



Public Employees' Retirement System of New Jersey

Actuarial Valuation Report as of July 1, 2021

Produced by Cheiron

April 2022

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
Letter of Transmittal		i
Section I	Board Summary	1
Section II	Assessment and Disclosure of Risk	20
Section III	Assets	48
Section IV	Liabilities	58
Section V	Contributions.....	67
 <u>Appendices</u>		
Appendix A	Membership Information	77
Appendix B	Actuarial Assumptions and Methods	88
Appendix C	Summary of Plan Provisions	105
Appendix D	Historical Data and Required Exhibits	116
Appendix E	Early Retirement Incentive Programs.....	127
Appendix F	Chapter 19, P. L. 2009	131
Appendix G	Glossary of Terms.....	141

LETTER OF TRANSMITTAL

April 13, 2022

Board of Trustees
Public Employees' Retirement System of New Jersey
State of New Jersey
Department of the Treasury
Division of Pension and Benefits, CN 295
Trenton, New Jersey 08625-0295

Dear Board Members:

At your request, we have performed the July 1, 2021 Actuarial Valuation of the Public Employees' Retirement System of New Jersey (PERS or System).

In preparing our report, we relied on information (some oral and some written) supplied by the Division of Pensions and Benefits (DPB). This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23.

The results of this report are only applicable to the System's contribution for Fiscal Year Ending 2023. Future results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law.

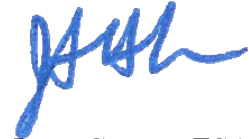
The actuarial assumptions are the same as those used in the July 1, 2020 valuation, with the exception of the investment rate of return. The demographic and economic (other than the investment rate of return) actuarial assumptions are based on the recommended assumptions from the July 1, 2014 – June 30, 2018 Experience Study, approved by the Board of Trustees on February 19, 2020. The investment rate of return assumption was reduced from 7.30% to 7.00% for the July 1, 2021 valuation, based on the recommendation of the State Treasurer.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in this report. This report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

This actuarial valuation report was prepared exclusively for the Public Employees' Retirement System of New Jersey for the purposes described herein and for the plan auditor in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

Sincerely,

Cheiron



Janet Cranna, FSA, FCA, MAAA, EA
Principal Consulting Actuary



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



Jonathan B. Chipko, FSA, MAAA, EA
Consulting Actuary

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

The primary purpose of the actuarial valuation and this report is to disclose the following as of the valuation date:

- The financial condition of the Public Employees Retirement System of New Jersey,
- Past and expected future trends and risks to the System's financial condition, and
- The State's and Local employers' contributions for the Fiscal Year Ending (FYE) 2023.

In this Section we present a summary of the principal valuation results. This includes the basis on which the July 1, 2021 valuation was completed and an examination of the current financial condition of the System. In addition, we present a review of the key historical trends followed by the System's projected financial outlook. The stress testing in accordance with the requirements set out in Chapter 277, P.L. 2017 follows in Section II.

This report does not include calculations under GASB Statements Nos. 67 and 68 which were provided in separate reports.

Results shown in this report for years prior to July 1, 2018 are based on the prior actuary's valuation reports.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

Valuation Basis

The July 1, 2021 valuation results are based on the same actuarial methods and assumptions as used in the July 1, 2020 valuation, with the exception of the investment rate of return. The demographic and economic assumptions, aside from the valuation interest rate, are based on the July 1, 2014 – June 30, 2018 Experience Study, which was approved by the Board of Trustees on February 19, 2020. The valuation interest rate was decreased from 7.30% to 7.00% as recommended by the State Treasurer.

This report is prepared using census data, plan provisions, and financial information as of July 1, 2021 provided by the Division of Pensions and Benefits, and does not reflect any changes in the membership, plan provisions, or assets that occur after the valuation date. Events following that date are not, and should not be, reflected in this report.

Whereas there remains a lot of uncertainty, we continue to monitor developments regarding the COVID-19 pandemic and the impact it may have on the System. Chapter 115, P.L. 2020 modifies the hiring, rehiring, retention, and benefits of certain public employees during the COVID-19 Public Health Emergency under Executive Order No. 103 of 2020, as extended. Chapter 54, P.L. 2020, amended eligibility for accidental disability and accidental death benefits for PERS law enforcement officers, firefighters, or emergency medical responders when related to the contraction of COVID-19 during the Public Health Emergency declared by the Governor in Executive Order 103 of 2020, as extended. Actual experience, both demographic and economic, will be reflected in subsequent valuations as experience emerges. There was no increase in actuarial liability resulting from these changes in plan provisions for the July 1, 2021 valuation.

This valuation reflects one other change to the plan provisions. Chapter 140, P.L. 2021 reopened the Workers' Compensation Judges (WCJ) Part of PERS and transferred WCJs from the Defined Contribution Retirement Program (DCRP) and the regular part of PERS into the WCJ Part of PERS. DCRP account balances from member contributions were transferred to PERS and members received WCJ Part service credit for service starting on the member's date of appointment. The corresponding increase in the unfunded actuarial liability is amortized over a closed 20-year period. The additional unfunded actuarial liability contribution and the increased normal cost contribution will be paid by transfers from the Second Injury Fund (SIF). In conjunction with Chapter 140, P.L. 2021, the assumed retirement rates for members in the WCJ Part of PERS were revised to match the assumed retirement rates used in the Judicial Retirement System (JRS) of New Jersey's July 1, 2021 Actuarial Valuation Report. The JRS retirement assumptions are assumed appropriate for this purpose because of the similarity between WCJ and JRS retirement benefits.

This valuation also reflects the depletion of the Benefit Enhancement Fund (BEF), which was used to fund the Local employers' additional normal cost associated with Chapter 133, P.L. 2001. Effective with FYE 2023, the State is responsible for funding this entire additional normal cost for Local employers. Last year, the BEF covered a portion of the additional normal cost for Local employers and the State's FYE 2022 contribution funded the remaining amount.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

The Appropriations Act of Fiscal Year 2021 reduced the State pension contribution of \$1,622,539,084 to \$1,270,136,734. The \$1,270,136,734 includes revenue of \$232,271,000 from the Lottery Enterprise Contribution Act. In addition, there was a Chapter 259, P.L. 2009 contribution of \$566,508, which was payable by fund transfer from the Second Injury Fund.

The potential impact of the Appropriations Act of 2022 increases the State pension contribution for Fiscal Year Ending 2022 from the Statutory amount of \$1,718,462,218 to \$1,855,005,246 (107.91% of the State Statutory contribution less the Lottery Enterprise Contribution offset plus expected revenue from the Lottery Enterprise Contribution Act {107.91% x \$1,718,462,218 - \$230,352,113 + \$231,038,066}). The \$1,855,005,246 also includes expected State-paid Local contributions of \$52,500,855. In addition, there is a Chapter 259, P.L. 2009 contribution of \$577,270, which is payable by fund transfer from the Second Injury Fund. This valuation reflects the potential impact of the Appropriations Act of 2022. The 107.91% appropriation amount represents an increase from the 100% appropriation assumed for FYE 2022 in the prior actuarial report.

Chapter 83, P.L. 2016 requires the State to make the required pension contributions on a quarterly basis: 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. As such, State contributions are assumed to be made on a quarterly basis with the first contribution 15 months after the associated valuation date, with the exception of the FYE 2022 contribution. For FYE 2022 only, we assume that the entire contribution is made in a single payment on July 1, 2021 based on information provided by the DPB.

In accordance with Chapter 78, P.L. 2011, a pension committee is to be established for the State portion of the System and the Local portion of the System when the employer's "target funded ratio" is achieved. The "target funded ratio" is defined as the ratio of the actuarial value of assets divided by the actuarial liability expressed as a percentage that is 75% in fiscal year 2012 and increased annually by equal increments in each of the subsequent seven fiscal years, until the funded ratio equals 80% at which time it will remain at 80% for all subsequent fiscal years. The Local employers' portion of the System attained the required "target funded ratio" in Fiscal Year Ending 2012, establishing the committee for the Local employers' portion of the System. The State portion of the System has not attained the required "target funded ratio" and thus the pension committee has not been established for the State portion of the System.

Under Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, the Public Employees' Retirement System receives 21.02% of the proceeds of the Lottery Enterprise, based on its members' past or present employment in schools and institutions in the State for a term of 30 years. As of the July 1, 2021 valuation, 25 years remain. Revenues from Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, are assumed to be contributed to the trust on a monthly basis. The Chapter 78, P.L. 2011 "target funded ratio" is based on the actuarial value of assets plus the allocable special asset value. The special asset value is the present value of remaining lottery contributions to the retirement systems. As per N. J. Statute, the special asset value is to be appraised once every five years. The values shown in this report reflect the New Jersey Lottery Valuation Report as of December 31, 2021 as provided to us by the Division of Pensions and Benefits. Effective with the fiscal year 2018, the State's pension contribution shall be reduced by the product of the allocable percentage for such retirement system, the adjustment percentage for such retirement system and the special asset adjustment.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

The valuation excludes assets and liabilities under the Non-Contributory Group Insurance Premium Fund. The Non-Contributory Group Insurance premiums are separately funded on a pay-as-you-go basis. For Local employers, the Non-Contributory Group Insurance Contribution is calculated as the present value of expected benefit payments for the upcoming year based on valuation assumptions.

Key Results

Following are Table I-1 and Table I-2 which summarize the key results of the valuation with respect to the System's membership, assets and liabilities, and contributions for State and Local employers. The results are presented and compared for both the current and prior year.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

Table I-1			
Summary of Key Valuation Results			
State			
Valuation Date	July 1, 2021	July 1, 2020	%
Fiscal Year Ending (FYE)	2023	2022	Change
<u>Member Data</u>			
Contributing Actives ¹	65,555	67,774	-3.3%
Non-Contributing Actives ¹	9,253	9,331	-0.8%
Deferred Beneficiaries	183	0	N/A
Deferred Vesteds	186	213	-12.7%
Retirees and Beneficiaries ²	61,535	60,783	1.2%
Total Members	136,712	138,101	-1.0%
Appropriation Payroll ³	\$ 4,578,674,071	\$ 4,637,529,278	-1.3%
Annual Retirement Allowances in Pay	\$ 1,776,844,453	\$ 1,726,418,877	2.9%
<u>Assets and Liabilities</u>			
Actuarial Liability	\$ 27,489,997,258	\$ 26,285,137,008	4.6%
Actuarial Value of Assets (AVA) ⁴	8,889,754,699	8,045,759,732	10.5%
Unfunded Actuarial Liability/(Surplus)	\$ 18,600,242,559	\$ 18,239,377,276	2.0%
Funded Ratio (AVA)	32.3%	30.6%	1.7%
Actuarial Value of Assets ⁴ including			
Special Asset Value (AVA + SAV)	\$ 11,533,493,169	\$ 10,687,660,452	7.9%
Unfunded Actuarial Liability/(Surplus)	\$ 15,956,504,089	\$ 15,597,476,556	2.3%
Funded Ratio (AVA + SAV)	42.0%	40.7%	1.3%
Market Value of Assets (MVA) ⁴	\$ 9,116,415,984	\$ 7,249,876,062	25.7%
Unfunded Actuarial Liability/(Surplus)	\$ 18,373,581,274	\$ 19,035,260,946	-3.5%
Funded Ratio (MVA)	33.2%	27.6%	5.6%
<u>Contribution Amounts</u>			
State Normal Cost at End of Year ⁶	\$ 210,467,237	\$ 172,944,579	21.7%
Amortization Payment of UAL ⁶	1,547,253,170	1,545,517,639	0.1%
Total Statutory Contribution for FYE	\$ 1,757,720,407	\$ 1,718,462,218	2.3%
Expected Percent Appropriated	100%	107.91%	-7.9%
State Appropriation for Pension	\$ 1,757,720,407	\$ 1,854,319,293	-5.2%
Lottery Enterprise Contribution Offset	(129,968,418)	(230,352,113)	-43.6%
Net State Contribution	\$ 1,627,751,989	\$ 1,623,967,180	0.2%

¹ Reflects all records for multiple members, which are members employed by more than one PERS-participating employer at the same time

² QDRO recipients are excluded from member counts

³ Limited annual compensation for contributing actives

⁴ Includes discounted State receivable contributions and Lottery proceeds from the upcoming Fiscal Year as shown in Table III-2

⁵ In addition to the amounts shown, the Statutory Contributions are satisfied by funds transferred from the Second Injury Fund in amounts equal to \$2,002,681 and \$577,270 for FYE 2023 and 2022, respectively.

⁶ Includes \$61,366,036 and \$48,654,369 for FYE 2023 and 2022, respectively for Local obligations payable by the State in accordance with Chapter 133, P.L. 2001 and Chapter 366, P.L. 2001



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

Table I-1 Summary of Key Valuation Results Local Employers			
Valuation Date Fiscal Year Ending (FYE)	July 1, 2021 2023	July 1, 2020 2022	% Change
<u>Member Data</u>			
Contributing Actives ¹	138,672	142,757	-2.9%
Non-Contributing Actives ¹	26,422	26,914	-1.8%
Deferred Beneficiaries	876	0	N/A
Deferred Vesteds	537	664	-19.1%
Retirees and Beneficiaries ²	125,837	123,992	1.5%
Total Members	<u>292,344</u>	<u>294,327</u>	-0.7%
Appropriation Payroll ³	\$ 7,369,908,268	\$ 7,328,393,274	0.6%
Annual Retirement Allowances in Pay	\$ 2,414,370,737	\$ 2,328,399,284	3.7%
<u>Assets and Liabilities</u>			
Actuarial Liability	\$ 38,393,126,094	\$ 36,410,100,750	5.4%
Actuarial Value of Assets (AVA) ⁴	<u>25,965,285,547</u>	<u>24,424,654,983</u>	6.3%
Unfunded Actuarial Liability/(Surplus)	\$ 12,427,840,547	\$ 11,985,445,767	3.7%
Funded Ratio (AVA)	67.6%	67.1%	0.5%
Market Value of Assets (MVA) ⁴	<u>\$ 28,329,219,469</u>	<u>\$ 22,891,936,466</u>	23.8%
Unfunded Actuarial Liability/(Surplus)	\$ 10,063,906,625	\$ 13,518,164,284	-25.6%
Funded Ratio (MVA)	73.8%	62.9%	10.9%
<u>Contribution Amounts</u>			
Employer Normal Cost at End of Year ⁵	\$ 192,070,863	\$ 159,894,395	20.1%
Amortization Payment of UAL ⁵	1,014,373,222	995,632,110	1.9%
ERI Payments	3,167,250	3,255,531	-2.7%
Chapter 19, P.L. 2009 Payments	8,697,745	9,040,135	-3.8%
Total Statutory Contribution for FYE	<u>\$ 1,218,309,080</u>	<u>\$ 1,167,822,171</u>	4.3%
Phase-in of the Impact of Assumption Changes ⁶	<u>0</u>	<u>(38,391,509)</u>	-100.0%
Net Local Employer Contribution	\$ 1,218,309,080	\$ 1,129,430,662	7.9%
Non-Contributory Group Insurance Contribution	\$ 54,603,937	\$ 53,981,229	1.2%

¹ Reflects all records for multiple members, which are members employed by more than one PERS-participating employer at the same time

² QDRO recipients are excluded from member counts

³ Limited annual compensation for contributing actives

⁴ Includes discounted State receivable contributions as shown in Table III-2

⁵ Excludes \$61,366,036 and \$48,654,369 for FYE 2023 and 2022, respectively for Local obligations payable by the State in accordance with Chapter 133, P.L. 2001 and Chapter 366, P.L. 2001

⁶ Only includes impact of assumption changes from the July 1, 2014 - June 30, 2018 Experience Study. The impact of the valuation interest rate changes as of July 1, 2019 and July 1, 2021 is not phased-in.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

The key results of the July 1, 2021 actuarial valuation **for the State** are as follows:

- The total Statutory contribution increased from \$1,718 million for FYE 2022 to \$1,758 million for FYE 2023 prior to any adjustments for the potential Appropriations Act of 2023 or the Lottery Enterprise offset.
- The funded ratio, the ratio of actuarial asset value over liabilities, increased from 30.6% to 32.3%. The funded ratio that is used to measure against the “target funded ratio” and is based on the actuarial value of assets plus special asset value, increased from 40.7% as of July 1, 2020 to 42.0% as of July 1, 2021. Using the market value of assets, the funded ratio also increased from 27.6% to 33.2%.
- The unfunded actuarial liability used in determining the Statutory contributions (excess of actuarial liability over the actuarial value of assets) increased from \$18.2 billion to \$18.6 billion. The unfunded actuarial liability based on the actuarial asset value plus special asset value increased from \$15.6 billion on July 1, 2020 to \$16.0 billion on July 1, 2021.
- During the year, there was a total actuarial experience gain of \$123 million, consisting of an asset gain of \$52 million and a liability gain of \$71 million. The rate of return on the actuarial value of assets was 8.16% compared to the expected return of 7.30%, resulting in the \$52 million asset gain.
- The reduction in the discount rate from 7.30% to 7.00% for the July 1, 2021 valuation increased the actuarial liability by \$798 million.
- The plan change related to Workers’ Compensation Judges as a result of Chapter 140, P.L. 2021 increased the actuarial liability by \$4.8 million. There was no impact on the actuarial liability resulting from the remaining plan changes.

The key results of the July 1, 2021 actuarial valuation **for Local employers** are as follows:

- The total Statutory contribution increased from \$1,168 million for FYE 2022 to \$1,218 million for FYE 2023 prior to any phase-in.
- The funded ratio, the ratio of actuarial asset value over liabilities, increased from 67.1% as of July 1, 2020 to 67.6% as of July 1, 2021. Based on the market value of assets, the funded ratio also increased from 62.9% to 73.8%.
- The unfunded actuarial liability increased from \$12.0 billion on July 1, 2020 to \$12.4 billion on July 1, 2021 on an actuarial value of assets basis.
- During the year, there was a total actuarial experience gain of \$608 million, consisting of an asset gain of \$581 million and a liability gain of \$27 million. The rate of return on the actuarial value of assets was 9.90% compared to the expected return of 7.30%, resulting in the \$581 million asset gain.
- Effective July 1, 2019, the Board of Trustees adopted a three-year phase-in of the \$115 million increase in the FYE 2021 Statutory pension contribution due to the assumption changes from the 2018 experience study. The FYE 2023 Local employers’ net pension contribution now reflects the full cost of the assumption changes as this is the final year of the phase-in.
- The reduction in the discount rate from 7.30% to 7.00% for the July 1, 2021 valuation increased the actuarial liability by \$1,086 million.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

Recent Trends

Although most of the attention given to the valuation reflects the current computed unfunded actuarial liability, funded ratio, and contribution amounts, each valuation is merely a snapshot of the long-term progress of a pension fund. It is important to take a step back from these latest results and view them in the context of the System's recent history. Below, we present a series of graphs which display historical trends for key factors in the valuations of the last 10 years. Additionally, in Appendix D we provide the numerical values of the historical unfunded actuarial liability, funded ratio, and contribution amounts. Note that the contribution amounts in this section include State-paid Local obligations with Local employers' contribution amounts to illustrate their impact on the Local employers' portion of the unfunded actuarial liability. The historical amounts in Appendix D show the State-paid Local obligations with State contributions.

In reviewing the historic trends over the 10-year period, the declining funded status coupled with significant negative net cash flow highlights the potential risk of running out of assets to pay benefits unless the State consistently contributes the full amount of the Statutory required contributions.

Assets and Liabilities

The gray bars represent the Actuarial Liability (AL). The green line is the Market Value of Assets (MVA), the gold line is the Actuarial Value of Assets (AVA) and the blue line (which starts in 2016) is the AVA plus the Special Asset Value (SAV). The System's funded ratio (ratio of assets to actuarial liability) on a MVA basis, an AVA basis and an AVA+SAV basis, is shown next to the respective asset lines.

The liability has been increasing over time in part due to additional benefit accruals but also due to decreases in the discount rate and other assumption changes, including the decrease in the discount rate from 7.30% to 7.00% that occurred in 2021.

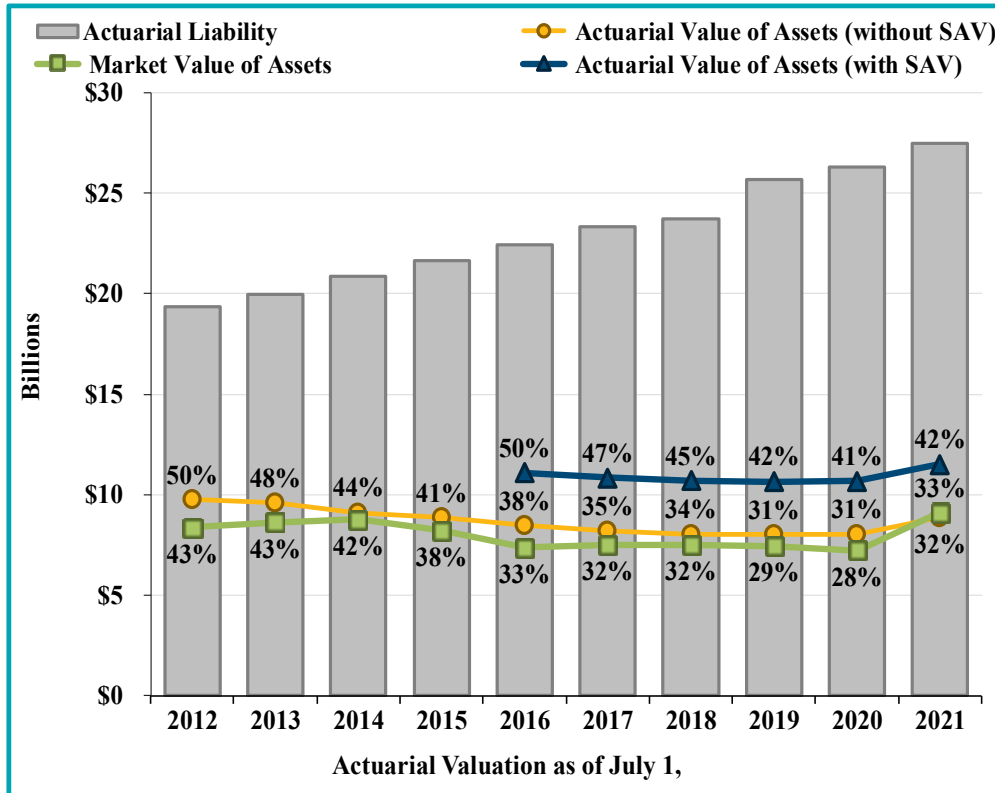
For the State, until the most recent year, the funded ratio had been decreasing over time in part due to decreases in the discount rate, recognition of the 2008/2009 market losses and because the State had not been making the full Statutory contribution. For 2021, the funded ratio reversed that trend and increased due to the higher than expected asset return and the State contribution in excess of the full Statutory contribution.

For Local employers, until the most recent year, the AVA funded ratio has decreased over the period due to decreases in the discount rate and recognition of the 2008/2009 market losses. (The MVA funded ratio behaves differently during the period because the 2008/2009 market losses and the 2021 market gains were immediately recognized in the MVA.) In addition, while Local employers have been making the full Statutory contribution, the State had not been making the full State-paid Local Statutory contribution until FYE 2022. To date, the State-paid Local Statutory contributions have been small relative to the overall Statutory contribution. However, the State-paid Local obligations have increased over the past few years as the Benefit Enhancement Fund (BEF) was depleted. The State is now responsible for the full Local employer normal cost associated with Chapter 133, P.L. 2001. For 2021, the funded ratios increased due to the higher than expected asset return.

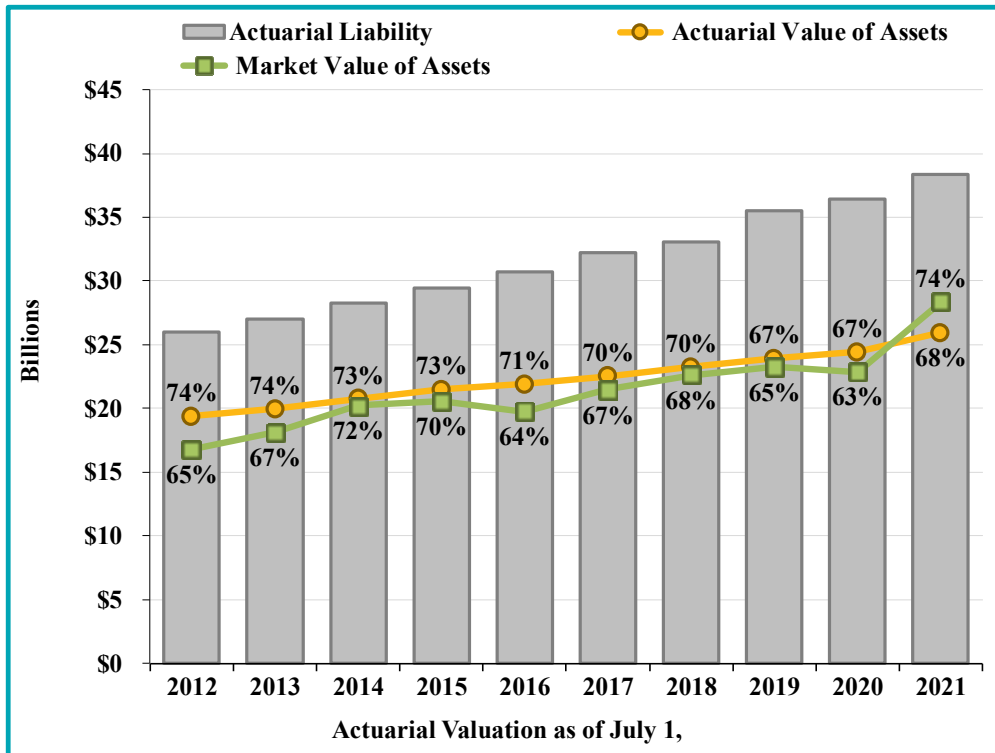
**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

State



Local Employers



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

Membership Trends

The following graphs show the membership counts of the System for the last ten valuations. The numbers which appear above each bar represent the ratio of the number of inactive and non-contributing active members to contributing active members at each valuation date, and provide a measure of the maturity of the System. We refer to this as the *support ratio*. The support ratios for both State and Local employers have increased over the period. As more of the liability moves from actives to inactive, the System will experience more volatility in contribution rates when actuarial gains and losses are recognized.

With the current inactive-to-active ratio of around 1.1, there are slightly more inactive members than active members, implying that the risk factors for both the State and Local employers are not at a high level relative to other mature pension systems.

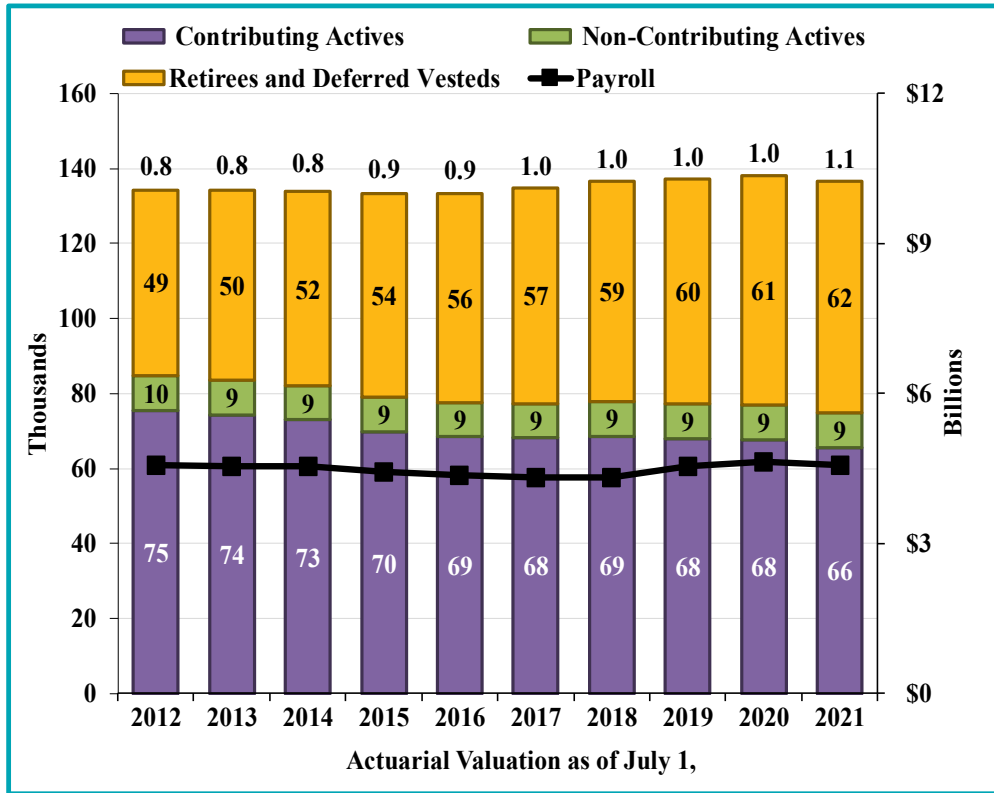
Valuations for 2017 and later reflect all records for multiple members, which are active members employed by more than one participating employer at the same time.

The numbers that are shown in the middle of the bars represent the number of actives or inactive members in thousands. The black line represents the appropriation payroll for contributing actives over the period and corresponds with the right-hand scale.

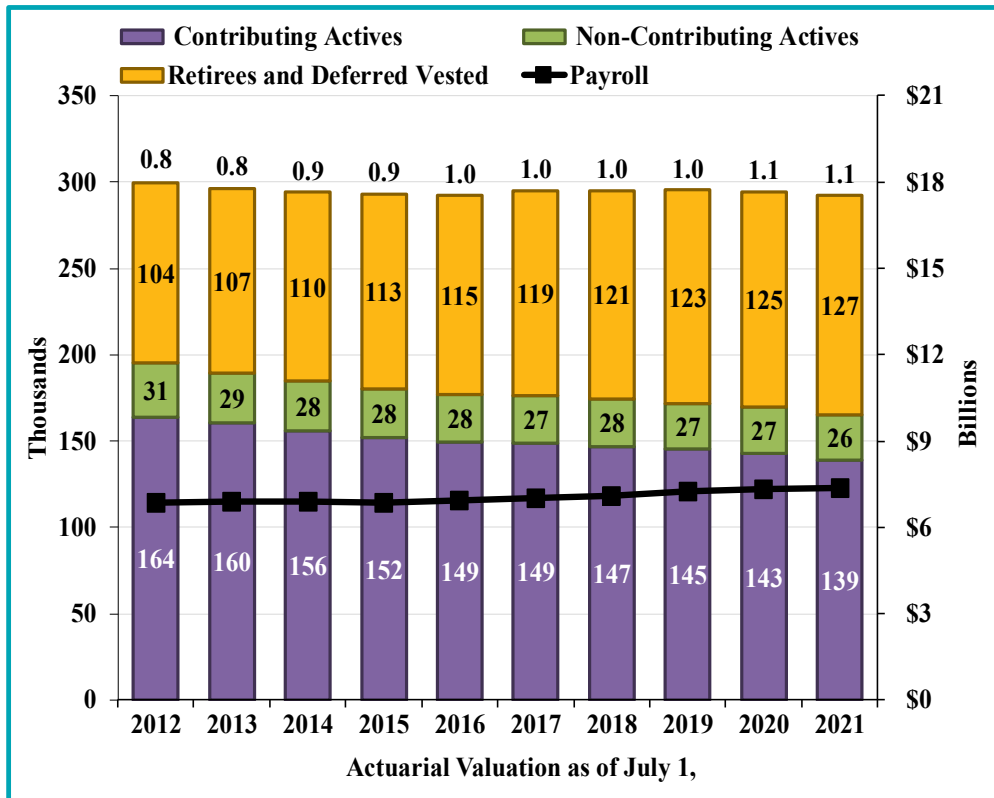
**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

State



Local Employers



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

Cash Flows

The following graphs show the System net cash flow (contributions less benefit payments and expenses) at the end of each fiscal year. For the entire period shown, the net cash flow excluding investments has been negative. This illustrates that contributions have not been sufficient to cover benefits and expenses in any years over the past decade. A major implication of a negative cash flow is that the difference each year must be met first from cash generated by investments and then be paid out of the principal assets, representing additional risk for the System if investments need to be sold in a down market to cover benefit payments. The black dotted line shows the net cash flow as a percent of the market assets and goes with the axis on the right.

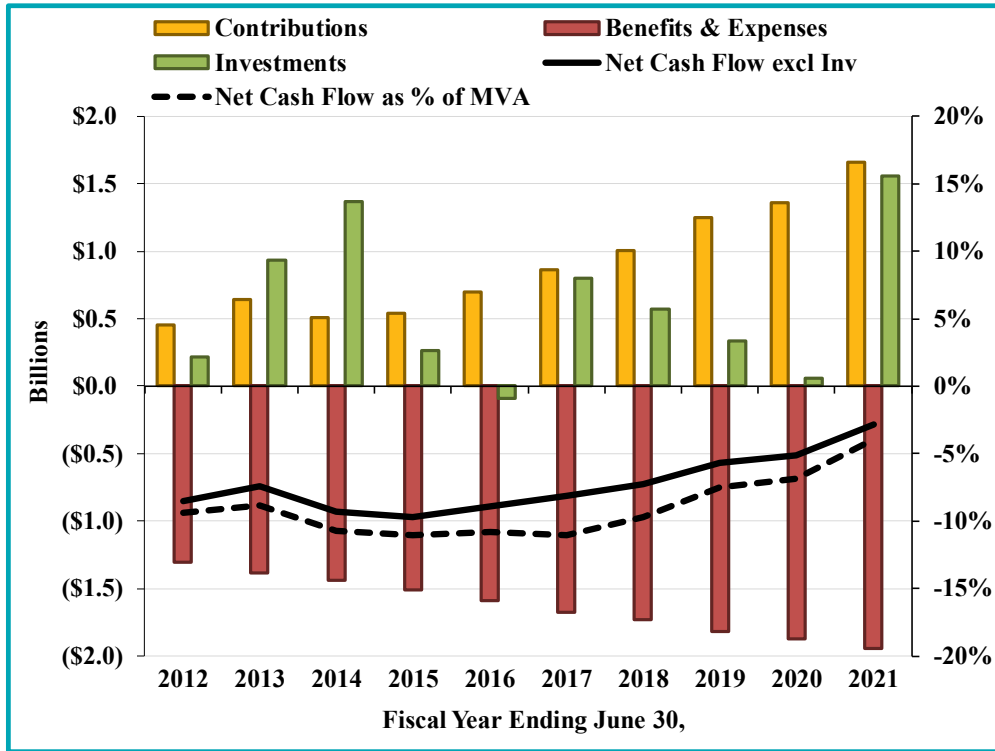
The net cash flow for State has been significantly more negative than the net cash flow for Local employers, and even more disconcerting is that the negative cash flow as a percentage of the market value of assets for State has been greater than the long-term investment return assumption with the exception of the past two years. By itself, this represents a plan that is expected to defund with the risk of insolvency if the contributions do not continue to catch up to cover a higher portion of the benefit payments and expenses. In 2021, the net cash flow of -4.0% implies that the assumed investment return of 7.00%, if achieved, will cover this difference. The significant improvement in the State's negative cash flow is the result of the increase in the State appropriation percentage since 2017.

For Local employers, the negative cash flow has increased over the period shown due to an increase in the number of retirees and their corresponding benefit payments.

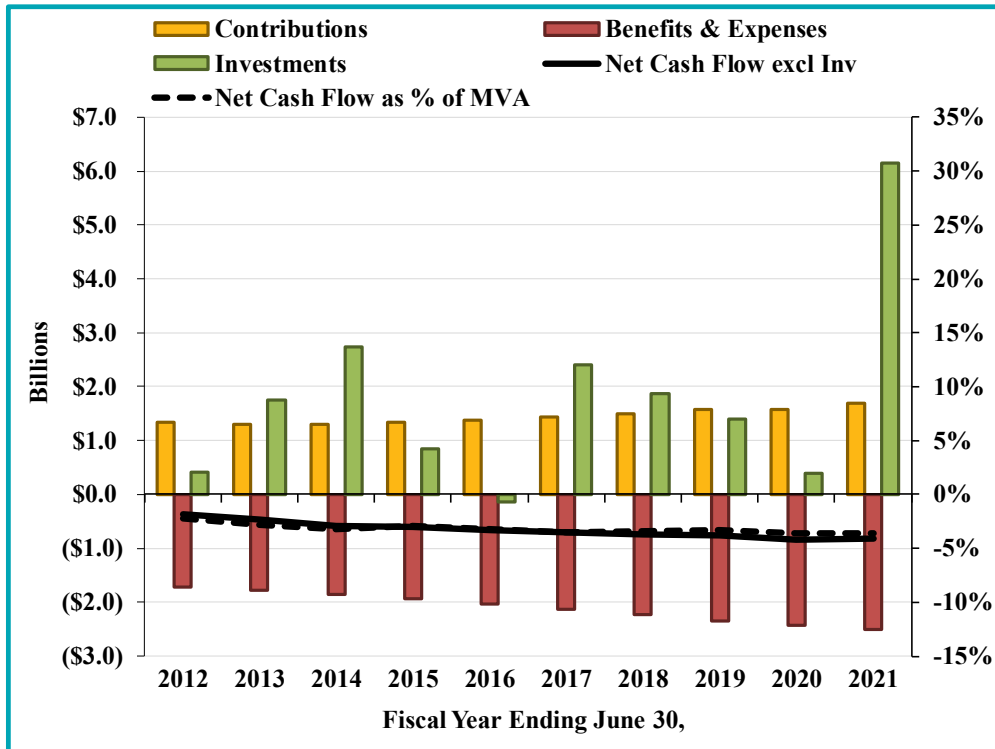
**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

State



Local Employers



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

Contributions

These graphs show the historical trends for the State and Local employer contributions. The Local employer contributions include the State-paid Local obligations, but not Early Retirement Incentive (ERI) or Chapter 19, P.L. 2009 payments. The Statutory contributions are comprised of the normal cost (blue bars) and the amortization of the UAL (gold bars). The green line shows the actual contributions over the period. For FYE 2022 and 2023, the green line has a lighter shade to indicate that these are expected, rather than actual, contributions based on the State appropriating 107.91% and 100.00% of the Statutory contribution, respectively. Beginning in FYE 2023, the actual State contribution is larger than the Statutory contribution because expected lottery revenue is greater than the Lottery Enterprise Contribution Offset. The expected State appropriations are shown in Table I-1 and Table I-2.

The red line is the **tread water line**, which is the normal cost plus the interest on the UAL. The tread water line shows the minimum contributions needed to avoid an increase in the UAL.

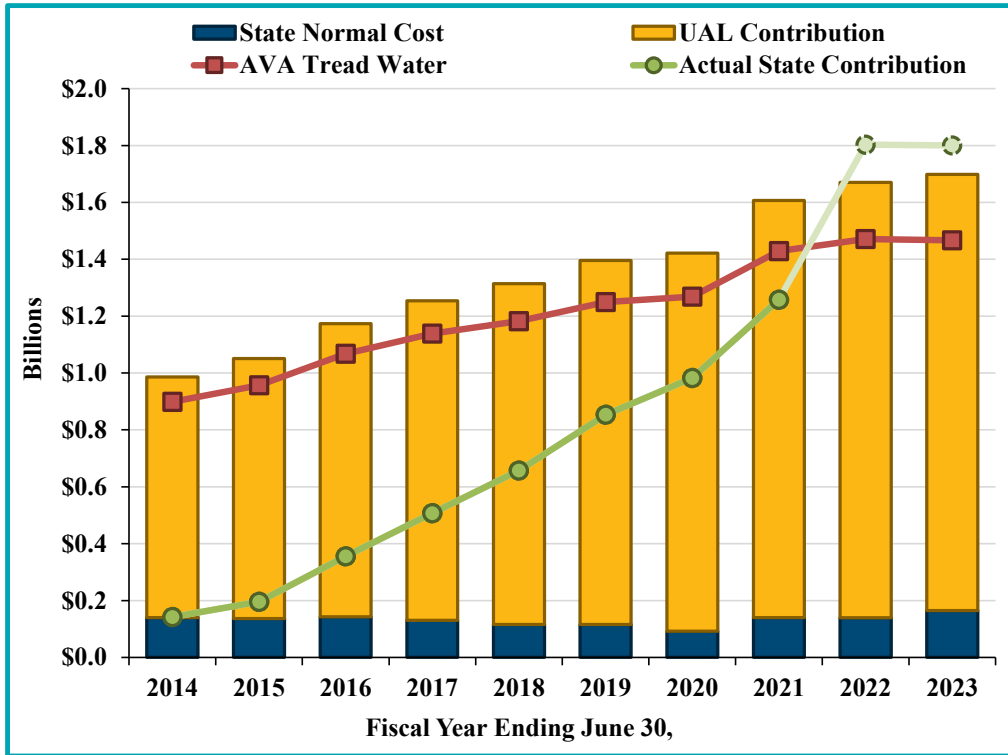
The graph for State shows that not only had the State been making contributions less than required by Statute, but that the State contributions had historically been significantly below the tread water line. When contributions are lower than the normal cost plus interest on the UAL, the unfunded actuarial liability is expected to grow from one year to the next. Beginning in FYE 2022, actual State contributions are expected to be greater than the tread water amount for the first time during the entire period shown.

The graph for Local employers shows that the Local employers have consistently made their Statutory contributions. While the State has not been contributing the full State-paid Local obligations, the total contributions have still been greater than the tread water line. In FYE 2021 and FYE 2022, actual contributions are expected to be lower than the Statutory contribution because the Board adopted a three-year phase-in of the impact of the assumption changes from the July 1, 2014 – June 30, 2018 Experience Study. Even with the phase-in, actual contributions are expected to exceed the tread water line. Actual contributions are expected to return to the Statutory contribution level in FYE 2023 when the impact of the assumption changes is fully phased-in.

