



# **Public Employees' Retirement System of New Jersey**

## **Actuarial Valuation Report as of July 1, 2019**

**Produced by Cheiron**

**April 2020**

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**LETTER OF TRANSMITTAL**

April 23, 2020

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, NJ 08625-0295

Dear Board Members:

At your request, we have performed the July 1, 2019 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 2021. 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 demographic and economic (other than the investment rate of return) actuarial assumptions are based on the recommendations from the July 1, 2014 – June 30, 2018 Experience Study, which were approved by the Board of Trustees on February 19, 2020. The investment return assumption of 7.30% is 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,

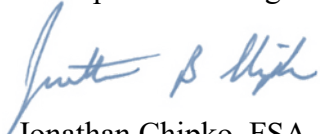
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**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**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) 2021.

In this Section we present a summary of the principal valuation results. This includes the basis on which the July 1, 2019 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, 2019 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

**Valuation Basis**

The July 1, 2019 valuation results are based on the same actuarial methods as used in the July 1, 2018 valuation, with the exception of a phase-in of the impact on Local employers of assumption changes related to the recent experience study. 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 is based on a 7.30% interest rate, which was recommended by the State Treasurer.

This valuation is based on plan provisions in effect as of July 1, 2019 and does not reflect the impact of any changes in benefits that may have been approved after the valuation date. The valuation reflects a new DPB policy regarding the crediting of interest on member contributions for the purpose of refunds of accumulated deductions.

This report is prepared using census data and financial information as of July 1, 2019 provided by the Division of Pensions and Benefits and does not reflect any subsequent changes in the membership or the assets.

The Appropriations Act of Fiscal Year 2019 reduced the State pension contribution of \$1,406,859,836 to \$859,648,884. The \$859,648,884 includes revenue of \$232,271,000 from the Lottery Enterprise Contribution Act. In addition, there was a Chapter 259, P.L. 2009 contribution of \$622,116, which was payable by fund transfer from the Second Injury Fund.

The potential impact of the Appropriations Act of 2020 reduces the State pension contribution for Fiscal Year Ending 2020 from the Statutory amount of \$1,432,190,871 to \$1,002,769,973 (70% of the State Statutory contribution less the Lottery Enterprise Contribution offset plus expected revenue from the Lottery Enterprise Contribution Act  $\{70\% \times \$1,432,190,871 - \$225,008,822 + \$225,245,185\}$ ). The \$1,002,769,973 also includes expected State-paid Local contributions of \$8,246,893. In addition, there is a Chapter 259, P.L. 2009 contribution of \$595,242, which is payable by fund transfer from the Second Injury Fund. This valuation reflects the potential impact of the Appropriations Act of 2020.

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.

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.

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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, 2019 valuation, 27 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 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.

The valuation reflects Chapter 78, P.L. 2011, which increased the member contribution rate from 5.5% to 6.5% of compensation effective October 2011. Further, beginning July 2012, the member contribution rate was increased by 1/7th of 1% each July until a 7.5% member contribution rate was reached in July 2018. Chapter 78, P.L. 2011 also increased the member contribution rate for members who are eligible to retire under the Prosecutors Part of the Retirement System as provided by Chapter 366, P.L. 2001 from 8.5% to 10.0% of compensation with the increase effective October 2011.

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, 2019 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

**Table I-1  
Summary of Key Valuation Results  
State**

Valuation Date Fiscal Year Ending (FYE)	July 1, 2019 2021	July 1, 2018 2020	% Change
<b><u>Member Data</u></b>			
Contributing Actives <sup>1</sup>	67,906	68,593	-1.0%
Non-Contributing Actives <sup>1</sup>	9,255	9,405	-1.6%
Deferred Vesteds	229	169	35.5%
Retirees and Beneficiaries <sup>2</sup>	59,849	58,556	2.2%
Total Members	<u>137,239</u>	<u>136,723</u>	0.4%
Appropriation Payroll <sup>3</sup>	\$ 4,539,069,588	\$ 4,333,772,974	4.7%
Annual Retirement Allowances in Pay	\$ 1,671,166,694	\$ 1,607,733,796	3.9%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability	\$ 25,666,760,996	\$ 23,745,716,631	8.1%
Actuarial Value of Assets (AVA) <sup>4</sup>	8,017,468,579	8,057,092,909	-0.5%
Unfunded Actuarial Liability/(Surplus)	<u>\$ 17,649,292,417</u>	<u>\$ 15,688,623,722</u>	12.5%
Funded Ratio (AVA)	31.2%	33.9%	-2.7%
Actuarial Value of Assets <sup>4</sup> including Special Asset Value (AVA + SAV)	<u>\$ 10,669,315,506</u>	<u>\$ 10,710,534,806</u>	-0.4%
Unfunded Actuarial Liability/(Surplus)	<u>\$ 14,997,445,490</u>	<u>\$ 13,035,181,825</u>	15.1%
Funded Ratio (AVA + SAV)	41.6%	45.1%	-3.5%
Market Value of Assets (MVA) <sup>4</sup>	<u>\$ 7,454,643,131</u>	<u>\$ 7,533,286,615</u>	-1.0%
Unfunded Actuarial Liability/(Surplus)	<u>\$ 18,212,117,865</u>	<u>\$ 16,212,430,016</u>	12.3%
Funded Ratio (MVA)	29.0%	31.7%	-2.7%
<b><u>Contribution Amounts<sup>5</sup></u></b>			
State Normal Cost at End of Year <sup>6</sup>	\$ 141,910,256	\$ 93,428,887	51.9%
Amortization Payment of UAL <sup>6</sup>	<u>1,480,628,828</u>	<u>1,338,761,984</u>	10.6%
Total Statutory Contribution for FYE	<u>\$ 1,622,539,084</u>	<u>\$ 1,432,190,871</u>	13.3%
Percent Appropriated	80%	70%	10.0%
State Appropriation for Pension	\$ 1,298,031,267	\$ 1,002,533,610	29.5%
Lottery Enterprise Contribution Offset	<u>(227,931,388)</u>	<u>(225,008,822)</u>	1.3%
Net State Contribution	<u>\$ 1,070,099,879</u>	<u>\$ 777,524,788</u>	37.6%

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

<sup>2</sup> QDRO recipients are excluded from member counts

<sup>3</sup> Limited annual compensation for contributing actives

<sup>4</sup> Includes discounted State receivable contributions and Lottery proceeds as shown in Table III-2

<sup>5</sup> In addition to the amounts shown, the Statutory Contributions are satisfied by funds transferred from the Second Injury Fund in amounts equal to \$566,508 and \$595,242 for FYE 2021 and 2020, respectively.

