndhurst Township	87,671	282,266
24900	Orange City	245,540	790,545
25500	Glen Ridge Borough	36,208	116,575
25600	Guttenberg Town	29,895	96,249
25801	Collingswood Borough	42,699	137,474
25802	Collingswood Borough	18,300	58,918
26100	Dunellen Borough	18,291	58,890
26600	Fairview Borough	52,100	167,742
26700	Keansburg Borough	43,541	140,185
27300	New Milford Borough	56,291	181,237
27400	Paramus Borough	182,105	586,308
27600	South Amboy City	36,847	118,632
27700	Weehawken Township	89,501	288,159
28000	Hackensack City	378,101	1,217,340
28500	Penns Grove Borough	18,274	58,834
28600	Matawan Borough	32,774	105,518
28700	Cedar Grove Township	49,723	160,090
28900	Bogota Borough	21,136	68,051
29100	Irvington Township	439,582	1,415,287
29200	Cinnaminson Township	62,845	202,337
29500	Little Ferry Borough	28,180	90,728
29700	Garwood Borough	22,700	73,085
30701	Paterson City	475,883	1,532,163
30702	Paterson City	376,585	1,212,460
30801	Atlantic City	466,617	1,502,329
30802	Atlantic City	345,880	1,113,603
31100	Fanwood Borough	27,631	88,963
31300	East Hanover Township	60,565	194,995
31600	Rutherford Borough	69,332	223,221
31800	Harrison Township	158,701	510,955

Section 5: Additional Required Exhibits

32200	Gloucester City	71,615	230,573
32600	Union Township	348,270	1,121,298
32700	Bloomfield Township	327,946	1,055,862
32900	Morristown Town	121,984	392,741
33200	Asbury Park City	182,614	587,947
33401	Trenton City	463,089	1,490,969
33402	Trenton City	345,797	1,113,333
33800	Lakewood Township	188,101	605,612
34100	Rahway City	202,147	650,837
34200	Verona Township	47,906	154,238
34301	Hillside Township	107,508	346,135
34302	Hillside Township	74,374	239,455
34600	Wallington Borough	38,923	125,318
34700	East Newark Borough	6,833	21,999
34800	Clifton City	461,764	1,486,703
34900	Wildwood City	77,937	250,927
35000	Palisades Park Borough	52,912	170,357
35100	Pleasantville City	157,246	506,271
35400	Belleville Township	280,785	904,022
35500	Dover Town	61,442	197,821
35600	South Orange Village	145,659	468,968
35800	Garfield City	105,760	340,506
35900	Linden City	383,813	1,235,733
36200	Bridgeton City	85,360	274,828
36400	Washington Borough	17,152	55,222
36700	Fairfield Township	57,253	184,332
36900	Middlesex Borough	45,818	147,515
37000	Middletown Township	164,374	529,221
37400	Maywood Borough	44,246	142,456
37700	Piscataway Township	132,721	427,312
38101	Jersey City	1,222,485	3,935,937
38102	Jersey City Fire Dept.	926,825	2,984,022
38500	Runnemede Borough	27,652	89,028

Section 5: Additional Required Exhibits

39500	Mountainside Borough	35,376	113,898
39900	Long Branch City	164,870	530,820
40400	Wanaque Borough	35,737	115,060
41000	Manville Borough	35,706	114,961
41400	Oceanport Borough	23,542	75,796
41500	Haworth Borough	18,998	61,167
41600	Little Falls Twp	31,982	102,969
41900	North Haledon Borough	25,470	82,004
42000	Haledon Borough	26,263	84,557
42500	Wharton Borough	30,021	96,655
43000	West Paterson Borough	38,315	123,360
43100	Ewing Township	138,564	446,123
43400	Bound Brook Borough	33,840	108,951
43500	Emerson Borough	33,438	107,659
43600	Roseland Borough	40,424	130,151
43700	Norwood Borough	23,065	74,259
43800	Prospect Park Borough	22,363	72,001
44100	Englewood Cliffs Borough	58,452	188,192
44800	Englishtown Borough	5,379	17,318
44900	Ringwood Borough	33,249	107,049
46300	Borough of Lake Como	13,609	43,815
46400	Aberdeen Township	45,957	147,964
46600	West Long Branch Borough	26,296	84,663
46700	Pt Pleasant Beach Borough	38,378	123,561
47300	Brooklawn Borough	5,972	19,226
47800	Hopatcong Borough	39,637	127,616
47900	West Deptford Township	53,354	171,779
48200	South Bound Brook Borough	19,273	62,053
48600	Gloucester Township	148,750	478,919
48800	Upper Saddle River Boro	32,425	104,397
49100	Willingboro Township	112,128	361,008
50000	Brielle Borough	24,776	79,768
50700	South Brunswick Township	123,835	398,702

Section 5: Additional Required Exhibits

51100	Jefferson Township	57,665	185,658
51600	Wall Township	125,542	404,198
52800	Berlin Borough	23,151	74,538
53500	Winslow Township	107,743	346,891
53900	Berkeley Township Municipal Bld	120,477	387,890
54100	Mansfield Township	16,844	54,231
54300	Lebanon Township	11,380	36,640
54700	Seaside Heights Borough	31,501	101,423
54800	Manchester Township	87,686	282,316
55100	Pine Hill Borough	26,099	84,027
55300	Lindenwold Borough	55,331	178,145
55700	Bloomingtondale Borough	24,508	78,906
56000	Howell Township	153,402	493,895
56200	Plainsboro Township	57,069	183,740
56300	Marlboro Township	128,762	414,564
56500	Franklin Township	33,978	109,397
58200	Egg Harbor Township	119,379	384,355
58400	Holmdel Township	69,851	224,894
58500	Milltown Borough	22,189	71,440
58900	Buena Borough	6,900	22,216
59000	Eastampton Township	21,990	70,799
59800	Chesilhurst Borough	8,197	26,392
59900	Egg Harbor City	14,488	46,647
60000	Harrison Township	16,657	53,630
60100	Woodbury Heights Borough	7,605	24,487
60600	Waterfront Comm of NY Harbor	1,877	6,044
61000	Somerdale Borough	14,457	46,548
61200	Raritan Township	53,996	173,845
62300	NJ Transit Corporation	260,663	839,236
63100	Allentown Borough	6,939	22,340
63300	Barneget Township	38,344	123,453
67700	Lambertville City	9,732	31,333
68000	Lawnside Borough	7,654	24,642

Section 5: Additional Required Exhibits

68800	Mount Arlington Borough	13,492	43,440
69000	National Park Borough	4,364	14,050
70404	Camden County Regional	530,132	1,706,823
71600	Passaic County	878,522	2,828,505
71603	Passaic County	125,626	404,467
72000	Union County	410,085	1,320,318
72001	Union County	67,481	217,264
72003	Union County	315,892	1,017,053
72700	South Toms River Borough	7,258	23,368
73500	Union Beach Borough	12,325	39,682
74000	West Amwell Township	3,307	10,648
74100	Winfield Township	5,861	18,870
74400	Hamilton Twp Fire Comm Dist	10,100	32,517
75000	Lakewood Twp Fire District #1	4,936	15,893
75900	Gloucester Twp Fire District #2	3,354	10,800
79000	North Hudson Reg Fire & Rescue	508,983	1,638,732
	Total	\$80,270,817	\$24,931,777