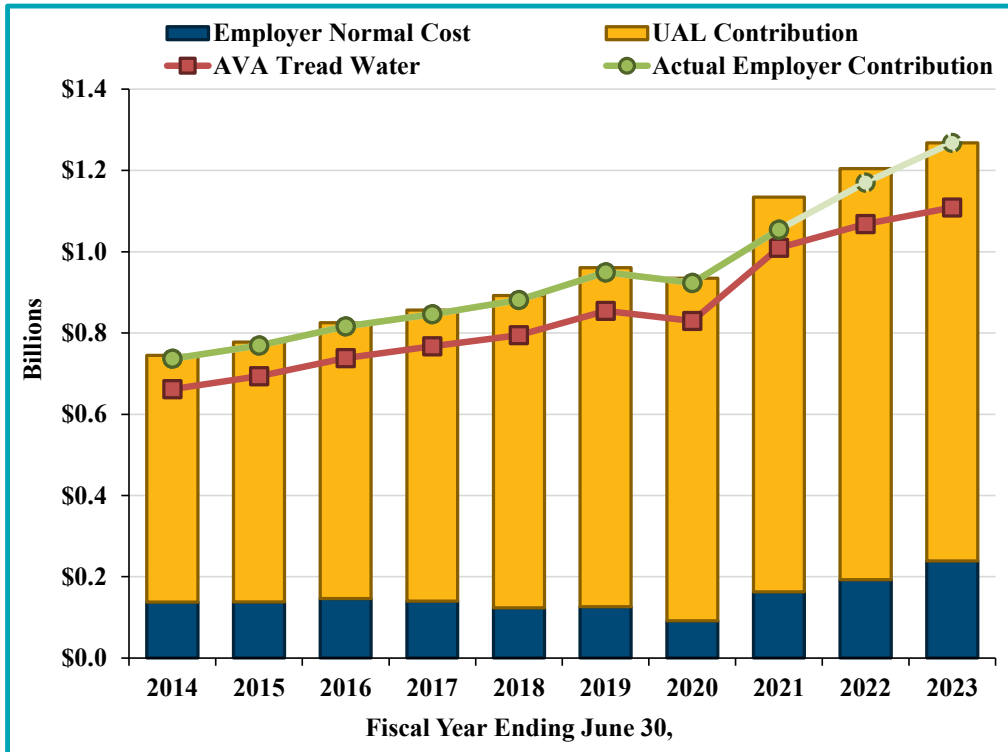
**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION I – BOARD SUMMARY

State



Local Employers



SECTION I – BOARD SUMMARY

Projected Future Outlook

The analysis of projected financial trends is perhaps the most important component of the valuation. This has been recognized by the State Legislation in their adoption of Chapter 277, P.L. 2017 requiring the System to have stress testing performed annually. The graphs presented in this section show the expected progress of the System's funded status over the next 30 years, measured in terms of the expected funded ratios and State and Local employer contributions assuming that the System is ongoing.

While experience will not conform exactly to the assumptions every year, the trends reflect reasonable expectations. As a result, in addition to the baseline projection in this section, we provided additional **stress testing** in Section II based on varying investment returns in the future. It is our opinion the stress testing analyses shown in Section II meet the requirements of Chapter 277, P. L. 2017.

The projections assume a constant active population. As members retire, terminate and die based on the current valuation assumptions, it is assumed that new members will replace them based on characteristics (age/gender/salary) similar to recent new members.

Additional assumptions used for these projections, including the investment rate of return for each subsequent valuation as recommended by the State Treasurer, as well as the anticipated appropriation percentages, are shown in Appendix B.

Baseline Scenario

The baseline projection shows the outcome if all actuarial assumptions, including the long-term rate of return assumption of 7.00%, as recommended by the State Treasurer, are exactly met. For each scenario we show two graphs.

The top graph compares the Market Value of Assets (green line) and the Actuarial or smoothed Value of Assets (gold line) to the System's Actuarial Liabilities (gray bars). For the State, the graph also shows the Actuarial Value of Assets plus the Special Asset Value (blue line). In addition, at the top of the graph, we show the System's funded ratio on an Actuarial Value of Assets basis (ratio of Actuarial Value of Assets to Actuarial Liabilities). The years shown in the graph signify the valuation date as of July 1 of the labeled year.

The State's funded ratio on an Actuarial Value of Assets basis is projected to steadily increase to 100% by 2049.

The Local employers' funded ratio on an Actuarial Value of Assets basis is projected to increase quickly over the next few years as deferred investment gains are recognized in the Actuarial Value of Assets, and then increase more slowly to 97% by 2051.

The funded ratio for State increases faster than the Local employers' portion and reaches 100% compared to 97% for Local employers by the end of the projection period because of the expected lottery revenue that is contributed each year in excess of the Statutory contributions. This additional revenue helps pay down the UAL sooner for the State portion of the System.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

The bottom graph shows the contributions by fiscal year. The member contributions are in purple, the State contributions are in gold, the State-paid Local contributions are in light blue and the Local employers' contributions are in green. We show the contribution values in dollars except for the State-paid Local contributions which are small compared to total contributions.

The projected lottery revenue is provided by the DPB and is outlined in blue. Lottery revenue amounts shaded in gold are offsets to Statutory contributions. Lottery revenue amounts shaded white are additional contributions in excess of the Statutory contributions that pay down the UAL. Beginning with FYE 2023, the lottery revenue includes additional payments toward the UAL. The lottery offsets during the projection period are calculated based on the methodology as defined in Chapter 98, P.L. 2017.

The projection assumes the State and Local employers contribute 100% of the Statutory amount in FYE 2023 and each year thereafter. Both the appropriated State and Local employer contributions and the member contributions are labeled. The contributions exclude amounts payable for the Non-Contributory Group Insurance.

The dashed black line in the bottom graph shows the gross normal cost. The difference between the dashed black line and the purple bar is the State and Local employers' portion of the normal cost.

The solid black line is the tread water line based on the Actuarial Value of Assets. Because the tread water metric equals the normal cost plus interest on the UAL, the difference between the solid black line and the dashed black line is the interest on the UAL. When the contributions exceed the solid line, as is the case throughout the projection period for both State and Local employers, the UAL is expected to decrease and the funded ratio is expected to increase. If contributions fall below the solid black line, the UAL would be expected to increase and the funded ratio would be expected to decrease.

While total member contributions are expected to increase throughout the projection period based on payroll increases, the State's Statutory contributions remain relatively steady until the funded ratio reaches 100%, at which point contributions drop down to the normal cost level. The State contributions exceed the level necessary to pay down the UAL and the tread water line decreases relative to the Statutory contribution. Additionally, expected lottery revenue that is contributed each year in excess of the Statutory contribution also helps pay down the UAL sooner.

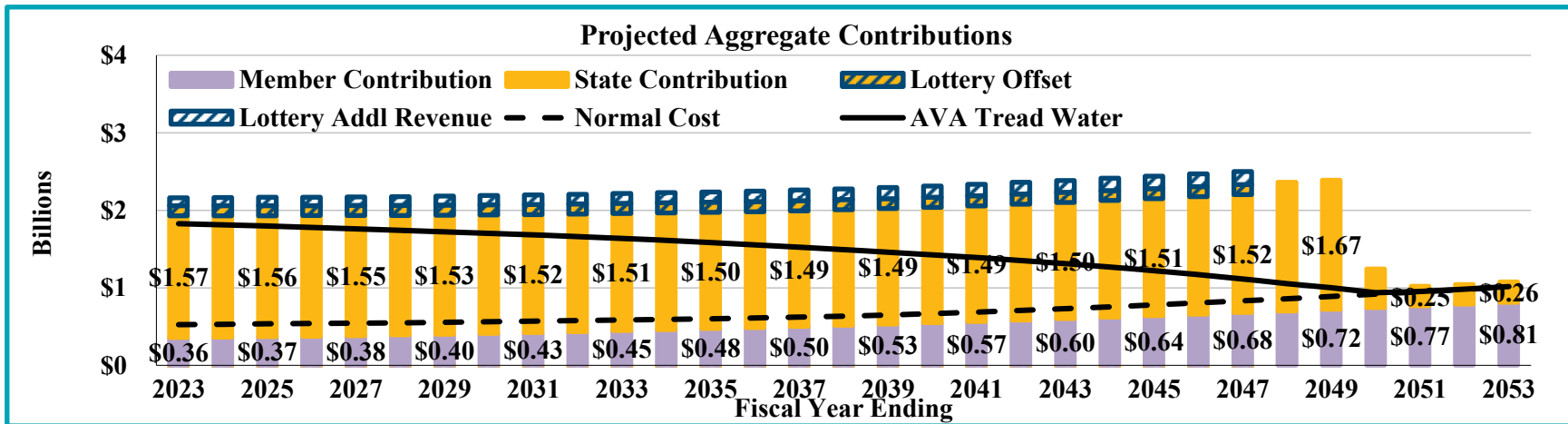
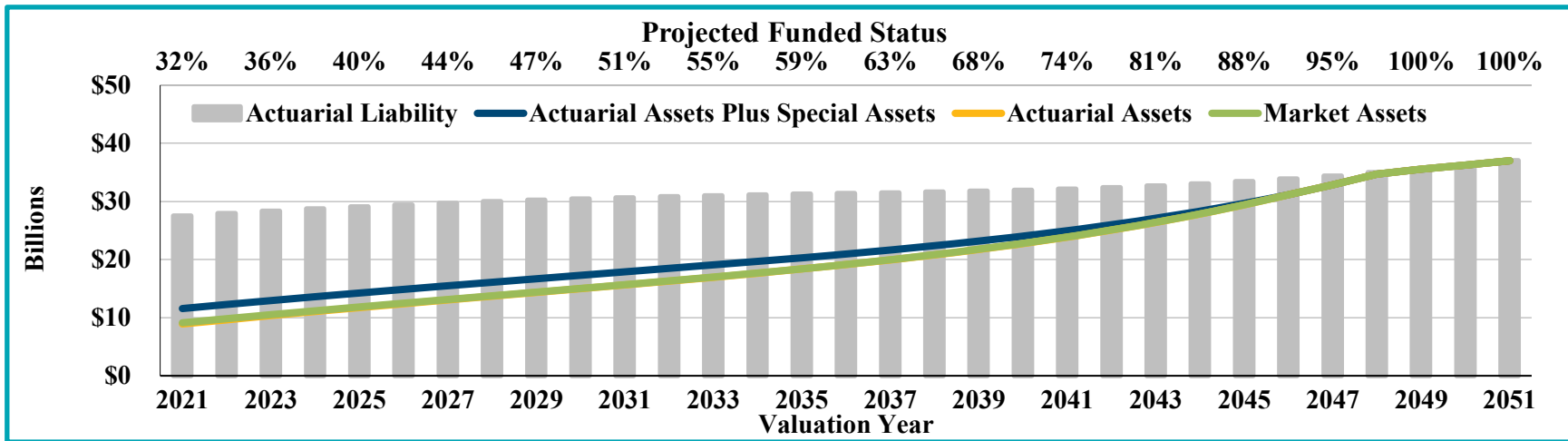
The Local employers' contributions gradually decrease over the next ten years as deferred investment gains are recognized in the Actuarial Value of Assets, and contributions gradually increase thereafter. The State-paid Local contributions gradually decrease as the population eligible for the Chapter 133, P.L. 2001 benefit enhancements decreases.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

Baseline: 7.0% return for all years

State

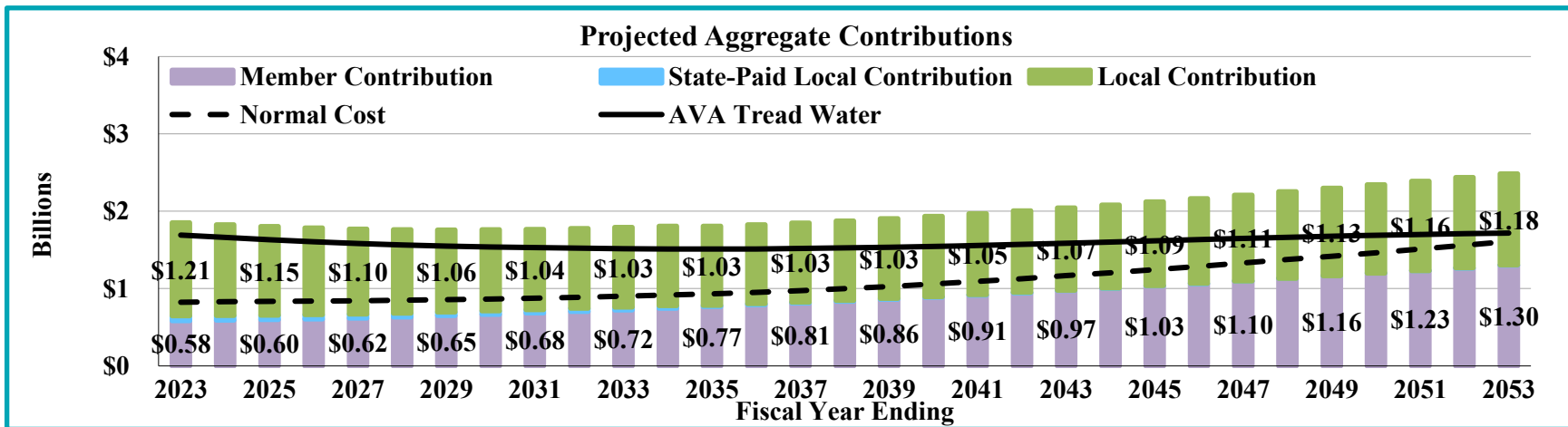
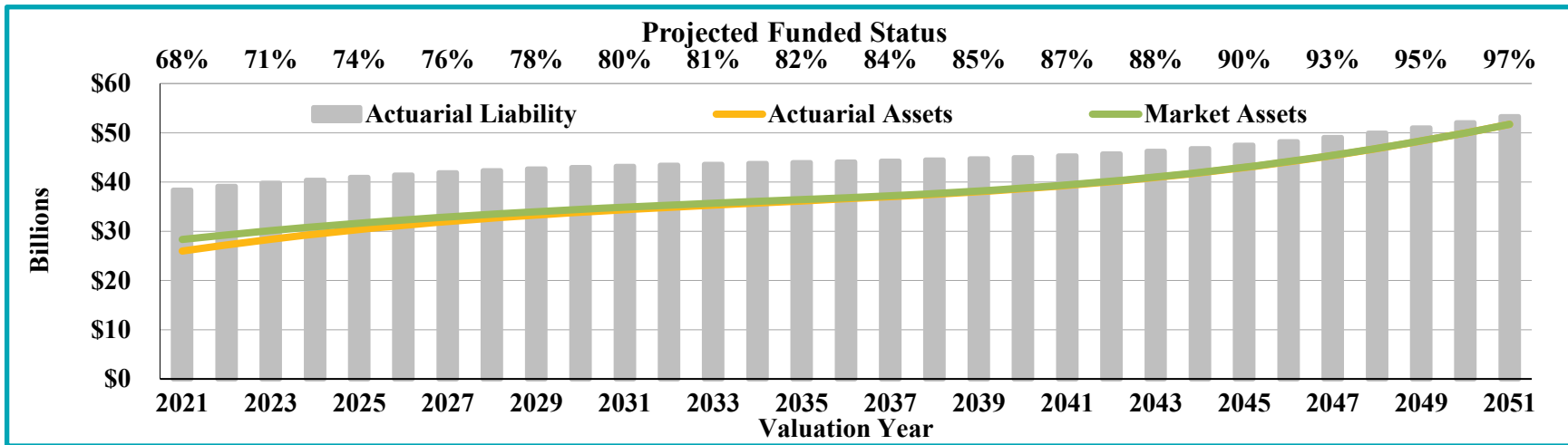


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION I – BOARD SUMMARY

Baseline: 7.0% return for all years

Local Employers



SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Actuarial valuations are based on a set of assumptions about future economic and demographic experience. These assumptions represent a reasonable estimate of future experience, but actual future experience will undoubtedly be different and may be significantly different. This section of the report is intended to identify the primary risks to the plan, provide some background information about those risks, and provide an assessment of those risks.

Identification of Risks

The fundamental risk to the System is that the contributions needed to pay the benefits become unaffordable. While there are a number of factors that could lead to contribution amounts becoming unaffordable, we believe the primary risks are:

- Investment risk,
- Assumption change risk, and
- Contribution risk.

Other risks that we have not identified may also turn out to be important.

Investment risk is the potential for investment returns to be different than expected. Lower investment returns than anticipated will increase the unfunded actuarial liability necessitating higher contributions in the future unless there are other gains that offset these investment losses. The potential volatility of future investment returns is determined by the System's asset allocation and the affordability of the investment risk is determined by the amount of assets invested relative to the size of the plan sponsor or other contribution base.

Assumption change risk is the potential for the environment to change such that future valuation assumptions are different than the current assumptions. For example, declines in interest rates over the last three decades resulted in higher investment returns for fixed income investments, but lower expected future returns necessitating either a change in investment policy, a reduction in discount rate, or some combination of the two. Assumption change risk is an extension of the other risks identified, but rather than capturing the risk as it is experienced, it captures the cost of recognizing a change in environment when the current assumption is no longer reasonable.

Contribution risk is the potential for actual future contributions to deviate from expected future Statutory contributions. There are different sources of contribution risk ranging from the sponsor choosing to not make contributions in accordance with the funding policy to material changes in the contribution base (e.g., covered employees, covered payroll, sponsor revenue) that affect the amount of contributions the System can collect.

The charts below show the components of changes in the Unfunded Actuarial Liability (UAL) for the State and Local employers over the last 10 years, including investment gains and losses on the Actuarial Value of Assets, liability gains and losses, assumption and plan/policy changes, and contributions compared to the tread water level of contributions (normal cost plus interest on the UAL.) The net UAL change is shown by the dark blue line. Tables II-1 and II-2 below the chart summarize the changes in the UAL over the last 10 years.

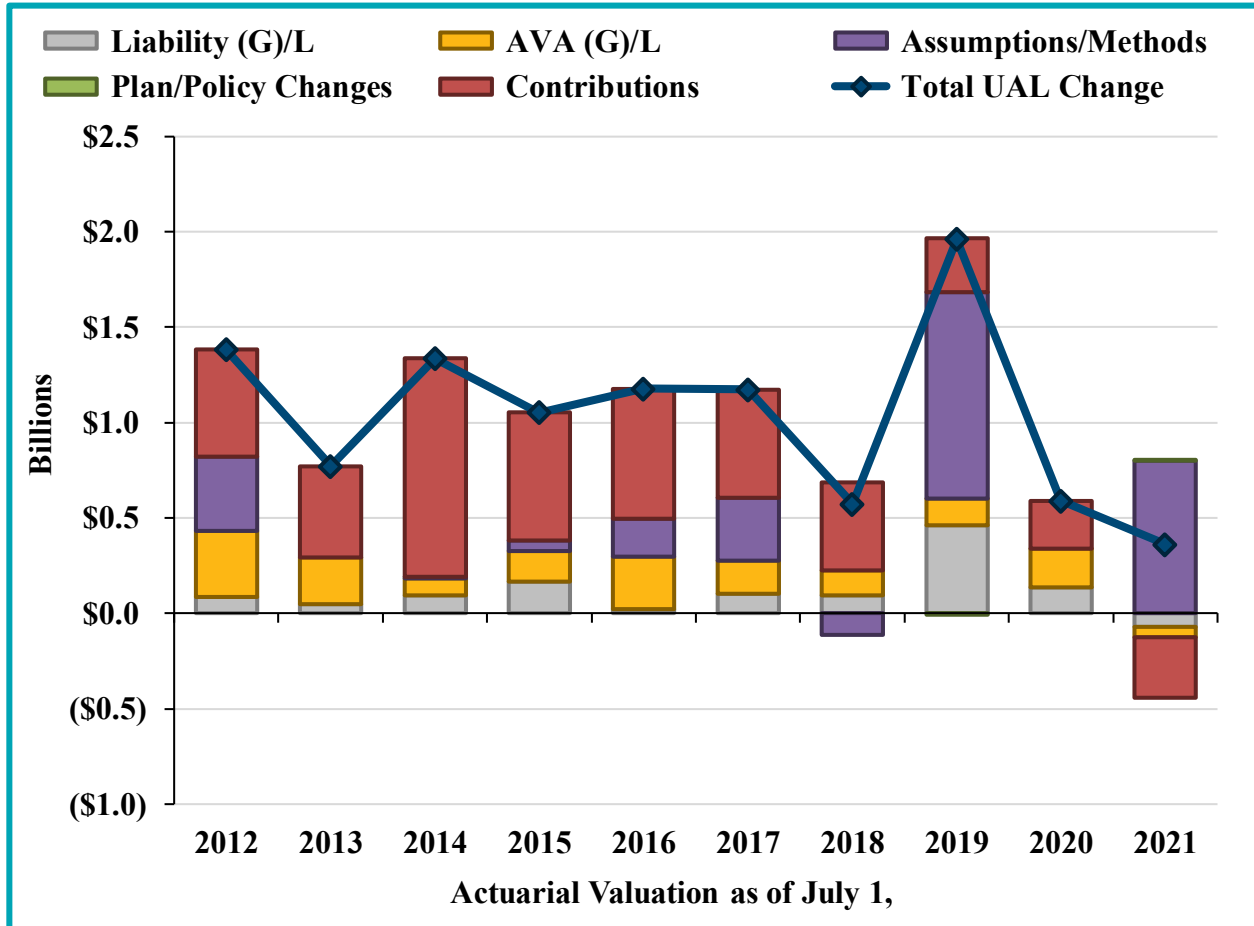
**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

These total changes in UAL support our identification of investment returns, assumption changes, and contributions as the primary risks to the System.

Historical Changes in UAL 2012-2021

State



Actuarial Valuation as of July 1,

**Table II-1
Changes in Unfunded Actuarial Liability
(Dollar amounts in millions)**

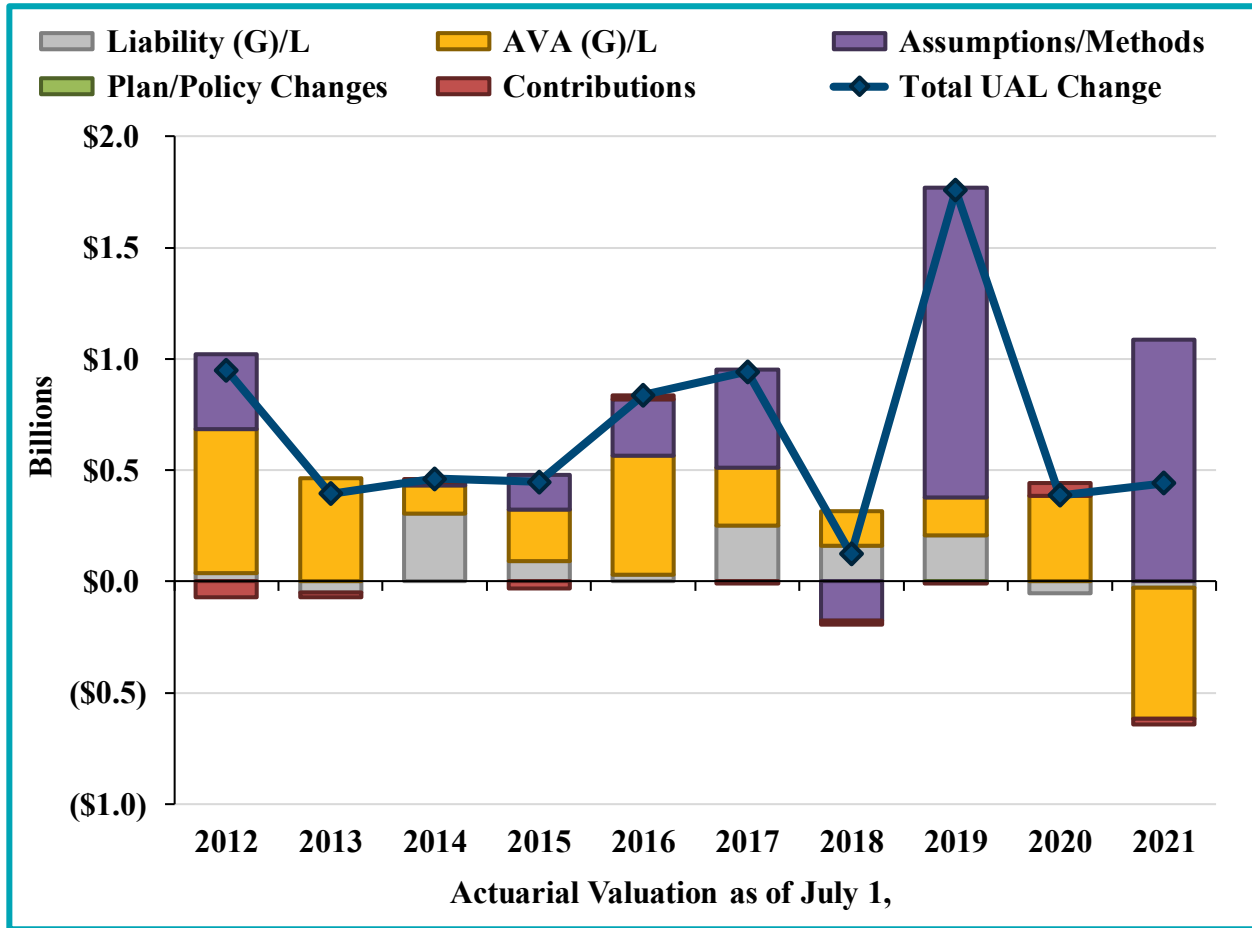
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Discount Rate	7.90%	7.90%	7.90%	7.90%	7.65%	7.50%	7.50%	7.30%	7.30%	7.00%	
Source											
AVA (G)/L	\$ 346.2	\$ 243.8	\$ 87.5	\$ 162.4	\$ 274.0	\$ 171.9	\$ 131.0	\$ 140.7	\$ 199.0	\$ (56.7)	\$ 1,699.8
Liability (G)/L	84.4	47.3	95.3	164.5	21.2	103.2	93.3	461.3	138.4	(70.6)	1,138.2
Assumptions/Methods	389.7	0.0	10.7	53.2	199.0	328.7	(112.3)	1,081.7	0.0	798.4	2,749.3
Plan/Policy Changes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.6)	0.0	4.8	(1.8)
Contributions ¹	560.5	479.3	1,141.6	672.7	683.4	567.9	460.2	283.5	252.8	(315.1)	4,786.7
Net UAL Change	\$ 1,380.7	\$ 770.4	\$ 1,335.2	\$ 1,052.8	\$ 1,177.6	\$ 1,171.7	\$ 572.1	\$ 1,960.7	\$ 590.1	\$ 360.9	\$ 10,372.1

¹ UAL change due to contributions (greater)/less than normal cost plus interest on the UAL

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Local Employers



	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total
Discount Rate	7.90%	7.90%	7.90%	7.90%	7.65%	7.50%	7.50%	7.30%	7.30%	7.00%	
Source											
AVA (G)/L	\$ 647.7	\$ 464.5	\$ 129.1	\$ 234.6	\$ 536.0	\$ 263.1	\$ 154.9	\$ 169.8	\$ 383.2	\$ (591.0)	\$ 2,391.9
Liability (G)/L	35.8	(49.5)	303.9	90.1	28.9	249.2	161.1	207.2	(53.2)	(27.0)	946.5
Assumptions/Methods	337.1	0.0	12.6	152.6	252.0	439.2	(176.7)	1,392.6	0.0	1,086.4	3,495.6
Plan/Policy Changes	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.4)	0.0	0.0	(6.4)
Contributions ¹	(70.0)	(20.1)	15.6	(29.6)	20.5	(9.2)	(16.2)	(4.2)	57.8	(26.0)	(81.5)
Net UAL Change	\$ 950.7	\$ 394.8	\$ 461.2	\$ 447.7	\$ 837.4	\$ 942.2	\$ 123.0	\$ 1,758.9	\$ 387.8	\$ 442.4	\$ 6,746.1

¹ UAL change due to contributions (greater)/less than normal cost plus interest on the UAL

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

On a smoothed asset basis, the investment gains and losses (gold bars) from 2012 to 2021 reflect material investment losses, primarily driven by the market decline of 2008 and 2009. Notably, the System experienced its only investment gain during FYE 2021. In aggregate, over the 10-year period, investment losses have added approximately \$1,699.8 million to the State's UAL and approximately \$2,391.9 million to the Local employers' UAL.

On the liability side (gray bars), the System has experienced a combination of gains and losses, however smaller in magnitude compared to the assets, increasing the UAL by approximately \$1,138.2 million for the State and \$946.5 million for Local employers over the 10-year period.

Assumption and method changes (purple bars) over the last 10 years have increased the UAL by approximately \$2,749.3 million for the State and \$3,495.6 million for Local employers. The significant assumption changes have included reductions in the discount rate from 7.95% to 7.00% as well as decreases in mortality rates and projected mortality improvement. It is important to note that the discount rate changes simply reflect a downward revision to the estimate of future investment earnings and ultimately costs will be determined by actual investment earnings.

Plan changes (green bars) over the last 10 years have decreased the UAL by approximately \$1.8 million for the State and \$6.4 million for Local employers.

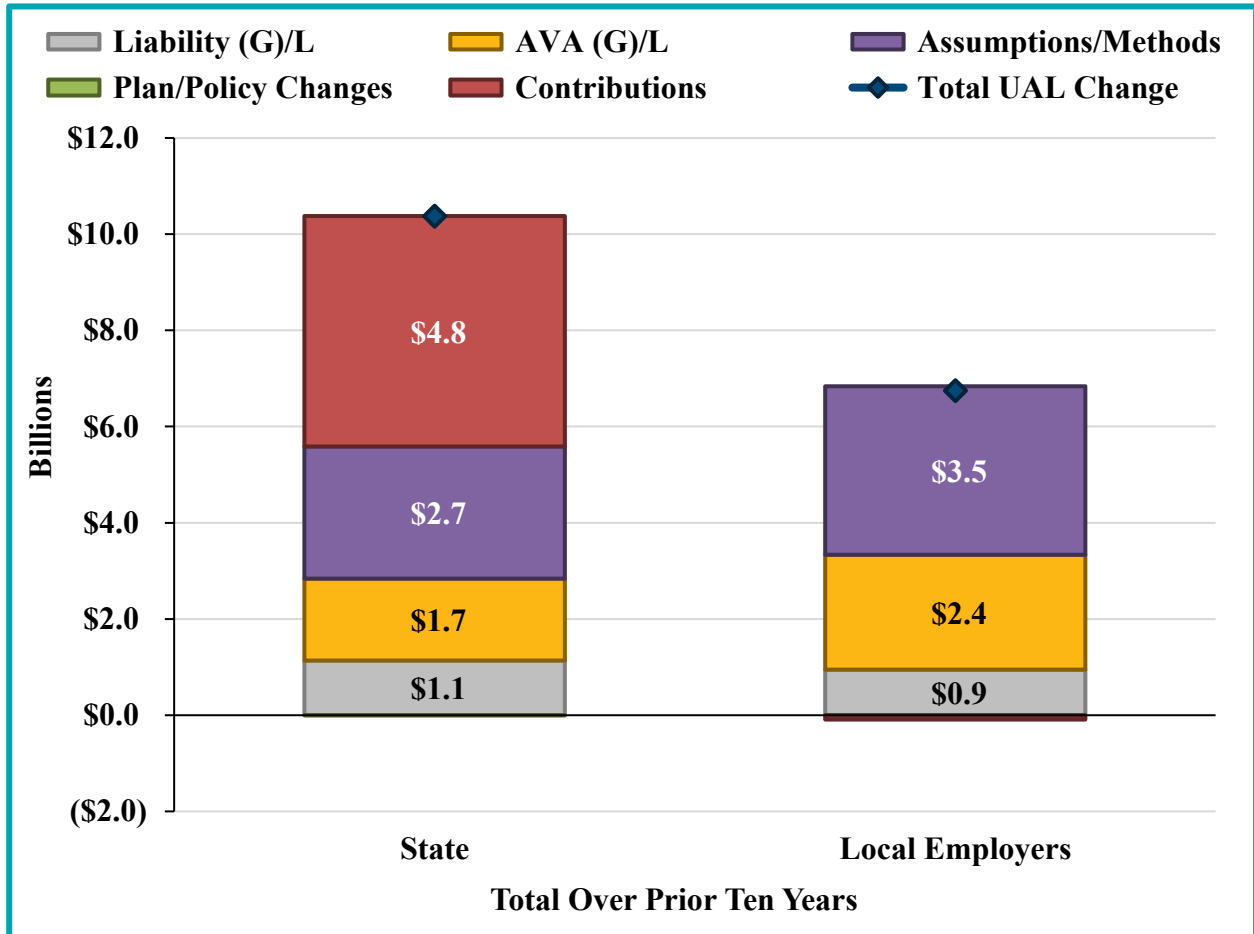
Each year, the UAL is expected to increase for benefit accruals attributable to the current year (the normal cost) and interest on the UAL. This expected increase is referred to as the tread water level. If contributions are greater than the tread water level, the UAL is expected to decrease. Conversely, if contributions are less than the tread water level, the UAL is expected to increase. Changes due to contributions greater or less than the tread water level (red bars) have increased the State's UAL by approximately \$4,786.7 million and decreased Local employers' UAL by approximately \$81.5 million over the last 10 years.

In general, the amortization methods used to determine the Statutory contributions are designed to collect more than the tread water level. However, contributions may be less than this threshold due to the State appropriating less than the Statutory contributions. Notably, the trend of contributions less than the tread water level reversed in FYE 2021 which resulted in the contributions decreasing the UAL.

The following chart shows the total changes to the UAL for each portion of the System over the 10-year period by source.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK



Plan Maturity Measures

The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the plan compared to other plans and how the maturity has changed over time.

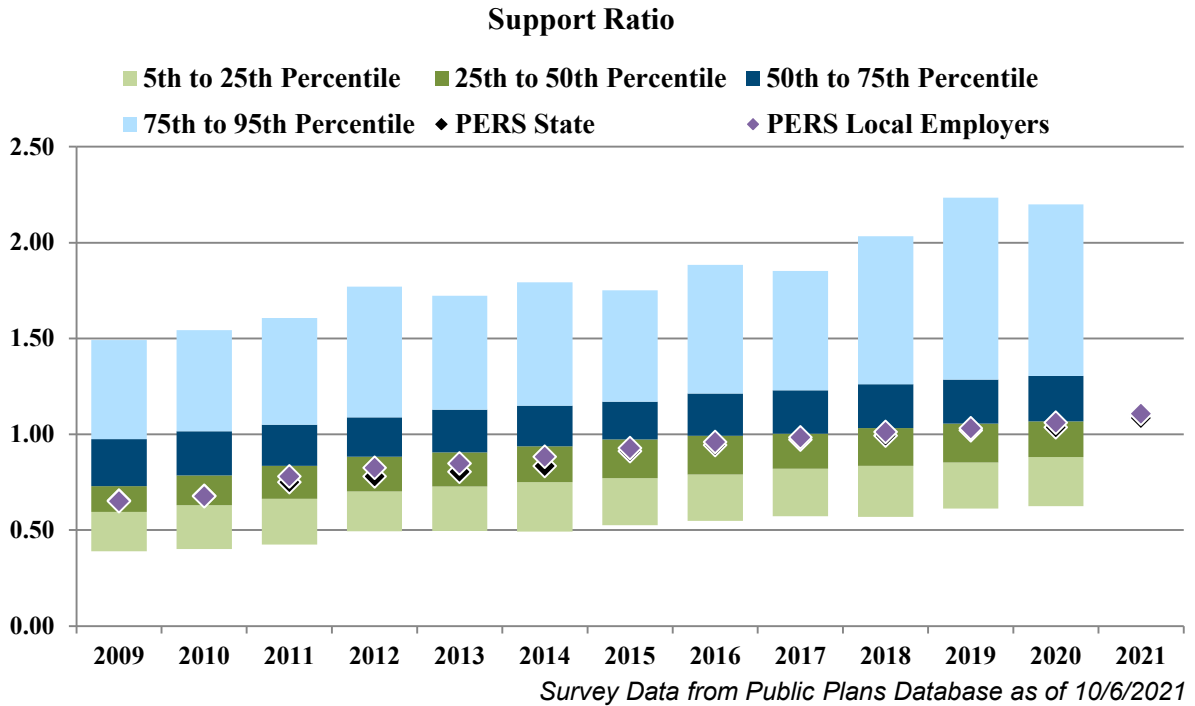
Plan maturity can be measured in a variety of ways, but they all get at one basic dynamic - the larger the plan is compared to the contribution or revenue base that supports it, the more sensitive the plan will be to risk. The measures below have been selected as the most important in understanding the primary risks identified for the System.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Inactives per Active (Support Ratio)

One simple measure of plan maturity is the ratio of the number of inactive members (those receiving benefits or entitled to a deferred benefit) to the number of active members. We refer to this ratio as the *support ratio*. The revenue base supporting the plan is usually proportional to the number of active members, so a relatively high number of inactives compared to actives indicate a larger plan relative to its revenue base as well. We also discussed this risk metric in Section I.



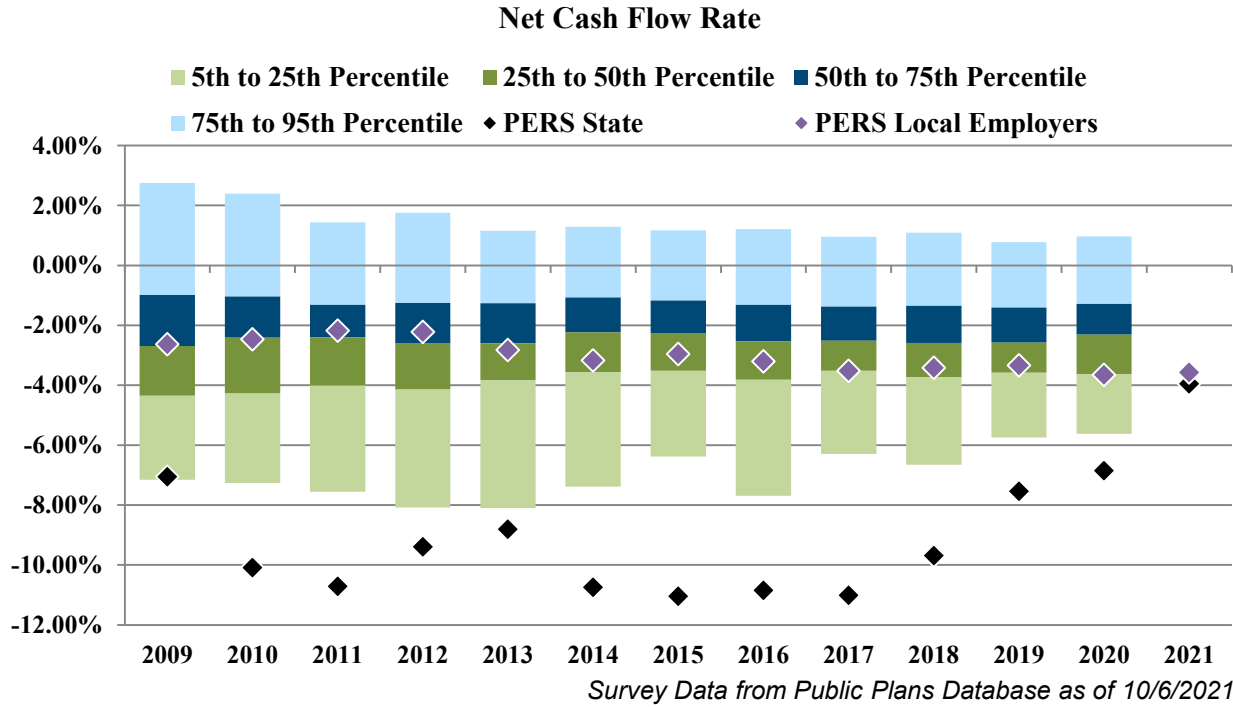
The chart above shows the distribution from the 5th to 95th percentile of support ratios for the plans in the Public Plans Database. The diamonds show how the State (black) and Local employers (purple) compare to other Systems dating back to 2009. Note that the PERS support ratios for State and Local employers are very similar to each other and overlap in some years. Both State and Local employers have been less mature than the median plan. The support ratios increased following the Great Recession, but have since stabilized near the 50th percentile.

Net Cash Flow

The net cash flow of the plan as a percentage of the beginning of year assets indicates the sensitivity of the plan to short-term investment returns. Net cash flow is equal to contributions less benefit payments and administrative expenses. Mature plans can have large amounts of benefit payments compared to contributions, particularly if they are well funded. Investment losses in the short-term are compounded by the net withdrawal from the plan leaving a smaller asset base to try to recover from the investment losses. Large negative cash flows can also create liquidity issues. We also discussed this risk metric in Section I.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK



The chart above shows the distribution from the 5th to 95th percentile of net cash flow for the plans in the Public Plans Database. The diamonds show how the State and Local employers' net cash flow compares to other public plans. The State had been at or below the 5th percentile compared to the database of other public plans in terms of having significantly more negative cash flow as a percentage of assets causing a serious defunding risk for the System. However, with the State's increased appropriation percentages, the State's net cash flow has improved considerably since 2017 and may be at a higher percentile in 2021. The Local employers were near the 50th percentile from 2009 to 2013 and have since fallen closer to the 25th percentile.

Assessing Costs and Risks

The fundamental risk to the System is that the contributions needed to fund the benefits become unaffordable. Assessing this risk, however, is complex because there is no bright line of what is unaffordable and the contribution amounts themselves are affected not just by the experience of the System, but also by the interaction of that experience and decisions by the State and the Board related to the amount of contributions appropriated, assumptions, asset smoothing methods, and amortization periods.

Investment Risk - Stress Testing

This section illustrates stress testing of the investment return assumption and is an extension of the baseline projections provided in the Summary section. Under the baseline results, we assumed a 7.00% investment return assumption each year.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

For stress testing purposes, we developed six hypothetical scenarios to illustrate the impact investment returns may have on future funded status and contribution amounts. The scenarios are balanced between positive and negative scenarios and are based on a lognormal distribution of one and five year expected returns as shown in the table below using the capital market assumptions from the New Jersey Division of Investments (geometric return of 6.76%, standard deviation of 11.05%).

Distribution of Expected Average Annual Returns		
Percentile	1 Year	5 Year
5%	-9.8%	-1.0%
25%	-0.3%	3.5%
50%	6.8%	6.8%
75%	14.5%	10.2%
95%	26.5%	15.2%

The scenarios include: a one-year shock using the 5th and 95th percentile returns for one year; a 5-year moderate scenario using the 25th and 75th percentile returns for five years; and a 5-year significant scenario using the 5th and 95th percentile returns for five years. The table below summarizes the theoretical scenarios.

FYE	Theoretical Scenarios					
	1-Yr Shock		5-Yr Moderate		5-Yr Significant	
	Neg	Pos	Neg	Pos	Neg	Pos
2022	-9.8%	26.5%	3.5%	10.2%	-1.0%	15.2%
2023	7.0%	7.0%	3.5%	10.2%	-1.0%	15.2%
2024	7.0%	7.0%	3.5%	10.2%	-1.0%	15.2%
2025	7.0%	7.0%	3.5%	10.2%	-1.0%	15.2%
2026	7.0%	7.0%	3.5%	10.2%	-1.0%	15.2%
2027+	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%

In reviewing each of these projections, it is the future trends, not necessarily the actual values, that are important to observe in consideration of the risks of the System and the potential volatility of future funded ratios and Statutory contribution levels.