<sup>6</sup> Includes \$16,683,561 and \$11,781,276 for FYE 2021 and 2020, respectively for Local obligations payable by the State in accordance with Chapter 366, P.L. 2001



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY**  
**JULY 1, 2019 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

<b>Table I-2</b>			
<b>Summary of Key Valuation Results</b>			
<b>Local Employers</b>			
<b>Valuation Date</b>	<b>July 1, 2019</b>	<b>July 1, 2018</b>	<b>%</b>
<b>Fiscal Year Ending (FYE)</b>	<b>2021</b>	<b>2020</b>	<b>Change</b>
<b><u>Member Data</u></b>			
Contributing Actives <sup>1</sup>	145,287	146,615	-0.9%
Non-Contributing Actives <sup>1</sup>	26,597	27,985	-5.0%
Deferred Vesteds	713	440	62.0%
Retirees and Beneficiaries <sup>2</sup>	122,643	120,192	2.0%
<b>Total Members</b>	<b>295,240</b>	<b>295,232</b>	<b>0.0%</b>
Appropriation Payroll <sup>3</sup>	\$ 7,236,080,086	\$ 7,106,248,788	1.8%
Annual Retirement Allowances in Pay	\$ 2,251,384,758	\$ 2,157,906,233	4.3%
<b><u>Assets and Liabilities</u></b>			
Actuarial Liability	\$ 35,526,210,970	\$ 33,103,627,533	7.3%
Actuarial Value of Assets (AVA) <sup>4</sup>	23,928,515,595	23,264,877,618	2.9%
Unfunded Actuarial Liability/(Surplus)	\$ 11,597,695,375	\$ 9,838,749,915	17.9%
Funded Ratio (AVA)	67.4%	70.3%	-2.9%
Market Value of Assets (MVA) <sup>4</sup>	\$ 23,249,120,186	\$ 22,645,367,115	2.7%
Unfunded Actuarial Liability/(Surplus)	\$ 12,277,090,784	\$ 10,458,260,418	17.4%
Funded Ratio (MVA)	65.4%	68.4%	-3.0%
<b><u>Contribution Amounts</u></b>			
Employer Normal Cost at End of Year <sup>5</sup>	\$ 161,070,184	\$ 90,013,363	78.9%
Amortization Payment of UAL <sup>5</sup>	956,787,538	832,962,419	14.9%
ERI Payments	9,657,753	11,317,298	-14.7%
Chapter 19, P.L. 2009 Payments	8,863,793	8,840,385	0.3%
<b>Total Statutory Contribution for FYE</b>	<b>\$ 1,136,379,268</b>	<b>\$ 943,133,465</b>	<b>20.5%</b>
Phase-in of the Impact of Assumption Changes <sup>6</sup>	(76,783,019)	0	N/A
<b>Net Local Employer Contribution</b>	<b>\$ 1,059,596,249</b>	<b>\$ 943,133,465</b>	<b>12.3%</b>
Non-Contributory Group Insurance Contribution	\$ 52,875,923	\$ 49,734,428	6.3%

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

<sup>2</sup> QDRO recipients are excluded from member counts

<sup>3</sup> Limited annual compensation for contributing actives

<sup>4</sup> Includes discounted State receivable contributions as shown in Table III-2

<sup>5</sup> Excludes \$16,683,561 and \$11,781,276 for FYE 2021 and 2020, respectively for Local obligations payable by the State in accordance with Chapter 366, P.L. 2001

<sup>6</sup> Only includes impact of assumption changes from the July 1, 2014 - June 30, 2018 Experience Study. The impact of the valuation interest rate change is not phased-in.

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**JULY 1, 2019 ACTUARIAL VALUATION**

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The key results of the July 1, 2019 actuarial valuation **for the State** are as follows:

- The total Statutory contribution increased from \$1,432 million for FYE 2020 to \$1,623 million for FYE 2021 prior to any adjustments for the potential Appropriations Act of 2021 or the Lottery Enterprise offset.
- The funded ratio, the ratio of actuarial asset value over liabilities, decreased from 33.9% to 31.2%. 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, decreased from 45.1% as of July 1, 2018 to 41.6% as of July 1, 2019. Using the market value of assets, the funded ratio also decreased from 31.7% to 29.0%.
- The unfunded actuarial liability based on the actuarial asset value plus special asset value increased from \$13.0 billion on July 1, 2018 to \$15.0 billion on July 1, 2019. The unfunded actuarial liability used in determining the Statutory contributions (excess of actuarial liability over the actuarial value of assets) increased from \$15.7 billion to \$17.6 billion.
- During the year, there was a total actuarial experience loss of \$609 million, consisting of an asset loss of \$148 million and a liability loss of \$461 million. The rate of return on the actuarial value of assets was 5.46% compared to the expected return of 7.50%, resulting in the \$148 million asset loss.
- The reduction in the assumed rates of investment return from 7.50% to 7.30% increased the actuarial liability by \$498 million.
- The updates in the assumed rate of termination, disability, retirement, mortality, salary increase and inflation as a result of the recently completed experience study increased the actuarial liability by \$584 million.
- The policy update for the crediting of interest on member contributions for the purpose of refunds of accumulated deductions decreased the actuarial liability by \$6.6 million.

The key results of the July 1, 2019 actuarial valuation **for Local employers** are as follows:

- The total Statutory contribution increased from \$943 million for FYE 2020 to \$1,136 million for FYE 2021 prior to any phase-in.
- The funded ratio, the ratio of actuarial asset value over liabilities, decreased from 70.3% as of July 1, 2018 to 67.4% as of July 1, 2019. Based on the market value of assets, the funded ratio also decreased from 68.4% to 65.4%.
- The unfunded actuarial liability increased from \$9.8 billion on July 1, 2018 to \$11.6 billion July 1, 2019 on an actuarial value of assets basis.
- During the year, there was a total actuarial experience loss of \$392 million, consisting of an asset loss of \$185 million and a liability loss of \$207 million. The rate of return on the actuarial value of assets was 6.72% compared to the expected return of 7.50%, resulting in the \$185 million asset loss.
- The reduction in the assumed rate of investment return from 7.50% to 7.30% increased the actuarial liability by \$673 million.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

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- The updates in the assumed rates of termination, disability, retirement, mortality, salary increase and inflation as a result of the recently completed experience study increased the actuarial liability by \$719 million.
- The policy update for the crediting of interest on member contributions for the purpose of refunds of accumulated deductions decreased the actuarial liability by \$6.4 million.
- In addition, the FYE 2021 Statutory pension contribution increased by \$115 million due to the assumption changes from the recently completed experience study. The Board of Trustees adopted a three-year phase-in of this impact. As a result, the FYE 2021 Local employers' net pension contribution reflects 1/3<sup>rd</sup> of the impact, or \$38 million. This results in a reduction in the Local employers' FYE 2021 net pension contribution of \$77 million (\$115 million - \$38 million).

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**JULY 1, 2019 ACTUARIAL VALUATION**

**SECTION I – BOARD SUMMARY**

**Recent Trends**

Although most of the attention given to the valuation reflects the most recently 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. For 2019, the liability increased due to the reduction in the assumed rate of investment return from 7.50% to 7.30% and the assumption changes resulting from the experience study.

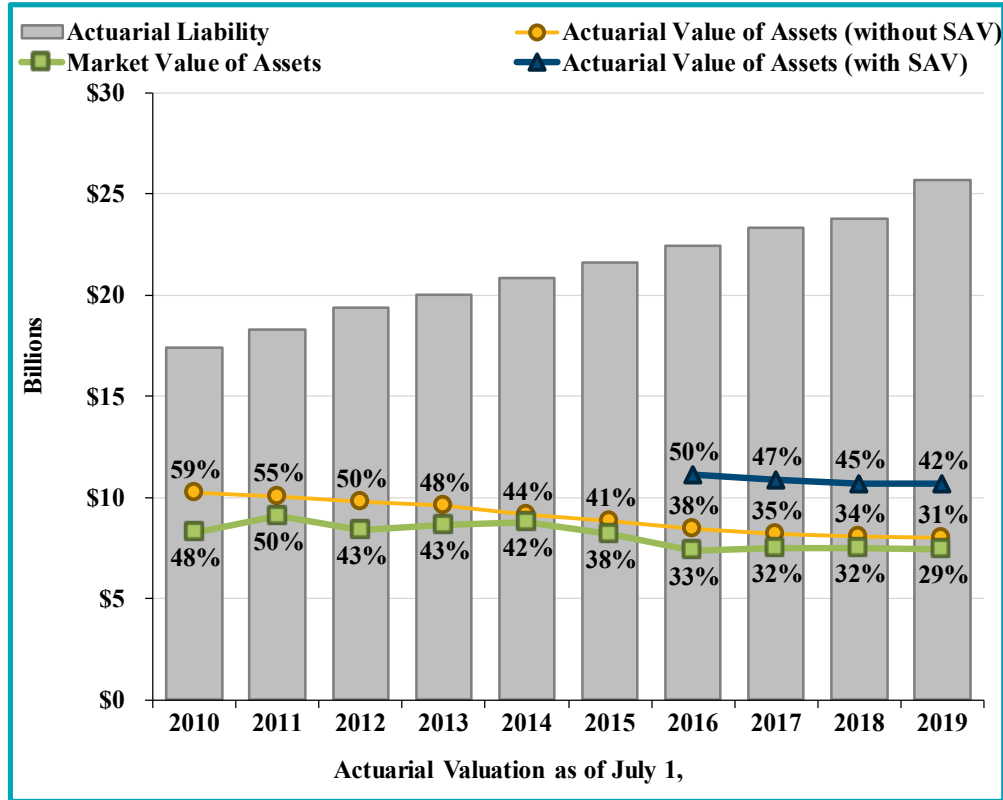
For State, the funded ratio has been decreasing over time in part due to decreases in the discount rate, recognition of the 2008/2009 market losses and because the State has not been making the full Statutory contribution for the entire period shown.

For Local employers, 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 were immediately recognized in the MVA.) In addition, while Local employers have been making the full Statutory contribution, the State has not been making the full State-paid Local Statutory contribution for the entire period shown. To date, the State-paid Local Statutory contributions have been small relative to the overall Statutory contribution. However, the State-paid Local obligations are expected to increase in the next few years with the expected depletion of the Benefit Enhancement Fund (BEF). Upon depletion, the State will be responsible for the Local employer normal cost associated with Chapter 133, P.L. 2001.

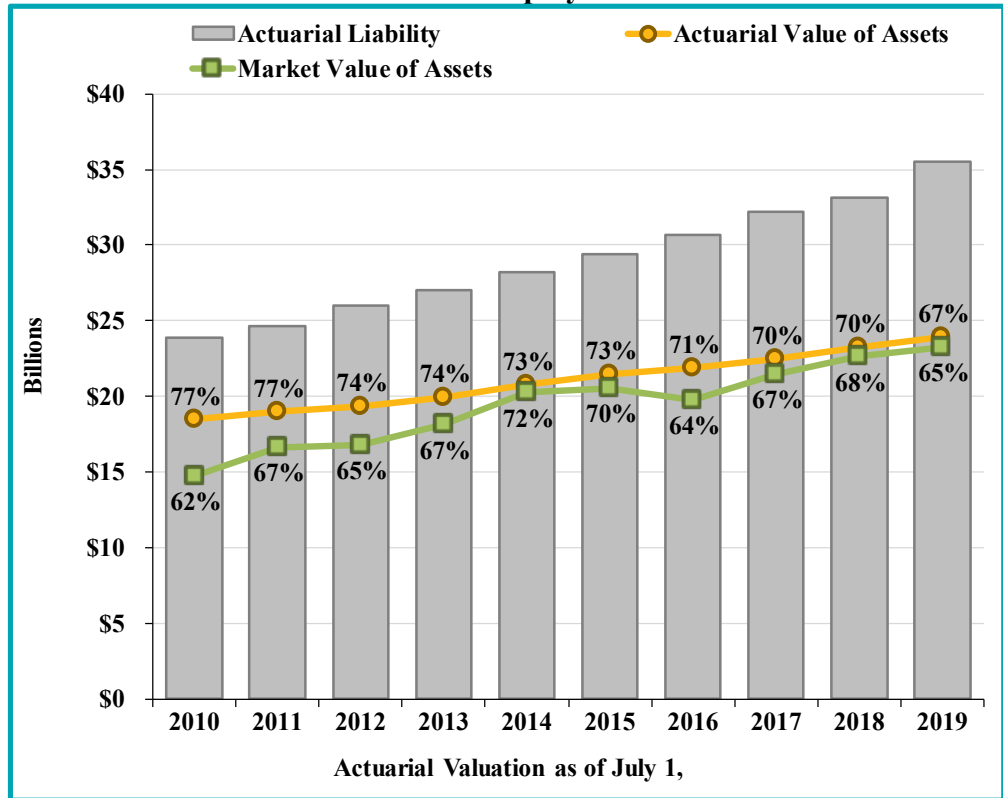
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**SECTION I – BOARD SUMMARY**

**State**



**Local Employers**



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JULY 1, 2019 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 1.0, there are almost as many active members as inactive 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.