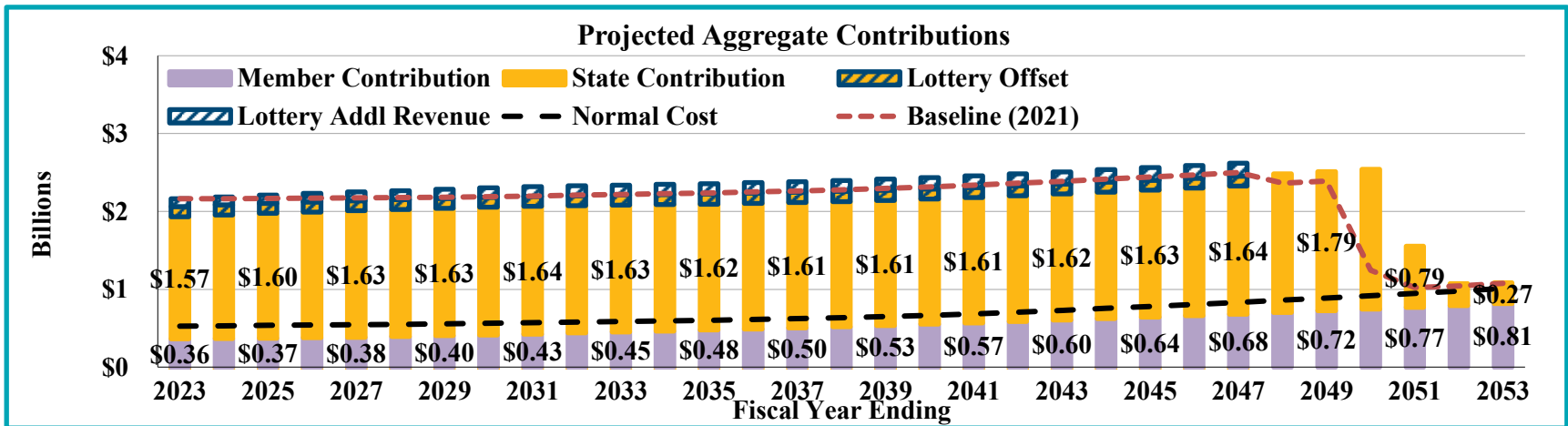
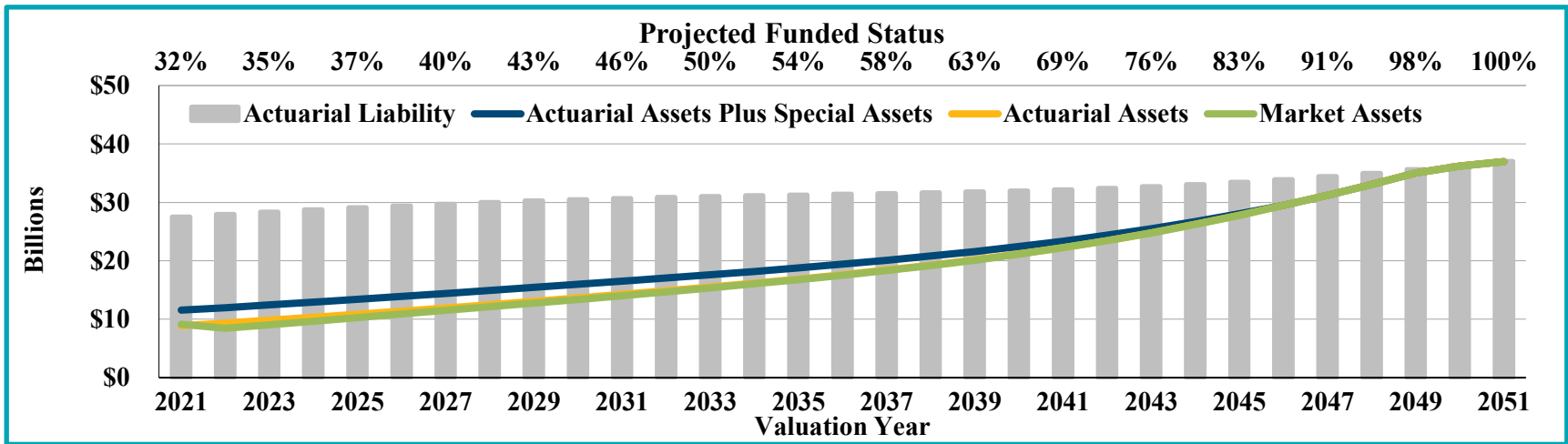
We note that when asset returns are high, excess assets may be used to offset employer costs. We have not shown the implications of a surplus and assume that the employer will always contribute at least the normal cost.

The graphs on the following pages show the projections under each of these theoretical scenarios. Instead of the tread water line shown for the baseline projection, the contribution graphs include a dashed red line representing the expected contributions under the baseline projections shown in the Summary section to facilitate the comparison between the particular scenario and the baseline projections assuming all assumptions are met.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

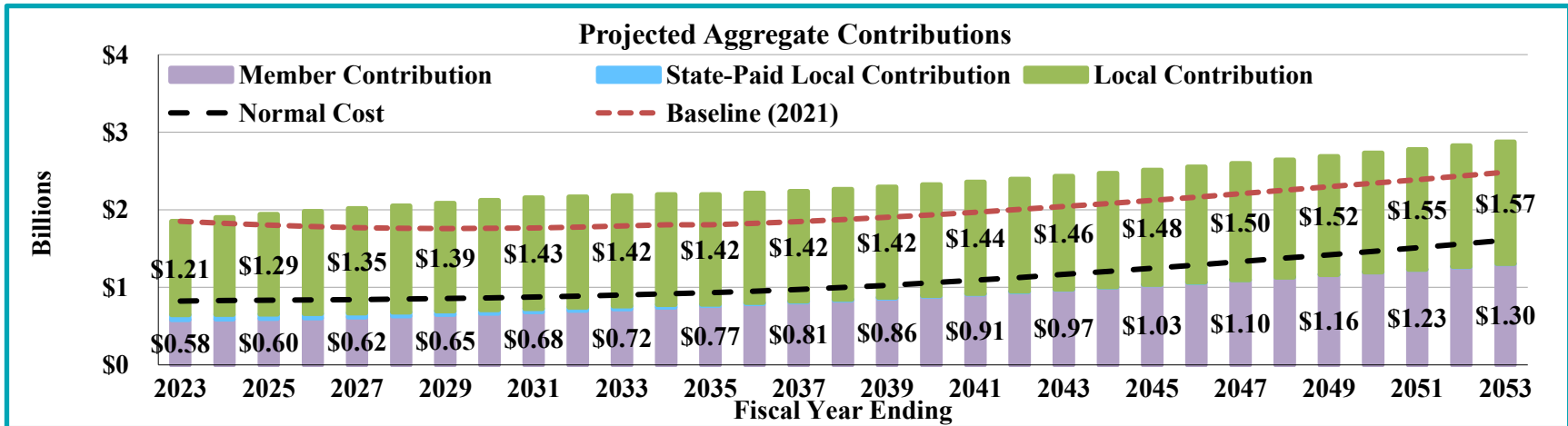
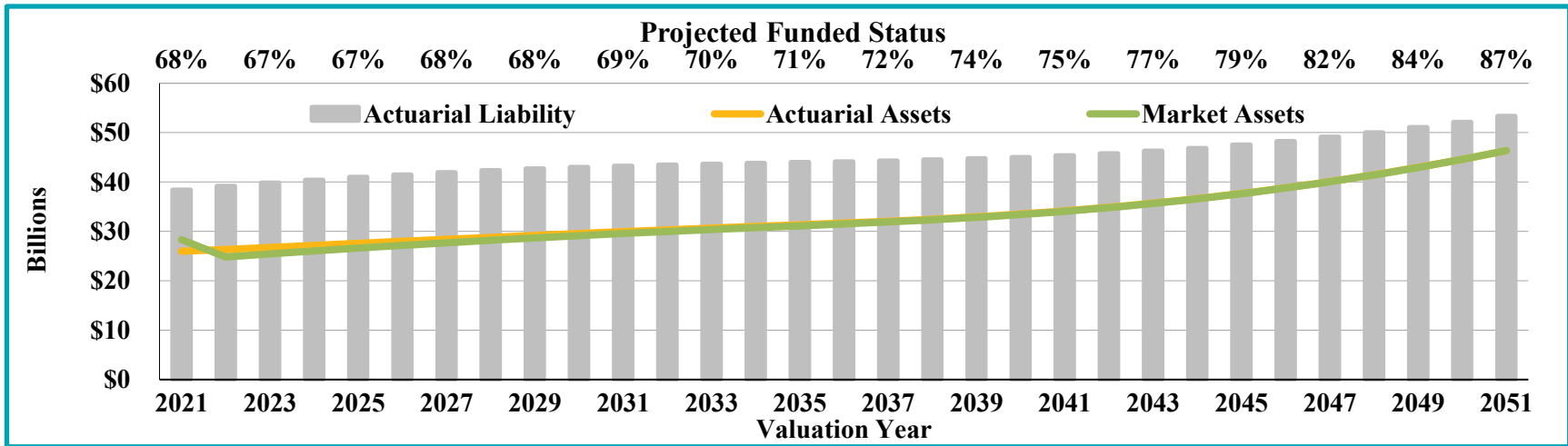
One-Year Negative Shock Scenario: -9.8% return FYE 2022, 7.0% after
State



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

One-Year Negative Shock Scenario: -9.8% return FYE 2022, 7.0% after
Local Employers

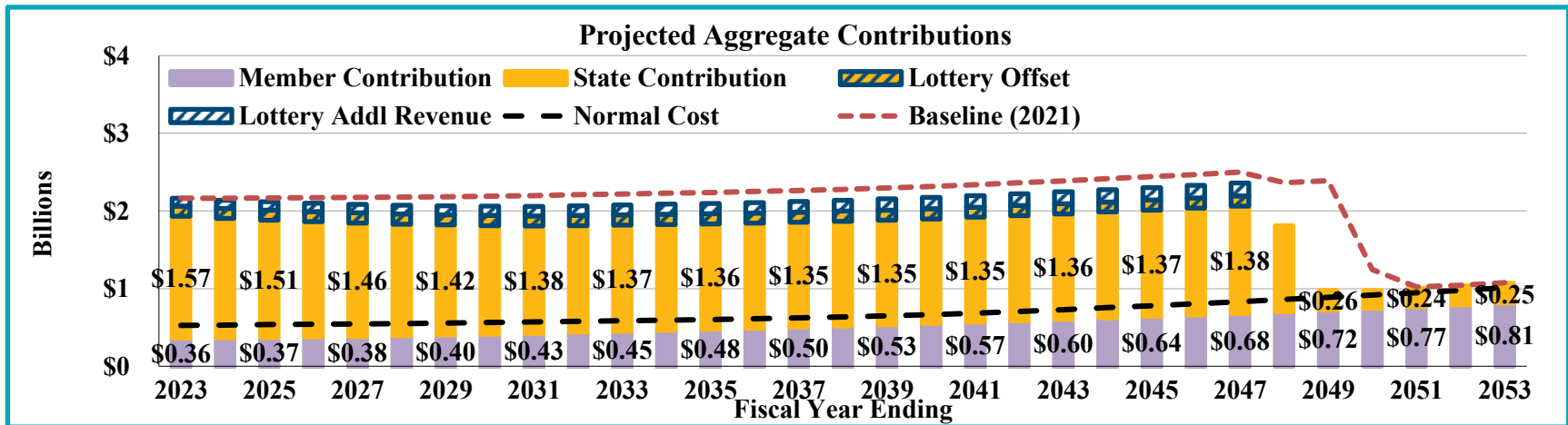
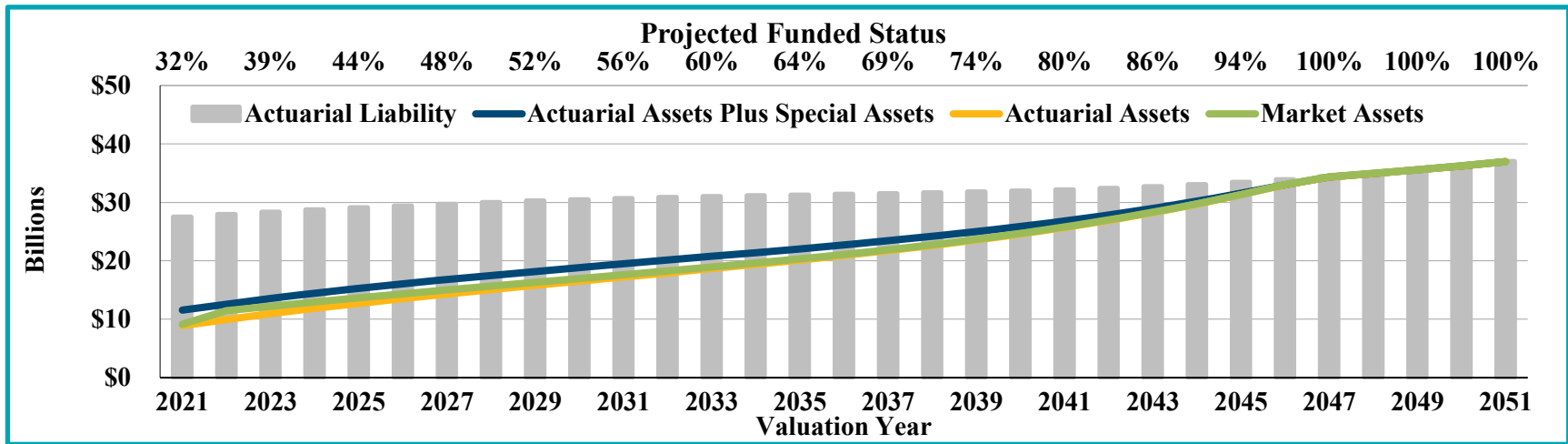


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

One-Year Positive Shock Scenario: 26.5% return FYE 2022, 7.0% after

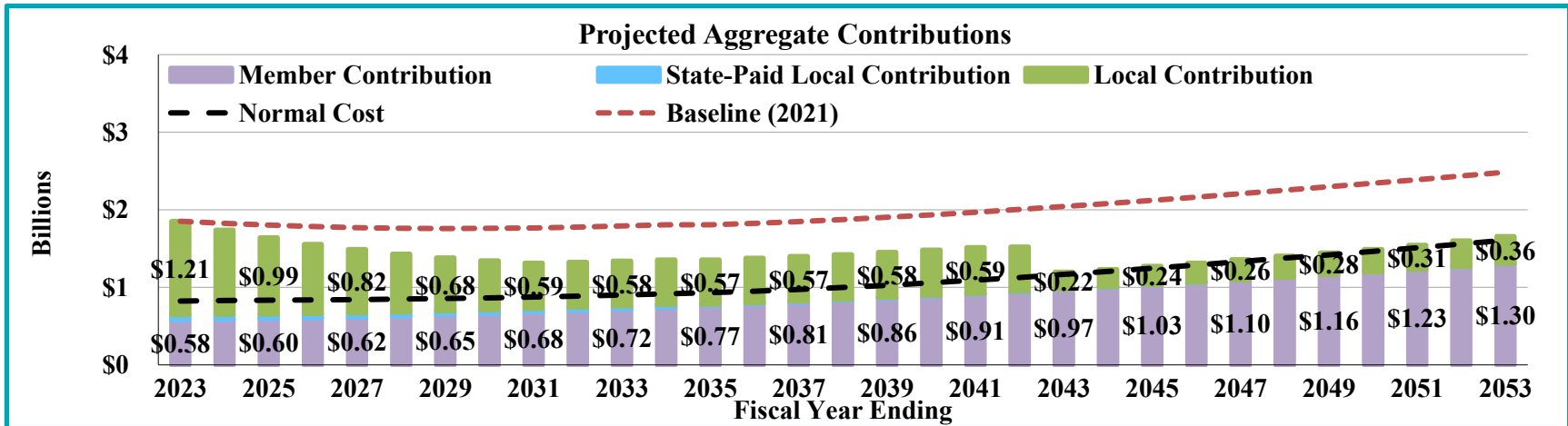
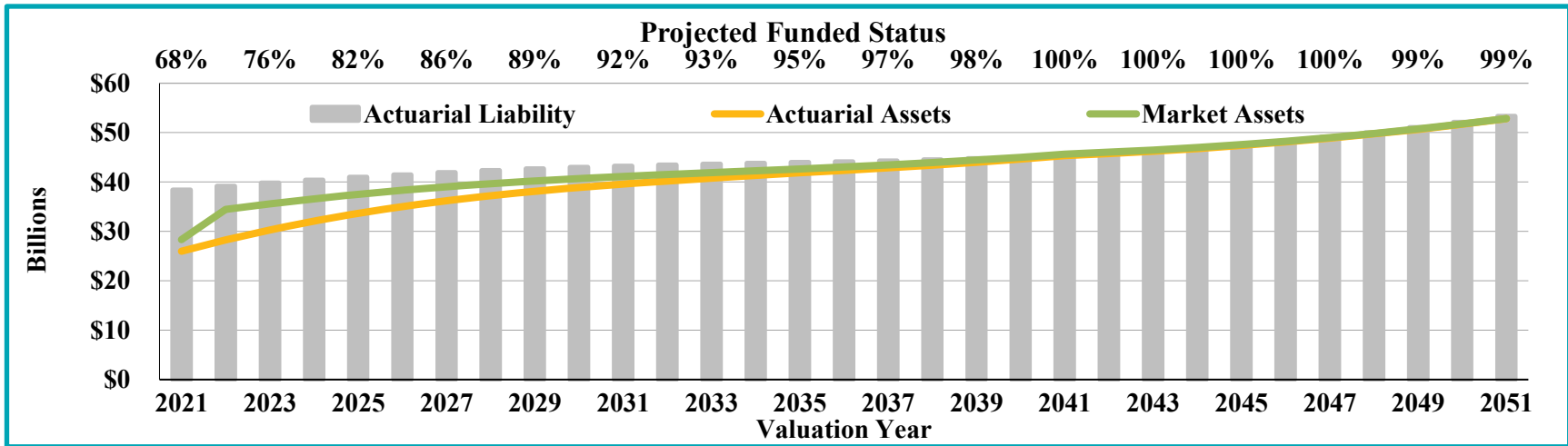
State



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

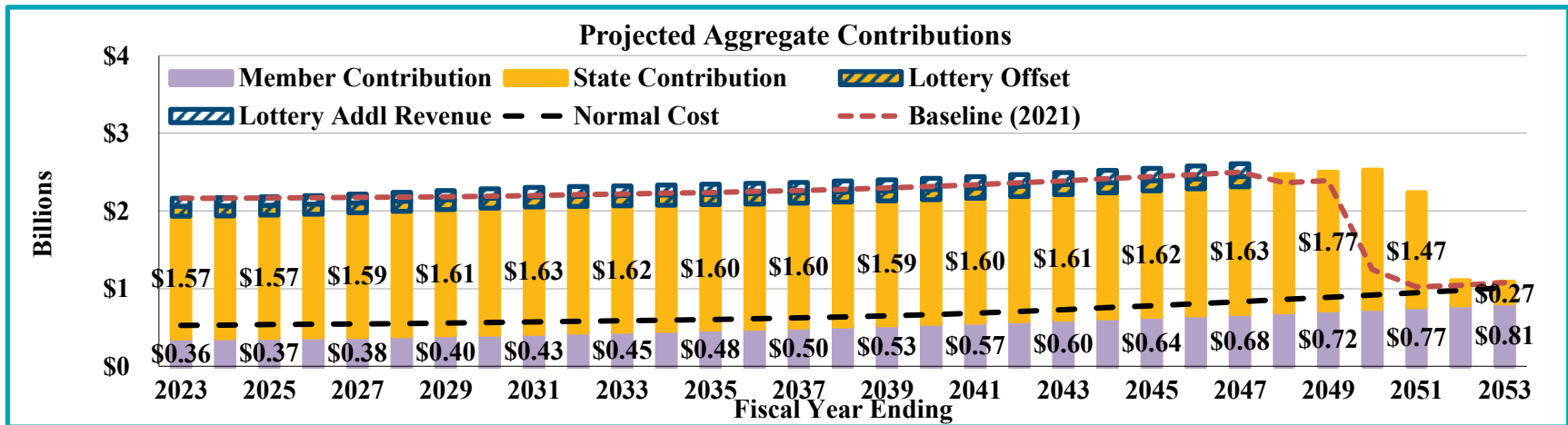
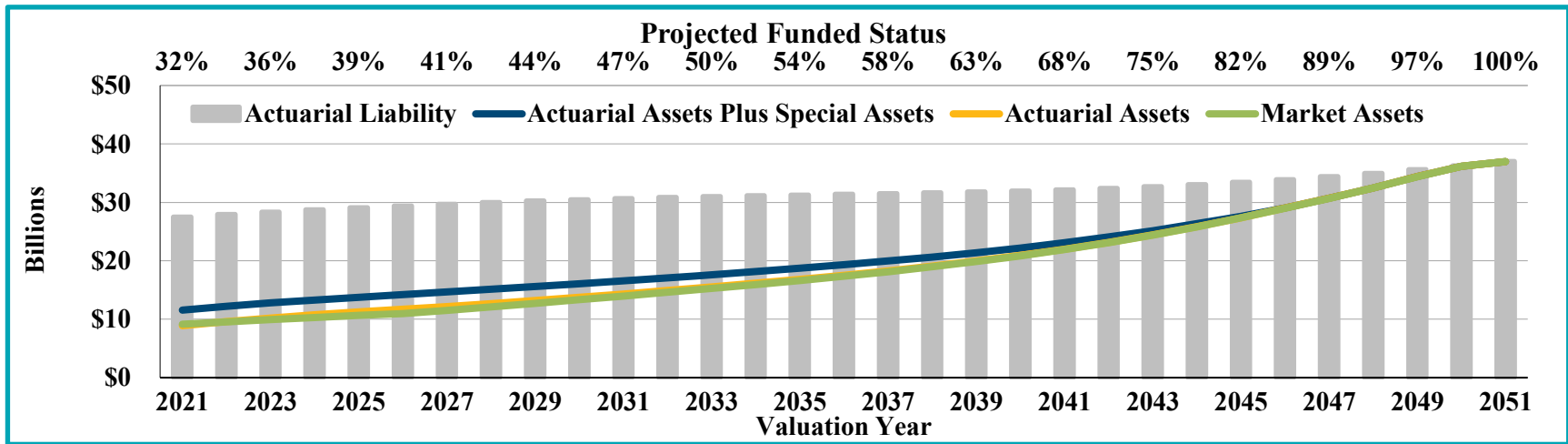
One-Year Positive Shock Scenario: 26.5% return FYE 2022, 7.0% after
Local Employers



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

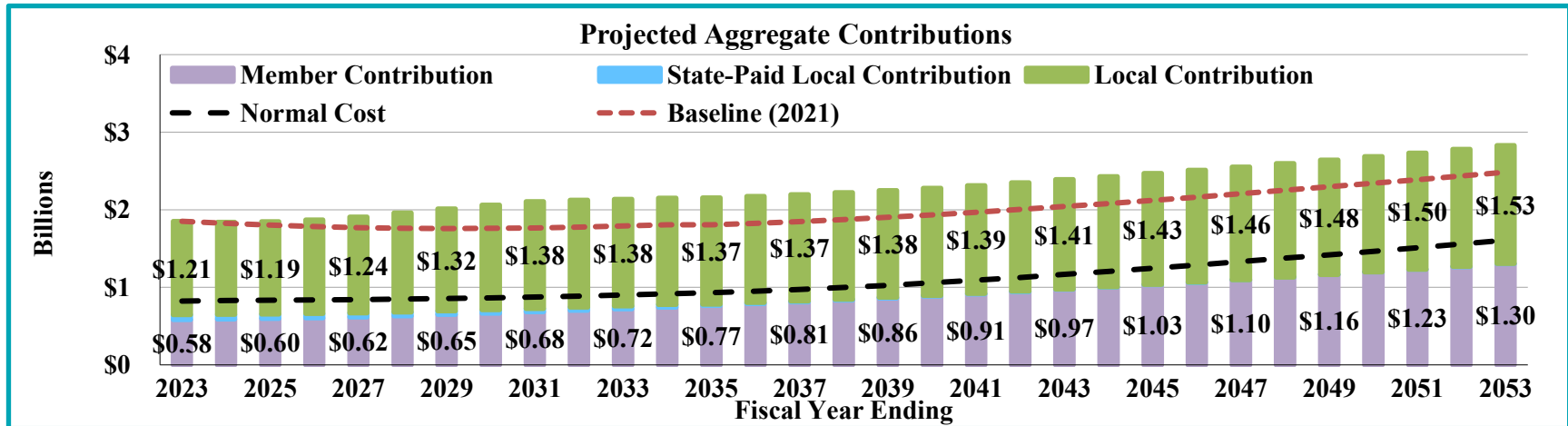
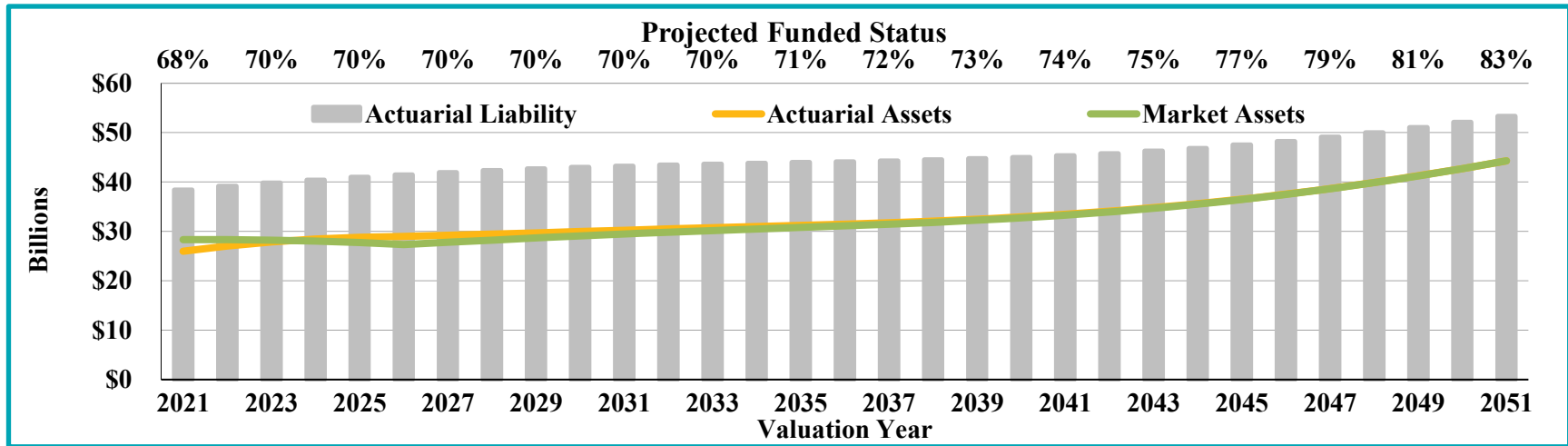
Five-Year Moderate Negative Scenario: 3.5% return FYE 2022-2026, 7.0% after State



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

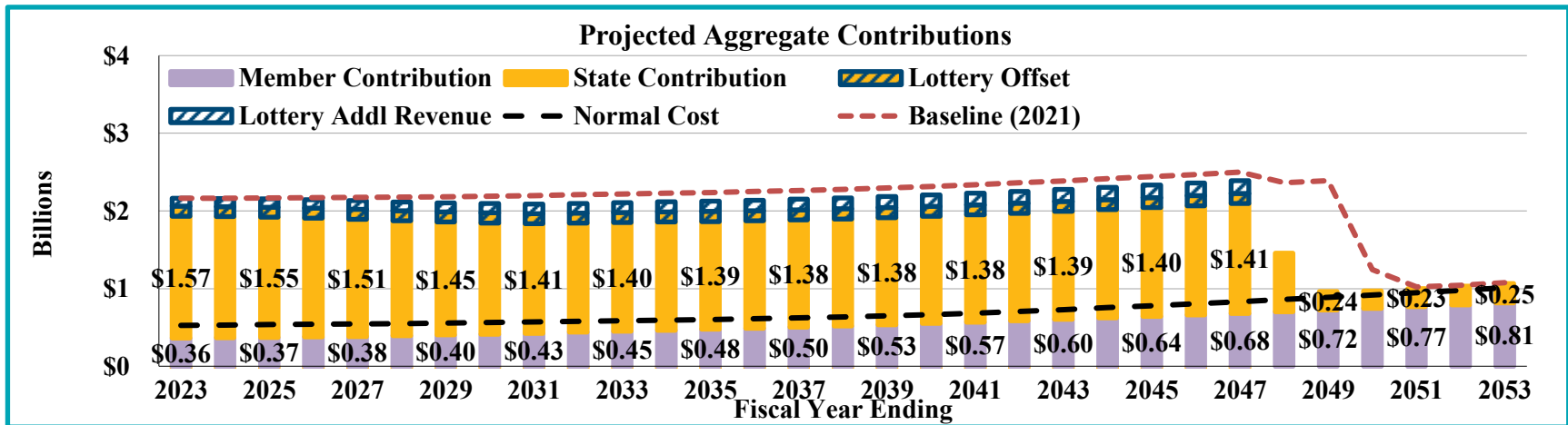
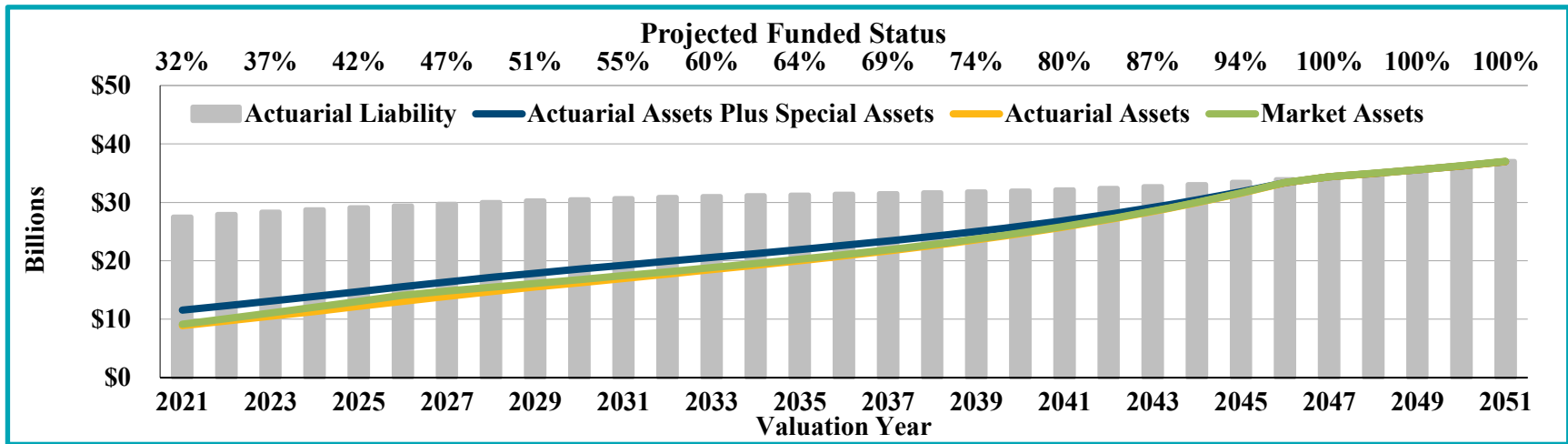
Five-Year Moderate Negative Scenario: 3.5% return FYE 2022-2026, 7.0% after
Local Employers



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

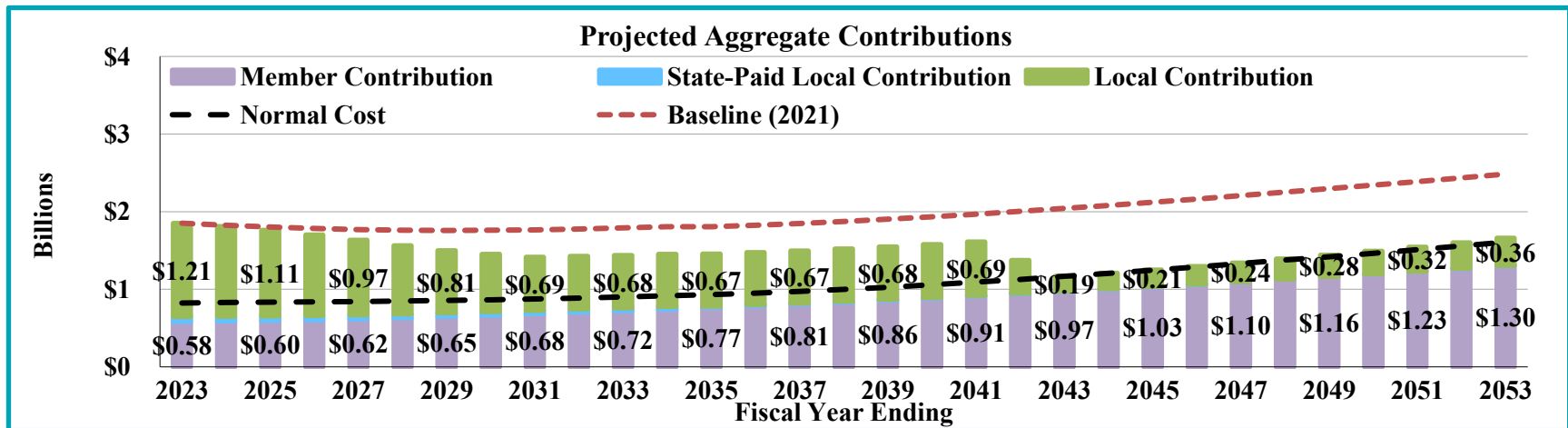
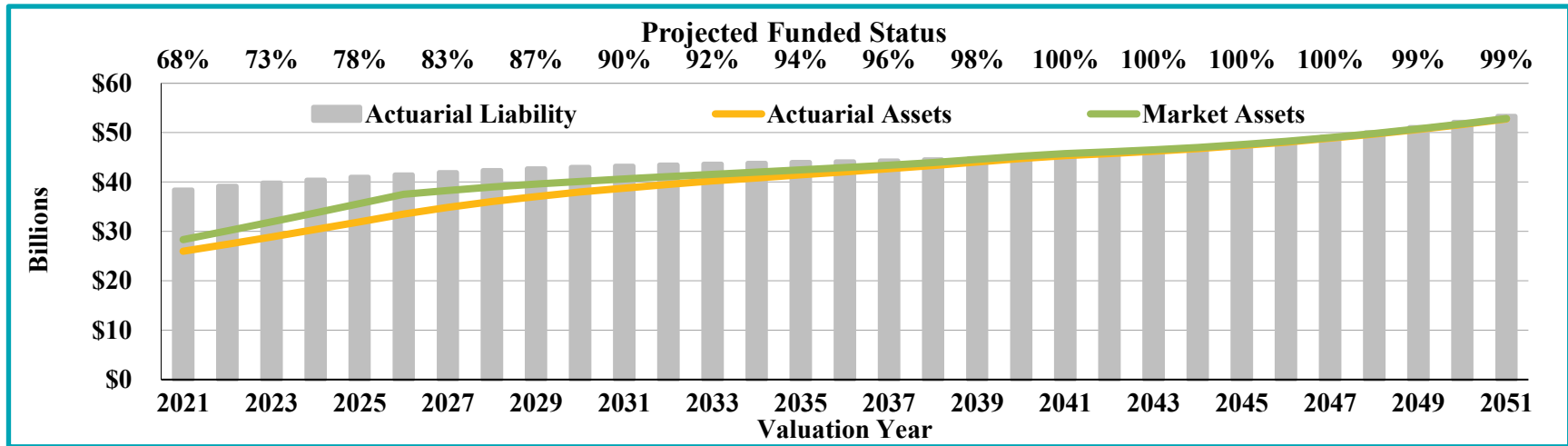
Five-Year Moderate Positive Scenario: 10.2% return FYE 2022-2026, 7.0% after State



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Moderate Positive Scenario: 10.2% return FYE 2022-2026, 7.0% after
Local Employers

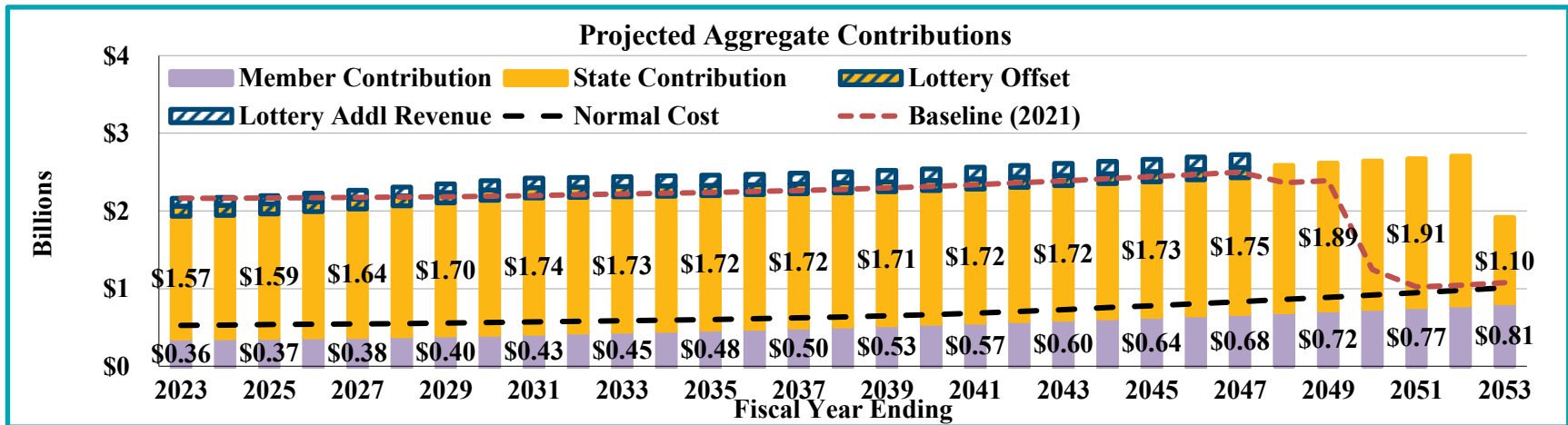
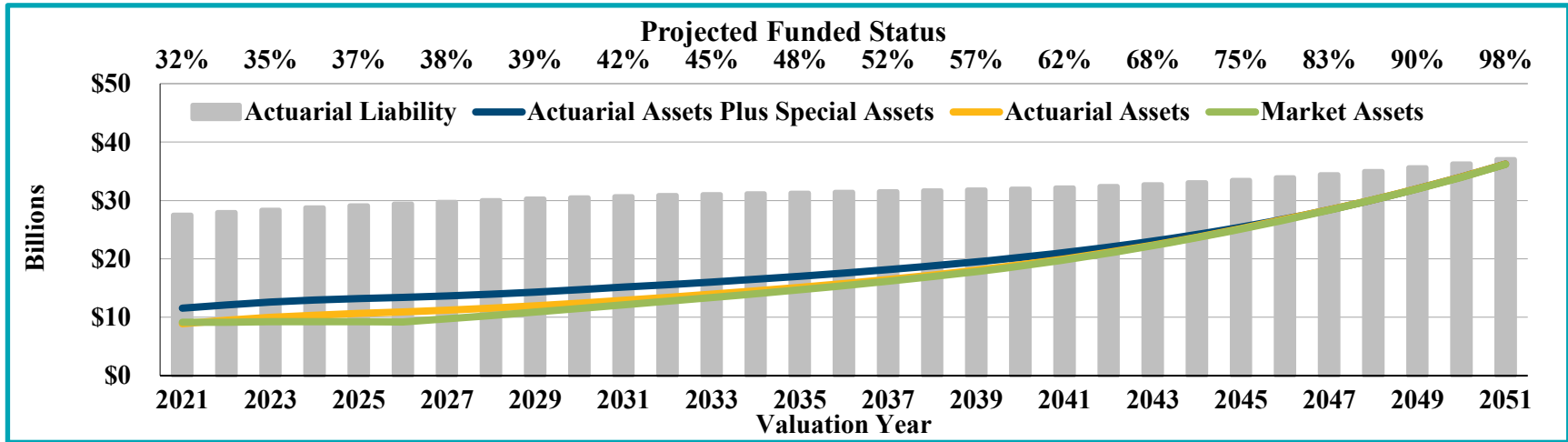


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Significant Negative Scenario: -1.0% return FYE 2022-2026, 7.0% after

State

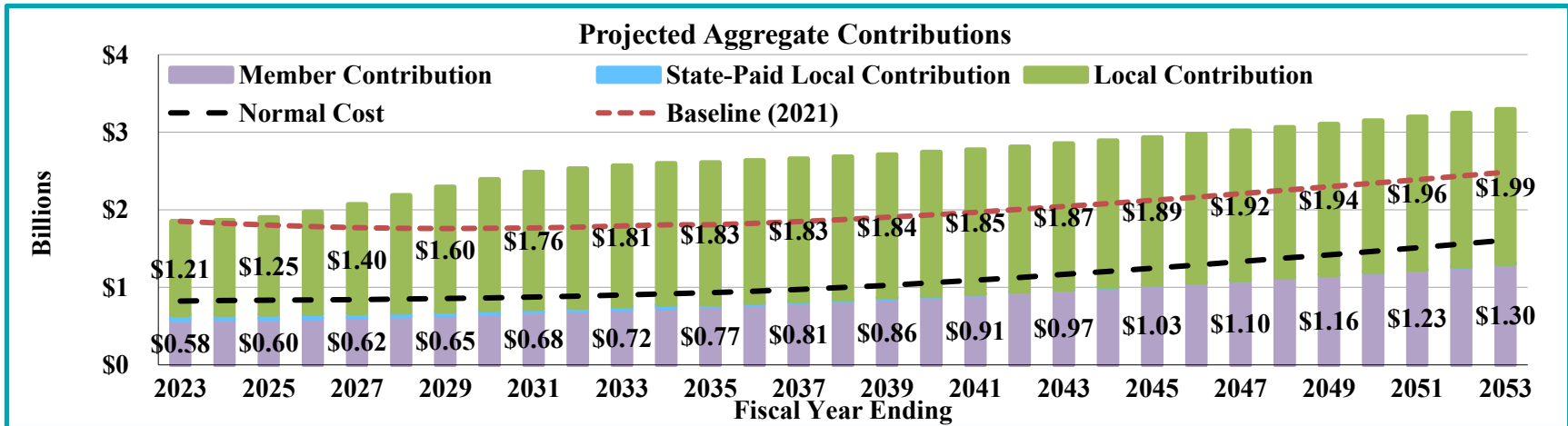
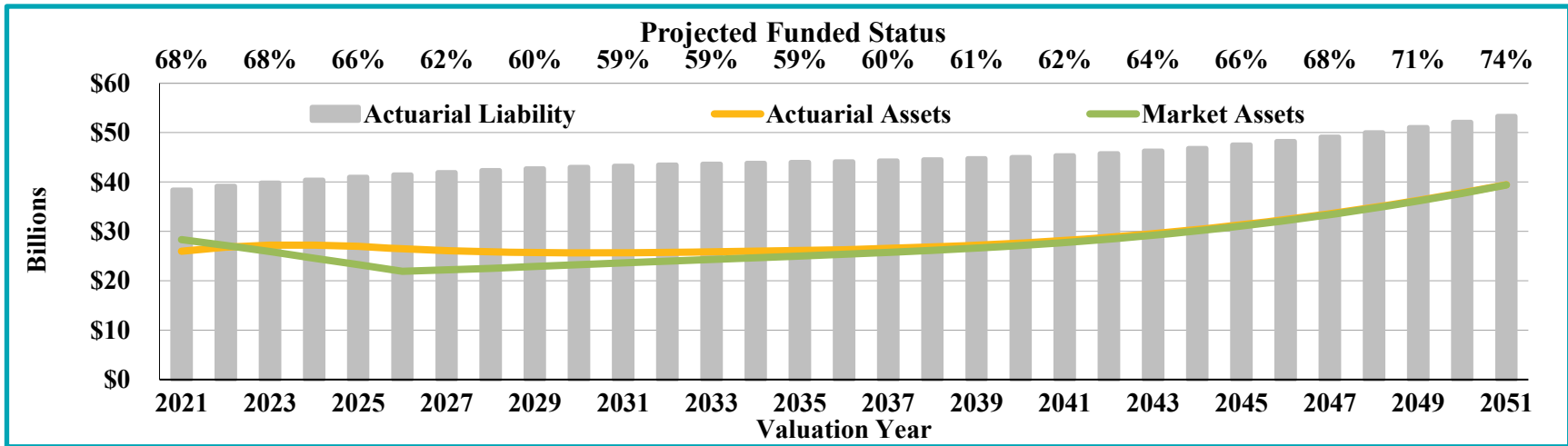