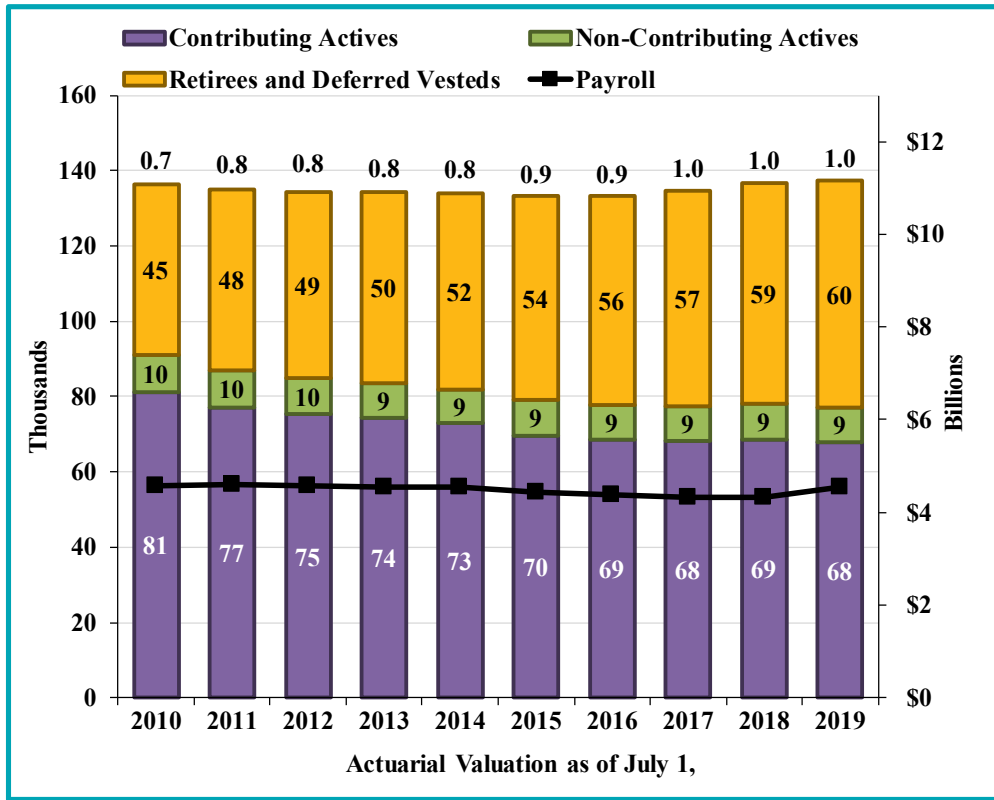
Valuations for 2017 and later reflect all records for multiple members, which are active members employed by more than one participating employer at the same time.

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.

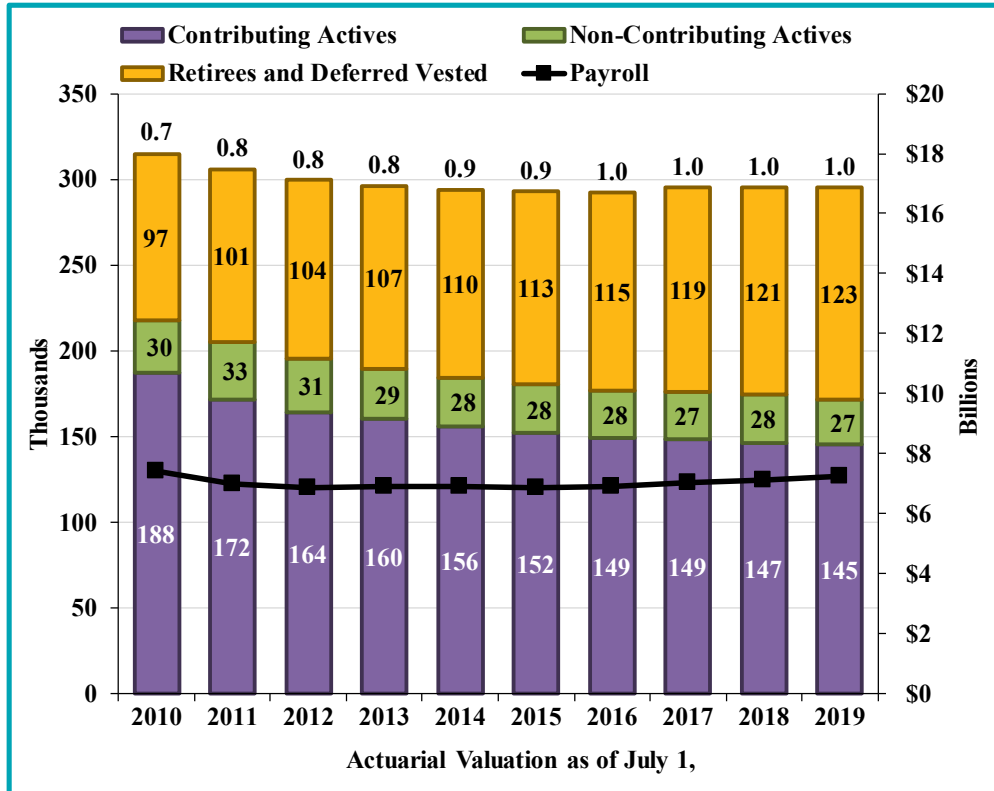
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**State**



**Local Employers**



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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.