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Significant Negative Scenario: -1.0% return FYE 2022-2026, 7.0% after

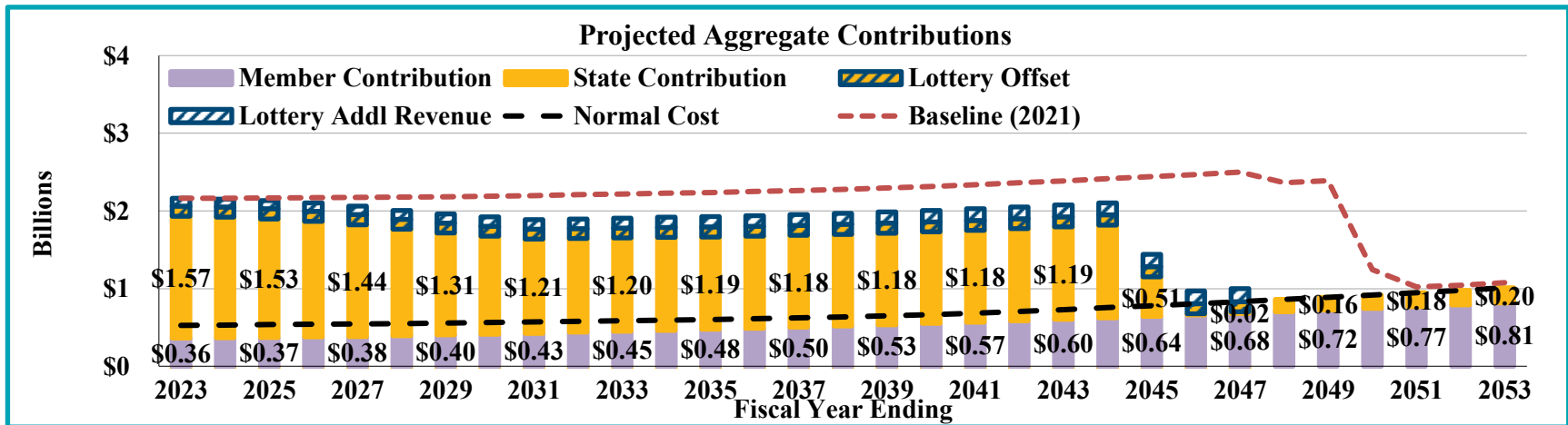
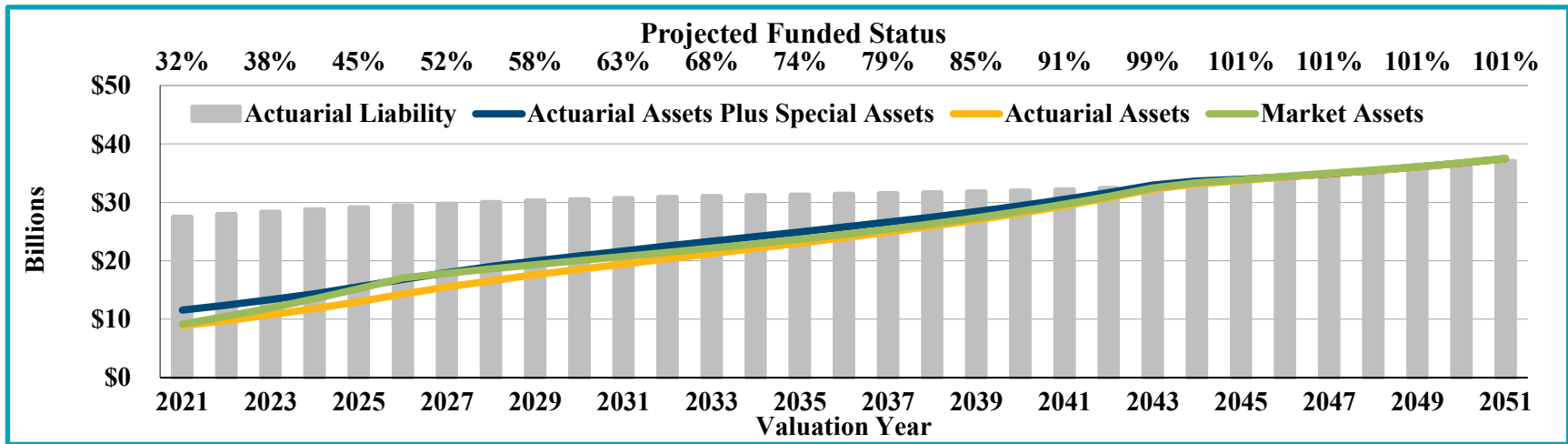
Local Employers



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Significant Positive Scenario: 15.2% return FYE 2022-2026, 7.0% after
State

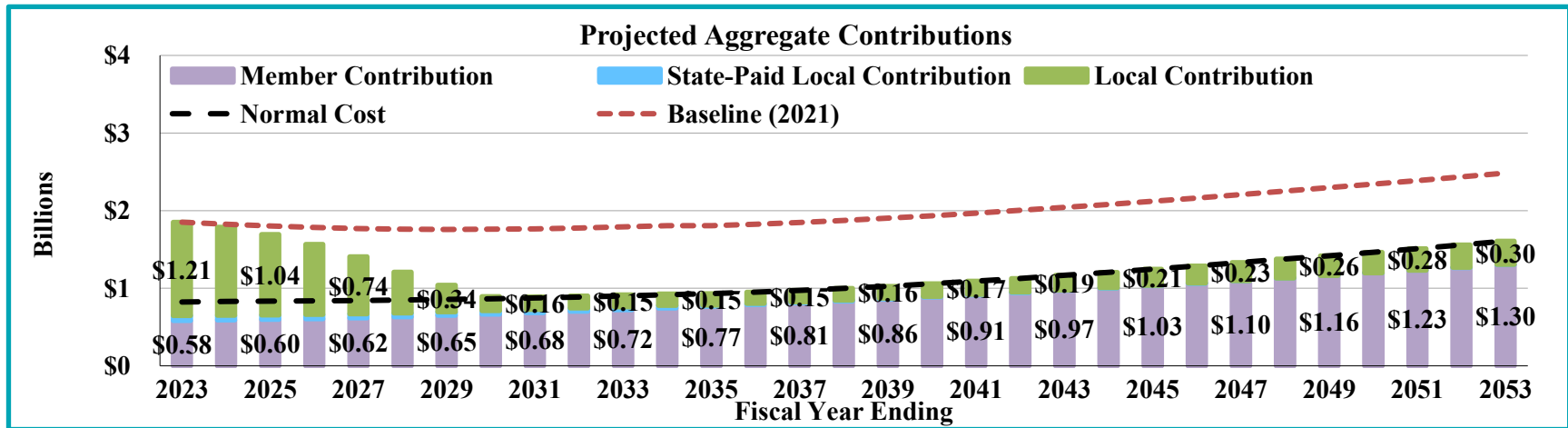
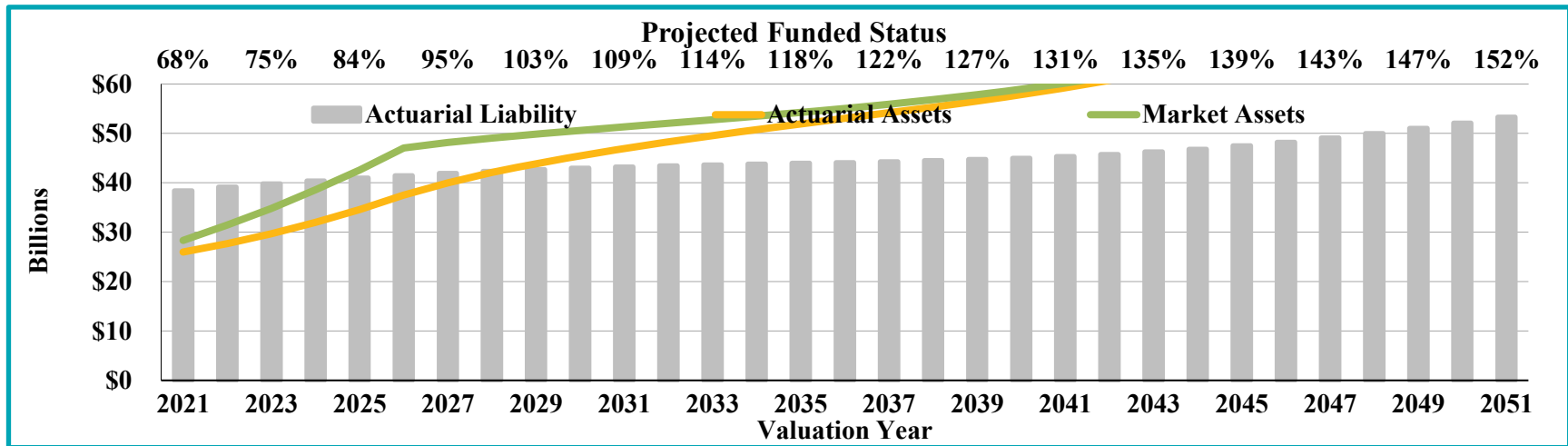


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Significant Positive Scenario: 15.2% return FYE 2022-2026, 7.0% after

Local Employers



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

These scenarios show that actual future investment returns have a significant impact on future State and Local employer contribution amounts. The following table summarizes the impact on the State and Local employer contributions in FYE 2035 for the various investment return scenarios compared to the baseline projections in Section I.

Table II-3 Impact on Contributions for FYE 2035 (dollar amounts in millions)						
	1-Yr Shock		5-Yr Moderate		5-Yr Significant	
	Neg	Pos	Neg	Pos	Neg	Pos
<u>State</u>						
Amount	\$121	(\$141)	\$107	(\$110)	\$224	(\$309)
Percent	8%	-9%	7%	-7%	15%	-21%
<u>Local Employers</u>						
Amount	\$389	(\$453)	\$346	(\$354)	\$802	(\$877)
Percent	38%	-44%	34%	-34%	78%	-85%

The positive scenarios sometimes show the System achieving a 100% funded status during the 30-year projection period, which results in the contribution decreasing to equal the employer normal cost.

Local employer contributions are clearly more sensitive than State contributions to investment returns deviating from the assumption. This is caused by the funded status at the beginning of the projection period. The State is less well funded and, as a result, has less to gain or lose from positive or negative investment experience.

The investment returns used in the projections above were selected solely to illustrate the impact of investment volatility on the pattern of future funded status and contribution amounts. They are not intended to be predictive of actual future contributions or funded status or even to represent a realistic pattern of investment returns.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Assumption Change Risk – Sensitivity Testing

As shown in Tables II-1 and II-2, assumption changes over the last decade have increased the State's UAL by approximately \$2,749.3 million and increased the Local employers' UAL by approximately \$3,495.6 million. The most significant changes were reductions in the discount rate, decreases in mortality rates and projections of mortality improvement. The reductions in discount rates have been largely driven by declines in interest rates that affect expectations of future investment returns. If there are further declines in interest rates or if there is a desire or need to reduce investment risk that reduces expected returns, the discount rate and expected returns may need to be reduced further. The charts on the following page show the impact on projected future funded status and contribution amounts if the discount rate and expected returns were reduced by 100 basis points to 6.00% beginning with the July 1, 2022 valuation.

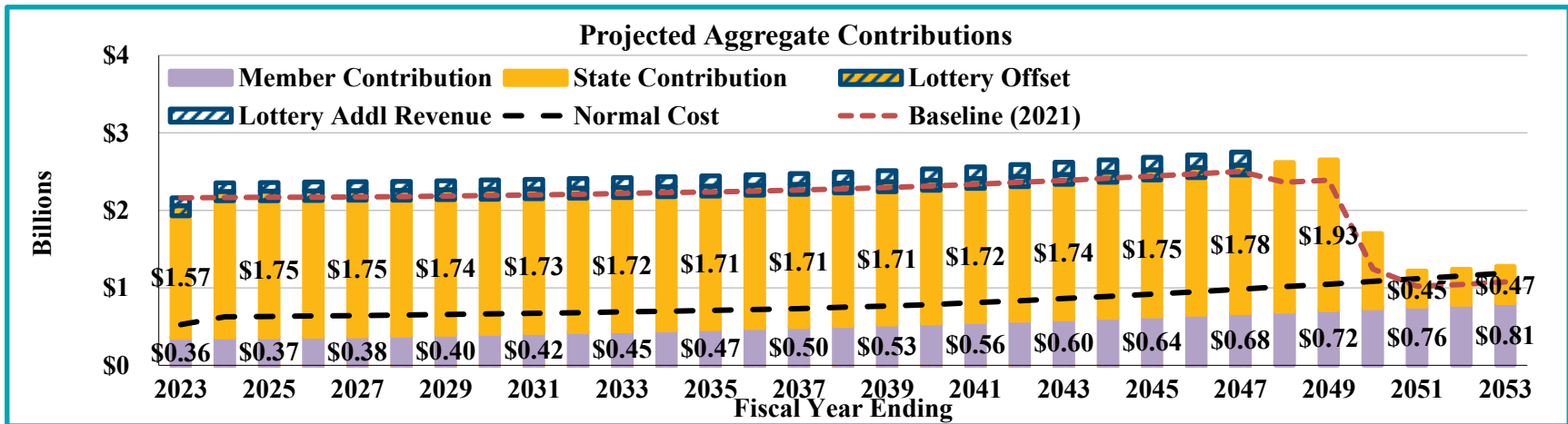
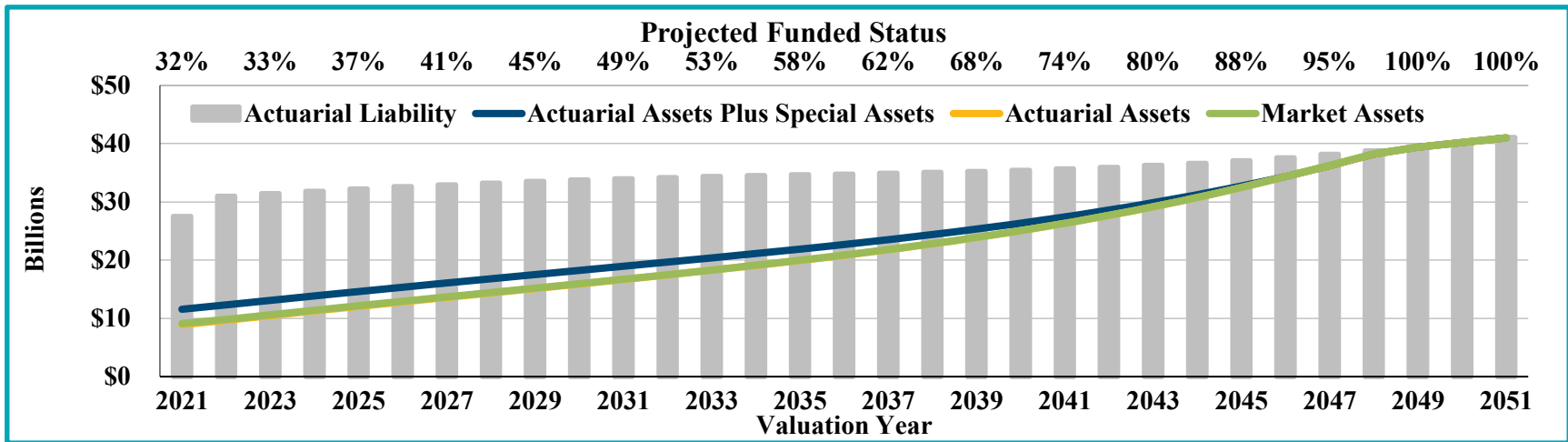
This scenario results in Statutory contributions that are about 14% higher for State and 41% higher for Local employers in FYE 2035 when compared to the baseline projection. Again, the contributions for Local employers are more sensitive to assumption changes because of the funded status at the time of the change.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

6.00% Discount Rate and Investment Return Assumption Effective July 1, 2022

State

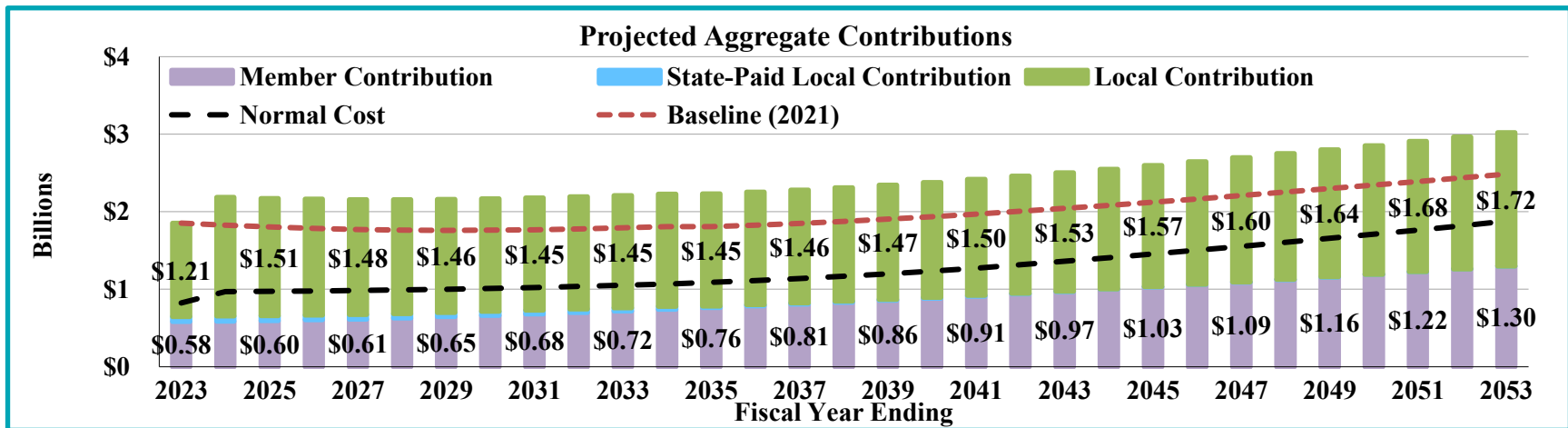
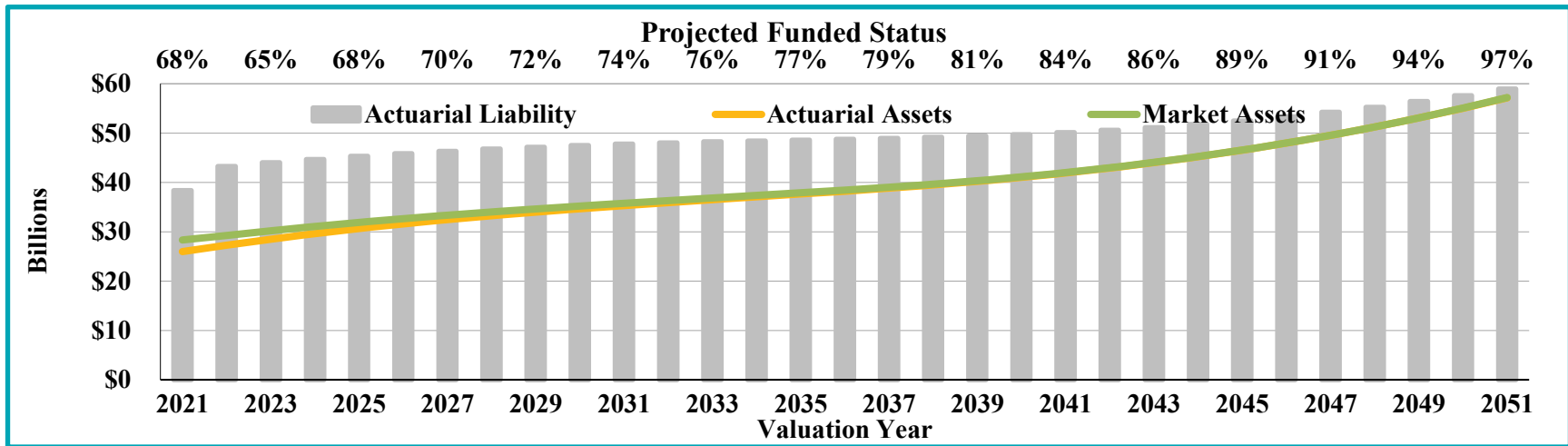


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

6.00% Discount Rate and Investment Return Assumption Effective July 1, 2022

Local Employers



PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Contribution Risk – Sensitivity Testing

The amortization method used to determine the Statutory contributions is designed to collect more than the tread water level and, therefore, gradually pay down the UAL. Until the most recent year, State appropriated contributions had consistently been less than the Statutory contributions and the tread water level, increasing the State's UAL by \$4,786.7 million over the last ten years. FYE 2021 was the only year in the past ten years that State contributions exceeded the tread water level. Over the same period, the Local employers' UAL decreased by \$81.5 million due to contributions mostly greater than the tread water level. Local employers generally made their portion of the Statutory contributions, and while the State appropriated less than the required amount, the State-paid Local contributions were only a small portion of the Local employers' Statutory contributions. The baseline projections assume the State and Local employers contribute 100% of the Statutory amount each year. State and Local employer contributions are projected to be greater than the tread water level for the entire period.

Contribution risk is the potential for actual future contributions to deviate from expected future contributions. The charts on the following pages illustrate the impact on projected future funded status and contribution amounts if the State appropriation declines to 80% of the Statutory contribution for each year in the future, rather than remaining at 100% of the Statutory contribution. We assume that Local employers will continue to contribute 100% of the Statutory contribution as they have done historically, with the exception of FYE 2021 & FYE 2022 when the impact of assumption changes from the recent experience study was phased-in.

The gold and green outlines in the bottom graphs show the full Statutory contributions for the State and Local employers, respectively, with the shaded portion showing the anticipated appropriated amount.

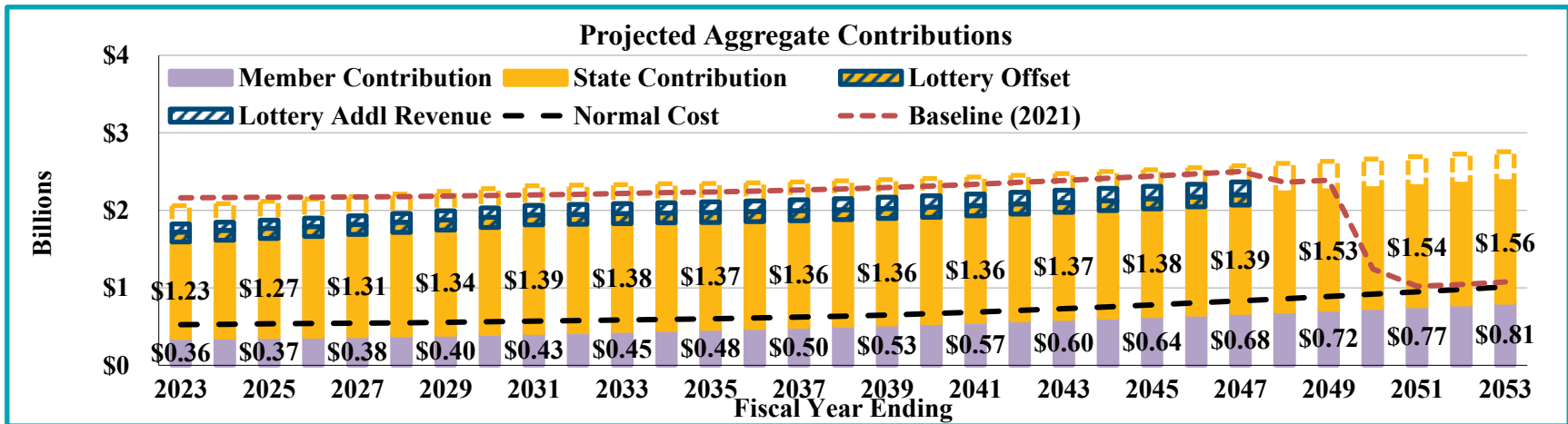
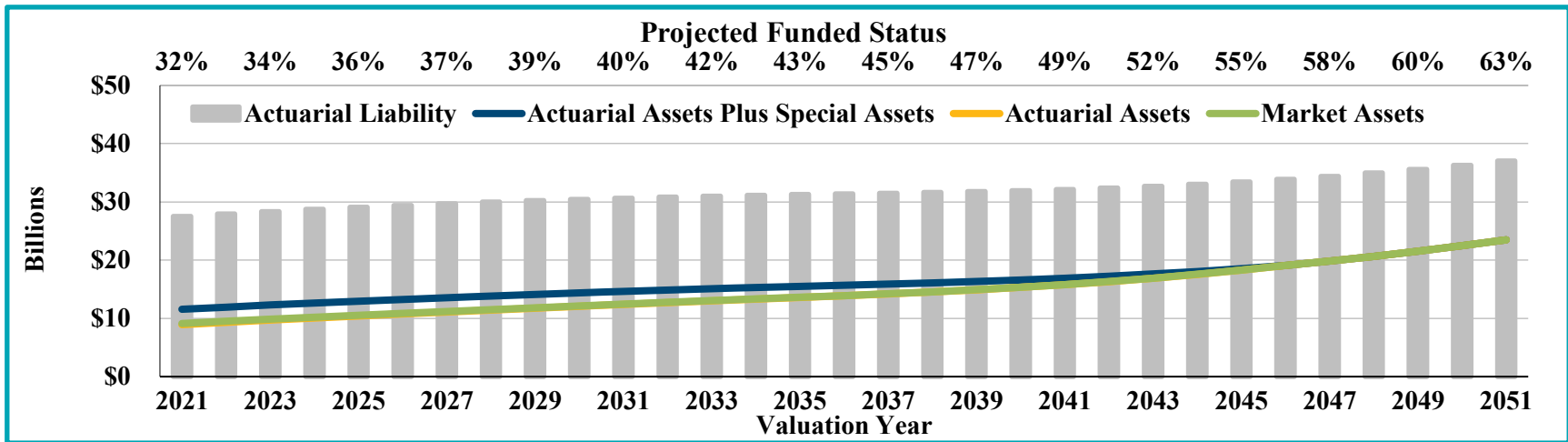
This scenario shows both the Statutory and appropriated State contributions gradually increasing over time. The State Statutory contributions quickly exceed the baseline. The appropriated State contributions are below the baseline initially and eventually grow to reach a similar level, but with a lower funded ratio. The funded ratio at the end of the projection period is 63% compared to 100% under the baseline projections for the State portion. The projection of the Local employers' portion of the System changes relatively little from the baseline because the State-paid Local obligation represents a relatively small portion of the total contributions for Local employers.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

State Appropriates 80% of Statutory Contribution for Fiscal Year Ending June 30, 2023 and Thereafter

State

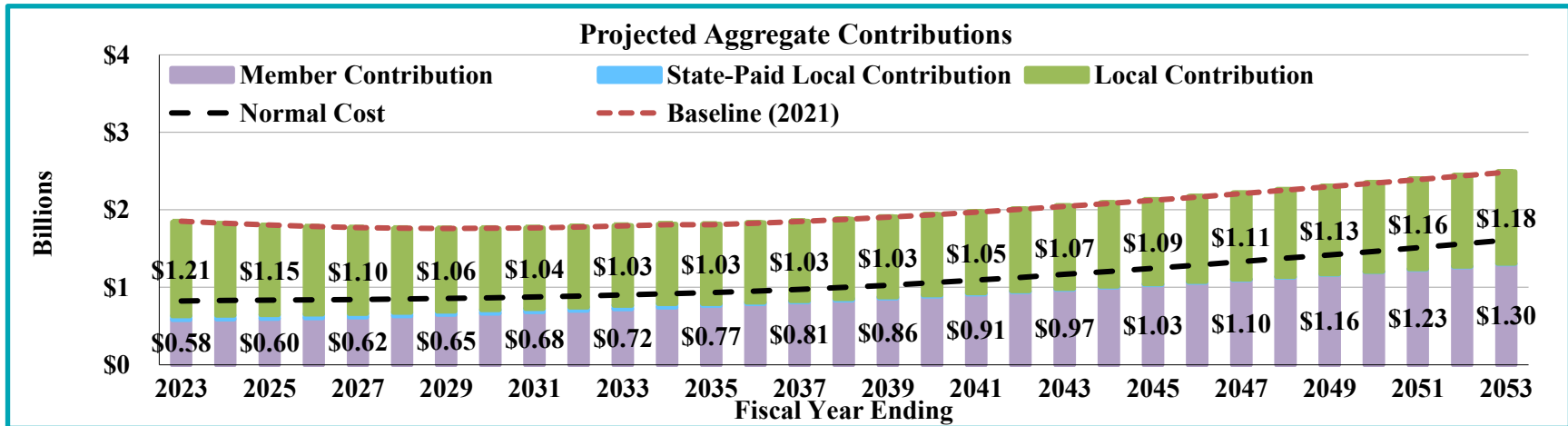
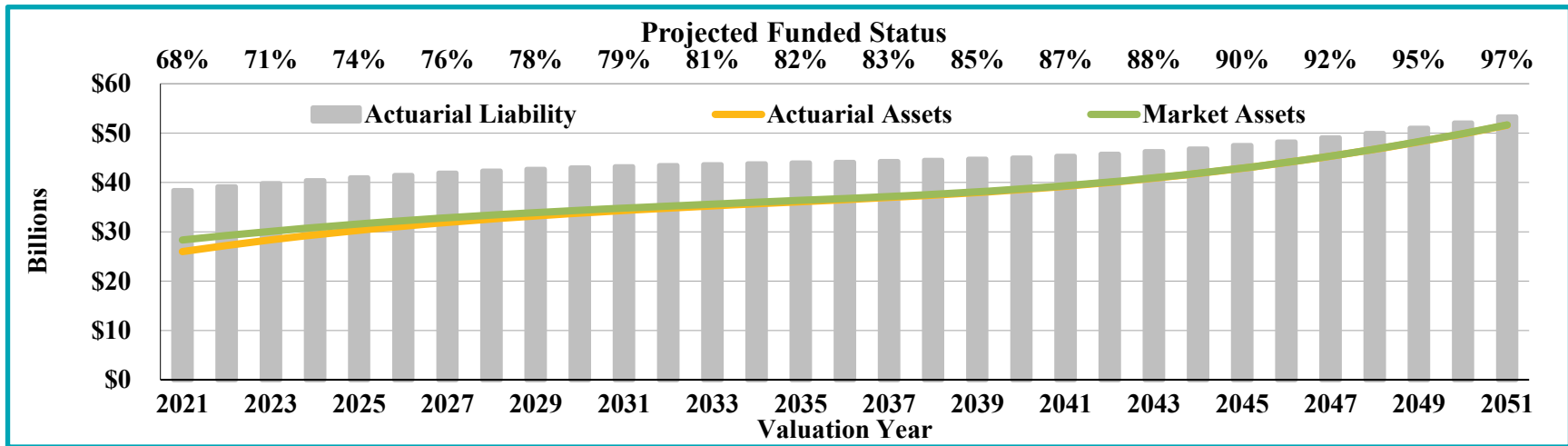


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
 JULY 1, 2021 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

State Appropriates 80% of Statutory Contribution for Fiscal Year Ending June 30, 2023 and Thereafter

Local Employers



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

More Detailed Assessment

While a more detailed assessment is always valuable to enhance the understanding of the risks identified above, we believe the scenarios illustrated above cover the primary risks facing the System at this time. We would be happy to provide the Board with a more in-depth analysis at their request.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION III – ASSETS

The System uses and discloses two different asset measurements for funding, which are presented in this section of the report: market value and actuarial value of assets. The market value represents the value of the assets if they were liquidated on the valuation date. The actuarial value of assets is a value that smooths annual investment returns to reduce annual investment volatility and is used in determining contribution levels. In compliance with New Jersey Statute, the method used to calculate the actuarial value of assets recognizes 20% of the difference between the market value of assets and the expected actuarial value of assets each year.

Actuarial Standards of Practice (ASOP) No. 44 states that the asset valuation method should produce an actuarial value of assets that falls within a reasonable range of market value, recognizes the difference between the market value and actuarial value of assets within a reasonably short period of time, and is likely to produce actuarial value of assets that are sometimes greater than and sometimes less than the corresponding market values. The asset method required under N. J. Statute does not meet the requirements of ASOP No. 44 because this method has produced actuarial value of assets which have consistently been greater than the market value of assets and recognizes investment losses slowly over time. Additionally, the method may produce an actuarial value of assets that falls outside of what is generally considered to be a reasonable range of the market value.

On the following pages, we present detailed information on the System's assets:

- Disclosure of assets at July 1, 2020 and July 1, 2021,
- Statement of cash flows during the year,
- Development of the actuarial value of assets,
- Disclosure of investment performance for the year,
- Development of the Special Asset Value (SAV), and
- Development of the Actuarial Balance Sheet.

Disclosure

The market value of assets represents a “snap-shot” value as of the last day of the fiscal year that provides the principal basis for measuring financial performance from one year to the next. Market values, however, can fluctuate widely with corresponding swings in the value of the investments. Because these fluctuations would cause volatility in employer contributions, an actuarial value of assets is developed. Table III-1 on the following page presents the market value as of June 30, 2020 and June 30, 2021. Table III-2 presents the System's net cash flows from June 30, 2020 to June 30, 2021. Table III-3 presents the development of the Actuarial Value of Assets as of July 1, 2021. Tables III-4 and III-5 show the market and actuarial value of assets historical investment returns compared to the assumed return for each year, as well as the cumulative returns over various periods and durations of time.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION III – ASSETS

Table III-1		
Statement of Assets at Market Value		
	June 30, 2021	June 30, 2020
Assets		
Cash	\$ 8,173,275	\$ 13,137,086
Investment Holdings	34,413,858,794	27,555,991,594
Employers' Contributions Receivable - Chapter 19	17,058,889	23,228,193
Employers' Contributions Receivable - State	0	194,236,000
Employers' Contributions Receivable - NCGI State	6,187,780	4,592,575
Employers' Contributions Receivable - NCGI Local Employers	53,981,229	52,875,923
Employers' Contributions Receivable - Lottery	22,071,000	34,472,800
Employers' Contributions Receivable - Local Employers	1,121,718,629	1,053,905,647
Employers' Contributions Receivable - Local Employers ERI	19,721,006	27,711,497
Employers' Contributions Receivable - Retroactive Contributions	3,930,318	5,560,037
Employers' Contributions Receivable - Delayed Enrollments	1,284,508	978,919
Employers' Contributions Receivable - Delayed Appropriations	2,096,133	1,177,161
Members' Contributions Receivable	60,457,734	61,756,358
Accrued Interest on Investments	10,868	205,077
Accounts Receivable - Other	22,243,398	19,544,266
Loans Receivable	523,885,534	537,229,281
Securities Lending Collateral	551,493,550	520,573,937
Total Assets	\$ 36,828,172,645	\$ 30,107,176,351
Liabilities		
Pension Payroll Payable	\$ (323,063,444)	\$ (308,580,106)
Pension Adjustment Payroll Payable	(16,175,812)	(16,952,892)
Withholdings Payable	(36,072,288)	(34,106,910)
Death Benefits Payable	(15,953,801)	(13,294,120)
Securities Lending Collateral & Rebates Payable	(551,269,221)	(520,401,752)
Administrative Expenses Payable	(19,021,757)	(25,271,129)
Accounts Payable - Other	(158,811,686)	(143,200,140)
Total Liabilities	\$ (1,120,368,009)	\$ (1,061,807,049)
Preliminary Market Value of Assets	\$ 35,707,804,636	\$ 29,045,369,302
Discounted Receivables		
State Appropriations	\$ 1,624,544,451	\$ 993,680,899
Expected Lottery Revenue	223,352,929	220,457,278
Adjustments to June 30, 2021 Financial Report		
Discounting of Local Employers Appropriations Receivable	(55,273,621)	(53,586,077)
Discounting of Local Employers ERI Contributions Receivable	(1,330,572)	(1,897,094)
True-up of Present Value of Chapter 19, P.L. 2009		
Contributions Receivable	19,537,352	20,057,207
Exclusion of Reserve for Non-Contributory Group Insurance	(72,999,722)	(82,268,987)
Market Value of Assets	\$ 37,445,635,453	\$ 30,141,812,528

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION III – ASSETS

System Cash Flows as of June 30, 2021

Table III-2 Changes in Market Values for FYE June 30, 2021			
	State	Local Employers	Total
Additions			
Contributions			
Member Contributions	\$ 346,264,728	\$ 563,674,866	\$ 909,939,594
Member Transfer Contributions	6,211,649	175,135	6,386,784
State and Local Employers Appropriations	1,025,352,330	1,117,134,996	2,142,487,326
State Contributions on Behalf of Locals	0	13,079,912	13,079,912
State Lottery	232,271,000	0	232,271,000
NCGI Premium	48,568,965	53,981,229	102,550,194
Transfers from Other Systems	1,389,743	1,560,649	2,950,392
Delayed Enrollments	139,424	600,674	740,098
Delayed Appropriations	0	2,411,251	2,411,251
Retroactive Employer Contributions	0	3,838,039	3,838,039
Additional Employer Contributions	0	93,520	93,520
NCGI Adjustment	0	0	0
Total Contributions	<u>\$ 1,660,197,839</u>	<u>\$ 1,756,550,271</u>	<u>\$ 3,416,748,110</u>
Net Investment Income	1,559,441,513	6,149,012,377	7,708,453,890
Total Additions	<u>\$ 3,219,639,352</u>	<u>\$ 7,905,562,648</u>	<u>\$ 11,125,202,000</u>
Deductions			
Withdrawal of Member Contributions	\$ 57,828,161	\$ 82,227,103	\$ 140,055,264
Transfers to Other Systems - Member Contributions	3,764,924	7,510,960	11,275,884
Transfers to Other Systems - Employer Contributions	402,649	2,413,262	2,815,911
Adjustments to Member Account Loans	262,401	0	262,401
Retirement Allowances	1,758,643,473	2,251,886,932	4,010,530,405
Pension Adjustment Benefits	73,076,513	92,805,016	165,881,529
NGCI Premium	48,568,965	69,256,130	117,825,095
Administrative Expenses	4,265,664	9,854,513	14,120,177
Total Deductions	<u>\$ 1,946,812,750</u>	<u>\$ 2,515,953,916</u>	<u>\$ 4,462,766,666</u>
Net Increase/(Decrease)	\$ 1,272,826,602	\$ 5,389,608,732	\$ 6,662,435,334
Preliminary Market Value of Assets Beginning of Year	\$ 6,048,192,857	\$ 22,997,176,445	\$ 29,045,369,302
Preliminary Market Value of Assets End of Year	\$ 7,321,019,459	\$ 28,386,785,177	\$ 35,707,804,636
Discounted Receivables			
State Appropriations	\$ 1,572,043,596	52,500,855	\$ 1,624,544,451
Expected Lottery Revenue	223,352,929	0	223,352,929
Adjustments to June 30, 2021 Financial Report			
Discounting of Local Employers Appropriations Receivable	0	(55,273,621)	(55,273,621)
Discounting of Local Employers ERI Contributions Receivable	0	(1,330,572)	(1,330,572)
True-up of Present Value of Chapter 19, P.L. 2009			
Contributions Receivable	0	19,537,352	19,537,352
Exclusion of Reserve for Non-Contributory Group Insurance	0	(72,999,722)	(72,999,722)
Market Value of Assets End of Year	<u>\$ 9,116,415,984</u>	<u>\$ 28,329,219,469</u>	<u>\$ 37,445,635,453</u>
Approximate Return	26.90%	28.94%	28.50%

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION III – ASSETS

Actuarial Value of Assets (AVA)

To determine on-going funding requirements, most pension systems utilize an actuarial value of assets that differs from the market value of assets. The actuarial value of assets represents an asset value based on averaging or smoothing year-to-year market value returns for purposes of reducing contribution volatility. Each year, 20% of the difference between the market value of assets and the expected actuarial value of assets is added to the expected actuarial value of assets. This method is prescribed by N. J. Statute.

Table III-3			
Development of Actuarial Value of Assets as of June 30, 2021			
	State	Local Employers	Total
1. Preliminary Actuarial Value of Assets as of July 1, 2020 ¹	\$ 6,844,076,527	\$ 24,513,633,468	\$ 31,357,709,995
2. Net Cash Flow excluding Investment Income ²	(286,614,911)	(750,363,510)	(1,036,978,421)
3. Expected Investment Income ³	<u>480,231,237</u>	<u>1,659,248,490</u>	<u>2,139,479,727</u>
4. Expected Actuarial Value of Assets as of July 1, 2021: [1 + 2 + 3]	\$ 7,037,692,853	\$ 25,422,518,448	\$ 32,460,211,301
5. Preliminary Market Value of Assets as of June 30, 2021 ⁴	\$ 7,321,019,459	\$ 28,377,435,851	\$ 35,698,455,310
6. 20% of Difference from MVA [20% * (5 - 4)]	\$ 56,665,321	\$ 590,983,481	\$ 647,648,802
7. Preliminary Actuarial Value of Assets as of July 1, 2021: [4 + 6]	\$ 7,094,358,174	\$ 26,013,501,929	\$ 33,107,860,103
8. Discounted Receivable Contributions			
State Appropriations	\$ 1,572,043,596	\$ 52,500,855	\$ 1,624,544,451
Expected Lottery Revenue	223,352,929	0	223,352,929
Chapter 19, P.L. 2009 Contributions for FYE 2023 and Later	<u>0</u>	<u>28,003,394</u>	<u>28,003,394</u>
Total	\$ 1,795,396,525	\$ 80,504,249	\$ 1,875,900,774
9. Adjustments			
Discounting of Local Employers Appropriations Receivable	\$ 0	\$ (55,273,621)	\$ (55,273,621)
Discounting of Chapter 19, P.L. 2009 Contributions Receivable for FYE 2022	0	(447,288)	(447,288)
Exclusion of Reserve for Non-Contributory Group Insurance	<u>0</u>	<u>(72,999,722)</u>	<u>(72,999,722)</u>
Total	\$ 0	\$ (128,720,631)	\$ (128,720,631)
10. Actuarial Value of Assets as of July 1, 2021: [7 + 8 + 9]	\$ 8,889,754,699	\$ 25,965,285,547	\$ 34,855,040,246
11. Rate of Return on Actuarial Value of Assets	8.16%	9.90%	9.51%
12. Ratio of Actuarial Value of Assets to Market Value of Assets	97.5%	91.7%	93.1%

¹ Includes Local appropriations receivable from June 30, 2020 Financial Report but excludes discounted State receivable contributions, present value of Chapter 19, P.L. 2009 contributions receivable and other adjustments.