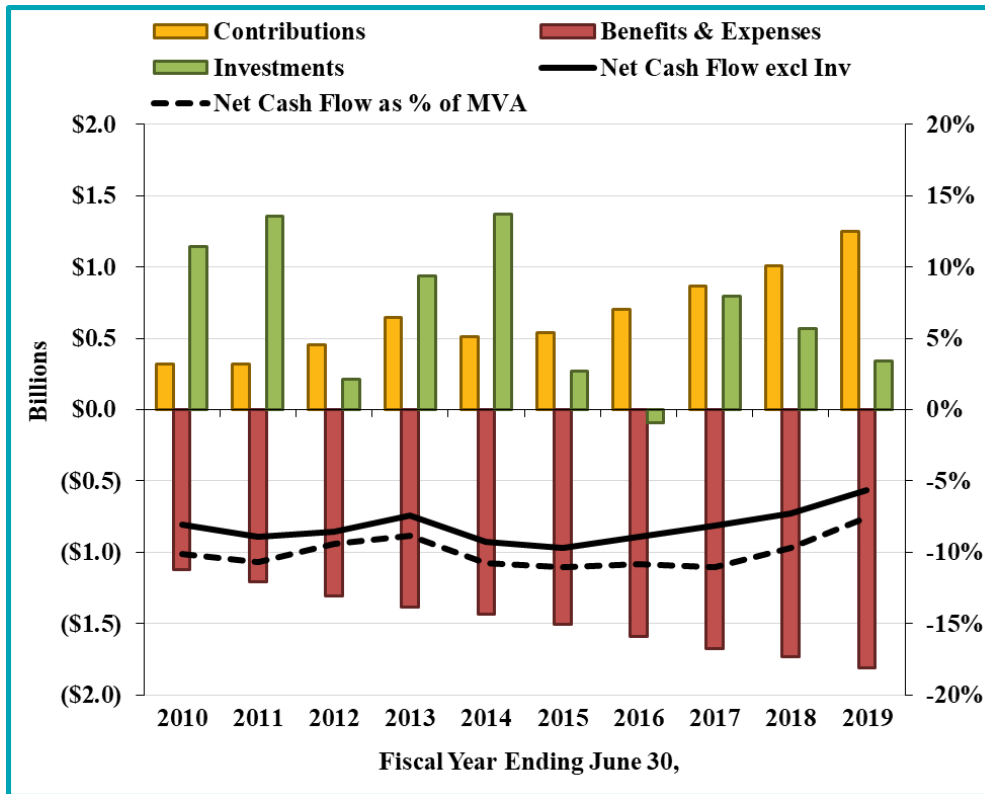
The net cash flow for State has been significantly more negative than the net cash flow for Local employers, and even more disconcerting is that the negative cash flow as a percentage of the market value of assets for State is greater than the long-term investment return assumption. By itself, this represents a plan that is expected to defund with the risk of insolvency if the contributions do not catch up to cover a higher portion of the benefit payments and expenses. In 2019, the net cash flow was -7.5%, which implies the assumed investment return if achieved at 7.30% will not cover this difference. Because the State appropriation percentages have increased by 10% per year, the State's negative cash flow has improved since 2017.



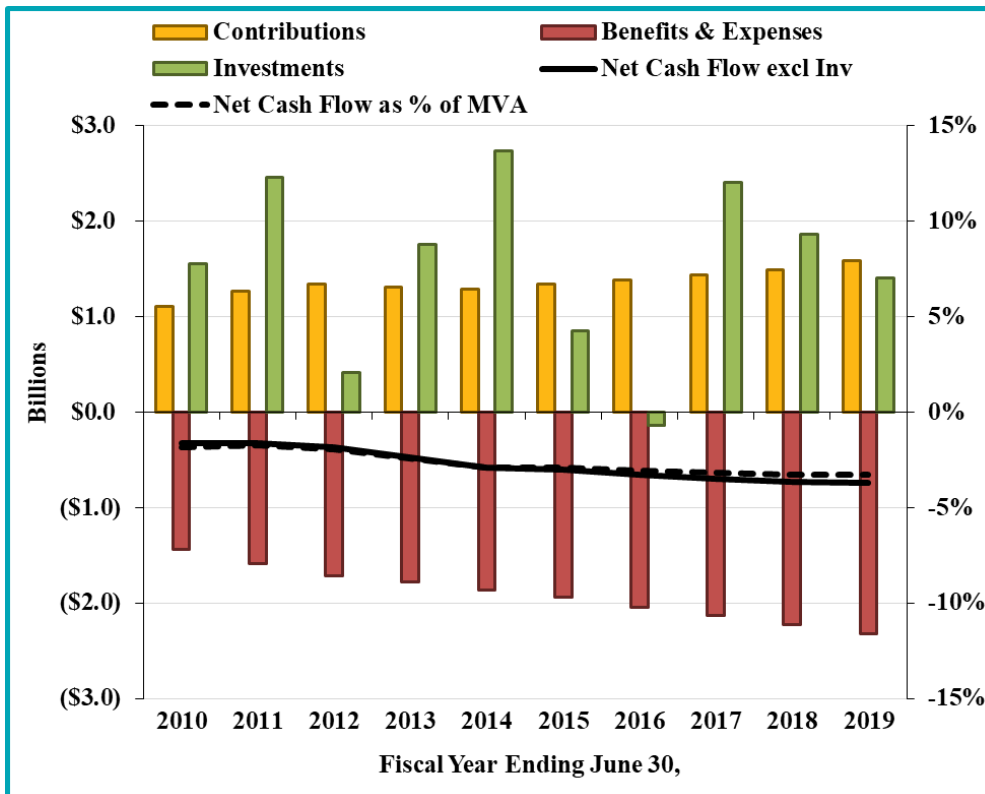
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**State**



**Local Employers**



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**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 2020 and 2021, the green line has a lighter shade to indicate that these are expected, rather than actual, contributions. The expected contributions are based on the anticipated appropriations 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.

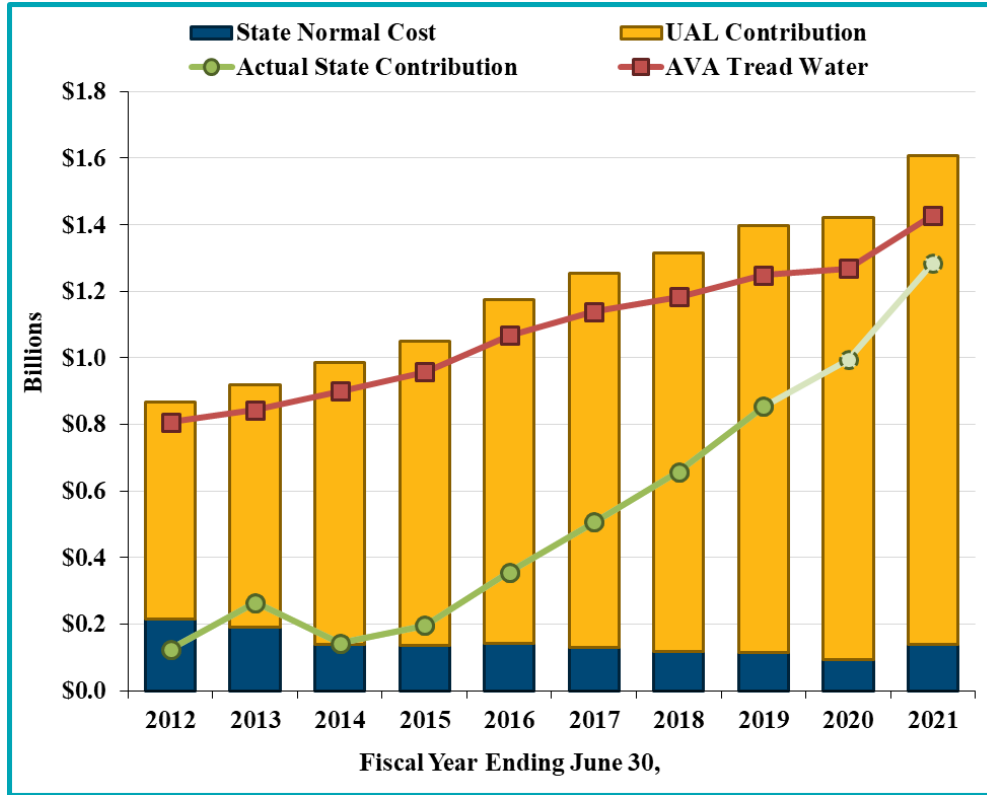
The graph for State shows that not only has the State been making contributions less than required by Statute, but that the State contributions have historically been significantly below the tread water line. When contributions are lower than the normal cost plus interest on the UAL, the unfunded actuarial liability is expected to grow from one year to the next. For FYE 2020 and 2021, the State is expected to appropriate 70% and 80% of the Statutory contribution, respectively.