² Amount for Local Employers includes expected Chapter 19, P.L. 2009 payments for FYE 2022 of \$9,040,135.

³ Refer to Appendix B, Actuarial Methods, for details on the assumed timing of contributions.

⁴ Amount for Local Employers includes adjustments to June 30, 2021 Financial Report for discounting of Local Employers ERI contributions receivable of \$(1,330,572) and true-up of Chapter 19, P.L. 2009 contributions receivable for FYE 2022 of \$(8,018,754).

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION III – ASSETS

Investment Performance

In reviewing the investment performance for the System's assets in aggregate, the market value of assets rate of return was 28.50% for the year ending June 30, 2021. This is compared to an assumed return of 7.30% for the same period. On an actuarial value of assets basis, the return for FYE 2021 was 9.51%.

The calculated returns for State and Local employers' portions separately differ due to the size of cash flows relative to the beginning of year asset value, the timing of contributions, and the income allocation methodology. For the year ending June 30, 2021 the market value of assets rate of return was 26.90% and 28.94% for the State and Local employers' portions, respectively. On an actuarial value of assets basis, the return for FYE 2021 was 8.16% and 9.90% for the State and Local employers portions, respectively.

In Table III-4 we show the historical asset returns compared to the investment return assumption, beginning with the year ending on June 30, 2000. As of July 1, 1999, the actuarial value of assets was reset to equal the market value of assets.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION III – ASSETS

Table III-4 Annual Rates of Return Total System			
Year Ended June 30	Investment Return Assumption	Market Value¹	Actuarial Value²
2000	8.75%	11.86%	9.29%
2001	8.75%	-9.80%	5.50%
2002	8.75%	-8.61%	3.07%
2003	8.75%	3.31%	2.93%
2004	8.75%	14.16%	4.44%
2005	8.25%	8.77%	4.74%
2006	8.25%	9.79%	5.78%
2007	8.25%	17.14%	7.96%
2008	8.25%	-2.61%	6.83%
2009	8.25%	-15.49%	3.24%
2010	8.25%	13.34%	3.16%
2011	8.25%	17.97%	5.26%
2012	7.95%	2.47%	4.58%
2013	7.90%	11.72%	5.52%
2014	7.90%	16.79%	7.60%
2015	7.90%	4.08%	5.94%
2016	7.90%	-1.15%	4.95%
2017	7.65%	12.71%	5.99%
2018	7.50%	9.17%	6.49%
2019	7.50%	6.33%	6.41%
2020	7.30%	1.64%	5.30%
2021	7.30%	28.50%	9.51%

¹Beginning in 2017, the returns are from the System's Actuarial Valuation Report. Since the prior actuary did not calculate a market value return prior to 2017, earlier returns are from other sources. Returns for 2014 through 2016 are money-weighted returns for the Pension Funds from the DPB's Comprehensive Annual Financial Reports. Returns for 2000 through 2013 are returns for the Pension Funds from the New Jersey State Investment Council Annual Reports.

²The prior actuary did not report an actuarial value return in the year 2000. The return shown was calculated based on available information.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION III – ASSETS

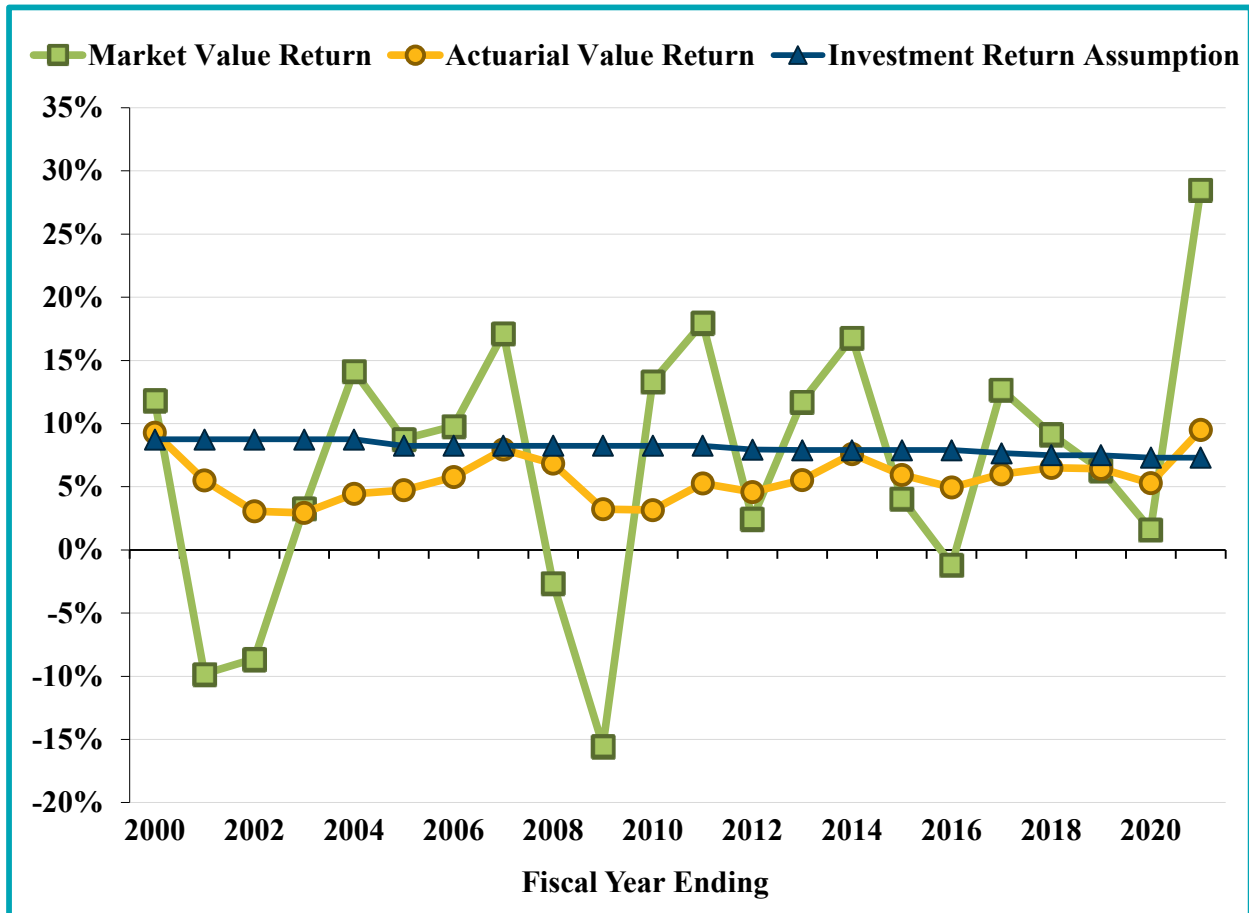
Additionally, we show the compound annualized rates of return for various periods since the July 1, 1999 AVA reset in the following table. On a cumulative basis, there are periods where the market value return significantly exceeds the actuarial value return. This is due to the recognition of market value losses from earlier years in the actuarial value. We present compound annualized rates of return over consecutive five-year periods to help illustrate this.

Table III-5 Compound Annualized Rates of Returns			
Period	Investment Return		
	Assumption	Market Value	Actuarial Value
Since July 1, 1999	8.10%	6.43%	5.64%
20-Year	8.04%	7.04%	5.47%
15-Year	7.87%	7.67%	5.90%
10-Year	7.68%	8.92%	6.22%
5-Year	7.45%	11.31%	6.73%
Consecutive Five-Year Periods			
2000 to 2004	8.75%	1.69%	5.02%
2005 to 2009	8.25%	2.86%	5.70%
2010 to 2014	8.05%	12.32%	5.21%
2015 to 2019	7.69%	6.12%	5.96%
2020 to 2021 (Two-Year)	7.30%	14.28%	7.38%

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION III – ASSETS

We present the annual rates of return from Table III-4 in the following graph. The market value returns (green) show significant volatility with years above and below the investment return assumption (blue). The largest deviations from expectations are losses in 2001 and 2002 and again in 2008 and 2009, as well as the large gain in 2021 (shown as the last data point in the graph below). The actuarial value returns (yellow) follow the direction of market value returns, but much more gradually as gains and losses are recognized over time. For nearly the entire period, the actuarial value returns fall short of the investment return assumption and result in AVA losses and UAL increases. When the actuarial return approaches the assumption, the MVA is closing in on the AVA with the possibility of AVA gains in the near future. However, two such instances (2007 and 2014) are followed by market value losses (large, sharp losses in 2008-2009 and small cumulative losses in 2015-2020). In contrast, the 2021 market return of 28.50% is sufficiently large so that the market value of assets exceeds the actuarial value of assets and the actuarial value return is slightly greater than the investment return assumption, resulting in an actuarial asset gain for the July 1, 2021 valuation.



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION III – ASSETS

Development of Special Asset Value (SAV)

Under Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, PERS receives 21.02% of the proceeds of the Lottery Enterprise for a term of 30 years. The value of the Lottery Enterprise is classified as a special asset, and is included in the State's actuarial value of assets used for the purpose of calculating the target funding ratio under Chapter 78, P.L. 2010. The special asset value is the present value of remaining lottery contributions to the retirement systems.

Table III-6 shows the development of the special asset value as of July 1, 2021. The depreciated value is a roll forward of the Lottery Enterprise Value from the appraisal date.

Table III-6 Development of Special Asset Value as of July 1, 2021	
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 at June 30, 2022 ¹	\$ 13,457,660,146
3. Discounted Value as of July 1, 2021 at 7.0%	\$ 12,577,252,473
4. Allocation to PERS	21.02%
5. Special Asset Value as of July 1, 2021	\$ 2,643,738,470

¹ Provided by the Division of Pensions and Benefits

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION III – ASSETS

Actuarial Balance Sheet

Table III-7 Actuarial Balance Sheet as of July 1, 2021			
	State	Local Employers	Total
Assets			
<u>Retirement Fund Reserve (RFR)</u>			
Credited to Fund with Distribution of Income	\$ 15,503,542,806	\$ 21,620,829,969	\$ 37,124,372,775
Add/(Deduct) reserve transferable from/(to) ECR ¹	1,797,888,695	1,261,926,633	3,059,815,328
Adjusted RFR ²	<u>\$ 17,301,431,501</u>	<u>\$ 22,882,756,602</u> ³	<u>\$ 40,184,188,103</u>
Members' Contributions Reserve (MCR) ²	\$ 3,311,777,961	\$ 5,300,943,230	\$ 8,612,721,191
Accumulative Interest Reserve (AIR) with Distribution of Income ²	\$ 3,328,775,557	\$ 4,864,443,726	\$ 8,193,219,283
<u>Employers' Contributions Reserve (ECR)</u>			
Credited to Fund with Distribution of Income	\$ (13,254,341,625)	\$ (5,833,914,976)	\$ (19,088,256,601)
Add/(Deduct) reserve transferable from/(to) RFR	(1,797,888,695)	(1,261,926,633)	(3,059,815,328)
Add/(Deduct) reserve transferable from/(to) BEF	0	12,983,598	12,983,598
Adjusted ECR ²	<u>\$ (15,052,230,320)</u>	<u>\$ (7,082,858,011)</u>	<u>\$ (22,135,088,331)</u>
<u>Benefit Enhancement Fund (BEF)</u>			
Credited to Fund with Distribution of Income	\$ 0	\$ 12,983,598	\$ 12,983,598
Add/(Deduct) reserve transferable from/(to) ECR	0	(12,983,598)	(12,983,598)
Adjusted BEF ²	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>
Special Asset Value as of July 1, 2021	\$ 2,643,738,470	\$ 0	\$ 2,643,738,470
Present Value of Prospective Contributions by State and Local Employers to ECR	\$ 15,956,504,089	\$ 12,427,840,547	\$ 28,384,344,636
Assets Allocated to the BEF	<u>\$ 0</u>	<u>\$ 0</u>	<u>\$ 0</u>
Total Assets	\$ 27,489,997,258	\$ 38,393,126,094	\$ 65,883,123,352
Liabilities			
<u>Payable from RFR</u>			
Retirees, Disableds, and Beneficiaries currently receiving benefits	\$ 17,301,431,501	\$ 22,882,756,602 ³	\$ 40,184,188,103
<u>Payable from MCR, AIR and ECR</u>			
Actives and Deferred Vesteds due a future benefit	\$ 10,188,565,757	\$ 15,510,369,492	\$ 25,698,935,249
Total Liabilities	\$ 27,489,997,258	\$ 38,393,126,094	\$ 65,883,123,352

¹ It is recommended that the RFR be 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.

² Actuarial Value of Assets equals RFR + MCR + AIR + ECR + BEF.

³ Includes the present value of ERI payments of \$16,626,552.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

In this section, we present detailed information on the liabilities of the System, including:

- Disclosure of liabilities at July 1, 2020 and July 1, 2021,
- Active liabilities broken down by Tier, and
- The development of the actuarial gain and loss.

Disclosure

The Actuarial Liability is used for determining employer contributions. For PERS, the funding method employed is the Projected Unit Credit (PUC) Actuarial Cost Method. Under this funding method, the actuarial liability is calculated as the actuarial present value of the projected benefits allocated to periods prior to the valuation year.

This liability is determined for funding purposes and is not appropriate for measuring the cost of settling plan liabilities by purchasing annuities or paying lump sums.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-1 shows the actuarial liability, unfunded actuarial liability and funded ratio as of July 1, 2021 for the System. The unfunded actuarial liability (UAL) and funded ratio based on the actuarial value of assets plus the special asset value (AVA + SAV) are used to compare against the “target funded ratio” and is different from the UAL used in determining Statutory contributions which is based on just the actuarial value of assets (AVA).

**Table IV-1
Disclosure of Liabilities**

	State	Local Employers	Total
Actuarial Liability			
Contributing Actives	\$ 9,682,979,467	\$ 14,559,394,918	\$ 24,242,374,385
Non-Contributing Actives	470,423,711	879,911,659	1,350,335,370
Deferred Beneficiaries	8,015,711	19,073,689	27,089,400
Deferred Vesteds	27,146,868	51,989,226	79,136,094
Retirees	15,609,758,545	20,256,729,652	35,866,488,197
Disabled	970,481,535	1,394,843,528	2,365,325,063
Beneficiaries	721,191,421	1,231,183,422	1,952,374,843
Total Actuarial Liability	\$ 27,489,997,258	\$ 38,393,126,094	\$ 65,883,123,352
Actuarial Value of Assets	\$ 8,889,754,699	\$ 25,965,285,547	\$ 34,855,040,246
Unfunded Actuarial Liability/(Surplus)	\$ 18,600,242,559	\$ 12,427,840,547	\$ 31,028,083,106
Funded Ratio (AVA)	32.34%	67.63%	52.90%
Actuarial Value of Assets + Special Asset Value	\$ 11,533,493,169	\$ 25,965,285,547	\$ 37,498,778,716
Unfunded Actuarial Liability/(Surplus) (AVA + SAV)	\$ 15,956,504,089	\$ 12,427,840,547	\$ 28,384,344,636
	41.96%	67.63%	56.92%

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-2 and Table IV-3 show the number of members, total appropriation salary, actuarial liability, and gross normal cost of contributing active members by Tier for State and Local employers as of July 1, 2021.

Table IV-2 Contributing Active Liabilities by Tier State				
	Number of Members	Appropriation Payroll¹	Actuarial Liability	Gross Normal Cost
Tier 1	33,427	\$ 2,624,017,813	\$ 8,585,501,425	\$ 342,696,036
Tier 2	2,708	183,089,341	282,043,820	20,378,183
Tier 3	1,861	125,122,012	167,095,177	13,444,508
Tier 4	1,342	94,979,103	93,091,048	8,353,011
Tier 5	26,217	1,551,465,802	555,247,997	107,912,066
Total	65,555	\$ 4,578,674,071	\$ 9,682,979,467	\$ 492,783,804

Table IV-3 Contributing Active Liabilities by Tier Local Employers				
	Number of Members	Appropriation Payroll¹	Actuarial Liability	Gross Normal Cost
Tier 1	64,715	\$ 3,845,628,038	\$ 12,565,642,761	\$ 494,306,138
Tier 2	7,077	341,301,240	543,815,727	38,638,931
Tier 3	4,473	231,358,541	312,720,071	25,039,489
Tier 4	2,102	123,579,879	123,316,915	11,035,287
Tier 5	60,305	2,828,040,570	1,013,899,444	200,315,051
Total	138,672	\$ 7,369,908,268	\$ 14,559,394,918	\$ 769,334,896

¹ Tier 1 members limited to the 401(a)(17) pay limit. Other tiers limited to the Social Security Wage Base.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-4 and Table IV-5 show the number of members, actuarial liability, and gross normal cost of non-contributing active members by Tier for State and Local employers as of July 1, 2021.

Table IV-4 Non-Contributing Active Liabilities by Tier State			
	Number of Members	Actuarial Liability	Gross Normal Cost
Tier 1	4,900	\$ 404,114,142	\$ 0
Tier 2	376	15,875,400	0
Tier 3	241	9,582,614	0
Tier 4	100	3,657,241	0
Tier 5	3,636	37,194,314	0
Total	<u>9,253</u>	<u>\$ 470,423,711</u>	<u>\$ 0</u>

Table IV-5 Non-Contributing Active Liabilities by Tier Local Employers			
	Number of Members	Actuarial Liability	Gross Normal Cost
Tier 1	13,983	\$ 742,214,126	\$ 0
Tier 2	1,389	32,930,063	0
Tier 3	805	18,902,877	0
Tier 4	261	7,359,357	0
Tier 5	9,984	78,505,236	0
Total	<u>26,422</u>	<u>\$ 879,911,659</u>	<u>\$ 0</u>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Tables IV-6 and IV-7 present the change in the actuarial liabilities, actuarial assets, and unfunded actuarial liability during the plan year for State and Local employers. In general, the unfunded actuarial liability (UAL) of any retirement system is expected to change at each subsequent valuation for a variety of reasons. In each valuation, we report on those elements of change in the UAL which are of particular significance, potentially affecting the long-term financial outlook of the System.

For this purpose, we focus on the UAL without considering the SAV because this UAL is used to determine the Statutory contribution. The UAL is also prior to any adjustments for State-paid Local obligations.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-6 Development of 2021 Experience (Gain)/Loss State			
	Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability/(Surplus)
1. Value as of July 1, 2020	\$ 26,285,137,008	\$ (8,045,759,732)	\$ 18,239,377,276
2. Additions			
Normal Cost	\$ 472,891,127	\$ 0	\$ 472,891,127
Statutory State Contributions	0	(1,670,385,119)	(1,670,385,119)
Expected Member Contributions	0	(354,948,401)	(354,948,401)
Total Additions	\$ 472,891,127	\$ (2,025,333,520)	\$ (1,552,442,393)
3. Deductions			
Benefit Payments	\$ (1,889,810,548)	\$ 1,889,810,548	\$ 0
Expected Administrative Expenses	0	0	0
Total Deductions	\$ (1,889,810,548)	\$ 1,889,810,548	\$ 0
4. Net Transfers from Other Systems			
State Contributions	\$ 987,094	\$ (987,094)	\$ 0
Member Contributions	2,446,725	(2,446,725)	0
Total Net Transfers	\$ 3,433,819	\$ (3,433,819)	\$ 0
5. Expected Interest	\$ 1,885,695,993	\$ (532,427,831)	\$ 1,353,268,162
6. Expected Value as of July 1, 2021: [1 + 2 + 3 + 4 + 5]	\$ 26,757,347,399	\$ (8,717,144,354)	\$ 18,040,203,045
7. Other Changes			
Appropriation Adjustment	\$ 0	\$ (132,164,535)	\$ (132,164,535)
Contribution Timing	0	7,685,137	7,685,137
Actual Lottery Revenue	0	(4,734,866)	(4,734,866)
Other Employer Contributions	0	(144,423)	(144,423)
Actual Member Contributions	0	8,995,045	8,995,045
Change in Methods/Assumptions	798,443,571	0	798,443,571
Change in Benefits/Policy	4,799,089	0	4,799,089
Total Other Changes	\$ 803,242,660	\$ (120,363,642)	\$ 682,879,018
8. Expected value after changes: [6 + 7]	\$ 27,560,590,059	\$ (8,837,507,996)	\$ 18,723,082,063
9. Actual Value as of July 1, 2021	\$ 27,489,997,258	\$ (8,889,754,699)	\$ 18,600,242,559
10. Actuarial (Gain)/Loss: [9 - 8]	\$ (70,592,801)	\$ (52,246,703)	\$ (122,839,504)

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-7 Development of 2021 Experience (Gain)/Loss Local Employers			
	Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability/(Surplus)
1. Value as of July 1, 2020	\$ 36,410,100,750	\$ (24,424,654,983)	\$ 11,985,445,767
2. Additions			
Normal Cost	\$ 734,493,644	\$ 0	\$ 734,493,644
Statutory Contributions	0	(1,204,180,874)	(1,204,180,874)
Expected Member Contributions	0	(561,810,435)	(561,810,435)
Total Additions	<u>\$ 734,493,644</u>	<u>\$ (1,765,991,309)</u>	<u>\$ (1,031,497,665)</u>
3. Deductions			
Benefit Payments	\$ (2,426,919,051)	\$ 2,426,919,051	\$ 0
Expected Administrative Expenses	0	0	0
Total Deductions	<u>\$ (2,426,919,051)</u>	<u>\$ 2,426,919,051</u>	<u>\$ 0</u>
4. Net Transfers from Other Systems			
State Contributions	\$ (852,613)	\$ 852,613	\$ 0
Member Contributions	(7,335,825)	7,335,825	0
Total Net Transfers	<u>\$ (8,188,438)</u>	<u>\$ 8,188,438</u>	<u>\$ 0</u>
5. Expected Interest	\$ 2,624,239,418	\$ (1,715,828,752)	\$ 908,410,666
6. Expected Value as of July 1, 2021: [1 + 2 + 3 + 4 + 5]	\$ 37,333,726,323	\$ (25,471,367,555)	\$ 11,862,358,768
7. Other Changes			
Appropriation Adjustment	\$ 0	\$ 34,476,489	\$ 34,476,489
Contribution Timing	0	55,273,621	55,273,621
Other Employer Contributions	0	(7,192,457)	(7,192,457)
Actual Member Contributions	0	(1,931,284)	(1,931,284)
ERI and Ch. 19 Receivables	0	827,683	827,683
Interest on NCGI Cash Flows	0	5,403,569	5,403,569
Change in Methods/Assumptions	1,086,372,117	0	1,086,372,117
Change in Benefits/Policy	0	0	0
Total Other Changes	<u>\$ 1,086,372,117</u>	<u>\$ 86,857,621</u>	<u>\$ 1,173,229,738</u>
8. Expected value after changes: [6 + 7]	\$ 38,420,098,440	\$ (25,384,509,934)	\$ 13,035,588,506
9. Actual Value as of July 1, 2021	\$ 38,393,126,094	\$ (25,965,285,547)	\$ 12,427,840,547
10. Actuarial (Gain)/Loss: [9 - 8]	\$ (26,972,346)	\$ (580,775,613)	\$ (607,747,959)

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-8 shows the components of the Actuarial (gain)/loss for the State.

Table IV-8 Actuarial (Gain)/Loss Analysis State		
Components	July 1, 2021	July 1, 2020
Actuarial Value of Assets		
Investment Return	\$ (56,665,321)	\$ 198,970,917
Administrative Expenses	4,418,618	6,107,148
Total	\$ (52,246,703)	\$ 205,078,065
Actuarial Liability		
Salary Increases	\$ (82,841,024)	\$ 74,576,397
New Entrants	12,153,527	14,435,689
Demographic Experience and Census Data Updates		
Contributing and Non-Contributing Actives	38,626,120	70,226,562
Inactives	(34,974,478)	(22,217,542)
Sub-Total	\$ (67,035,855)	\$ 137,021,106
Impact of Net Transfers from Other Systems	(3,556,946)	1,336,229
Total	\$ (70,592,801)	\$ 138,357,335
Actuarial (Gain)/Loss	\$ (122,839,504)	\$ 343,435,400

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION IV – LIABILITIES

Table IV-9 shows the components of the Actuarial (gain)/loss for Local employers.

Table IV-9 Actuarial (Gain)/Loss Analysis Local Employers		
Components	July 1, 2021	July 1, 2020
Actuarial Value of Assets		
Investment Return	\$ (590,983,481)	\$ 383,179,629
Administrative Expenses	10,207,868	13,952,237
Total	<u>\$ (580,775,613)</u>	<u>\$ 397,131,866</u>
Actuarial Liability		
Salary Increases	\$ 91,635,127	\$ 74,573,254
New Entrants	23,662,955	24,534,812
Demographic Experience and Census Data Updates		
Contributing and Non-Contributing Actives	(55,401,055)	(62,790,900)
Inactives	(95,351,425)	(102,842,202)
Sub-Total	<u>\$ (35,454,398)</u>	<u>\$ (66,525,036)</u>
Impact of Net Transfers from Other Systems	8,482,052	13,293,885
Total	<u>\$ (26,972,346)</u>	<u>\$ (53,231,151)</u>
Actuarial (Gain)/Loss	\$ (607,747,959)	\$ 343,900,715

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

SECTION V – CONTRIBUTIONS

In the process of evaluating the financial condition of any pension plan, the actuary analyzes the assets and liabilities to determine what level (if any) of contributions is needed to properly maintain the funding status of the Plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

Under the current funding policy, the State and Local employer funding requirements contain two components: the employer normal cost and an amortization of the unfunded actuarial liability (UAL). The UAL for this purpose does not include the special asset value. The funding methodology prescribed by NJ State Statute does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment rate of return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption.

For PERS, the funding method employed is the Projected Unit Credit (PUC) Actuarial Cost Method. Under this funding method, the actuarial liability is calculated as the actuarial present value of the projected benefits linearly allocated to periods prior to the valuation year. Refunds are valued as the Accumulated Deductions with interest as of the valuation date as provided by the Division of Pensions and Benefits. The unfunded actuarial liability is the actuarial liability on the valuation date less the actuarial value of assets.

In accordance with Chapter 78, P. L. 2011, beginning with the July 1, 2019 valuation, the unfunded actuarial liability is amortized over a closed 30 year period as a level dollar amount. For the July 1, 2021 valuation, the amortization period has decreased to 28 years.

Under Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, PERS receives 21.02% of the proceeds of the Lottery Enterprise for a term of 30 years. As of July 1, 2021 there are 25 years remaining. The State's pension contribution shall be reduced by the product of the allocable percentage for such retirement system, the adjustment percentage for such retirement system and the special asset adjustment.

The FYE 2021 Local employers' Statutory pension contribution increased by \$115,174,528 due to the assumption changes from the July 1, 2014 – June 30, 2018 Experience Study. As an alternative funding policy to allow employers to better manage the financial impact, the Board of Trustees adopted a phase-in of the cost impact by spreading the increase over a three year fixed period. Therefore, the FYE 2021 Local employers' net pension contribution reflected 1/3rd of the cost impact, or \$38,391,509. This resulted in a reduction in the Local employers' FYE 2021 net pension contribution of \$76,783,019 (\$115,174,528 - \$38,391,509) in the first year as 2/3^{rds} of the cost increase was deferred to the following two years. In FYE 2022, the Local employers' net pension contribution reflected 2/3^{rds} of the cost impact, or \$76,783,019, plus an amortization of the deferred cost from the first year with interest. In FYE 2023, the Local employers' contribution reflects the full cost impact, or \$115,174,528, plus an amortization of the deferred cost from the prior two years with interest.

The phase-in does not reduce the ultimate cost of the assumption changes, only the timing and the amount of contributions. The contribution shortfalls are incorporated in the ultimate cost following the phase-in period and reflect unpaid amounts in the first two years plus interest.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

Table V-1 below shows the development of the Lottery Enterprise contribution offset based on N.J. Statute.

Table V-1	
Development of Lottery Enterprise Contribution Offset for Fiscal Year Ending 2023	
1. Special Asset Value Allocated to PERS as of July 1, 2021	\$ 2,643,738,470
2. 25-Year Level Dollar Amortization payable June 30, 2022	\$ 226,860,566
3. Initial Special Asset Value allocable to PERS as of July 1, 2016	\$ 2,642,897,102
4. Maximum Special Asset Adjustment: 30-Year Level-Dollar Amortization at 7.65%	\$ 227,053,417
5. Special Asset Adjustment as of June 30, 2022: [lesser of 2. and 4.]	\$ 226,860,566
6. Adjustment Percentage	57.29%
7. Funded Ratio based on Actuarial Value + Special Asset Value for Total System	56.92%
8. Applicable Adjustment Percentage: [If 7. < 50%, 6. - 3 x (50% - 7.), otherwise 6.]	57.29%
9. Lottery Enterprise Contribution Offset as of June 30, 2022: [5. x 8.]	\$ 129,968,418

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

Table V-2 through Table V-5 show the development of the Statutory pension contributions for the State and Local employers.

Table V-2 Development of Unfunded Actuarial Liability						
	July 1, 2021 Valuation			July 1, 2020 Valuation		
	State	Local Employers ¹	Total	State	Local Employers ¹	Total
1. Actuarial Liability	\$ 27,489,997,258	\$ 38,393,126,094	\$ 65,883,123,352	\$ 26,285,137,008	\$ 36,410,100,750	\$ 62,695,237,758
2. Actuarial Value of Assets²	\$ 8,889,754,699	\$ 25,965,285,547	\$ 34,855,040,246	\$ 8,045,759,732	\$ 24,424,654,983	\$ 32,470,414,715
3. Benefit Enhancement Fund (BEF)³	\$ 0	\$ 0	\$ 0	\$ 0	\$ 12,100,278	\$ 12,100,278
4. Unfunded Actuarial Liability including BEF						
a. Basic ⁴	\$ 18,572,506,160	\$ 12,311,560,642	\$ 30,884,066,802	\$ 18,215,054,527	\$ 11,871,195,603	\$ 30,086,250,130
b. Chapter 133, P.L. 2001 ⁵	0	0	0	0	0	0
c. Chapter 366, P.L. 2001	18,972,716	116,279,905	135,252,621	20,155,223	126,350,442	146,505,665
d. Chapter 259, P.L. 2001	3,964,594	0	3,964,594	4,167,526	0	4,167,526
e. Chapter 140, P.L. 2021	4,799,089	0	4,799,089	0	0	0
f. Total	<u>\$ 18,600,242,559</u>	<u>\$ 12,427,840,547</u>	<u>\$ 31,028,083,106</u>	<u>\$ 18,239,377,276</u>	<u>\$ 11,997,546,045</u>	<u>\$ 30,236,923,321</u>
5. Adjustment to UAL including BEF for Phase-In of State-Paid Local Obligations						
a. Chapter 133, P.L. 2001	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
b. Chapter 366, P.L. 2001	116,279,905	(116,279,905)	0	126,350,442	(126,350,442)	0
d. Total	<u>\$ 116,279,905</u>	<u>\$ (116,279,905)</u>	<u>\$ 0</u>	<u>\$ 126,350,442</u>	<u>\$ (126,350,442)</u>	<u>\$ 0</u>
6. Net UAL including BEF [4 + 5]	\$ 18,716,522,464	\$ 12,311,560,642	\$ 31,028,083,106	\$ 18,365,727,718	\$ 11,871,195,603	\$ 30,236,923,321

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 AVA without Special Asset Value used to calculate the Statutory Contribution.

³ BEF offsets future normal costs associated with Chapter 133, P.L. 2001.

⁴ Includes UAL amounts due to State ERI programs.

⁵ For State, the UAL related to the phase-in of Chapter 133, P.L. 2001 normal costs is not tracked and is included with the Basic UAL.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

**Table V-3
Development of Unfunded Actuarial Liability Contribution**

	July 1, 2021 Valuation			July 1, 2020 Valuation		
	Fiscal Year Ending 2023 Payment			Fiscal Year Ending 2022 Payment		
	State	Local Employers ¹	Total	State	Local Employers ¹	Total
1. Amortization of UAL including BEF						
a. Basic ²	\$ 1,430,116,445	\$ 948,012,357	\$ 2,378,128,802	\$ 1,423,754,754	\$ 927,895,722	\$ 2,351,650,476
b. Chapter 133, P.L. 2001 ³	0	0	0	0	0	0
c. Chapter 366, P.L. 2001 ⁴	2,232,432	13,682,123	15,914,555	2,285,890	14,329,942	16,615,832
d. Chapter 259, P.L. 2001 ^{4,5}	466,496	0	466,496	472,657	0	472,657
e. Chapter 140, P.L. 2021 ^{5,6}	423,365	0	423,365	0	0	0
f. Total	<u>\$ 1,433,238,738</u>	<u>\$ 961,694,480</u>	<u>\$ 2,394,933,218</u>	<u>\$ 1,426,513,301</u>	<u>\$ 942,225,664</u>	<u>\$ 2,368,738,965</u>
2. Adjustment to UAL Contribution for State-Paid Local Obligations						
a. Chapter 133, P.L. 2001	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
b. Chapter 366, P.L. 2001	<u>13,682,123</u>	<u>(13,682,123)</u>	<u>0</u>	<u>14,329,942</u>	<u>(14,329,942)</u>	<u>0</u>
c. Total	<u>\$ 13,682,123</u>	<u>\$ (13,682,123)</u>	<u>\$ 0</u>	<u>\$ 14,329,942</u>	<u>\$ (14,329,942)</u>	<u>\$ 0</u>
3. UAL Contribution as of Valuation Date [1 + 2]	\$ 1,446,920,861	\$ 948,012,357	\$ 2,394,933,218	\$ 1,440,843,243	\$ 927,895,722	\$ 2,368,738,965
4. Interest to the Beginning of the Fiscal Year	\$ 101,284,461	\$ 66,360,865	\$ 167,645,326	\$ 105,181,557	\$ 67,736,388	\$ 172,917,945
5. UAL Contribution as of Beginning of Fiscal Year [3 + 4]	\$ 1,548,205,322	\$ 1,014,373,222	\$ 2,562,578,544	\$ 1,546,024,800	\$ 995,632,110	\$ 2,541,656,910

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 due to State ERI programs.

³ For State, the UAL related to the phase-in of Chapter 133, P.L. 2001 normal costs is not tracked and is included with the Basic UAL.

⁴ Amortized over closed 12 and 13 year periods in 2021 and 2020, respectively, as level dollar amounts.

⁵ Payable by the Second Injury Fund (SIF).

⁶ Amortized over a closed 20 year period in 2021 as a level dollar amount.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

Table V-4
Development of Normal Cost

	July 1, 2021 Valuation Fiscal Year Ending 2023 Payment			July 1, 2020 Valuation Fiscal Year Ending 2022 Payment		
	State	Local Employers	Total	State	Local Employers	Total
	1. Gross Normal Cost, excluding NCGI Premium					
a. Basic	\$ 463,015,585	\$ 724,549,562	\$ 1,187,565,147	\$ 444,515,901	\$ 690,231,855	\$ 1,134,747,756
b. Chapter 133, P.L. 2001	28,526,052	42,056,515	70,582,567	28,054,098	41,575,143	69,629,241
c. Chapter 366, P.L. 2001	260,364	2,728,819	2,989,183	255,789	2,686,646	2,942,435
d. Chapter 259, P.L. 2001 and Chapter 140, P.L. 2021 ¹	981,803	0	981,803	65,339	0	65,339
e. Total	<u>\$ 492,783,804</u>	<u>\$ 769,334,896</u>	<u>\$ 1,262,118,700</u>	<u>\$ 472,891,127</u>	<u>\$ 734,493,644</u>	<u>\$ 1,207,384,771</u>
2. Expected Member Contributions²						
a. Basic	\$ (338,617,404)	\$ (545,044,082)	\$ (883,661,486)	\$ (342,490,271)	\$ (541,215,644)	\$ (883,705,915)
b. Chapter 366, P.L. 2001 ³	(155,557)	(1,116,022)	(1,271,579)	(171,270)	(1,147,214)	(1,318,484)
c. Total	<u>\$ (338,772,961)</u>	<u>\$ (546,160,104)</u>	<u>\$ (884,933,065)</u>	<u>\$ (342,661,541)</u>	<u>\$ (542,362,858)</u>	<u>\$ (885,024,399)</u>
3. Employer Normal Cost [1 + 2]	\$ 154,010,843	\$ 223,174,792	\$ 377,185,635	\$ 130,229,586	\$ 192,130,786	\$ 322,360,372
4. BEF Offset of Chapter 133, P.L. 2001	\$ 0	\$ 0	\$ 0	\$ 0	\$ (12,100,278)	\$ (12,100,278)
5. Portion of Local Normal Cost Payable by State						
a. Chapter 133, P.L. 2001	\$ 42,056,515	\$ (42,056,515)	\$ 0	\$ 29,474,865	\$ (29,474,865)	\$ 0
b. Chapter 366, P.L. 2001	1,612,797	(1,612,797)	0	1,539,432	(1,539,432)	0
c. Total	<u>\$ 43,669,312</u>	<u>\$ (43,669,312)</u>	<u>\$ 0</u>	<u>\$ 31,014,297</u>	<u>\$ (31,014,297)</u>	<u>\$ 0</u>
6. Normal Cost Contribution as of Valuation Date [3 + 4 + 5]	\$ 197,680,155	\$ 179,505,480	\$ 377,185,635	\$ 161,243,883	\$ 149,016,211	\$ 310,260,094
7. Interest to the Beginning of the Fiscal Year	\$ 13,837,611	\$ 12,565,383	\$ 26,402,994	\$ 11,770,805	\$ 10,878,184	\$ 22,648,989
8. Normal Cost Contribution as of Beginning of Fiscal Year [6 + 7]	\$ 211,517,766	\$ 192,070,863	\$ 403,588,629	\$ 173,014,688	\$ 159,894,395	\$ 332,909,083
9. Non-Contributory Group Insurance Premium as of Beginning of Fiscal Year (one-year term cost)	N/A	\$ 54,603,937	\$ 54,603,937	N/A	\$ 53,981,229	\$ 53,981,229

¹ Payable by the Second Injury Fund (SIF).

² Consistent with existing methodology, expected member contributions are calculated as appropriation payroll increased with a year of general payroll inflation (2% in 2020 and 2021), multiplied by the employee contribution rate and discounted from the middle of the year to the beginning of the year.

³ The member contribution rate for Prosecutors Part members is 10%, 2.5% greater than the regular member contribution rate of 7.5%.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

Table V-5 Development of Statutory Pension Contributions						
As of Beginning of Fiscal Year	July 1, 2021 Valuation Fiscal Year Ending 2023 Payment			July 1, 2020 Valuation Fiscal Year Ending 2022 Payment		
	State	Local Employers	Total	State	Local Employers	Total
1. Normal Cost Contribution¹						
a. Basic	\$ 133,106,053	\$ 192,070,863	\$ 325,176,916	\$ 109,473,502	\$ 159,894,395	\$ 269,367,897
b. Chapter 133, P.L. 2001	75,523,347	0	75,523,347	61,728,577	0	61,728,577
c. Chapter 366, P.L. 2001	1,837,837	0	1,837,837	1,742,500	0	1,742,500
d. Chapter 259, P.L. 2001 and Chapter 140, P.L. 2021 ³	1,050,529	0	1,050,529	70,109	0	70,109
e. Total	<u>\$ 211,517,766</u>	<u>\$ 192,070,863</u>	<u>\$ 403,588,629</u>	<u>\$ 173,014,688</u>	<u>\$ 159,894,395</u>	<u>\$ 332,909,083</u>
2. UAL Contribution^{1,2}						
a. Basic ⁴	\$ 1,530,224,596	\$ 1,014,373,222	\$ 2,544,597,818	\$ 1,527,688,851	\$ 995,632,110	\$ 2,523,320,961
b. Chapter 133, P.L. 2001	0	0	0	0	0	0
c. Chapter 366, P.L. 2001	17,028,574	0	17,028,574	17,828,788	0	17,828,788
d. Chapter 259, P.L. 2001 ³	499,151	0	499,151	507,161	0	507,161
e. Chapter 140, P.L. 2021 ³	453,001	0	453,001	0	0	0
f. Total	<u>\$ 1,548,205,322</u>	<u>\$ 1,014,373,222</u>	<u>\$ 2,562,578,544</u>	<u>\$ 1,546,024,800</u>	<u>\$ 995,632,110</u>	<u>\$ 2,541,656,910</u>
3. Total Statutory Pension Contribution: [1 + 2]	\$ 1,759,723,088	\$ 1,206,444,085	\$ 2,966,167,173	\$ 1,719,039,488	\$ 1,155,526,505	\$ 2,874,565,993
4. SIF Offset of Chapter 259, P.L. 2001 and Chapter 140, P.L. 2021	\$ (2,002,681)	\$ 0	\$ (2,002,681)	\$ (577,270)	\$ 0	\$ (577,270)
5. Lottery Enterprise Contribution Offset	\$ (129,968,418)	\$ 0	\$ (129,968,418)	\$ (230,352,113)	\$ 0	\$ (230,352,113)
6. Phase-in of Impact of Assumption Changes⁵	\$ 0	\$ 0	\$ 0	\$ 0	\$ (38,391,509)	\$ (38,391,509)
7. Net Pension Contribution: [3 + 4 + 5 + 6]	\$ 1,627,751,989	\$ 1,206,444,085	\$ 2,834,196,074	\$ 1,488,110,105	\$ 1,117,134,996	\$ 2,605,245,101
8. Non-Contributory Group Insurance Premium	N/A	\$ 54,603,937	\$ 54,603,937	N/A	\$ 53,981,229	\$ 53,981,229

¹ State amounts for Chapter 133, P.L. 2001 and Chapter 366, P.L. 2001 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 \$61,366,036 and \$48,654,369 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 Appendices E and F for additional information on these payments.

³ Payable by the Second Injury Fund (SIF).

⁴ Includes UAL Amounts due to State ERI programs.

⁵ Assumption changes from the most recent experience study only, which increased the FYE 2021 Local employers' Statutory pension contribution by \$115,174,528.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

Tables V-6 shows the State and Local employers' contributions as a percentage of appropriation payroll for FYE 2023 compared to FYE 2022. These rates are appropriate for evaluating the total cost of the System as well as the changes from the prior year. For a breakdown of contribution rates by chapter law for administration purposes, refer to Table V-7.