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, 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.

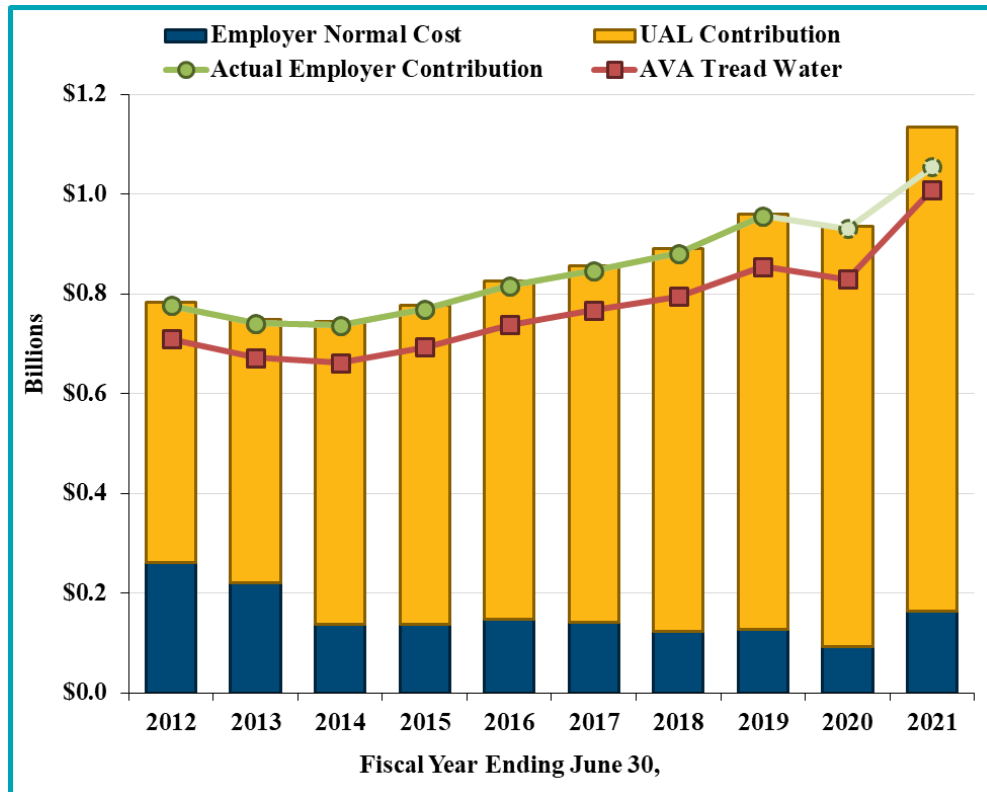
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**SECTION I – BOARD SUMMARY**

**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 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 + 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 remain level over the next few years, as the State appropriates less than the Statutory amount and the valuation investment rate of return assumption decreases from 7.30% to 7.00%, before beginning a slow but steady increase to 100% by 2049.

The Local employers' funded ratio on an Actuarial Value of Assets basis is projected to drop slightly over the next few years, as the State appropriates less than the Statutory State-paid Local obligation and the valuation investment rate of return assumption decreases from 7.30% to 7.00%, before beginning a slow but steady increase to 86% by 2049.

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The funded ratio for State increases faster than the Local employers' portion and reaches 100% compared to 86% 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.

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 gold and green outline shows the full Statutory contributions for the State and Local employers, respectively, with the shaded portion showing the anticipated appropriated amount.

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. The lottery revenue through FYE 2022 largely offsets the Statutory contribution while lottery amounts after that include 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 appropriates 80% of the Statutory contribution in FYE 2021, and increases the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023. Local employers contribute 100% of the Statutory amount, except in FYE 2021 and 2022 as the impact of the assumption changes from the July 1, 2014 – June 30, 2018 Experience Study is phased in. 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 contributions fall below the solid black line, as is the case through FYE 2021 for the State, the UAL is expected to increase and the funded ratio is expected to decrease. When the contributions exceed the solid line, as is the case beginning in FYE 2022 for State and in all years for Local employers, the UAL is expected to decrease and the funded ratio is expected to increase.

The Statutory State contributions increase steadily through FYE 2023 as the State appropriates less than the Statutory amount and the valuation investment rate of return assumption decreases from 7.30% to 7.00%. Thereafter, the Statutory contributions remain relatively steady until the lottery revenue stops. Once the appropriated amount equals the Statutory contribution, beginning in FYE 2023, the contributions reach the level necessary to pay down the UAL and the tread water line begins to decrease relative to the Statutory contribution.