Table V-6						
Contributions as a Percentage of Appropriation Payroll¹						
	July 1, 2021 Valuation Fiscal Year 2023 Payment			July 1, 2020 Valuation Fiscal Year 2022 Payment		
	State	Local Employers	Total	State	Local Employers	Total
<u>Prior to Statutory State-Paid Local Adjustments and BEF Offset and Prior to SIF and Lottery Enterprise Contribution Offsets and Phase-in of Impact of Assumption Changes</u>						
Normal Cost Contribution Rate	3.599%	3.240%	3.378%	3.013%	2.813%	2.891%
UAL Contribution Rate	33.494%	13.962%	21.447%	33.006%	13.796%	21.241%
Gross Pension Contribution Rate	37.093%	17.202%	24.825%	36.019%	16.609%	24.132%
Non-Contributory Group Insurance Premium Rate	N/A	0.741%	N/A	N/A	0.737%	N/A
<u>After Statutory State-Paid Local Adjustments and BEF Offset and Prior to SIF and Lottery Enterprise Contribution Offsets and Phase-in of Impact of Assumption Changes</u>						
Normal Cost Contribution Rate	4.620%	2.606%	3.378%	3.731%	2.182%	2.782%
UAL Contribution Rate	33.813%	13.764%	21.447%	33.337%	13.586%	21.241%
Gross Pension Contribution Rate	38.433%	16.370%	24.825%	37.068%	15.768%	24.023%
Non-Contributory Group Insurance Premium Rate	N/A	0.741%	N/A	N/A	0.737%	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.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

Table V-7 shows the State and Local employer contributions as a percentage of appropriation payroll for FYE 2023 compared to FYE 2022. These contribution rates by chapter law are intended for administration purposes and may not be appropriate for other uses.

**Table V-7
Contributions as a Percentage of Appropriation Payroll¹**

	July 1, 2021 Valuation		July 1, 2020 Valuation	
	Fiscal Year 2023 Payment		Fiscal Year 2022 Payment	
	State	Local Employers	State	Local Employers
1. Normal Cost Rate				
a. Basic	2.907%	2.606%	2.361%	2.182%
b. Chapter 133, P.L. 2001	1.649%	0.000% ²	1.331%	0.000% ²
c. Total Normal Cost Rate	4.556%	2.606%	3.692%	2.182%
2. Unfunded Actuarial Liability (UAL) Contribution				
a. Basic	33.421%	13.764%	32.942%	13.586%
b. Chapter 133, P.L. 2001	0.000%	0.000%	0.000%	0.000%
c. Total UAL Contribution	33.421%	13.764%	32.942%	13.586%
3. Gross Contribution for Fiscal Year 2023: [1 + 2]	37.977%	16.370%	36.634%	15.768%
4. Phase-in of Impact of Assumption Changes	0.000%	0.000%	0.000%	-0.524%
5. Contribution Net of Phase-in for Fiscal Year 2023: [3 + 4]	37.977%	16.370%	36.634%	15.244%
6. State Non-Contributory Group Insurance Premium Fund	N/A	0.741%	N/A	0.737%

¹ Rates exclude contributions required under Chapter 366, P.L. 2001, Chapter 259, P.L. 2001, and Chapter 140, P.L. 2021 as well as ERI and Chapter 19, P.L. 2009 payments.

² Required contributions for Local employers are payable by assets from the Benefit Enhancement Fund. If BEF assets are insufficient, the State will cover any shortfall. The Local employers Chapter 133, P.L. 2001 rates would have been 0.611% and 0.609% for the July 1, 2021 and the July 1, 2020 valuations, respectively.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

Table V-8 shows the Statutory contribution payable by the State broken down by various divisions.

Table V-8 Fiscal Year 2023 Statutory Contributions Payable by the State						
	State	Disability Insurance Services	All Other Units of Division of Employment Security	State Colleges	Total Excluding Second Injury Fund	Second Injury Fund
Member Count	51,348	231	1,558	12,418	65,555	
Appropriation Payroll	\$ 3,737,620,737	\$ 14,158,918	\$ 111,255,046	\$ 715,639,370	\$ 4,578,674,071	
Normal Cost Contribution						
Basic	\$ 108,655,899	\$ 411,612	\$ 3,234,281	\$ 20,804,261	\$ 133,106,053	
Chapter 133, P.L. 2001	75,523,347	0	0	0	75,523,347	
Chapter 366, P.L. 2001	1,837,837	0	0	0	1,837,837	
Sub-Total	<u>\$ 186,017,083</u>	<u>\$ 411,612</u>	<u>\$ 3,234,281</u>	<u>\$ 20,804,261</u>	<u>\$ 210,467,237</u>	
Chapter 259, P.L. 2001						\$ 1,050,529
UAL Contribution						
Basic excluding ERI amounts	\$ 1,129,660,110	\$ 4,778,691	\$ 37,549,019	\$ 217,335,159	\$ 1,389,322,979	
Chapter 23, P.L. 2002	106,047,767	0	0	9,099,917	115,147,684	
Chapter 21, P.L. 2008	25,753,933	0	0	0	25,753,933	
Chapter 133, P.L. 2001	0	0	0	0	0	
Chapter 366, P.L. 2001	17,028,574	0	0	0	17,028,574	
Sub-Total	<u>\$ 1,278,490,384</u>	<u>\$ 4,778,691</u>	<u>\$ 37,549,019</u>	<u>\$ 226,435,076</u>	<u>\$ 1,547,253,170</u>	
Chapter 259, P.L. 2001						\$ 499,151
Chapter 140, P.L. 2021						\$ 453,001
Statutory Pension Contribution	\$ 1,464,507,467	\$ 5,190,303	\$ 40,783,300	\$ 247,239,337	\$ 1,757,720,407	\$ 2,002,681
Lottery Contribution Offset						
Chapter 98, P.L. 2017	\$ (62,202,903)	\$ 0	\$ 0	\$ (67,765,515)	\$ (129,968,418)	\$ 0
Net Pension Contribution	\$ 1,402,304,564	\$ 5,190,303	\$ 40,783,300	\$ 179,473,822	\$ 1,627,751,989	\$ 2,002,681

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

SECTION V – CONTRIBUTIONS

Table V-9 shows the Statutory contribution attributable to various state colleges.

Location Number	Location Name	Member Count	Appropriation Payroll	Basic Normal Cost Contribution	UAL Contribution		Statutory Pension Contribution	Lottery Contribution Offset ¹	Net Pension Contribution
					Basic	Chapter 23, P.L. 2002			
401	State Library Affiliated ²	75	\$ 5,465,709	\$ 158,893	\$ 1,844,698	\$ 0	\$ 2,003,591	\$ (90,962)	\$ 1,912,629
410	Rowan University	972	53,772,462	1,563,212	16,316,365	785,800	18,665,377	(5,124,137)	13,541,240
411	New Jersey City University	394	23,042,375	669,862	6,991,828	544,199	8,205,889	(2,195,776)	6,010,113
412	Kean University	330	19,155,394	556,864	5,812,388	479,714	6,848,966	(1,825,374)	5,023,592
413	William Patterson University of NJ	449	24,251,406	705,010	7,358,688	335,181	8,398,879	(2,310,988)	6,087,891
414	Monclair State University	546	30,021,403	872,748	9,109,499	213,100	10,195,347	(2,860,829)	7,334,518
415	The College of New Jersey	473	27,396,790	796,449	8,313,103	599,151	9,708,703	(2,610,721)	7,097,982
420	Ramapo College of New Jersey	267	17,504,437	508,869	5,311,432	175,459	5,995,760	(1,668,050)	4,327,710
421	Stockton University	625	37,218,679	1,081,979	11,293,393	461,069	12,836,441	(3,546,678)	9,289,763
430	Thomas Edison State University	81	6,155,490	178,945	1,867,782	139,163	2,185,890	(586,575)	1,599,315
497 & 498	Rutgers University	5,263	287,036,612	8,344,406	87,096,516	5,102,608	100,543,530	(27,352,570)	73,190,960
901	University Hospital	2,605	164,872,494	4,792,987	50,027,834	0	54,820,821	(15,711,189)	39,109,632
32700 & 55530	New Jersey Institute of Technology	338	19,746,119	574,037	5,991,633	264,473	6,830,143	(1,881,666)	4,948,477
Total		12,418	\$ 715,639,370	\$ 20,804,261	\$ 217,335,159	\$ 9,099,917	\$ 247,239,337	\$ (67,765,515)	\$ 179,473,822

¹ 52.07% of the total Lottery Enterprise Contribution offset for FYE 2023 is allocated to each State College location based on the location's 2021 appropriation payroll.

The percentage allocation to State Colleges was determined using 2021 contributing active and retiree headcounts for locations deemed to be eligible for funding under the Lottery Enterprise.

² The allocation of the Lottery Enterprise Contribution offset to State Library Affiliated is based on the 47.93% allocated to non-State College locations.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2021. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1 to A-3: Contributing Active Member Data by Tier
- A-4: Non-Contributing Active Member Data by Tier
- A-5: Inactive Member Data by Status
- A-6: Reconciliation of Plan Membership
- A-7 through A-10: Contributing Active Member Data by Age and Service
- A-11 through A-14: Inactive Member Data by Age and Status

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-1 Contributing Active Member Data by Tier State							
	July 1, 2021	July 1, 2020	%		July 1, 2021	July 1, 2020	%
			Change				Change
<u>Tier 1</u>				<u>Tier 2</u>			
Count	33,427	36,108	-7.4%	Count	2,708	2,890	-6.3%
Average Age	53.9	53.6	0.7%	Average Age	49.4	48.9	1.1%
Average Service	22.2	21.6	2.9%	Average Service	13.2	12.2	8.2%
Average Appropriation Pay	\$ 78,500	\$ 76,996	2.0%	Average Appropriation Pay	\$ 67,611	\$ 65,280	3.6%
Total Appropriation Payroll	\$ 2,624,017,813	\$ 2,780,178,811	-5.6%	Total Appropriation Payroll	\$ 183,089,341	\$ 188,658,840	-3.0%
<u>Tier 3</u>				<u>Tier 4</u>			
Count	1,861	1,987	-6.3%	Count	1,342	1,407	-4.6%
Average Age	48.7	48.0	1.5%	Average Age	47.2	46.6	1.4%
Average Service	11.8	10.8	9.2%	Average Service	10.6	9.5	10.8%
Average Appropriation Pay	\$ 67,234	\$ 64,566	4.1%	Average Appropriation Pay	\$ 70,774	\$ 68,260	3.7%
Total Appropriation Payroll	\$ 125,122,012	\$ 128,292,039	-2.5%	Total Appropriation Payroll	\$ 94,979,103	\$ 96,041,239	-1.1%
<u>Tier 5</u>				<u>Total</u>			
Count	26,217	25,382	3.3%	Count	65,555	67,774	-3.3%
Average Age	41.1	40.3	1.9%	Average Age	48.3	48.1	0.5%
Average Service	4.4	3.8	16.1%	Average Service	14.2	14.0	1.6%
Average Appropriation Pay	\$ 59,178	\$ 56,905	4.0%	Average Appropriation Pay	\$ 69,845	\$ 68,426	2.1%
Total Appropriation Payroll	\$ 1,551,465,802	\$ 1,444,358,349	7.4%	Total Appropriation Payroll	\$ 4,578,674,071	\$ 4,637,529,278	-1.3%

Reflects all records for multiple members, which are members employed by more than one PERS-participating employer at the same time.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-2 Contributing Active Member Data by Tier Local Employers							
	July 1, 2021	July 1, 2020	% Change		July 1, 2021	July 1, 2020	% Change
<u>Tier 1</u>				<u>Tier 2</u>			
Count	64,715	71,265	-9.2%	Count	7,077	7,628	-7.2%
Average Age	57.2	56.9	0.6%	Average Age	53.3	52.8	1.0%
Average Service	22.0	21.3	3.4%	Average Service	13.3	12.3	8.0%
Average Appropriation Pay \$	59,424	\$ 57,226	3.8%	Average Appropriation Pay \$	48,227	\$ 45,505	6.0%
Total Appropriation Payroll \$	3,845,628,038	\$ 4,078,209,547	-5.7%	Total Appropriation Payroll \$	341,301,240	\$ 347,108,739	-1.7%
<u>Tier 3</u>				<u>Tier 4</u>			
Count	4,473	4,812	-7.0%	Count	2,102	2,218	-5.2%
Average Age	52.0	51.4	1.2%	Average Age	50.0	49.1	1.9%
Average Service	11.8	10.8	9.1%	Average Service	10.6	9.7	10.2%
Average Appropriation Pay \$	51,723	\$ 49,074	5.4%	Average Appropriation Pay \$	58,792	\$ 55,949	5.1%
Total Appropriation Payroll \$	231,358,541	\$ 236,145,648	-2.0%	Total Appropriation Payroll \$	123,579,879	\$ 124,094,265	-0.4%
<u>Tier 5</u>				<u>Total</u>			
Count	60,305	56,834	6.1%	Count	138,672	142,757	-2.9%
Average Age	43.4	42.9	1.3%	Average Age	50.7	50.8	-0.1%
Average Service	4.3	3.8	13.8%	Average Service	13.4	13.3	0.5%
Average Appropriation Pay \$	46,896	\$ 44,741	4.8%	Average Appropriation Pay \$	53,146	\$ 51,335	3.5%
Total Appropriation Payroll \$	2,828,040,570	\$ 2,542,835,075	11.2%	Total Appropriation Payroll \$	7,369,908,268	\$ 7,328,393,274	0.6%

Reflects all records for multiple members, which are members employed by more than one PERS-participating employer at the same time.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-3 Contributing Active Member Data by Tier Total							
	July 1, 2021	July 1, 2020	%		July 1, 2021	July 1, 2020	%
			Change				Change
<u>Tier 1</u>				<u>Tier 2</u>			
Count	98,142	107,373	-8.6%	Count	9,785	10,518	-7.0%
Average Age	56.1	55.8	0.6%	Average Age	52.2	51.7	1.0%
Average Service	22.1	21.4	3.2%	Average Service	13.3	12.3	8.1%
Average Appropriation Pay	\$ 65,921	\$ 63,874	3.2%	Average Appropriation Pay	\$ 53,591	\$ 50,938	5.2%
Total Appropriation Payroll	\$ 6,469,645,851	\$ 6,858,388,358	-5.7%	Total Appropriation Payroll	\$ 524,390,581	\$ 535,767,579	-2.1%
<u>Tier 3</u>				<u>Tier 4</u>			
Count	6,334	6,799	-6.8%	Count	3,444	3,625	-5.0%
Average Age	51.0	50.4	1.3%	Average Age	48.9	48.1	1.7%
Average Service	11.8	10.8	9.1%	Average Service	10.6	9.6	10.4%
Average Appropriation Pay	\$ 56,280	\$ 53,602	5.0%	Average Appropriation Pay	\$ 63,461	\$ 60,727	4.5%
Total Appropriation Payroll	\$ 356,480,553	\$ 364,437,687	-2.2%	Total Appropriation Payroll	\$ 218,558,982	\$ 220,135,504	-0.7%
<u>Tier 5</u>				<u>Total</u>			
Count	86,522	82,216	5.2%	Count	204,227	210,531	-3.0%
Average Age	42.7	42.1	1.5%	Average Age	50.0	49.9	0.1%
Average Service	4.4	3.8	14.5%	Average Service	13.7	13.5	0.8%
Average Appropriation Pay	\$ 50,617	\$ 48,497	4.4%	Average Appropriation Pay	\$ 58,506	\$ 56,837	2.9%
Total Appropriation Payroll	\$ 4,379,506,372	\$ 3,987,193,424	9.8%	Total Appropriation Payroll	\$ 11,948,582,339	\$ 11,965,922,552	-0.1%

Reflects all records for multiple members, which are members employed by more than one PERS-participating employer at the same time.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-4 Non-Contributing Active Member Data by Tier ¹						
	State		Local Employers		Total	
	July 1, 2021	July 1, 2020	July 1, 2021	July 1, 2020	July 1, 2021	July 1, 2020
<u>Tier 1</u>						
Count	5,081	5,369	14,839	15,391	19,920	20,760
Average Age	59.7	58.8	63.0	62.3	62.1	61.4
Accumulated Deductions with Interest	\$ 362,019,014	\$ 358,212,648	\$ 660,497,016	\$ 646,686,499	\$ 1,022,516,030	\$ 1,004,899,147
<u>Tier 2</u>						
Count	376	339	1,403	1,265	1,779	1,604
Average Age	54.6	52.6	56.9	56.2	56.4	55.4
Accumulated Deductions with Interest	\$ 15,299,813	\$ 11,585,223	\$ 31,421,546	\$ 23,643,341	\$ 46,721,359	\$ 35,228,564
<u>Tier 3</u>						
Count	241	257	810	779	1,051	1,036
Average Age	51.9	49.2	55.9	54.7	54.9	53.3
Accumulated Deductions with Interest	\$ 9,307,941	\$ 8,275,043	\$ 18,182,028	\$ 13,906,873	\$ 27,489,969	\$ 22,181,916
<u>Tier 4</u>						
Count	101	121	261	247	362	368
Average Age	48.5	47.2	50.0	49.5	49.6	48.8
Accumulated Deductions with Interest	\$ 3,562,410	\$ 3,960,771	\$ 7,071,148	\$ 5,117,441	\$ 10,633,558	\$ 9,078,212
<u>Tier 5</u>						
Count	3,637	3,245	9,985	9,232	13,622	12,477
Average Age	38.9	37.5	39.7	39.0	39.5	38.6
Accumulated Deductions with Interest	\$ 36,696,979	\$ 29,675,394	\$ 77,254,024	\$ 63,770,152	\$ 113,951,003	\$ 93,445,546
<u>Total</u>						
Count	9,436	9,331	27,298	26,914	36,734	36,245
Average Age	51.2	50.7	53.4	53.6	52.9	52.9
Accumulated Deductions with Interest	\$ 426,886,157	\$ 411,709,079	\$ 794,425,762	\$ 753,124,306	\$ 1,221,311,919	\$ 1,164,833,385

¹ Includes 183 and 876 deferred beneficiaries for State and Local employers, respectively, for 2021.

Accumulated Deductions with interest as reported by the DPB



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-5 Inactive Member Data by Status¹						
	July 1, 2021			July 1, 2020		
	State	Local Employers	Total	State	Local Employers	Total
Retirees						
Count	51,659	105,744	157,403	50,974	103,974	154,948
Annual Retirement Allowances	\$ 1,580,380,612	\$ 2,101,663,102	\$ 3,682,043,714	\$ 1,532,335,609	\$ 2,019,070,867	\$ 3,551,406,476
Average Retirement Allowance	\$ 30,593	\$ 19,875	\$ 23,392	\$ 30,061	\$ 19,419	\$ 22,920
Beneficiaries						
Count	4,897	11,541	16,438	4,714	11,193	15,907
Annual Retirement Allowances	\$ 88,181,040	\$ 154,455,891	\$ 242,636,931	\$ 84,045,216	\$ 147,409,696	\$ 231,454,912
Average Retirement Allowance	\$ 18,007	\$ 13,383	\$ 14,761	\$ 17,829	\$ 13,170	\$ 14,551
Ordinary Disability						
Count	4,468	7,707	12,175	4,581	7,971	12,552
Annual Retirement Allowances	\$ 92,238,384	\$ 133,716,763	\$ 225,955,147	\$ 93,954,271	\$ 137,285,451	\$ 231,239,722
Average Retirement Allowance	\$ 20,644	\$ 17,350	\$ 18,559	\$ 20,510	\$ 17,223	\$ 18,423
Accidental Disability						
Count	511	845	1,356	514	854	1,368
Annual Retirement Allowances	\$ 16,044,417	\$ 24,534,981	\$ 40,579,398	\$ 16,083,781	\$ 24,633,270	\$ 40,717,051
Average Retirement Allowance	\$ 31,398	\$ 29,035	\$ 29,926	\$ 31,291	\$ 28,845	\$ 29,764
In-Pay Total						
Count	61,535	125,837	187,372	60,783	123,992	184,775
Annual Retirement Allowances	\$ 1,776,844,453	\$ 2,414,370,737	\$ 4,191,215,190	\$ 1,726,418,877	\$ 2,328,399,284	\$ 4,054,818,161
Average Retirement Allowance	\$ 28,875	\$ 19,186	\$ 22,368	\$ 28,403	\$ 18,779	\$ 21,945
Deferred Vested Members						
Count	186	537	723	213	664	877
Annual Retirement Allowances	\$ 3,165,564	\$ 5,923,740	\$ 9,089,304	\$ 3,560,016	\$ 7,292,832	\$ 10,852,848
Average Retirement Allowance	\$ 17,019	\$ 11,031	\$ 12,572	\$ 16,714	\$ 10,983	\$ 12,375

QDRO benefits included with member records for valuation purposes.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-6								
Reconciliation of Plan Membership from July 1, 2020 to July 1, 2021								
	Contributing Actives	Non-Contrib. Actives	Deferred Beneficiaries	Deferred Vested	Retired	Disabled	Beneficiaries	Total
1. July 1, 2020	210,531	36,245	0	877	154,948	13,920	15,907	432,428
2. Additions								
a. New entrants	11,202	1,119						12,321
b. Data updates	104	33			26	4	299	466
c. Total	<u>11,306</u>	<u>1,152</u>	<u>0</u>	<u>0</u>	<u>26</u>	<u>4</u>	<u>299</u>	<u>12,787</u>
3. Reductions								
a. Withdrawal/Certain Period End	(2,232)	(6,353)		(4)			(1)	(8,590)
b. Died without beneficiary	(413)	(278)		(2)	(5,017)	(578)	(962)	(7,250)
c. Data updates	(137)	(120)						(257)
d. Total	<u>(2,782)</u>	<u>(6,751)</u>	<u>0</u>	<u>(6)</u>	<u>(5,017)</u>	<u>(578)</u>	<u>(963)</u>	<u>(16,097)</u>
4. Changes in Status								
a. Contributing Actives	(8,969)	8,969						0
b. Non-Contributing Actives	1,858	(1,854)		(4)				0
c. Deferred Vested	(8)	(47)		55				0
d. Retired	(7,544)	(791)		(198)	8,471			(62)
e. Disabled	(132)	(181)		(1)	(2)	316		0
f. Died with beneficiary	(33)	(1,067)	1,059		(1,023)	(131)	1,195	0
g. Total	<u>(14,828)</u>	<u>5,029</u>	<u>1,059</u>	<u>(148)</u>	<u>7,446</u>	<u>185</u>	<u>1,195</u>	<u>(62)</u>
5. July 1, 2021	204,227	35,675	1,059	723	157,403	13,531	16,438	429,056

QDRO benefits included with member records for valuation purposes.

Reflects all records for multiple members, which are members employed by more than one PERS-participating employer at the same time. The decreases due to Changes in Status occur when active records for multiple members are combined into a single retiree record.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-7 Counts by Age and Service Distribution of Contributing Active Members State									
Attained Age	Years of Service								Total No.
	Under 1 No.	1 to 4 No.	5 to 9 No.	10 to 14 No.	15 to 19 No.	20 to 24 No.	25 to 29 No.	30 & up No.	
Under 30	1,063	3,396	480	7	0	0	0	0	4,946
30 to 34	410	2,627	2,138	402	26	0	0	0	5,603
35 to 39	292	1,823	1,988	1,868	1,133	34	0	0	7,138
40 to 44	224	1,487	1,333	1,549	3,200	860	9	0	8,662
45 to 49	199	1,170	1,069	1,145	2,274	1,773	388	52	8,070
50 to 54	200	1,132	977	1,114	2,027	1,806	1,150	1,286	9,692
55 & up	265	1,798	2,043	2,485	4,691	3,832	1,818	4,512	21,444
Total	2,653	13,433	10,028	8,570	13,351	8,305	3,365	5,850	65,555

Table A-8 Average Appropriation Pay by Age and Service Distribution of Contributing Active Members State									
Attained Age	Years of Service								Total Comp.
	Under 1 Comp.	1 to 4 Comp.	5 to 9 Comp.	10 to 14 Comp.	15 to 19 Comp.	20 to 24 Comp.	25 to 29 Comp.	30 & up Comp.	
Under 30	\$ 48,756	\$ 50,662	\$ 58,459	\$ 44,599	\$ 0	\$ 0	\$ 0	\$ 0	\$ 51,000
30 to 34	53,497	55,137	64,725	61,114	59,125	0	0	0	59,123
35 to 39	55,807	57,295	68,306	73,093	70,894	72,342	0	0	66,665
40 to 44	53,834	57,718	68,251	72,781	79,971	77,867	54,897	0	72,151
45 to 49	55,632	56,774	66,361	70,223	77,691	85,365	77,832	76,180	73,237
50 to 54	53,330	56,419	64,452	66,932	72,635	82,343	87,725	82,231	73,735
55 & up	58,055	58,041	64,593	64,428	70,065	76,640	80,915	90,293	74,085
Total	\$ 52,483	\$ 55,224	\$ 65,725	\$ 68,755	\$ 74,177	\$ 79,852	\$ 82,817	\$ 88,395	\$ 69,845

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

Table A-9									
Counts by Age and Service Distribution of Contributing Active Members									
Local Employers									
Attained Age	Years of Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & up	
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Under 30	2,147	7,269	1,482	23	0	0	0	0	10,921
30 to 34	786	4,606	3,501	862	84	0	0	0	9,839
35 to 39	563	3,347	2,947	2,241	1,587	91	0	0	10,776
40 to 44	594	3,178	2,442	1,953	2,705	1,194	51	0	12,117
45 to 49	517	3,378	2,630	1,994	2,716	2,235	815	96	14,381
50 to 54	540	3,589	3,332	3,108	3,840	2,783	1,841	1,617	20,650
55 & up	780	5,621	6,669	8,534	13,905	11,851	5,592	7,036	59,988
Total	5,927	30,988	23,003	18,715	24,837	18,154	8,299	8,749	138,672

Table A-10									
Average Appropriation Pay by Age and Service Distribution of Contributing Active Members									
Local Employers									
Attained Age	Years of Service								Total
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & up	
	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.
Under 30	\$ 38,932	\$ 41,895	\$ 50,845	\$ 53,950	\$ 0	\$ 0	\$ 0	\$ 0	\$ 42,552
30 to 34	42,388	45,471	54,271	56,466	54,247	0	0	0	49,394
35 to 39	43,418	46,240	55,875	60,549	62,107	61,559	0	0	54,169
40 to 44	40,655	44,759	55,009	58,957	63,811	67,963	72,064	0	55,567
45 to 49	41,054	43,374	52,099	54,664	62,264	69,731	73,224	78,726	56,043
50 to 54	41,293	42,741	50,466	50,545	55,440	66,037	76,798	78,901	56,493
55 & up	43,654	43,673	49,440	45,380	48,134	53,535	63,181	76,190	53,171
Total	\$ 41,011	\$ 43,771	\$ 52,134	\$ 50,981	\$ 53,430	\$ 58,434	\$ 67,242	\$ 76,719	\$ 53,146

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-11
Counts by Age and Status of Inactive Members
State**

Attained Age	Status				Total
	Retirees	Beneficiaries	Ordinary Disability	Accidental Disability	
Under 45	1	130	65	12	208
45 to 49	28	73	161	19	281
50 to 54	418	135	285	48	886
55 to 59	2,794	236	604	74	3,708
60 to 64	6,914	345	778	101	8,138
65 to 69	10,895	554	842	94	12,385
70 to 74	12,376	851	768	73	14,068
75 to 79	8,219	785	544	52	9,600
80 to 84	4,980	700	275	13	5,968
85 & up	5,034	1,088	146	25	6,293
Total	51,659	4,897	4,468	511	61,535

**Table A-12
Average Retirement Allowances by Age and Status of Inactive Members
State**

Attained Age	Status				Total
	Retirees	Beneficiaries	Ordinary Disability	Accidental Disability	
Under 45	\$ 12,901	\$ 10,412	\$ 22,131	\$ 34,897	\$ 15,499
45 to 49	20,862	13,368	23,026	34,016	21,045
50 to 54	31,117	12,739	21,980	31,123	25,378
55 to 59	40,517	16,155	22,037	32,709	35,800
60 to 64	37,408	18,314	21,285	32,172	34,992
65 to 69	34,384	20,008	20,612	31,390	32,781
70 to 74	31,455	22,099	20,571	31,052	30,293
75 to 79	27,377	19,461	19,227	33,006	26,298
80 to 84	22,799	17,404	17,215	28,149	21,920
85 & up	18,374	15,304	17,888	20,636	17,841
Total	\$ 30,593	\$ 18,007	\$ 20,644	\$ 31,398	\$ 28,875

QDRO benefits included with member records for valuation purposes.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX A – MEMBERSHIP INFORMATION

**Table A-13
Counts by Age and Status of Inactive Members
Local**

Attained Age	Status				Total
	Retirees	Beneficiaries	Ordinary Disability	Accidental Disability	
Under 45	1	188	63	20	272
45 to 49	58	134	149	31	372
50 to 54	616	258	420	70	1,364
55 to 59	3,294	488	935	139	4,856
60 to 64	11,443	831	1,370	146	13,790
65 to 69	20,999	1,198	1,534	159	23,890
70 to 74	24,282	1,709	1,324	109	27,424
75 to 79	18,612	1,964	1,002	94	21,672
80 to 84	12,720	1,880	606	48	15,254
85 & up	13,719	2,891	304	29	16,943
Total	105,744	11,541	7,707	845	125,837

**Table A-14
Average Retirement Allowances by Age and Status of Inactive Members
Local**

Attained Age	Status				Total
	Retirees	Beneficiaries	Ordinary Disability	Accidental Disability	
Under 45	\$ 14,840	\$ 7,720	\$ 20,146	\$ 25,593	\$ 11,939
45 to 49	25,519	8,769	20,653	30,675	17,966
50 to 54	31,864	10,890	19,872	31,551	24,188
55 to 59	36,587	13,093	19,480	34,208	30,864
60 to 64	26,720	14,836	18,029	29,921	25,174
65 to 69	23,167	15,881	17,714	30,051	22,497
70 to 74	20,202	14,697	16,655	27,585	19,717
75 to 79	17,197	13,823	15,657	24,436	16,852
80 to 84	14,979	13,486	15,197	23,547	14,831
85 & up	12,146	11,642	13,118	18,212	12,088
Total	\$ 19,875	\$ 13,383	\$ 17,350	\$ 29,035	\$ 19,186

QDRO benefits included with member records for valuation purposes.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Investment Rate of Return** 7.00% per annum, compounded annually.

- 2. Administrative Expenses** No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute.

- 3. Interest Crediting Rate on Accumulated Deductions** 7.00% per annum, compounded annually. Interest credits are assumed to end upon termination.

- 4. Cost-of-Living Adjustments (COLAs)** No future COLAs are assumed. Previously granted COLAs are included in the data.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

- 5. Salary Increases** Salary increases vary by years of service and time period. Annual salary increases are shown below.

Salary Increases		
Years of Service	Period Ending June 30, 2026	Ultimate Period
0	6.00%	7.00%
1	6.00	7.00
2	5.75	6.75
3	5.50	6.50
4	5.00	6.00
5	4.75	5.75
6	4.50	5.50
7	4.25	5.25
8	4.00	5.00
9	3.80	4.80
10	3.60	4.60
11	3.40	4.40
12	3.20	4.20
13	3.00	4.00
14	2.90	3.90
15	2.80	3.80
16	2.70	3.70
17-21	2.60	3.60
22	2.50	3.50
23-25	2.40	3.40
26	2.30	3.30
27	2.20	3.20
28	2.10	3.10
29+	2.00	3.00

Salary increases are assumed to occur on July 1.

- 6. 401(a)(17) Pay Limit** \$290,000 in 2021 increasing 2.75% per annum, compounded annually.
- 7. Social Security Wage Base** \$142,800 in 2021 increasing 3.25% per annum, compounded annually.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

8. Termination

Termination rates are shown separately for members electing a refund of contributions and members electing a deferred annuity.

Termination rates for members electing a refund of contributions are as follows:

Termination Rates for Members Electing a Refund				
Service	State		Local Employers'	
	Less than 31 Years Old	31 Years or Older	Less than 31 Years Old	31 Years or Older
0	23.00%	11.00%	21.00%	12.00%
1	23.00	11.00	21.00	12.00
2	12.00	8.00	16.00	9.00
3	11.00	7.00	15.00	8.00
4	10.50	6.00	13.00	7.00
5	10.00	6.00	12.00	7.00
6	7.50	6.00	10.00	6.50
7	7.50	5.00	9.00	5.50
8	7.50	4.50	9.00	5.00
9	7.50	3.50	6.50	4.00
10	1.70	1.70	1.70	1.70
11	1.50	1.50	1.50	1.50
12	1.10	1.10	1.40	1.40
13	1.10	1.10	1.20	1.20
14	0.70	0.70	1.10	1.10
15	0.60	0.60	0.90	0.90
16	0.60	0.60	0.80	0.80
17	0.60	0.60	0.70	0.70
18	0.50	0.50	0.60	0.60
19	0.50	0.50	0.60	0.60
20	0.50	0.50	0.50	0.50
21	0.50	0.50	0.50	0.50
22	0.40	0.40	0.50	0.50
23	0.40	0.40	0.40	0.40
24-29	0.30	0.30	0.30	0.30

No termination is assumed after attainment of retirement eligibility.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Termination rates for members electing a deferred annuity are as follows:

Termination Rates for Members Electing a Deferred Annuity		
Service	State	Local Employers
< 10	N/A	N/A
10	1.60%	1.80%
11	1.60	1.80
12	1.20	1.70
13	1.20	1.60
14	1.00	1.50
15	0.90	1.40
16	0.90	1.30
17	0.80	1.20
18	0.80	1.10
19	0.80	1.00
20	0.80	1.00
21	0.70	0.90
22	0.50	0.80
23	0.50	0.80
24	0.40	0.70

No termination is assumed after attainment of retirement eligibility.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

9. Disability

Ordinary disability rates are as follows:

Ordinary Disability Rates					
Age	State	Local Employers	Age	State	Local Employers
25	0.100%	0.200%	50	0.380%	0.390%
26	0.110	0.200	51	0.395	0.405
27	0.120	0.200	52	0.410	0.420
28	0.130	0.200	53	0.425	0.435
29	0.140	0.200	54	0.440	0.450
30	0.150	0.205	55	0.455	0.460
31	0.160	0.210	56	0.470	0.470
32	0.170	0.215	57	0.485	0.480
33	0.180	0.220	58	0.500	0.490
34	0.190	0.225	59	0.515	0.500
35	0.205	0.230	60	0.530	0.510
36	0.220	0.235	61	0.545	0.520
37	0.235	0.240	62	0.560	0.530
38	0.250	0.245	63	0.575	0.540
39	0.265	0.250	64	0.590	0.550
40	0.275	0.260	65	0.605	0.560
41	0.285	0.270	66	0.620	0.570
42	0.295	0.280	67	0.635	0.580
43	0.305	0.290	68	0.650	0.590
44	0.315	0.300	69	0.665	0.600
45	0.325	0.315	70	0.675	0.615
46	0.335	0.330	71	0.685	0.630
47	0.345	0.345	72	0.695	0.645
48	0.355	0.360	73	0.705	0.660
49	0.365	0.375	74	0.715	0.675

Accidental disability rates are assumed to be 0.02% for all State members and 0.03% for all Local employers' members.

Ordinary disability rates apply upon attainment of 10 years of service and continue through the ultimate retirement age.

Members are assumed to receive the greater of the applicable disability benefit or the early or service retirement benefit, depending on eligibility.

Tier 4 and Tier 5 members are not eligible for the Ordinary or Accidental Disability benefits but the disability rates still apply. Such members terminating under the disability decrement are assumed to separate from service and elect a Deferred Retirement benefit.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

10. Mortality

Pre-Retirement Mortality: The Pub-2010 General Below-Median Income Employee mortality table [*PubG-2010(B) Employee*] as published by the Society of Actuaries with an 82.2% adjustment for males and 101.4% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2018.

All pre-retirement deaths are assumed to be ordinary deaths.

Healthy Retirees and Beneficiaries (Healthy Annuitants): The Pub-2010 General Below-Median Income Healthy Retiree mortality table [*PubG-2010(B) Healthy Retiree*] as published by the Society of Actuaries with a 91.4% adjustment for males and 99.7% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2018.

Disabled Retirees (Disabled Annuitants): The Pub-2010 Non-Safety Disabled Retiree mortality table [*PubNS-2010 Disabled Retiree*] as published by the Society of Actuaries with a 127.7% adjustment for males and 117.2% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2018.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

11. Retirement

Retirement rates for State Tier 1-4 members are as follows:

State Tiers 1-4 Retirement Rates			
Age	Less Than 25 Years of Service	25 Years of Service	26 or More Years of Service
< 49	N/A	3.50%	2.00%
49	N/A	3.50	2.00
50	N/A	3.50	3.50
51	N/A	3.50	3.50
52	N/A	6.00	4.25
53	N/A	6.00	5.50
54	N/A	7.00	6.75
55	N/A	17.50	18.00
56	N/A	17.50	15.00
57	N/A	17.50	14.00
58	N/A	20.00	14.00
59	N/A	20.00	14.00
60	5.00	20.00	17.00
61	5.00	30.00	17.00
62	8.00	36.50	27.00
63	8.00	36.50	24.00
64	8.00	36.50	21.00
65	12.00	44.00	25.00
66	17.00	55.00	30.00
67	16.00	50.00	26.00
68	15.00	47.00	23.00
69	15.00	47.00	23.00
70	15.00	47.00	26.00
71	15.00	47.00	23.00
72	15.00	47.00	21.00
73	15.00	47.00	21.00
74	15.00	47.00	21.00
75	100.00	100.00	100.00

Rates apply upon retirement eligibility by tier.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Retirement rates for Local employers Tier 1-4 members are as follows:

Local Employers' Tiers 1-4 Retirement Rates			
Age	Less Than 25 Years of Service	25 Years of Service	26 or More Years of Service
< 49	N/A	3.00%	2.25%
49	N/A	3.00	3.00
50	N/A	3.50	3.50
51	N/A	4.25	3.75
52	N/A	4.75	3.75
53	N/A	7.00	5.00
54	N/A	7.00	6.00
55	N/A	15.00	15.00
56	N/A	17.00	13.00
57	N/A	18.00	12.00
58	N/A	18.00	12.00
59	N/A	18.00	12.00
60	4.50	18.00	14.00
61	4.50	18.00	14.00
62	7.50	34.00	25.00
63	7.50	34.00	22.00
64	7.50	34.00	20.00
65	11.00	35.00	20.00
66	15.00	43.00	26.00
67	14.00	40.00	26.00
68	13.00	40.00	22.00
69	13.00	37.00	22.00
70	13.00	37.00	24.00
71	13.00	37.00	24.00
72	13.00	37.00	20.00
73	13.00	37.00	20.00
74	13.00	37.00	20.00
75	100.00	100.00	100.00

Rates apply upon retirement eligibility by tier.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Retirement rates for State Tier 5 members are as follows:

State Tier 5 Retirement Rates					
Age	Less Than 25 Years of Service	25 Years of Service	26 to 29 Years of Service	30 Years of Service	31 or More Years of Service
< 49	N/A	N/A	N/A	3.50%	2.00%
49	N/A	N/A	N/A	3.50	2.00
50	N/A	N/A	N/A	3.50	3.50
51	N/A	N/A	N/A	3.50	3.50
52	N/A	N/A	N/A	6.00	4.25
53	N/A	N/A	N/A	6.00	5.50
54	N/A	N/A	N/A	7.00	6.75
55	N/A	N/A	N/A	17.50	18.00
56	N/A	N/A	N/A	17.50	15.00
57	N/A	N/A	N/A	17.50	14.00
58	N/A	N/A	N/A	20.00	14.00
59	N/A	N/A	N/A	20.00	14.00
60	N/A	N/A	N/A	20.00	17.00
61	N/A	N/A	N/A	30.00	17.00
62	N/A	N/A	N/A	36.50	27.00
63	N/A	N/A	N/A	36.50	24.00
64	N/A	N/A	N/A	36.50	21.00
65	12.00	44.00	44.00	44.00	25.00
66	17.00	55.00	30.00	30.00	30.00
67	16.00	50.00	26.00	26.00	26.00
68	15.00	47.00	23.00	23.00	23.00
69	15.00	47.00	23.00	23.00	23.00
70	15.00	47.00	26.00	26.00	26.00
71	15.00	47.00	23.00	23.00	23.00
72	15.00	47.00	21.00	21.00	21.00
73	15.00	47.00	21.00	21.00	21.00
74	15.00	47.00	21.00	21.00	21.00
75	100.00	100.00	100.00	100.00	100.00

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Retirement rates for Local employers Tier 5 members are as follows:

Local Employers' Tier 5 Retirement Rates					
Age	Less Than 25 Years of Service	25 Years of Service	26 to 29 Years of Service	30 Years of Service	31 or More Years of Service
< 49	N/A	N/A	N/A	3.00%	2.25%
49	N/A	N/A	N/A	3.00	3.00
50	N/A	N/A	N/A	3.50	3.50
51	N/A	N/A	N/A	4.25	3.75
52	N/A	N/A	N/A	4.75	3.75
53	N/A	N/A	N/A	7.00	5.00
54	N/A	N/A	N/A	7.00	6.00
55	N/A	N/A	N/A	15.00	15.00
56	N/A	N/A	N/A	17.00	13.00
57	N/A	N/A	N/A	18.00	12.00
58	N/A	N/A	N/A	18.00	12.00
59	N/A	N/A	N/A	18.00	12.00
60	N/A	N/A	N/A	18.00	14.00
61	N/A	N/A	N/A	18.00	14.00
62	N/A	N/A	N/A	34.00	25.00
63	N/A	N/A	N/A	34.00	22.00
64	N/A	N/A	N/A	34.00	20.00
65	11.00	35.00	35.00	35.00	20.00
66	15.00	43.00	26.00	26.00	26.00
67	14.00	40.00	26.00	26.00	26.00
68	13.00	40.00	22.00	22.00	22.00
69	13.00	37.00	22.00	22.00	22.00
70	13.00	37.00	24.00	24.00	24.00
71	13.00	37.00	24.00	24.00	24.00
72	13.00	37.00	20.00	20.00	20.00
73	13.00	37.00	20.00	20.00	20.00
74	13.00	37.00	20.00	20.00	20.00
75	100.00	100.00	100.00	100.00	100.00

Retirement rates for members of Prosecutors Part (Chapter 366, P.L. 2001) are as follows:

- Members with less than 25 years of service: 6.0% for all ages,
- Members with 25 years of service: 50.0% for all ages,
- Members with 26 or more years of service: 25.0% for all ages.

Rates apply upon retirement eligibility. 100% retirement is assumed at age 70.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Retirement rates for members of WCJ Part (Chapter 140, P.L. 2021) are as follows:

Age	Less than 15 Years of WCJ Part Service	15-19 Years of WCJ Part Service	20 or more Years of WCJ Part Service
<60	0.0%	0.0%	0.0%
60	2.0	5.0	20.0
61	2.0	5.0	20.0
62	2.0	5.0	20.0
63	2.0	5.0	20.0
64	2.0	5.0	20.0
65	5.0	40.0	30.0
66	2.0	50.0	20.0
67	2.0	60.0	20.0
68	2.0	60.0	20.0
69	2.0	60.0	20.0
70	100.0	100.0	100.0

**12. Family
Composition
Assumptions**

For members not currently in receipt, 100% of members are assumed married to spouses of the opposite sex. Males are assumed to be three years older than females.

For purposes of the optional form of payment death benefit for members currently in receipt, beneficiary status is based on the beneficiary allowance reported. If no beneficiary date of birth is provided, the beneficiary is assumed to be the member's spouse of the opposite sex with males assumed to be three years older than females.

No additional dependent children or parents are assumed.

13. Form of Payment

Current active members are assumed to elect the Maximum Option.

**14. Non-Contributory
Group Insurance
Benefit Form of
Payment**

All benefits are assumed to be paid as lump sums.

15. Data

All non-contributing members and deferred beneficiaries are included in the valuation with a liability based on the reported Accumulated Deductions with interest (Annuity Savings Fund or ASF), adjusted to include interest through the valuation date.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Per discussions with DPB, the statuses for active records in Locations 4 – 7 (General Assembly and Senate) are based on changes in service instead of the contribution code.

For current beneficiaries with incomplete information, reasonable assumptions were made based on information available in prior years.

Inactive participants receiving benefits according to the 2020 data but omitted from the 2021 data are assumed to have died without a beneficiary.

Tier 4 and 5 members on long-term disability appeared on the active data for the first time in 2019. The number of members on long-term disability is immaterial for valuation purposes. Therefore, we valued these members as regular contributing and non-contributing members while we gain clarity on what happens with these members.

16. Rationale for Assumptions

The demographic and economic assumptions used in this report, except for the investment return assumption, reflect the results of the July 1, 2014 – June 30, 2018 Experience Study, which was approved by the Board of Trustees on February 19, 2020. The investment return assumption was recommended by the State Treasurer.

17. Changes in Assumptions since Last Valuation

The discount rate was decreased from 7.30% to 7.00%.

The interest crediting rate on accumulated deductions was decreased from 7.30% to 7.00% per annum, compounded annually.

In conjunction with Chapter 140, P.L. 2021, the assumed retirement rates for members in the WCJ Part of PERS were revised to match the assumed retirement rates used in the Judicial Retirement System of New Jersey (JRS) July 1, 2021 Actuarial Valuation Report. The JRS retirement rates are appropriate for this purpose because of the similarity between WCJ and JRS retirement benefits.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Projection Assumptions

- 1. Investment Rate of Return** July 1, 2022 and later valuations: 7.00% per annum, compounded annually.

- 2. Appropriation Percentages** The State is assumed to appropriate 100% of the Statutory contribution in FYE 2023 and each year thereafter.

- 3. Administrative Expenses** The actual administrative expenses paid in FYE 2021 are assumed to increase by 2.75% per annum, compounded annually.

- 4. New Entrants**
 - Contributing active population assumed to remain at 2021 levels.
 - Assumed to join mid-year.
 - Age/sex distributions based on the last three years of new hires.
 - Salary based on salary for most recent hires reported on 2021 data.
 - New entrant salary assumed to increase with the salary increase rates applicable for members with 29 or more years of service.

- 5. Demographic Assumptions** Same as those used for valuation purposes.

- 6. Projection Basis** This report includes projections of future assets, liabilities, funded status and contributions for the purpose of assisting the Board of Trustees with the management of the System.

The projections are based on the same census data and financial information as of July 1, 2021 which has been used for the actuarial valuation. The projections assume continuation of the plan provisions and actuarial assumptions in effect as of July 1, 2021 and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after July 1, 2021 unless otherwise indicated. While the assumptions individually are reasonable for the underlying valuation that supports the projections, specifically for projection purposes, they are also considered reasonable in the aggregate.

The projections are based on our proprietary model *PScan* developed by our firm that utilizes the results shown in this valuation report. The projections assume that all future assumptions are met except where indicated with respect to future investment returns and demographic assumptions. The future outcomes become increasingly uncertain over time, and therefore the general trends and not the absolute values should be considered in the review of these projections.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Methods

The actuarial methods used for determining State and Local employers' contributions are described below.

1. Actuarial Cost Method

The actuarial cost method for funding calculations is the Projected Unit Credit Cost Method.

The actuarial liability is calculated as the actuarial present value of the projected benefits linearly allocated to periods prior to the valuation year based on service (WCJ Part Service for members in the WCJ Part). Refunds are valued as the reported Accumulated Deductions with interests of the valuation date. The unfunded actuarial liability is the actuarial liability on the valuation date less the actuarial value of assets.

In accordance with Chapter 78, P.L. 2011:

- Beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period.
- Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation the amortization period shall decrease by one year).
- Beginning with the July 1, 2029 actuarial valuation, when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

Certain portions of the normal cost and unfunded actuarial liabilities attributable to Local employers are payable by the State and/or over different periods in accordance with the NJ State Statutes.

To the extent that the amortization period remains an open period in future years and depending upon the specific circumstances, it should be noted that in the absence of emerging actuarial gains or contributions made in excess of the actuarially determined contribution, any existing unfunded accrued liability may not be fully amortized in the future.

The non-contributory group life insurance benefit is funded separately through a term cost.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

2. Asset Valuation Method

For the purposes of determining contribution rates, an actuarial value of assets is used that dampens the volatility in the market value of assets, resulting in a smoother pattern of contributions.

The actuarial value of assets is adjusted to reflect actual contributions, benefit payments and administrative expenses, and an assumed rate of return on the previous year's assets and current year's cash flow at the prior year's actuarial valuation interest rate, with a further adjustment to reflect 20% of the difference between the resulting value and the actual market value of Plan assets.

3. Contributions

Chapter 83, P.L. 2016 requires the State to make pension contributions on a quarterly basis in each fiscal year according to the following schedule: at least 25 percent by September 30, at least 50 percent by December 31, at least 75 percent by March 31, and at least 100 percent by June 30. As such, contributions are assumed to be made on a quarterly basis with the first contribution 15 months after the associated valuation date, with the exception of the FYE 2022 contribution. For FYE 2022 only, we assumed that the entire contribution was made in a single payment on July 1, 2021 based on information provided by the DPB.

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

The Board of Trustees adopted a three-year phase-in of the Local employers' contribution increase due to the assumption changes from the July 1, 2014 – June 30, 2018 Experience Study, first effective in the July 1, 2019 valuation and the associated FYE 2021 contribution. The impact has been fully phased-in for the FYE 2023 contribution.

Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, allows PERS to receive 21.02% of the proceeds of the Lottery Enterprise, based upon its members' past or present employment in schools and institutions in the State for a term of 30 years. Revenues from Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, are assumed to be contributed to the trust on a monthly basis. The State's pension contribution is reduced by the product of the allocable percentage for the PERS, the adjustment percentage, and the special asset adjustment.

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.

Legislation has provided for additional benefits and/or funding requirements which are included in this valuation and are described as follows.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Early Retirement Incentive Programs

Local employers which elected to participate in various early retirement incentive programs authorized by NJ Statute make contributions to cover the cost of these programs over amortization periods elected by the employer to the extent permitted by NJ Statute.

Chapter 133, P.L. 2001

Chapter 133, P.L. 2001 increased the accrual rate from 1/60 to 1/55. In addition, it lowered the age required for a veteran benefit equal to 1/55 of highest 12-month Compensation for each Year of Service from 60 to 55.

Chapter 133, P.L. 2001 also established the Benefit Enhancement Fund (BEF) to fund the additional annual employer normal contribution due to the Statute's increased benefits. (Chapter 353, P.L. 2001 extended this coverage to this Statute's additional annual employer normal contribution.) If the assets in the BEF are insufficient to cover the normal contribution for the increased benefits for a valuation period, the State will pay such amount for both the State and Local employers. As of July 1, 2021, there are no assets in the BEF.

Chapter 259, P.L. 2001

Chapter 259, P.L. 2001 established the Workers' Compensation Judges Part of the System with special retirement benefits for Workers' Compensation Judges. See Appendix C for details.

In accordance with the provisions of Chapter 259, P.L. 2001, the additional contributions for these special retirement benefits will be funded by transfers from the Second Injury Fund.

Chapter 366, P.L. 2001

Chapter 366, P.L. 2001 established the Prosecutors Part of the System with special retirement benefits for Prosecutors. See Appendix C for details.

Chapter 366, P.L. 2001 also requires the State be liable for any increase in pension costs to a County that results from the enrollment of Prosecutors in the Prosecutors Part. Any increase in the unfunded actuarial liability arising from the benefits established for the Prosecutors Part are to be amortized over a closed 30 year period.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Chapter 19, P.L. 2009

Chapter 19, P.L. 2009 provided that the State Treasurer will reduce for Local employers the normal and accrued liability contributions to 50 percent of the amount certified for fiscal year 2009. The remaining 50% of the contribution (unfunded liability) will be paid by the Local employers in level annual payments over a period of 15 years with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets. The legislation also provided that a Local employer may pay 100 percent of the contribution for the fiscal year 2009. Such an employer will be credited with the full payment and any such amounts will not be included in their unfunded liability. In addition, certain Local employers who were eligible to defer 50% of their fiscal year 2009 pension contributions but instead paid 100% of the fiscal year 2009 pension contributions were permitted to defer 50% of their 2010 fiscal year pension contributions. The unfunded liability will be paid by these Local employers over a period of 15 years with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets.

Chapter 140, P.L. 2021

Chapter 140, P.L. 2021 reopened the Worker's Compensation Judges (WCJ) Part of PERS and transferred WCJs from the Defined Contribution Retirement Program (DCRP) and the regular part of PERS into the WCJ Part of PERS.

The corresponding increase in the unfunded actuarial liability is amortized over a closed 20-year period. The additional unfunded actuarial liability contribution and the increased normal cost contribution will be paid by transfers from the Second Injury Fund (SIF).

4. Valuation Software

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this actuarial valuation.

5. Changes Since Last Valuation

Chapter 140, P.L. 2021 reopened the Worker's Compensation Judges (WCJ) Part of PERS and transferred WCJs from the Defined Contribution Retirement Program (DCRP) and the regular part of PERS into the WCJ Part of PERS. The corresponding increase in the unfunded actuarial liability is amortized over a closed 20-year period. The additional unfunded actuarial liability contribution and the increased normal cost contribution will be paid by transfers from the Second Injury Fund (SIF).

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX C – SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the PERS used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 43, Chapter 15A, and if there is any difference between the description of the plan herein and the actual language in the NJ State Statutes, the NJ State Statutes will govern. This valuation is prepared based on plan provisions in effect as of July 1, 2021 and does not reflect the impact of any changes in the benefits that may have been approved after the valuation date.

1. Eligibility for Membership

Employees of the State or any county, municipality, school district, or public agency employed on a regular basis in a position covered by Social Security and not required to be a member of any other State or local government retirement system. Certain exceptions apply.

- a) Class B (or Tier 1) Member: Any member hired prior to July 1, 2007.
- b) Class D (or Tier 2) Member: Any member hired on or after July 1, 2007 and before November 2, 2008.
- c) Class E (or Tier 3) Member: Any member hired after November 1, 2008 and before May 22, 2010.
- d) Class F (or Tier 4) Member: Any member hired after May 21, 2010 and before June 28, 2011.
- e) Class G (or Tier 5) Member: Any member hired on or after June 28, 2011.

The hiring, rehiring, retention, and benefits of certain public employees during the COVID-19 Public Health Emergency was modified under Executive Order No. 103 of 2020, as extended.

2. Plan Year

The 12-month period beginning on July 1 and ending on June 30.

3. Years of Service

A year of service for each year an employee is a Member of the Retirement System plus service, if any, covered by a prior service liability. Tier 4 and Tier 5 Members must be scheduled to work at least 35 hours per week for the State or 32 hours per week for a Local employer. Tier 3, 4 and 5 Members must have an annual salary of \$7,500 (indexed for inflation) and other members must have an annual salary of \$1,500.

4. Compensation

Base salary upon which contributions by a Member to the Annuity Savings Fund were based. Chapter 113, P.L. 1997 provides that Compensation cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code. Chapter 103, P.L. 2007 provides that for a Tier 2, 3, 4 or 5 Member, Compensation cannot exceed the annual maximum wage contribution base for Social Security, pursuant to the Federal Insurance Contribution Act.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

5. Final Compensation

The average annual compensation upon which contributions by a Member are made for the three consecutive years of service immediately preceding retirement, or the highest three fiscal years of service, if greater. Chapter 1, P. L. 2010 provides that for a Tier 4 or Tier 5 Member, Final Compensation is the average annual compensation upon which contributions by a Member are made for the five consecutive years of service immediately preceding retirement, or the highest five fiscal years of service, if greater.

6. Final Year Compensation

The compensation upon which contributions by a Member to the Annuity Savings Fund are based in the last year of service.

7. Accumulated Deductions

The sum of all amounts deducted from the compensation of a Member or contributed by the Member or on the Member's behalf without interest.

8. Interest Credits on Accumulated Deductions

Members receive interest credits while contributing and for the first two years of inactivity. The rate depends on the type of benefit. Prior to July 1, 2018, members received interest credits for the entire period of inactivity until retirement or death.

9. Member Contributions

Each Member contributes a percentage of Compensation. Effective October 1, 2011, Chapter 78, P.L. 2011 set the member contribution rate at 6.5% and increased it by 1/7th of 1 % each July thereafter until it attained an ultimate rate of 7.5% on July 1, 2018.

For members who are eligible to retire under the Prosecutors Part as provided by Chapter 366, P.L. 2001, Chapter 78, P.L. 2011 set the member contribution rate at 10.0%, effective October 1, 2011.

10. Benefits

- a) **Service Retirement**: For a Tier 1 or Tier 2 Member, age 60. For a Tier 3 or Tier 4 Member, age 62. For a Tier 5 Member, age 65.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of:

- (1) For a Tier 1, 2 or 3 Member, 1/55 of Final Compensation for each Year of Service.
- (2) For a Tier 4 or 5 Member, 1/60 of Final Compensation for each Year of Service.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- b) **Early Retirement:** Prior to eligibility for Service Retirement. For a Tier 1, 2, 3 or 4 Member, 25 Years of Service. For a Tier 5 Member, 30 Years of Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of:

- (1) For a Tier 1 Member, the Service Retirement benefit reduced by 1/4 of one percent for each month the retirement date precedes age 55.
- (2) For a Tier 2 Member, the Service Retirement benefit reduced by 1/12 of one percent for each month the retirement date precedes age 60 through age 55 and by 1/4 of one percent for each month the retirement date precedes age 55.
- (3) For a Tier 3 or 4 Member, the Service Retirement benefit reduced by 1/12 of one percent for each month the retirement date precedes age 62 through age 55 and by 1/4 of one percent for each month the retirement date precedes age 55.
- (4) For a Tier 5 Member, the Service Retirement benefit reduced by 1/4 of one percent for each month the retirement date precedes age 65.

- c) **Veteran Retirement:** Age 55 with 25 Years of Service or Age 60 with 20 Years of Service for a qualified military veteran who retires directly from active service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of the greater of:

- (1) 54.5% of highest 12-month Compensation, or
- (2) For a member who is at least age 55 with 35 Years of Service, 1/55 of highest 12-month Compensation for each Year of Service.

Veterans may receive a Service Retirement benefit if greater.

- d) **Deferred Retirement:** Termination of service prior to eligibility for Service Retirement with 10 Years of Service.

Benefit is either:

- (1) A refund of Accumulated Deductions plus, if the member has completed three Years of Service, interest accumulated at 2.0% per annum; or
- (2) A deferred life annuity, commencing at age 60 for a Tier 1 or Tier 2 Member, age 62 for a Tier 3 or Tier 4 Member or age 65 for a Tier 5 Member, comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of the Service Retirement benefit based on Final Compensation and Years of Service at date of termination.

For Members who die during the deferral period, the benefit is a return of Accumulated Deductions with credited interest.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- e) **Non-Vested Termination:** Termination of service prior to eligibility for Service Retirement and less than 10 Years of Service.

Benefit is a refund of Accumulated Deductions plus, if the member has completed three Years of Service, interest accumulated at 2.0% per annum.

- f) **Death Benefits**

- (1) **Ordinary Death Before Retirement:** Death of an active contributing Member. Benefit is equal to:

- a. Lump sum payment equal to 150% of Final Year Compensation, also known as the non-contributory group life insurance benefit, plus
- b. Accumulated Deductions with credited interest.

- (2) **Accidental Death Before Retirement:** Death of an active Member resulting from injuries received from an accident during performance of duty and not a result of willful negligence. Benefit is equal to:

- a. Lump sum payment equal to 150% of Final Year Compensation, also known as the non-contributory group life insurance benefit, plus
- b. Spouse life annuity of 50% of Final Year Compensation payable until spouse's death or remarriage. If there is no surviving spouse or upon death or remarriage, a total of 20% (35%, 50%) of Final Year Compensation payable to one (two, three or more) dependent child(ren). If there is no surviving spouse or dependent child(ren), 25% (40%) of Final Year Compensation to one (two) dependent parent(s). If there is no surviving spouse, dependent child(ren) or parent(s), the benefit is a refund of Accumulated Deductions with credited interest.

- (3) **Death After Retirement:** Death of a retired Member. Benefit is equal to:

- a. Lump sum payment equal to 3/16 of Final Year Compensation for a Member retired under Service, Early, Veteran or Deferred Retirement with 10 Years of Service. For a Member receiving a Disability benefit, lump sum payment of 150% of Final Year Compensation if death occurs prior to age 60 and 3/16 of Final Compensation if death occurs after age 60. This benefit is also known as the non-contributory group life insurance benefit, plus
- b. Any survivor benefit due under the Member's optional form of payment election. Previously granted COLAs also apply to life annuities.

Members are also eligible for a voluntary, employee-paid life insurance policy, known as the contributory group life insurance policy. This benefit is not paid through the System and is not considered for valuation purposes.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

g) Disability Retirement

- (1) Ordinary Disability Retirement: 10 Years of Service and totally and permanently incapacitated from the performance of normal or assigned duties. Only available to Tier 1, 2 and 3 Members.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of:

- a. 1.64% of Final Compensation for each Year of Service; or
- b. 43.6% of Final Compensation.

- (2) Accidental Disability Retirement: Total and permanent incapacitation as a direct result of a traumatic event occurring during and as a result of the performance of regular or assigned duties. Under certain conditions for law enforcement officers or emergency medical technicians, regular or assigned duties may include the World Trade Center (WTC) rescue, recovery, or cleanup operations between September 11, 2001 and October 11, 2001. For such members who participated in the WTC rescue, recovery, or cleanup operations, the total and permanent disability may occur after retirement on a service retirement or an ordinary disability retirement. Only available to Tier 1, 2 and 3 Members.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 72.7% of Compensation at the date of injury.

The pension portion of the benefit will be offset for any periodic Workers' Compensation benefits.

Tier 4 and Tier 5 Members are eligible for long-term disability coverage. This benefit is not paid through the System and is not considered for valuation purposes. Both Member and employer contributions to the System continue while on long-term disability, with the policy covering the Member portion. The long-term disability benefit equals 60% of Final Year Compensation and may be offset for other periodic benefits, such as Workers' Compensation, short-term disability or Social Security. The long-term disability benefit may continue through the earlier of age 70 or commencement of a retirement benefit under the System.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

11. Benefits for Special Employee Groups

Certain members qualify for enrollment into special employee groups. Such members receive the greater of the special benefits described below or the regular PERS benefit described above. For benefit types not explicitly mentioned, the regular PERS benefit applies.

a) **Law Enforcement Officers (LEOs):**

Members employed in eligible job titles as well as individuals who do not meet the age or medical requirements for entry into the Police and Firemen's Retirement System (PFRS).

(1) **Service and Special Retirement**

Mandatory retirement at age 65. Veterans with less than 20 Years of Service at age 65 must retire upon attainment of 20 Years of Service or age 70, whichever is earlier. Voluntary retirement prior to those ages.

a. **Service Retirement:** Age 55 after 20 Years of LEO Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 2% of Final Compensation for each Year of LEO Service up to 25 years plus 1% of Final Compensation for each Year of LEO Service over 25 years.

The Member is also eligible for a regular PERS benefit based on any non-LEO service.

b. **Special Retirement:** 25 Years of LEO Service.

Benefit is the Service Retirement benefit plus 5% of Final Compensation with a maximum of 70% of Final Compensation.

(2) **Ordinary Disability Retirement:** 5 Years of LEO Service.

Benefit is the regular PERS Ordinary Disability benefit.

(3) **Death Benefits:**

Benefit is the regular PERS Death benefit except, upon Accidental Disability Retirement, the minimum lump sum payment is \$5,000.

b) **Legislative Retirement System (LRS):**

Members of the State Legislature. Chapter 92, P.L. 2007 closed LRS to new members enrolled on or after July 1, 2007.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

(1) Special Legislative Retirement: Age 60.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 3% of Final Compensation for each Year of Legislative Service with a maximum of two-thirds of Final Compensation.

The Member is also eligible for a regular PERS benefit based on any non-legislative service.

(2) Deferred Retirement: Termination of service prior to eligibility for Service or Special Legislative Retirement with 8 Years of Legislative Service.

Benefit is either:

- a. A refund of Accumulated Deductions plus, if the Member has completed three Years of Service, interest accumulated at 2.0% per annum; or
- b. A deferred life annuity, commencing at age 60, comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of the Service or Special Legislative Retirement benefit based on Final Compensation and Years of Service at date of termination.

c) **Prosecutors Part (Chapter 366, P.L. 2001)**:

Covers prosecutors as well as members employed in certain other related job titles. Chapter 1, P.L. 2010 closed the Prosecutors Part to new members enrolled on or after May 22, 2010.

(1) Service and Special Retirement

Mandatory retirement at age 70. Voluntary retirement prior to that age.

In addition to the benefits described below, the member is eligible for a regular PERS benefit based on any non-Prosecutors Part service.

- a. Service Retirement: For a Prosecutors Part Member enrolled as of January 7, 2002, age 55 or 20 Years of Prosecutors Part Service. For a Prosecutors Part Member enrolled after January 7, 2002, age 55.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of the greater of:

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- i. 2% of Final Year Compensation for each Year of Prosecutors Part Service up to 30 years plus 1% of Final Year Compensation for each Year of Prosecutors Part Service over 30 years.
- ii. 50% of Final Year Compensation for Prosecutors Part Members with 20 or more Years of Prosecutors Part Service.
- iii. 1/60 of Final Year Compensation for each Year of Prosecutors Part Service.

- b. Special Retirement: 25 Years of Prosecutors Part Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 65% of Final Year Compensation plus 1% of Final Year Compensation for each Year of Prosecutors Part Service in excess of 25 years with a maximum of 70% of Final Compensation.

- (2) Deferred Retirement: Termination of service prior to eligibility for Service or Special Retirement with 10 Years of Prosecutors Part Service.

Benefit is either:

- a. A refund of Accumulated Deductions plus, if the Member has completed three Years of Service, interest accumulated at 2.0% per annum; or
- b. A deferred life annuity, commencing at age 55, comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 2% of Final Year Compensation for each Year of Prosecutors Part Service.

- (3) Death Benefits:

Benefit is the regular PERS Death benefit except, upon Service, Special or Deferred Prosecutors Part Retirement with 10 Years of Prosecutors Part Service, the lump sum payment equals 50% of Final Year Compensation.

- d) **Workers Compensation Judges (WCJ) Part (Chapter 259, P.L. 2001 and Chapter 140, P.L. 2021):**

Member employed in an eligible job title by the Division of Workers' Compensation. Chapter 92, P.L. 2007 closed the Workers Compensation Judges Part to new members enrolled on or after July 1, 2007.

Chapter 140, P.L. 2021 reopened the Worker's Compensation Judges (WCJ) Part of PERS and transferred WCJs from the Defined Contribution Retirement Program (DCRP) and the regular part of PERS into the WCJ Part of PERS.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX C – SUMMARY OF PLAN PROVISIONS

(1) Service Retirement:

Mandatory retirement age 70. Voluntary retirement prior to that age.

- a. Age 70 and 10 Years of WCJ Service; or
Age 65 and 15 Years of WCJ Service; or
Age 60 and 20 Years of WCJ Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 75% of contractual Compensation at the date of retirement.

- b. Age 65, 5 consecutive Years of WCJ Service and 15 Years of Aggregate PERS Service; or
Age 60, 5 consecutive Years of WCJ Service and 20 Years of Aggregate PERS Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 50% of contractual Compensation at the date of retirement.

- c. Age 60, 5 consecutive Years of WCJ Service and 15 Years of Aggregate PERS Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 2% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service up to 25 years plus 1% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service over 25 years.

- d. Age 60.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 2% of contractual Compensation at the date of retirement for each Year of WCJ Service up to 25 years plus 1% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service over 25 years.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- (2) Early Retirement: Prior to eligibility for Service Retirement and 5 consecutive Years of WCJ Service and 25 Years of Aggregate PERS Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 2% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service up to 25 years plus 1% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service over 25 years, actuarially reduced for commencement prior to age 60.

- (3) Deferred Retirement: Termination of service prior to eligibility for Service Retirement with 5 consecutive Years of WCJ Service and 10 Years of Aggregate PERS Service.

Benefit is either:

- a. A refund of Accumulated Deductions plus, if the Member has completed three years of service, interest accumulated at 2.0% per annum; or
- b. A deferred life annuity, commencing at age 60, comprised of a member annuity plus an employer pension which together will provide a total retirement allowance of 2% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service up to 25 years plus 1% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service over 25 years.

- (4) Death Benefits

- a. Before Retirement: Death of an active WCJ Member. Benefit is equal to:
 - i. Lump sum equal to 150% of contractual Compensation at the date of death, also known as the non-contributory group life insurance benefit, plus
 - ii. Spousal life annuity of 25% of contractual Compensation at the date of death payable until spouse's remarriage plus 10% (15%) to one (two or more) dependent child(ren). If there is no surviving spouse, or upon death or remarriage, a total of 15% (20%, 30%) of contractual Compensation at the date of death payable to one (two, three or more) dependent child(ren). If there is no surviving spouse or dependent child(ren), 20% (30%) of contractual Compensation at the date of death to one (two) dependent parent(s). If there is no surviving spouse, dependent child(ren) or parent(s), the benefit is a refund of Accumulated Deductions with interest.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- b. After Retirement: Death of a retired WCJ Member. Benefit is equal to:
- i. Lump sum equal to 25% of contractual Compensation at the date of death for a Member retired under Service or Early WCJ Retirement with 10 Years of Aggregate PERS Service. For a Member receiving a Disability benefit, lump sum payment of 150% of contractual Compensation at the date of death if death occurs prior to age 60 and 25% of contractual Compensation at the date of death if death occurs after age 60. This benefit is known as the non-contributory group life insurance benefit, plus
 - ii. Any survivor benefit due under the Member's optional form of payment election. Previously granted COLAs also apply to life annuities.

12. Optional Forms of Payment

The member may elect the following forms of payment.

- a) Maximum Option: Single life annuity with a return of the balance of the Accumulated Deductions with credited interest.
- b) Option 1: Single life annuity with a return of the balance of the initial reserve.
- c) Option 2: 100% joint and survivor annuity.
- d) Option 3: 50% joint and survivor annuity.
- e) Option 4: Other percentage joint and survivor annuity.
- f) Option A: 100% pop-up joint and survivor annuity.
- g) Option B: 75% pop-up joint and survivor annuity.
- h) Option C: 50% pop-up joint and survivor annuity.
- i) Option D: 25% pop-up joint and survivor annuity.

13. Cost-of-Living Adjustments

Also known as Pension Adjustments. Provided annually to retirees and survivors after 24 months of retirement prior to July 1, 2011. Chapter 78, P.L. 2011 eliminated future adjustments effective July 1, 2011. Adjustments may be reinstated in the future subject to certain conditions outlined in Chapter 78, P.L. 2011.

14. Changes in Plan Provisions Since Last Valuation

Chapter 140, P.L. 2021 reopened the Worker's Compensation Judges (WCJ) Part of PERS and transferred WCJs from the Defined Contribution Retirement Program (DCRP) and the regular part of PERS into the WCJ Part of PERS.

Chapter 115, P.L. 2020 modified the hiring, rehiring, retention, and benefits of certain public employees during the COVID-19 Public Health Emergency under Executive Order No. 103 of 2020, as extended.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

The information on the following tables for State and Local employers is based on the final actuarial valuation reports for the given years. The amounts do not reflect differences between the discounted State appropriations receivable and the actual State contribution amounts that became known after the issuance of the reports.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-1
Historical Summary of Assets and Liabilities
State**

Valuation Date July 1,	Market Value of Assets	Actuarial Value of Assets		Funded Ratio	
		with Special Asset Value ¹	Actuarial Liability	Market Value	Actuarial Value
2021	\$ 9,116,415,984	\$ 11,533,493,169	\$ 27,489,997,258	33.2%	42.0%
2020	7,249,876,062	10,687,660,452	26,285,137,008	27.6%	40.7%
2019	7,454,643,131	10,669,315,506	25,666,760,996	29.0%	41.6%
2018	7,533,286,615	10,710,534,806	23,745,716,631	31.7%	45.1%
2017	7,520,536,539	10,861,669,626	23,324,861,385	32.2%	46.6%
2016	7,370,865,995	11,109,798,893	22,411,751,124	32.9%	49.6%
2015	8,218,735,979	8,868,254,006	21,635,507,298	38.0%	41.0%
2014	8,778,291,546	9,128,235,998	20,842,690,918	42.1%	43.8%
2013	8,639,556,532	9,614,698,050	19,993,957,432	43.2%	48.1%
2012	8,389,963,954	9,774,698,097	19,383,584,639	43.3%	50.4%

¹ Includes Special Asset Value beginning with July 1, 2016 valuation

**Table D-2
Historical Summary of Employer Contributions¹
State**

Fiscal Year Ending June 30,	Statutory Contribution /		Lottery Revenue	Contribution Deficiency/ (Excess)	Percentage of Contribution Covered
	Actuarially Determined Contribution	Actual State Appropriation			
2022 ²	\$ 1,718,462,218	\$ 1,623,967,180	\$ 231,038,066	\$ (136,543,028)	107.9%
2021	1,622,539,084	1,037,865,734	232,271,000	352,402,350	78.3%
2020	1,432,190,871	776,970,874	213,353,000	441,866,997	69.1%
2019	1,406,859,836	627,377,884	232,271,000	547,210,952	61.1%
2018	1,324,313,829	451,752,000	205,155,662	667,406,167	49.6%
2017	1,263,740,460	506,499,652	0	757,240,808	40.1%
2016	1,182,038,756	355,290,348	0	826,748,408	30.1%
2015	1,058,157,699	195,153,000	0	863,004,699	18.4%
2014	993,064,820	141,154,573	0	851,910,247	14.2%
2013	924,432,941	264,123,697	0	660,309,244	28.6%

¹ Excludes contributions from NCGI and contributions payable from the Second Injury Fund for Chapter 259, P.L. 2001 and Chapter 140, P.L. 2021

² Reflects the State's planned contribution of 107.91% of the Statutory contribution and expected lottery revenue

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-3
Historical Summary of Assets and Liabilities
Local Employers**

Valuation Date July 1,	Market Value of Assets	Actuarial Value of Assets	Actuarial Liability	Funded Ratio	
				Market Value	Actuarial Value
2021	\$ 28,329,219,469	\$ 25,965,285,547	\$ 38,393,126,094	73.8%	67.6%
2020	22,891,936,466	24,424,654,983	36,410,100,750	62.9%	67.1%
2019	23,249,120,186	23,928,515,595	35,526,210,970	65.4%	67.4%
2018	22,645,367,115	23,264,877,618	33,103,627,533	68.4%	70.3%
2017	21,470,284,400	22,522,697,150	32,238,416,280	66.6%	69.9%
2016	19,756,262,137	21,900,421,798	30,673,935,604	64.4%	71.4%
2015	20,557,496,076	21,495,828,937	29,431,895,200	69.8%	73.0%
2014	20,250,197,472	20,766,663,796	28,255,077,220	71.7%	73.5%
2013	18,120,795,876	19,978,598,632	27,005,782,517	67.1%	74.0%
2012	16,785,718,484	19,376,646,934	26,009,038,341	64.5%	74.5%

**Table D-4
Historical Summary of Employer Contributions¹
Local Employers**

Fiscal Year Ending June 30,	Statutory Contribution /		Contribution Deficiency/ (Excess)	Percentage of Contribution Covered
	Actuarially Determined Contribution	Actual Local Appropriation		
2022	\$ 1,167,822,171	\$ 1,129,430,662	\$ 38,391,509	96.7%
2021	1,136,379,268	1,059,596,249	76,783,019	93.2%
2020	943,133,465	943,131,078	2,387	100.0%
2019	970,120,667	970,150,173	(29,506)	100.0%
2018	901,781,034	901,868,890	(87,856)	100.0%
2017	866,468,492	866,468,492	0	100.0%
2016	836,545,013	836,545,013	0	100.0%
2015	789,965,173	789,965,173	0	100.0%
2014	757,369,252	757,254,449	114,803	100.0%
2013	761,229,852	761,229,852	0	100.0%

¹ Excludes contributions from NCGI and includes ERIs and Chapter 19, P.L. 2009 payments

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Annual Comprehensive Financial Reports, we prepared the following schedules for the System. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

Table D-5
Schedule Retirees and Beneficiaries Added to and Removed From Rolls
State

Valuation Date July 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ¹	% Increase in Average Annual Allowance ¹
	Number	Annual Allowance	Number ¹	Annual Allowance	Number ¹	Annual Allowance		
2021	2,975	\$ 98,190,097	2,223	\$ 48,208,424	61,535	\$ 1,776,844,453	\$ 28,875	1.66%
2020	3,127	99,862,605	2,193	45,081,368	60,783	1,726,418,877	28,403	1.72%
2019	3,232	103,191,557	1,939	40,171,452	59,849	1,671,166,694	27,923	1.70%
2018	3,217	102,255,260	2,281	45,351,461	58,556	1,607,733,796	27,456	1.25%
2017	3,267	104,489,121	1,479	29,655,761	57,174	1,550,464,743	27,118	1.83%
2016	3,515	109,122,538	2,203	40,303,068	55,386	1,474,917,885	26,630	2.45%
2015	4,114	124,446,887	1,754	32,905,541	54,074	1,405,596,194	25,994	2.33%
2014	3,183	93,940,693	1,696	30,809,304	51,714	1,313,713,988	25,403	2.06%
2013	2,864	82,357,835	1,685	29,723,562	50,227	1,250,142,686	24,890	1.96%
2012	3,192	92,356,665	1,734	29,433,960	49,048	1,197,305,307	24,411	2.52%

¹ Beginning with the 2018 valuation, multiple members with benefits in receipt from both State and Local employers are included in State headcounts. This change resulted in 446 more records on the rolls as of July 1, 2018. The annual allowance for these records was included for all years.

Table D-6
Schedule Retirees and Beneficiaries Added to and Removed From Rolls
Local Employers

Valuation Date July 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance	% Increase in Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance		
2021	7,336	\$ 167,060,350	5,491	\$ 81,935,010	125,837	\$ 2,414,370,737	\$ 19,186	2.17%
2020	7,078	157,358,396	5,729	81,347,000	123,992	2,328,399,284	18,779	2.30%
2019	7,199	158,384,725	4,748	65,855,298	122,643	2,251,384,758	18,357	2.24%
2018	7,272	151,992,839	5,537	76,519,975	120,192	2,157,906,233	17,954	2.17%
2017	7,444	155,525,527	3,725	50,460,932	118,457	2,081,607,680	17,573	2.04%
2016	7,856	159,065,854	5,681	72,658,490	114,738	1,975,865,848	17,221	2.65%
2015	7,870	149,903,333	4,309	54,707,095	112,563	1,888,507,678	16,777	2.02%
2014	7,003	137,416,194	4,288	52,540,322	109,002	1,792,563,653	16,445	2.40%
2013	6,911	123,953,479	4,169	49,483,971	106,287	1,706,902,310	16,059	1.90%
2012	7,334	137,596,316	4,284	49,626,477	103,545	1,631,782,901	15,759	2.70%

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-7
Schedule Retirees and Beneficiaries Added to and Removed From Rolls
Total**

Valuation Date July 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ¹	% Increase in Average Annual Allowance ¹
	Number	Annual Allowance	Number ¹	Annual Allowance	Number ¹	Annual Allowance		
2021	10,311	\$ 265,250,447	7,714	\$ 130,143,433	187,372	\$ 4,191,215,190	\$ 22,368	1.93%
2020	10,205	257,221,002	7,922	126,428,368	184,775	4,054,818,161	21,945	2.09%
2019	10,431	261,576,282	6,687	106,026,750	182,492	3,922,551,452	21,494	2.03%
2018	10,489	254,248,099	7,818	121,871,436	178,748	3,765,640,029	21,067	1.87%
2017	10,711	260,014,648	5,204	80,116,693	175,631	3,632,072,423	20,680	1.95%
2016	11,371	268,188,392	7,884	112,961,558	170,124	3,450,783,733	20,284	2.61%
2015	11,984	274,350,220	6,063	87,612,636	166,637	3,294,103,872	19,768	2.28%
2014	10,186	231,356,887	5,984	83,349,626	160,716	3,106,277,641	19,328	2.30%
2013	9,775	206,311,314	5,854	79,207,533	156,514	2,957,044,996	18,893	1.90%
2012	10,526	229,952,981	6,018	79,060,437	152,593	2,829,088,208	18,540	2.63%

¹ Beginning with the 2018 valuation, multiple members with benefits in receipt from both State and Local employers are included in State headcounts. This change resulted in 446 more records on the rolls as of July 1, 2018. The annual allowance for these records was included for all years.

**Table D-8
Schedule of Active Member Valuation Data
State**

Valuation Date July 1,	Number of Contributing Active Members ¹	Annual Compensation ²	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers ³
2021	65,555	\$ 4,578,674,071	\$ 69,845	2.07%	282
2020	67,774	4,637,529,278	68,426	2.37%	283
2019	67,906	4,539,069,588	66,843	5.80%	286
2018	68,593	4,333,772,974	63,181	-0.45%	283
2017	68,156	4,325,784,579	63,469	-0.49%	N/A
2016	68,502	4,369,066,658	63,780	0.02%	N/A
2015	69,687	4,443,605,376	63,765	2.39%	N/A
2014	72,952	4,543,384,095	62,279	1.64%	N/A
2013	74,365	4,556,719,103	61,275	1.02%	N/A
2012	75,355	4,570,958,470	60,659	1.48%	N/A

¹ Beginning with the 2018 valuation, reflects all records for multiple members

² Limited annual compensation

³ Number of locations reporting contributing active members. For GASB reporting purposes, the State may be considered the participating employer for multiple locations.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-9
Schedule of Active Member Valuation Data
Local Employers**

Valuation Date July 1,	Number of Contributing Active Members¹	Annual Compensation²	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers³
2021	138,672	\$ 7,369,908,268	\$ 53,146	3.53%	1,659
2020	142,757	7,328,393,274	51,335	3.07%	1,663
2019	145,287	7,236,080,086	49,805	2.76%	1,664
2018	146,615	7,106,248,788	48,469	1.66%	1,670
2017	147,283	7,022,322,604	47,679	2.61%	N/A
2016	149,077	6,927,278,654	46,468	2.76%	N/A
2015	152,070	6,876,593,371	45,220	2.33%	N/A
2014	156,101	6,898,049,131	44,190	2.75%	N/A
2013	160,253	6,891,812,162	43,006	2.78%	N/A
2012	164,005	6,862,133,165	41,841	2.74%	N/A

¹ Beginning with the 2018 valuation, reflects all records for multiple members

² Limited annual compensation

³ Number of locations reporting contributing active members

**Table D-10
Schedule of Active Member Valuation Data
Total**

Valuation Date July 1,	Number of Contributing Active Members¹	Annual Compensation²	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers³
2021	204,227	\$ 11,948,582,339	\$ 58,506	2.94%	1,941
2020	210,531	11,965,922,552	56,837	2.91%	1,946
2019	213,193	11,775,149,674	55,232	3.90%	1,950
2018	215,208	11,440,021,762	53,158	0.92%	1,953
2017	215,439	11,348,107,183	52,674	1.46%	N/A
2016	217,579	11,296,345,312	51,918	1.70%	N/A
2015	221,757	11,320,198,747	51,048	2.20%	N/A
2014	229,053	11,441,433,226	49,951	2.37%	N/A
2013	234,618	11,448,531,265	48,796	2.16%	N/A
2012	239,360	11,433,091,635	47,765	2.45%	N/A

¹ Beginning with the 2018 valuation, reflects all records for multiple members

² Limited annual compensation

³ Number of locations reporting contributing active members. For GASB reporting purposes, the State may be considered the participating employer for multiple locations.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-11
Schedule of Funding Progress
State**

Valuation Date July 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded		Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
			Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)		
2021	\$ 8,889,754,699	\$ 27,489,997,258	\$ 18,600,242,559	32.34%	\$ 4,578,674,071	406.24%
2020	8,045,759,732	26,285,137,008	18,239,377,276	30.61%	4,637,529,278	393.30%
2019	8,017,468,579	25,666,760,996	17,649,292,417	31.24%	4,539,069,588	388.83%
2018	8,057,092,909	23,745,716,631	15,688,623,722	33.93%	4,333,772,974	362.01%
2017	8,208,333,488	23,324,861,385	15,116,527,897	35.19%	4,325,784,579	349.45%
2016	8,466,901,791	22,411,751,124	13,944,849,333	37.78%	4,369,066,658	319.17%
2015	8,868,254,006	21,635,507,298	12,767,253,292	40.99%	4,443,605,376	287.32%
2014	9,128,235,998	20,842,690,918	11,714,454,920	43.80%	4,543,384,095	257.84%
2013	9,614,698,050	19,993,957,432	10,379,259,382	48.09%	4,556,719,103	227.78%
2012	9,774,698,097	19,383,584,639	9,608,886,542	50.43%	4,570,958,470	210.22%

¹ Includes receivable amounts. Excludes Special Asset Value.

² Limited annual compensation for contributing actives

**Table D-12
Schedule of Funding Progress
Local Employers**

Valuation Date July 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded		Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
			Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)		
2021	\$ 25,965,285,547	\$ 38,393,126,094	\$ 12,427,840,547	67.63%	\$ 7,369,908,268	168.63%
2020	24,424,654,983	36,410,100,750	11,985,445,767	67.08%	7,328,393,274	163.55%
2019	23,928,515,595	35,526,210,970	11,597,695,375	67.35%	7,236,080,086	160.28%
2018	23,264,877,618	33,103,627,533	9,838,749,915	70.28%	7,106,248,788	138.45%
2017	22,522,697,150	32,238,416,280	9,715,719,130	69.86%	7,022,322,604	138.35%
2016	21,900,421,798	30,673,935,604	8,773,513,806	71.40%	6,927,278,654	126.65%
2015	21,495,828,937	29,431,895,200	7,936,066,263	73.04%	6,876,593,371	115.41%
2014	20,766,663,796	28,255,077,220	7,488,413,424	73.50%	6,898,049,131	108.56%
2013	19,978,598,632	27,005,782,517	7,027,183,885	73.98%	6,891,812,162	101.96%
2012	19,376,646,934	26,009,038,341	6,632,391,407	74.50%	6,862,133,165	96.65%

¹ Includes receivable amounts. Excludes Special Asset Value.