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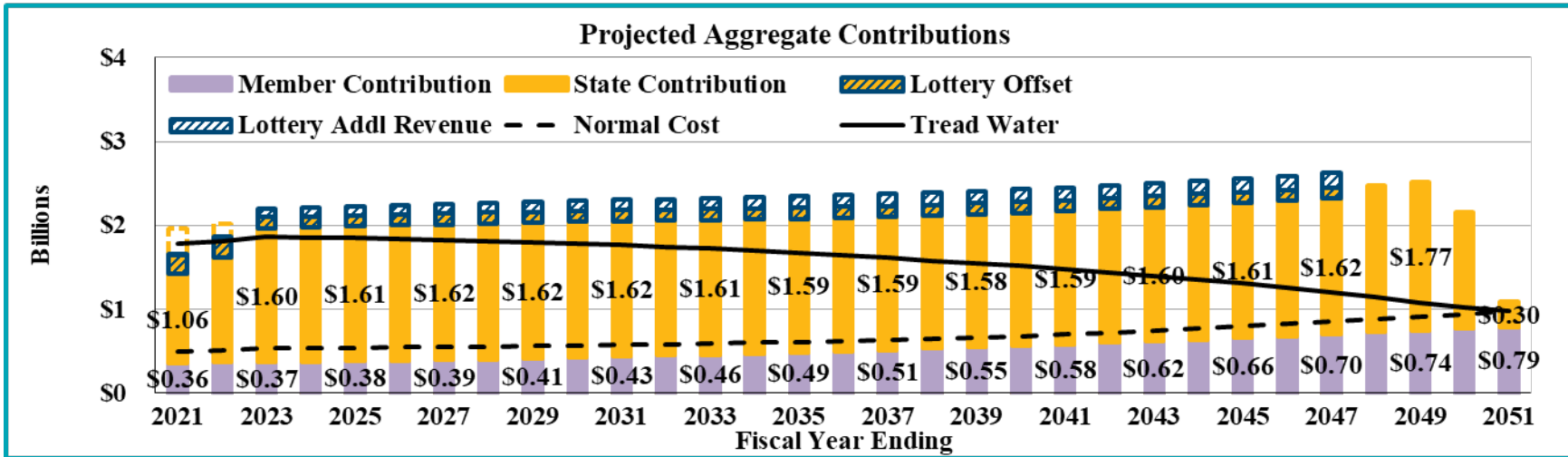
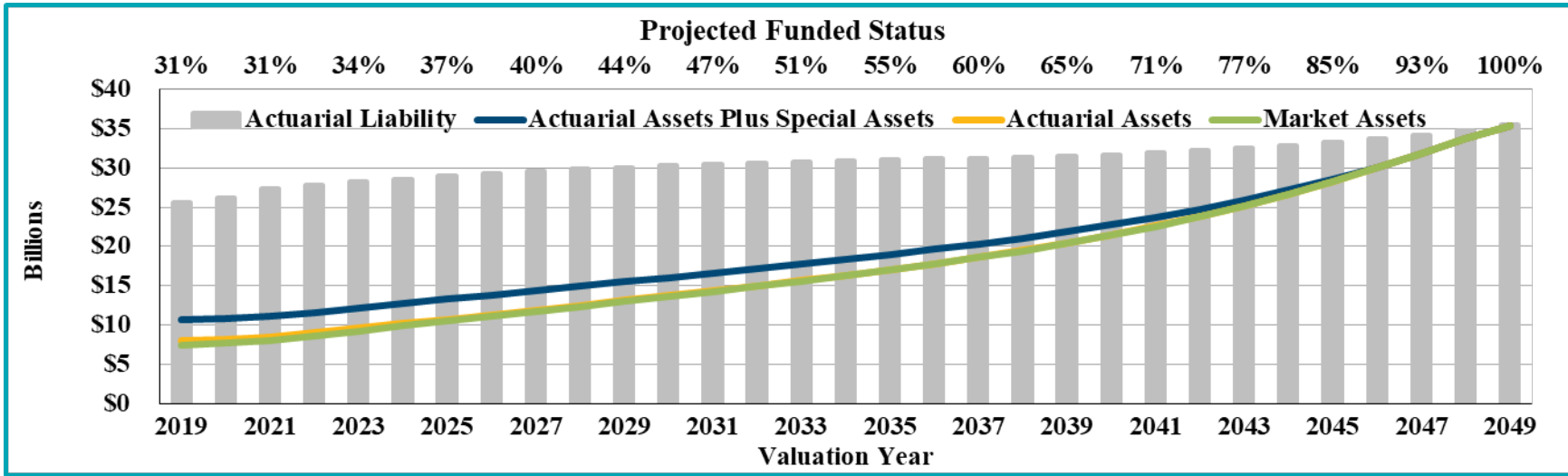
The Local employers' contributions increase steadily through FYE 2023 as the State appropriates less than the Statutory State-paid Local obligation and the valuation investment rate of return assumption decreases from 7.30% to 7.00%. Thereafter, the Local employers' contributions gradually increase. The State-paid Local contributions are expected to increase starting in FYE 2022 as the Benefit Enhancement Fund becomes depleted and the State becomes responsible for the Local employers Chapter 133, P.L. 2001 normal cost. Soon after that, the State-paid Local contributions gradually decrease as the population eligible for the Chapter 133, P.L. 2001 benefit enhancements decreases.

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**Baseline: 7.0% return for all years**