² Limited annual compensation for contributing actives

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-13
Schedule of Funding Progress
Total**

Valuation Date July 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded		Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued
			Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)		Liability as % of Covered Payroll (c) / (d)
2021	\$ 34,855,040,246	\$ 65,883,123,352	\$ 31,028,083,106	52.90%	\$ 11,948,582,339	259.68%
2020	32,470,414,715	62,695,237,758	30,224,823,043	51.79%	11,965,922,552	252.59%
2019	31,945,984,174	61,192,971,966	29,246,987,792	52.21%	11,775,149,674	248.38%
2018	31,321,970,527	56,849,344,164	25,527,373,637	55.10%	11,440,021,762	223.14%
2017	30,731,030,638	55,563,277,665	24,832,247,027	55.31%	11,348,107,183	218.82%
2016	30,367,323,589	53,085,686,728	22,718,363,139	57.20%	11,296,345,312	201.11%
2015	30,364,082,943	51,067,402,498	20,703,319,555	59.46%	11,320,198,747	182.89%
2014	29,894,899,794	49,097,768,138	19,202,868,344	60.89%	11,441,433,226	167.84%
2013	29,593,296,682	46,999,739,949	17,406,443,267	62.96%	11,448,531,265	152.04%
2012	29,151,345,031	45,392,622,980	16,241,277,949	64.22%	11,433,091,635	142.05%

¹ Includes receivable amounts. Excludes Special Asset Value.

² Limited annual compensation for contributing actives

**Table D-14
Schedule of Funded Liabilities by Type (Solvency Test)
State**

Valuation Date July 1,	Actuarial Accrued Liability for			Actuarial Value of Assets ³	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions ¹ (1)	Retirees, Beneficiaries & Deferred Vested ² (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer ^{1,2} (3)		(1)	(2)	(3)
2021	\$ 6,592,343,771	\$ 17,328,578,369	\$ 3,569,075,118	\$ 8,889,754,699	100.00%	13.26%	0.00%
2020	6,381,123,395	16,544,875,478	3,359,138,135	8,045,759,732	100.00%	10.06%	0.00%
2019	6,152,782,465	16,087,603,025	3,426,375,506	8,017,468,579	100.00%	11.59%	0.00%
2018	5,953,378,763	15,070,236,164	2,722,101,704	8,057,092,909	100.00%	13.96%	0.00%
2017	5,727,517,176	14,487,785,677	3,109,558,532	8,208,333,488	100.00%	17.12%	0.00%
2016	5,504,706,131	13,686,116,692	3,220,928,301	8,466,901,791	100.00%	21.64%	0.00%
2015	5,302,732,138	12,797,013,628	3,535,761,532	8,868,254,006	100.00%	27.86%	0.00%
2014	5,169,631,309	11,857,858,226	3,815,201,383	9,128,235,998	100.00%	33.38%	0.00%
2013	4,885,643,785	11,293,634,256	3,814,679,391	9,614,698,050	100.00%	41.87%	0.00%
2012	4,562,712,648	10,849,987,028	3,970,884,963	9,774,698,097	100.00%	48.04%	0.00%

¹ Includes deferred beneficiaries

² Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2)

³ Includes receivable amounts. Excludes Special Asset Value.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-15
Schedule of Funded Liabilities by Type (Solvency Test)
Local Employers**

Actuarial Accrued Liability for

Valuation Date	Actuarial Accrued Liability for			Actuarial Value of Assets ³	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions ¹	Retirees, Beneficiaries & Deferred Vested ²	Non-Contributing Active Member Benefits Financed by Employer ^{1,2}		(1)	(2)	(3)
July 1, 2021	\$ 9,867,154,217	\$ 22,934,745,828	\$ 5,591,226,049	\$ 25,965,285,547	100.00%	70.19%	0.00%
2020	9,574,866,049	21,680,763,400	5,154,471,301	24,424,654,983	100.00%	68.49%	0.00%
2019	9,234,762,976	20,983,426,083	5,308,021,911	23,928,515,595	100.00%	70.03%	0.00%
2018	8,934,728,567	19,552,684,545	4,616,214,421	23,264,877,618	100.00%	73.29%	0.00%
2017	8,542,088,646	18,737,855,865	4,958,471,769	22,522,697,150	100.00%	74.61%	0.00%
2016	8,168,141,804	17,622,616,344	4,883,177,456	21,900,421,798	100.00%	77.92%	0.00%
2015	7,829,248,004	16,502,540,582	5,100,106,614	21,495,828,937	100.00%	82.82%	0.00%
2014	7,477,372,802	15,523,266,419	5,254,437,999	20,766,663,796	100.00%	85.61%	0.00%
2013	7,060,416,742	14,775,793,049	5,169,572,726	19,978,598,632	100.00%	87.43%	0.00%
2012	6,614,992,298	14,150,003,241	5,244,042,802	19,376,646,934	100.00%	90.19%	0.00%

¹ Includes deferred beneficiaries

² Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2)

³ Includes receivable amounts. Excludes Special Asset Value.

**Table D-16
Schedule of Funded Liabilities by Type (Solvency Test)
Total**

Actuarial Accrued Liability for

Valuation Date	Actuarial Accrued Liability for			Actuarial Value of Assets ³	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions ¹	Retirees, Beneficiaries & Deferred Vested ²	Non-Contributing Active Member Benefits Financed by Employer ^{1,2}		(1)	(2)	(3)
July 1, 2021	\$ 16,459,497,988	\$ 40,263,324,197	\$ 9,160,301,167	\$ 34,855,040,246	100.00%	45.69%	0.00%
2020	15,955,989,444	38,225,638,878	8,513,609,436	32,470,414,715	100.00%	43.20%	0.00%
2019	15,387,545,441	37,071,029,108	8,734,397,417	31,945,984,174	100.00%	44.67%	0.00%
2018	14,888,107,330	34,622,920,709	7,338,316,125	31,321,970,527	100.00%	47.47%	0.00%
2017	14,269,605,822	33,225,641,542	8,068,030,301	30,731,030,638	100.00%	49.54%	0.00%
2016	13,672,847,935	31,308,733,036	8,104,105,757	30,367,323,589	100.00%	53.32%	0.00%
2015	13,131,980,142	29,299,554,210	8,635,868,146	30,364,082,943	100.00%	58.81%	0.00%
2014	12,647,004,111	27,381,124,645	9,069,639,382	29,894,899,794	100.00%	62.99%	0.00%
2013	11,946,060,527	26,069,427,305	8,984,252,117	29,593,296,682	100.00%	67.69%	0.00%
2012	11,177,704,946	24,999,990,269	9,214,927,765	29,151,345,031	100.00%	71.89%	0.00%

¹ Includes deferred beneficiaries

² Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2)

³ Includes receivable amounts. Excludes Special Asset Value.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-17
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability
State**

Valuation Date July 1,	Actuarial Value Of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan/Policy Changes	Contributions¹	Change in Unfunded Actuarial Accrued Liability
2021	\$ (56,665,321)	\$ (70,592,801)	\$ 798,443,571	\$ 4,799,089	\$ (315,119,255)	\$ 360,865,283
2020	198,970,917	138,357,335	0	0	252,756,607	590,084,859
2019	140,706,362	461,324,998	1,081,742,399	(6,603,404)	283,498,340	1,960,668,695
2018	130,951,573	93,268,738	(112,274,899)	0	460,150,413	572,095,825
2017	171,949,238	103,170,590	328,696,298	0	567,862,438	1,171,678,564
2016	274,008,949	21,165,025	199,010,114	0	683,411,953	1,177,596,041
2015	162,379,506	164,489,294	53,217,646	0	672,711,926	1,052,798,372
2014	87,486,113	95,327,747	10,733,967	0	1,141,647,711	1,335,195,538
2013	243,785,379	47,279,664	0	0	479,307,797	770,372,840
2012	346,183,536	84,362,752	389,696,094	0	560,463,757	1,380,706,139

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.

**Table D-18
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability
Local Employers**

Valuation Date July 1,	Actuarial Value Of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan/Policy Changes	Contributions¹	Change in Unfunded Actuarial Accrued Liability
2021	\$ (590,983,481)	\$ (26,972,346)	\$ 1,086,372,117	\$ 0	\$ (26,021,510)	\$ 442,394,780
2020	383,179,629	(53,231,151)	0	0	57,801,914	387,750,392
2019	169,848,852	207,179,448	1,392,592,722	(6,437,745)	(4,237,817)	1,758,945,460
2018	154,877,626	161,064,936	(176,743,018)	0	(16,168,759)	123,030,785
2017	263,103,187	249,175,903	439,168,994	0	(9,242,760)	942,205,324
2016	536,039,915	28,949,988	251,983,145	0	20,474,495	837,447,543
2015	234,583,215	90,076,858	152,550,941	0	(29,558,175)	447,652,839
2014	129,116,581	303,918,905	12,554,678	0	15,639,375	461,229,539
2013	464,450,689	(49,533,766)	0	0	(20,124,445)	394,792,478
2012	647,732,112	35,826,555	337,149,938	0	(70,028,990)	950,679,615

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

**Table D-19
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability
Total**

Valuation Date July 1,	Actuarial Value Of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan/Policy Changes	Contributions ¹	Change in Unfunded Actuarial Accrued Liability
2021	\$ (647,648,802)	\$ (97,565,147)	\$ 1,884,815,688	\$ 4,799,089	\$ (341,140,765)	\$ 803,260,063
2020	582,150,546	85,126,184	0	0	310,558,521	977,835,251
2019	310,555,214	668,504,446	2,474,335,121	(13,041,149)	279,260,523	3,719,614,155
2018	285,829,199	254,333,674	(289,017,917)	0	443,981,654	695,126,610
2017	435,052,425	352,346,493	767,865,292	0	558,619,678	2,113,883,888
2016	810,048,864	50,115,013	450,993,259	0	703,886,448	2,015,043,584
2015	396,962,721	254,566,152	205,768,587	0	643,153,751	1,500,451,211
2014	216,602,694	399,246,652	23,288,645	0	1,157,287,086	1,796,425,077
2013	708,236,068	(2,254,102)	0	0	459,183,352	1,165,165,318
2012	993,915,648	120,189,307	726,846,032	0	490,434,767	2,331,385,754

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS

Table E-1 State ERI Contribution Schedule			
Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
Chapter 23, P.L. 2002			
410	ROWAN UNIVERSITY	\$ 785,800	\$ 9,537,342
411	NEW JERSEY CITY UNIVERSITY	544,199	6,605,008
412	KEAN UNIVERSITY	479,714	5,822,340
413	WILLIAM PATTERSON UNIVERSITY OF NJ	335,181	4,068,131
414	MONCLAIR STATE UNIVERSITY	213,100	2,586,422
415	THE COLLEGE OF NEW JERSEY	599,151	7,271,957
420	RAMAPO COLLEGE OF NEW JERSEY	175,459	2,129,561
421	STOCKTON UNIVERSITY	461,069	5,596,046
430	THOMAS EDISON STATE UNIVERSITY	139,163	1,689,042
498	RUTGERS UNIVERSITY	5,102,608	61,930,916
32700	NEW JERSEY INSTITUTE OF TECHNOLOGY	264,473	3,209,944
	ALL OTHER STATE LOCATIONS	<u>106,047,767</u>	<u>1,287,113,542</u>
	Sub-Total	\$ 115,147,684	\$ 1,397,560,251
	Chapter 21, P.L. 2008	\$ 25,753,933	\$ 312,578,347
	Total	\$ 140,901,617	\$ 1,710,138,598

Consistent with established methodology, payment amounts calculated using a payment date 12 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

State ERI amounts are not used in determining the Statutory contribution. They are used only in allocating the Statutory contribution to State locations.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS

Table E-2 Local Employers ERI 2 Contribution Schedule			
Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
10071	BURLINGTON CO BD OF SOCIAL SERV	\$ 49,823	\$ 428,879
10171	MERCER CO BD OF SOCIAL SERVICE	107,653	926,685
20100	LAVALLETTE BOROUGH	14,848	127,814
20114	LINDEN CTY FREE PUBLIC LIBRARY	14,753	126,998
20264	MONTCLAIR PUBLIC LIBRARY	37,364	321,632
20320	PALMYRA BOROUGH	22,958	197,628
20720	WASHINGTON BOROUGH	9,599	82,625
21303	WEST NEW YORK BD OF ED	3,461	26,399
21480	EATONTOWN BOROUGH	23,274	200,343
21663	BEVERLY CITY BD OF ED	894	6,818
22030	VERONA TOWNSHIP	15,988	137,630
22540	BOUND BROOK BOROUGH	9,244	79,570
30130	TRENTON HOUSING AUTHORITY	101,901	877,168
30160	ATLANTIC CITY HOUSING AUTHORITY	54,962	473,121
30230	ASBURY PK HOUSING AUTHORITY	1,745	15,017
30250	NEW BRUNSWICK HOUSING AUTHORITY	3,310	28,494
30420	BURLINGTON COUNTY BRIDGE COMM	20,110	173,104
30510	PATERSON HOUSING AUTHORITY	5,008	43,113
30560	MIDDLESEX CO UTILITIES AUTH	161,043	1,386,270
30770	PATERSON PARKING AUTHORITY	3,257	28,034
30900	GLOUCESTER TWP M U A	13,381	115,180
31190	BRIDGETON CITY HOUSING AUTH	1,647	14,174
31250	JERSEY CITY MUNICIPAL UT. AUTH	3,453	29,726
31260	LINDEN CITY HOUSING AUTHORITY	18,346	169,086
31370	MERCER CO IMPROVEMENT AUTHORITY	14,686	126,420
31580	MOUNT LAUREL TWP MUN UTIL AUTH	1,745	15,017
31680	OCEAN GROVE BD OF FIRE COMM	14,643	126,047
31720	NJ SPORTS & EXPOSITION AUTH	1,695	14,587
32080	OCEAN TWP MUN UTIL AUTHORITY	3,459	29,772
32260	HUDSON CO COMMUNITY COLLEGE	5,212	44,864
32700	NJ INSTITUTE OF TECHNOLOGY	86,595	745,413
39990	COMPENSATION RATING & INS BUR	90,428	778,415
50050	ALLENTOWN BOROUGH	1,719	14,795
50130	AUDUBON BOROUGH	3,696	31,817
50830	EAST HANOVER TOWNSHIP	20,914	180,029
51750	LEBANON BOROUGH	1,662	14,307

Consistent with established methodology, payment amounts calculated using a payment date 9 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS

Table E-2 (cont.) Local Employers ERI 2 Contribution Schedule			
Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
51800	LINWOOD CITY	\$ 37,286	\$ 320,965
52630	PENNSAUKEN TOWNSHIP	8,598	74,009
53490	WALLINGTON BOROUGH	17,893	154,028
53670	WEST LONG BRANCH BOROUGH	9,237	79,516
55640	FLORHAM PARK SEW AUTHORITY	5,341	45,974
55880	WRIGHTSTOWN MUN UTIL AUTH	1,716	14,773
60023	HUDSON CO SCHOOLS OF TECHNOLOGY	9,701	73,988
Total		\$ 1,034,248	\$ 8,900,244

Consistent with established methodology, payment amounts calculated using a payment date 9 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS

Table E-3 Local Employer ERI Contribution Schedules due to Recent ERI Legislation				
Location Number	Location Name	Years and Form of Payment	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
Chapter 59, P.L. 1999				
21960	WOODBIDGE TOWNSHIP	15 Year - Level	\$ 404,657	\$ 1,687,478
Chapter 126, P.L. 2000				
10100	UNION COUNTY	15 Year - Level	\$ 823,552	\$ 782,804
10101	UNION CO BD OF SOCIAL SERVICES	15 Year - Level	372,988	354,533
Sub-Total			\$ 1,196,540	\$ 1,137,337
Chapter 23, P.L. 2002				
30440	SOUTH JERSEY PORT CORPORATION	30 Year - Increasing	\$ 116,763	\$ 1,076,169
31210	NJ HOUSING & MTG FINANCE AGENCY	30 Year - Increasing	141,659	1,305,630
34920	SOUTH JERSEY TRANS AUTHORITY	30 Year - Increasing	122,863	1,132,394
39990	COMPENSATION RATING & INS BUR	30 Year - Increasing	150,520	1,387,300
Sub-Total			\$ 531,805	\$ 4,901,493
Total			\$ 2,133,002	\$ 7,726,308

Consistent with established methodology, payment amounts calculated using a payment date 9 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

**Table F-1
Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule**

Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
10042	MIDDLESEX CO MOSQ EXTERM COMM	\$ 5,194	\$ 16,723
10100	UNION COUNTY	478,970	1,542,099
10101	UNION CO BD OF SOCIAL SERVICES	154,317	496,841
10152	SALEM CO MOSQUITO COMMISSION	1,687	5,431
20050	NORTH ARLINGTON BOROUGH	15,041	48,428
20080	POINT PLEASANT BEACH BOROUGH	15,043	48,434
20090	LAKWOOD TOWNSHIP	58,633	188,776
20093	LAKWOOD TWP BD OF ED	30,788	99,127
20110	LINDEN CITY	102,088	328,684
20114	LINDEN CTY FREE PUBLIC LIBRARY	5,413	17,427
20130	PLAINFIELD CITY	66,935	215,505
20150	SEASIDE HEIGHTS BOROUGH	14,135	45,508
20160	ASBURY PARK CITY	39,163	126,089
20170	EAST ORANGE CITY	148,766	478,970
20180	EGG HARBOR CITY	6,478	20,858
20200	PERTH AMBOY CITY	70,665	227,513
20210	WILDWOOD CITY	35,300	113,652
20220	BELLEVILLE TOWNSHIP	35,184	113,278
20230	BLOOMFIELD TOWNSHIP	44,891	144,533
20243	DOVER BD OF ED	112	361
20250	IRVINGTON TOWNSHIP	61,008	196,422
20270	MORRISTOWN TOWN	35,404	113,986
20283	WEST ORANGE TOWNSHIP BD OF ED	72,603	233,753
20350	ORANGE CITY	41,411	133,329
20353	ORANGE CITY BD OF ED	25,349	81,615
20413	WESTFIELD TOWN BD OF ED	42,638	137,278
20440	GLEN RIDGE BOROUGH	11,018	35,473
20483	RIDGEFIELD BORO BD OF ED	25,474	82,017
20533	SOUTH HACKENSACK BD OF ED	2,797	9,005
20570	SOUTH ORANGE VILLAGE	30,729	98,937
20590	HACKENSACK CITY	61,465	197,894
20650	FAIRVIEW BOROUGH	16,733	53,873
20680	NEW MILFORD BOROUGH	15,146	48,764
20700	RUTHERFORD BOROUGH	32,702	105,288
20703	RUTHERFORD BORO BD OF ED	18,925	60,931
20710	SOMERVILLE BOROUGH	21,829	70,281

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

**Table F-1 (cont.)
Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule**

Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
20720	WASHINGTON BOROUGH	\$ 8,077	\$ 26,005
20760	MAPLEWOOD TOWNSHIP	37,940	122,153
20780	ATLANTIC CITY	164,444	529,446
20790	BRIDGETON CITY	23,795	76,610
20800	CLIFTON CITY	77,803	250,496
20810	GARFIELD CITY	27,093	87,229
20830	PASSAIC CITY	66,371	213,689
20840	RAHWAY CITY	34,049	109,626
20844	RAHWAY PUBLIC LIBRARY	4,489	14,452
20849	RAHWAY WATER COMM	1,251	4,029
20850	BRIELLE BOROUGH	7,237	23,299
20860	COLLINGSWOOD BOROUGH	15,562	50,103
20900	GARWOOD BOROUGH	5,935	19,110
20920	KEANSBURG BOROUGH	13,428	43,232
20950	MATAWAN BOROUGH	9,961	32,069
20960	MIDDLESEX BOROUGH	18,490	59,529
20980	PALISADES PARK BOROUGH	15,786	50,825
21003	ROCKAWAY BOROUGH BD OF ED	4,794	15,435
21010	ROSELLE BOROUGH	18,926	60,935
21080	HILLSIDE TOWNSHIP	27,253	87,744
21093	MILLBURN TWP PUBLIC SCHOOLS	37,133	119,555
21110	WEEHAWKEN TOWNSHIP	26,886	86,564
21120	HOBOKEN CITY	73,833	237,713
21130	LONG BRANCH CITY	46,576	149,956
21160	HARRISON TOWN (HUDSON)	39,159	126,077
21180	OCEANPORT BOROUGH	5,485	17,658
21190	ORADELL BOROUGH	10,347	33,314
21210	FAIRFIELD TOWNSHIP (ESSEX)	18,890	60,819
21250	UNION TOWNSHIP (UNION)	55,520	178,752
21254	UNION TOWNSHIP LIBRARY	5,633	18,135
21270	BAYONNE CITY	89,877	289,368
21280	ELIZABETH CITY	153,013	492,642
21284	ELIZABETH PUBLIC LIBRARY	8,434	27,156
21290	UNION CITY	66,046	212,642
21300	WEST NEW YORK TOWN	46,573	149,946
21373	MONMOUTH BEACH BD OF ED	1,258	4,051

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

**Table F-1 (cont.)
Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule**

Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
21470	BOGOTA BOROUGH	\$ 5,092	\$ 16,394
21500	MOUNTAINSIDE BOROUGH	8,162	26,279
21560	GLOUCESTER CITY	18,223	58,670
21650	SECAUCUS TOWN	41,915	134,950
21653	SECAUCUS TOWN BD OF ED	21,837	70,307
21690	FREEHOLD BOROUGH	17,584	56,613
21700	MANVILLE BOROUGH	13,709	44,138
21740	EWING TOWNSHIP	37,583	121,004
21760	SALEM CITY	11,494	37,006
21780	TRENTON CITY	233,436	751,576
21800	MAYWOOD BOROUGH	10,858	34,960
21850	CAMDEN CITY	143,380	461,628
21853	CAMDEN CITY BD OF ED	237,640	765,109
21910	PATERSON CITY	128,862	414,885
22030	VERONA TOWNSHIP	24,627	79,290
22050	CINNAMINSON TOWNSHIP	12,793	41,189
22113	HAWTHORNE BD OF ED	20,279	65,289
22150	HAWORTH BOROUGH	6,977	22,463
22180	CEDAR GROVE TOWNSHIP	16,291	52,449
22190	EMERSON BOROUGH	8,874	28,572
22220	HOWELL TOWNSHIP	53,780	173,151
22230	MILLTOWN BOROUGH	13,732	44,212
22310	FANWOOD BOROUGH	8,088	26,040
22350	MIDDLETOWN TOWNSHIP	71,382	229,822
22380	WALL TOWNSHIP	47,555	153,108
22440	SOMERDALE BOROUGH	5,650	18,192
22500	WILLINGBORO TOWNSHIP	36,479	117,447
22520	JEFFERSON TOWNSHIP	28,442	91,573
22533	PENNSVILLE TWP BD OF ED	15,292	49,235
22540	BOUND BROOK BOROUGH	10,000	32,196
22580	LYNDHURST TOWNSHIP	29,538	95,100
22583	LYNDHURST TWP BD OF ED	14,210	45,752
22620	PISCATAWAY TOWNSHIP	62,090	199,907
22710	WEST MILFORD TOWNSHIP	59,060	190,151
22720	RINGWOOD BOROUGH	15,615	50,273
22730	BLOOMINGDALE BOROUGH	10,433	33,590

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

**Table F-1 (cont.)
Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule**

Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
22770	PARAMUS BOROUGH	\$ 64,808	\$ 208,658
22780	METUCHEN BOROUGH	14,813	47,693
22810	MOUNT ARLINGTON BOROUGH	7,007	22,560
22850	WINFIELD TOWNSHIP	1,413	4,549
22930	LITTLE FALLS TWP	11,324	36,460
22990	BERLIN BOROUGH	9,293	29,921
23020	GLOUCESTER TOWNSHIP	36,197	116,542
23030	SOUTH BRUNSWICK TOWNSHIP	78,082	251,395
23040	BARNEGAT TOWNSHIP	18,949	61,009
23070	PLEASANTVILLE CITY	21,629	69,637
23120	HOLMDEL TOWNSHIP	20,329	65,450
23130	NORTH HALEDON BOROUGH	9,995	32,179
23170	RUNNEMEDE BOROUGH	7,774	25,029
23273	LITTLE FERRY BD OF ED	5,458	17,573
23300	BUENA VISTA TOWNSHIP	5,426	17,468
23323	MINE HILL TWP BD OF ED	2,309	7,435
23340	WEST PATERSON BOROUGH	12,253	39,449
23343	WOODLAND PARK BD OF ED	7,839	25,238
23350	NORWOOD BOROUGH	6,204	19,976
23360	MARLBORO TOWNSHIP	43,007	138,466
23400	WINSLOW TOWNSHIP	31,633	101,847
23490	PINE HILL BOROUGH	4,992	16,074
23510	LEBANON TOWNSHIP	5,070	16,322
23560	WEST AMWELL TOWNSHIP	3,425	11,029
23570	EGG HARBOR TOWNSHIP	33,706	108,519
23630	SOUTH AMBOY CITY	16,057	51,697
23660	WEST DEPTFORD TOWNSHIP	34,694	111,702
23700	LAMBERTVILLE CITY	4,524	14,564
23823	MILLSTONE TOWNSHIP BD OF ED	16,653	53,616
30070	NEWARK HOUSING AUTHORITY	158,911	511,632
30130	TRENTON HOUSING AUTHORITY	17,539	56,468
30160	ATLANTIC CITY HOUSING AUTHORITY	20,230	65,132
30200	ORANGE CITY HOUSING AUTHORITY	5,426	17,468
30220	HOBOKEN HOUSING AUTHORITY	15,005	48,311
30250	NEW BRUNSWICK HOUSING AUTHORITY	8,719	28,071
30360	IRVINGTON HOUSING AUTH	9,573	30,822

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

**Table F-1 (cont.)
Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule**

Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
30400	UNION CITY HOUSING AUTHORITY	\$ 9,631	\$ 31,009
30430	NEW BRUNSWICK PARKING AUTHORITY	13,574	43,702
30450	MORRISTOWN HOUSING AUTHORITY	5,685	18,302
30460	PASSAIC CITY HOUSING AUTHORITY	9,264	29,825
30480	WEST NEW YORK HOUSING AUTHORITY	7,358	23,689
30490	NORTH BERGEN HOUSING AUTHORITY	8,079	26,011
30510	PATERSON HOUSING AUTHORITY	15,994	51,494
30520	HACKENSACK HOUSING AUTHORITY	4,633	14,917
30550	GARFIELD HOUSING AUTHORITY	5,691	18,322
30570	CAMDEN CITY HOUSING AUTHORITY	20,165	64,923
30580	TRENTON PARKING AUTHORITY	1,450	4,669
30590	PLAINFIELD HOUSING AUTHORITY	9,377	30,189
30600	EDISON TWP HOUSING AUTHORITY	2,454	7,900
30660	UNION CITY PARKING AUTHORITY	3,933	12,663
30710	HADDON TWP FIRE DISTRICT 1	112	360
30770	PATERSON PARKING AUTHORITY	7,224	23,259
30790	FRANKLIN TWP SEWERAGE AUTH	6,001	19,322
30830	HAMILTON TWP FIRE DISTRICT 2	124	398
30900	GLOUCESTER TWP M U A	9,719	31,290
30970	GUTTENBERG HOUSING AUTHORITY	3,442	11,081
31000	OCEAN CITY HOUSING AUTHORITY	1,114	3,585
31030	FRANKLIN TWP HOUSING AUTHORITY	607	1,954
31050	JERSEY CITY INCINERATOR AUTH	40,766	131,252
31070	MILLVILLE HOUSING AUTHORITY	8,809	28,360
31170	RARITAN VALL COMMUNITY COLLEGE	36,788	118,445
31190	BRIDGETON CITY HOUSING AUTH	4,924	15,852
31250	JERSEY CITY MUNICIPAL UT. AUTH	26,085	83,983
31350	CLEMENTON HOUSING AUTHORITY	957	3,080
31360	BERGEN CO HOUSING AUTHORITY	16,796	54,076
31370	MERCER CO IMPROVEMENT AUTHORITY	10,099	32,515
31520	CARLSTADT SEWERAGE AUTHORITY	577	1,857
31560	WOODBINE MUNICIPAL UTIL AUTH	391	1,259
31600	WILDWOOD CITY HOUSING AUTHORITY	2,318	7,464
31640	RARITAN TWP MUN UTIL AUTHORITY	8,185	26,353
31680	OCEAN GROVE BD OF FIRE COMM	144	463
31710	WEYMOUTH TWP MUN UTIL AUTHORITY	78	250

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

**Table F-1 (cont.)
Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule**

Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
31720	NJ SPORTS & EXPOSITION AUTH	\$ 105,058	\$ 338,246
31730	EDGEWATER HOUSING AUTHORITY	1,434	4,618
31870	DOVER TOWN HOUSING AUTHORITY	701	2,257
31890	BURLINGTON CO AVA COMM	1,406	4,527
31970	NEPTUNE TWP SEWERAGE AUTHORITY	7,318	23,561
32250	NEWTON TOWN HOUSING AUTHORITY	739	2,381
32300	DOVER TWP PARKING AUTHORITY	1,368	4,404
32350	GLOUCESTER TWP FIRE DISTRICT 2	460	1,481
32360	HUNTERDON CO SOIL CONSERV DIST	3,054	9,834
32420	CAPE ATL SOIL CONSRVTN DIST	2,155	6,940
32440	TOMS RIVER FIRE DISTRICT # 2	714	2,300
32460	BERGEN COUNTY SOIL CONSER DIST	1,718	5,532
32530	COLLINGSWOOD BORO HOUSING AUTH	778	2,504
32660	MID BERGEN REG HEALTH COMM	1,178	3,793
32720	BURLINGTON CO SOIL CON DIST	1,710	5,507
32870	MADISON BORO HOUSING AUTHORITY	3,191	10,273
32900	NJ TRANSIT CORPORATION	18,983	61,119
32950	NEPTUNE CITY HOUSING AUTHORITY	324	1,042
33000	CAMDEN CO SOIL CONSERVATN DIST	1,547	4,980
33020	MONMOUTH OCEAN ED SERV COMM	23,533	75,766
34120	GLOUCESTER TWP FIRE DISTRICT 3	136	439
34240	WARREN CO AUDIO VISUAL AIDS	179	576
34260	OCEAN TWP FIRE DISTRICT 2	820	2,639
34270	CAMDEN CO IMPROVEMENT AUTHORITY	4,740	15,261
34380	SALEM CITY MUNICIPAL PORT AUTH	144	464
34400	BRICK TWP JOINT BD OF FIRE COMM	2,860	9,208
34420	UNION CO UTILITIES AUTHORITY	6,030	19,415
34500	SOUTH TOMS RIVER SEWERAGE AUTH	170	547
34560	LAKESWOOD TWP FIRE DISTRICT 1	619	1,993
34630	CAMDEN CO HEALTH SERVICES CTR	120,396	387,629
34640	NJ SCHOOL BD ASSOC INS GROUP	15,589	50,191
34680	DELAWARE RIVER JT TOLL BRG COM	1,684	5,423
34690	DELRAN TWP FIRE DISTRICT #1	758	2,441
34710	NORTH BERGEN M.U.A.	16,156	52,017
34770	HOWELL TWP FIRE DISTRICT 3	223	717
34840	EAST BRUNSWICK TWP FIRE DIST #2	1,197	3,853

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

Table F-1 (cont.) Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule			
Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
34880	BURLINGTON TWP FIRE DISTRICT 1	\$ 668	\$ 2,151
34940	WILDWOODS JOINT CONSTRUCTION	312	1,005
34990	TRENTON DOWNTOWN ASSOCIATION	1,178	3,793
35130	WESTVILLE FIRE DISTRICT # 1	478	1,540
35200	VINELAND-MILLVILLE URB. ENT.ZON	561	1,806
35210	NORTH HUDSON REG. COMM CENTER	3,776	12,158
35250	NJ REDEVELOPMENT AUTHORITY	4,966	15,989
35290	HAZLET TWP FIRE DIST	588	1,894
35370	OLD BRIDGE TWP DISTRICT 1	32	103
35400	SOARING HEIGHTS CHARTER SCHOOL	1,407	4,531
35420	JERSEY CITY COMM CHARTER SCHOOL	8,232	26,504
35530	EMILY FISHER CHARTER SCHOOL	8,384	26,994
35620	EAST ORANGE COMMUNITY CHART SCH	8,050	25,916
35670	RED BANK CHARTER SCHOOL	1,221	3,930
35690	INTERNATIONAL CHARTER SCHOOL	611	1,968
35900	CLASSICAL ACAD. CHARTER SCHOOL	279	898
36500	CAMDEN CITY REDEVELOPMENT AGENCY	6,689	21,536
37800	ENGLEWOOD ON THE PALISADES CHAR	1,119	3,601
38400	HUDSON CO ECONOMIC DEVELOP CORP	959	3,088
38500	HOWELL TWP FIRE DISTRICT 4	129	417
39100	BRICK TWP FIRE DISTRICT 1	135	435
39200	QUEEN CITY ACADEMY CHARTER SCH	2,327	7,492
39800	WALL TOWNSHIP FIRE DISTRICT 3	1,005	3,234
40150	BORDENTOWN REG SCH DISTRICT	21,520	69,287
40340	TOMS RIVER SCHOOL DIST	150,167	483,480
40380	WOODSTOWN-PILESGROVE REG SCH	12,384	39,873
41000	RAHWAY CITY REDEVELOPMENT AG	927	2,986
41100	UNIVERSITY ACADEMY CHARTER HS	1,127	3,628
41400	BAYSHORE JOINTURE COMMISSION	2,687	8,652
41600	TEAM ACADEMY CHARTER SCHOOL	3,883	12,503
42000	CARTERET REDEVELOPMENT AGENCY	205	661
42400	PATERSON CHART SCH-SCIENCE/TECH	2,813	9,057
43800	SECAUCUS MUNICIPAL UTIL. AUTH.	5,345	17,209
43900	MONTCLAIR PARKING AUTHORITY	747	2,405

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

**Table F-1 (cont.)
Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule**

Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
44600	MIDDLE TOWNSHIP FIRE DIST #1	\$ 956	\$ 3,079
45000	CUMBERLAND-SALEM CONSERV. DIST.	1,349	4,344
45100	BRICK TOWNSHIP FIRE DIST 2	141	453
45300	FREEDOM ACADEMY CHARTER SCHOOL	937	3,016
45800	BLOOMFIELD PARKING AUTHORITY	586	1,887
50033	ALLAMUCHY BD OF ED	3,295	10,608
50050	ALLENTOWN BOROUGH	1,809	5,826
50130	AUDUBON BOROUGH	8,775	28,252
50250	BERKELEY TOWNSHIP MUNICIPAL BLD	41,999	135,220
50410	BROOKLAWN BOROUGH	3,419	11,007
50413	BROOKLAWN BORO BD OF ED	2,184	7,031
50420	BUENA BOROUGH	4,459	14,356
50530	CHESILHURST BOROUGH	1,529	4,924
50733	DENNIS TWP BD OF ED	6,798	21,887
50770	DUNELLEN BOROUGH	6,602	21,254
50790	EASTAMPTON TOWNSHIP	2,905	9,354
50830	EAST HANOVER TOWNSHIP	27,186	87,529
50840	EAST NEWARK BOROUGH	855	2,752
50930	ENGLEWOOD CLIFFS BOROUGH	8,149	26,237
50940	ENGLISHTOWN BOROUGH	2,651	8,534
50973	FAIRFIELD TWP BD ED (CUMBERLND)	2,287	7,362
51080	FRANKLIN TOWNSHIP (GLOUCESTER)	12,424	39,999
51093	FRANKLIN TWP BD OF ED (HUNTRDN)	2,056	6,618
51140	FRELINGHUYSEN TWP	1,211	3,899
51260	GUTTENBERG TOWN	6,599	21,247
51283	HAINESPORT TOWNSHIP BD OF ED	4,197	13,514
51290	HALEDON BOROUGH	9,284	29,892
51333	HAMPTON BOROUGH BD OF ED	1,153	3,713
51360	HARDWICK TOWNSHIP	1,529	4,924
51400	HARRISON TOWNSHIP (GLOUCESTER)	7,028	22,628
51470	HIGHTSTOWN BOROUGH	11,526	37,109
51520	HOPATCONG BOROUGH	21,078	67,865
51640	JERSEY CITY	109,341	352,037
51670	KNOWLTON TOWNSHIP	2,956	9,518
51730	LAWNSIDE BOROUGH	5,471	17,616
51790	LINDENWOLD BOROUGH	12,887	41,490

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

**Table F-1 (cont.)
Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule**

Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
51970	MANCHESTER TOWNSHIP	\$ 28,159	\$ 90,661
52000	MANSFIELD TOWNSHIP (WARREN)	4,966	15,989
52050	ABERDEEN TOWNSHIP	16,438	52,923
52060	MAURICE RIVER TOWNSHIP	4,025	12,959
52203	MONROE TWP BD OF ED (GLOUCESTR)	25,427	81,867
52340	NATIONAL PARK BOROUGH	2,434	7,835
52360	NEWARK CITY	519,348	1,672,104
52363	NEWARK PUBLIC SCHOOLS	588,501	1,894,749
52620	PENNS GROVE BOROUGH	4,480	14,423
52720	PLAINSBORO TOWNSHIP	26,770	86,190
52770	PROSPECT PARK BOROUGH	3,361	10,823
52920	ROSELAND BOROUGH	14,310	46,073
52960	SADDLE BROOK TOWNSHIP	17,625	56,744
53100	LAKE COMO BOROUGH	4,450	14,329
53110	SOUTH BOUND BROOK BOROUGH	4,328	13,934
53140	SOUTH TOMS RIVER BOROUGH	2,337	7,523
53260	SUSSEX BOROUGH	2,110	6,795
53360	UNION BEACH BOROUGH	6,578	21,180
53420	UPPER SADDLE RIVER BORO	9,509	30,617
53510	WANAQUE BOROUGH	12,595	40,551
53800	WOODBURY HEIGHTS BOROUGH	4,794	15,436
53823	WOODLAND TWP BD OF ED	1,708	5,499
55130	CAPE MAY CO BRIDGE COMM	6,128	19,730
55450	BERKELEY TWP SEWERAGE AUTHORITY	4,726	15,215
55510	HADDON TOWNSHIP HOUSING AUTH	907	2,920
55520	PRINCETON HOUSING AUTHORITY	2,068	6,658
55950	HIGHLANDS HOUSING AUTH	1,013	3,260
55970	PLEASANTVILLE HOUSING AUTH	3,822	12,305
56120	RED BANK BORO HOUSING AUTH	2,310	7,437
56140	CARTERET HOUSING AUTHORITY	4,637	14,930
56170	EDGEWATER PARK SEWERAGE AUTH	312	1,003
56300	KEANSBURG BORO HOUSING AUTH	1,248	4,019
56320	NEWARK PARKING AUTHORITY	721	2,320
56370	BEVERLY CITY HOUSING AUTHORITY	644	2,074
56400	HIGHLAND PARK HOUSING AUTHORITY	1,454	4,681
56440	FLORENCE TWP HOUSING AUTHORITY	359	1,155

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
JULY 1, 2021 ACTUARIAL VALUATION**

APPENDIX F – CHAPTER 19, P.L. 2009

Table F-1 (cont.) Local Employer Chapter 19, P.L. 2009 Deferral and Payment Schedule			
Location Number	Location Name	Fiscal Year 2023 Payment	Present Value as of 7/1/2021
56480	BOONTON HOUSING AUTHORITY	\$ 1,300	\$ 4,184
57270	SHORE REGIONAL H S DISTRICT	5,614	18,075
57530	NEW HANOVER TWP BD OF ED	1,436	4,622
60023	HUDSON CO SCHOOLS OF TECHNOLOGY	59,785	192,483
60030	PASSAIC COUNTY	464,928	1,496,890
60031	PASSAIC CO BD OF SOCIAL SERVICE	184,081	592,669
60050	WATERFRONT COMM OF NY HARBOR	1,519	4,890
70023	GUTTENBERG BORO BD OF ED	3,928	12,646
79100	NJ FIREMENS HOME	<u>13,803</u>	<u>44,440</u>
Total		\$ 8,697,745	\$ 28,003,394

Consistent with established methodology, payment amounts calculated using a payment date 21 months after the valuation date.

Present values as of July 1, 2021 exclude expected payments for fiscal year ending 2022.

APPENDIX G – GLOSSARY OF TERMS

1. Actuarial Assumptions

Assumptions as to the occurrence of future events affecting pension costs, such as: mortality, withdrawal, disability, and retirement; changes in compensation; inflation; rates of investment earnings, and asset appreciation or depreciation; and other relevant items.

2. Actuarial Cost Method

A procedure for determining the Actuarial Present Value of pension plan benefits and expenses and for developing an allocation of such value to each year of service, usually in the form of a Normal Cost and an Actuarial Liability.

3. Actuarial Gain/(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, as determined in accordance with a particular Actuarial Cost Method.

4. Actuarial Liability

The portion of the Actuarial Present Value of Projected Benefits which will not be paid by future Normal Costs. It represents the value of the past Normal Costs with interest to the valuation date.

5. Actuarial Present Value (Present Value)

The value as of a given date of a future amount or series of payments. The Actuarial Present Value discounts the payments to the given date at the assumed investment return and includes the probability of the payment being made. As a simple example: assume you owe \$100 to a friend one year from now. Also, assume there is a 1% probability of your friend dying over the next year, in which case you won't be obligated to pay him. If the assumed investment return is 10%, the actuarial present value is:

$$\frac{\text{Amount}}{\text{Payment}} \times \frac{\text{Probability of}}{(1 - .01)} \times \frac{1}{(1 + \text{Investment Return})} = \$90$$

6. Actuarial Valuation

The determination, as of a specified date, of the Normal Cost, Actuarial Liability, Actuarial Value of Assets, and related Actuarial Present Values for a pension plan.

APPENDIX G – GLOSSARY OF TERMS

7. Actuarial Value of Assets

The value of cash, investments and other property belonging to a pension plan as used by the actuary for the purpose of an Actuarial Valuation. The purpose of an Actuarial Value of Assets is to smooth out fluctuations in market values. This way long-term costs are not distorted by short-term fluctuations in the market.

8. Actuarially Equivalent

Of equal Actuarial Present Value, determined as of a given date with each value based on the same set of Actuarial Assumptions.

9. Amortization Payment

The portion of the pension plan contribution which is designed to pay interest and principal on the Unfunded Actuarial Liability in order to pay for that liability in a given number of years.

10. Funded Ratio

The ratio of the Actuarial Value of Assets to the Actuarial Liabilities.

11. Investment Return Assumption

The assumed interest rate used for projecting dollar related values in the future.

12. Mortality Table

A set of percentages which estimate the probability of death at a particular point in time. Typically, the rates are annual and based on age and sex.

13. Normal Cost

That portion of the Actuarial Present Value of pension plan benefits and expenses, which is allocated to a valuation year by the Actuarial Cost Method.

14. Projected Benefits

Those pension plan benefit amounts which are expected to be paid in the future under a particular set of Actuarial Assumptions, taking into account such items as the effect of advancement in age and increases in future compensation and service credits.

15. Projected Unit Credit Cost Method

A method under which the Actuarial Liability is calculated as the Actuarial Present Value of the Projected Benefits allocated to periods prior to the valuation year.

16. Unfunded Actuarial Liability

The excess of the Actuarial Liability over the Actuarial Value of Assets.