State

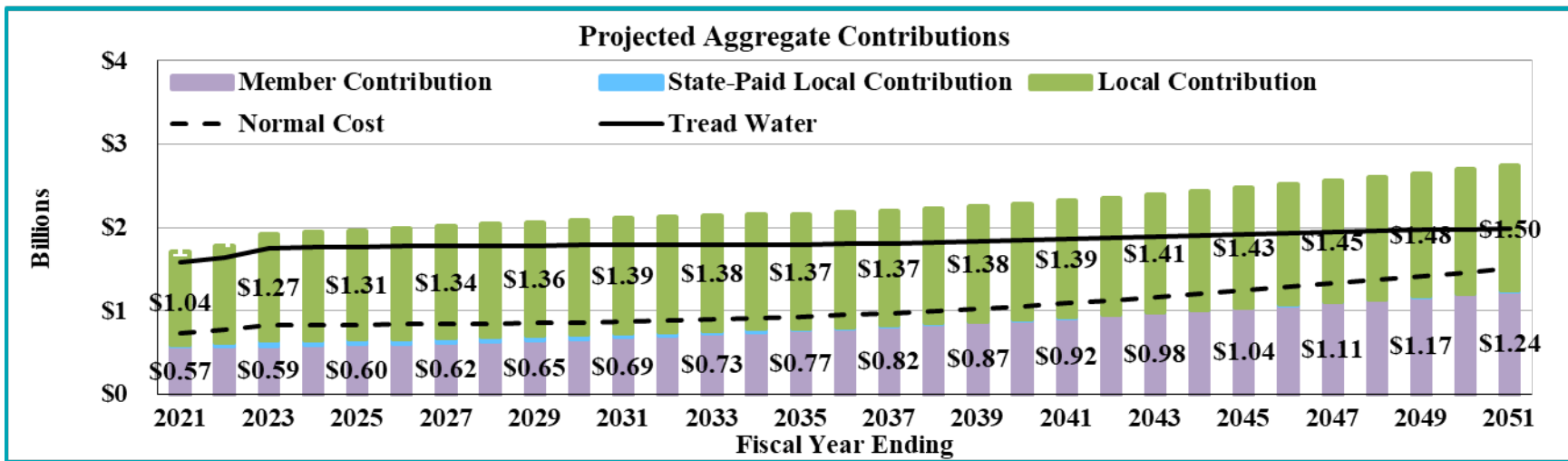
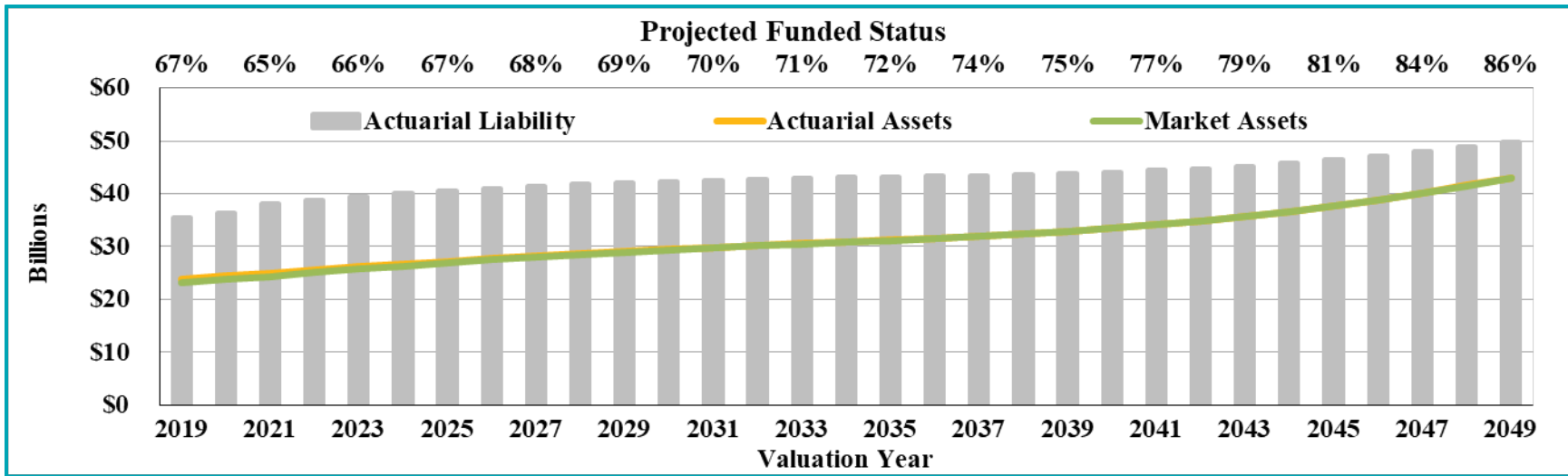


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**Baseline: 7.0% return for all years**

**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.

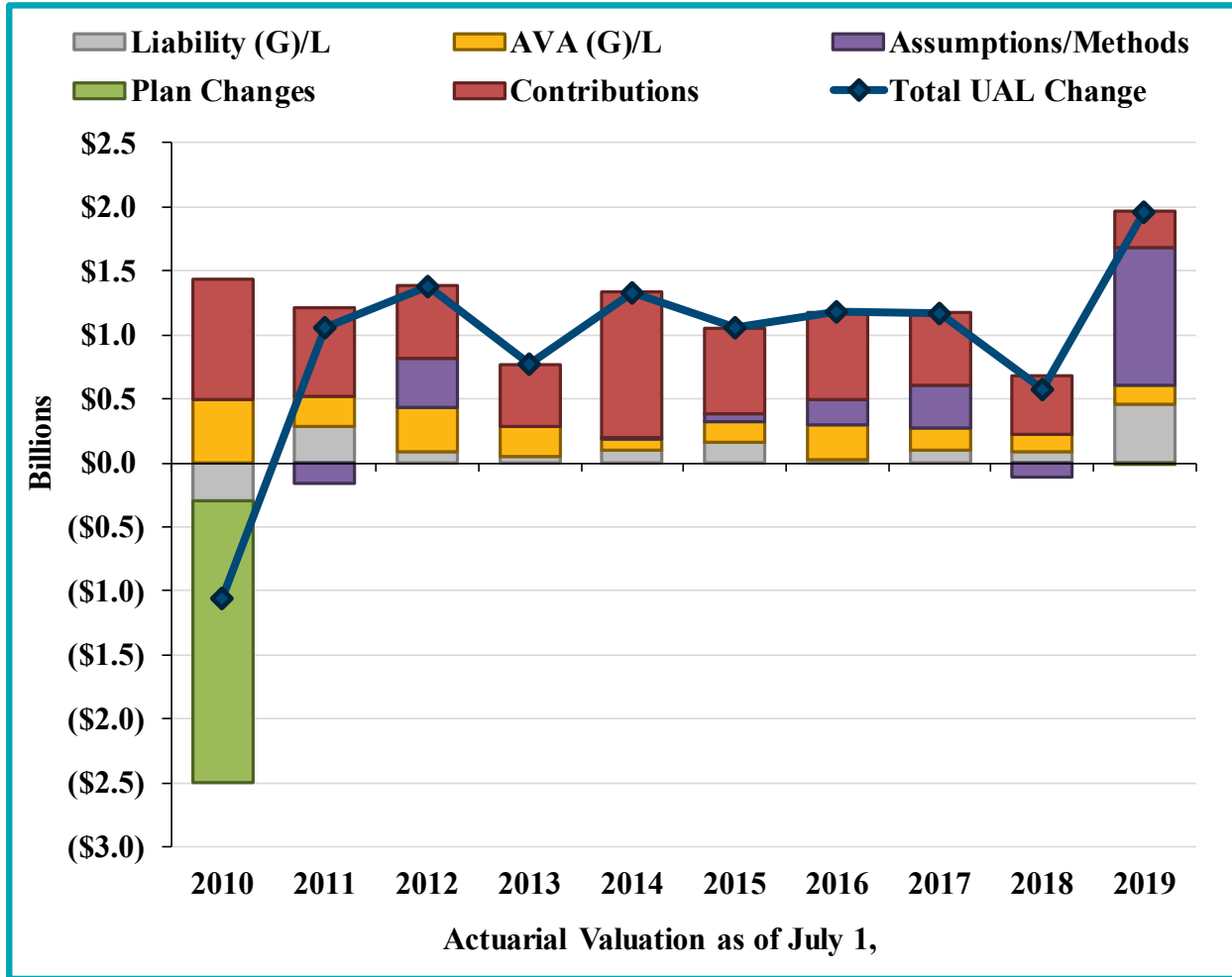
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These total changes in UAL support our identification of investment returns, assumption changes, and contributions as the primary risks to the System.

**Historical Changes in UAL 2010-2019**

**State**



Actuarial Valuation as of July 1,

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

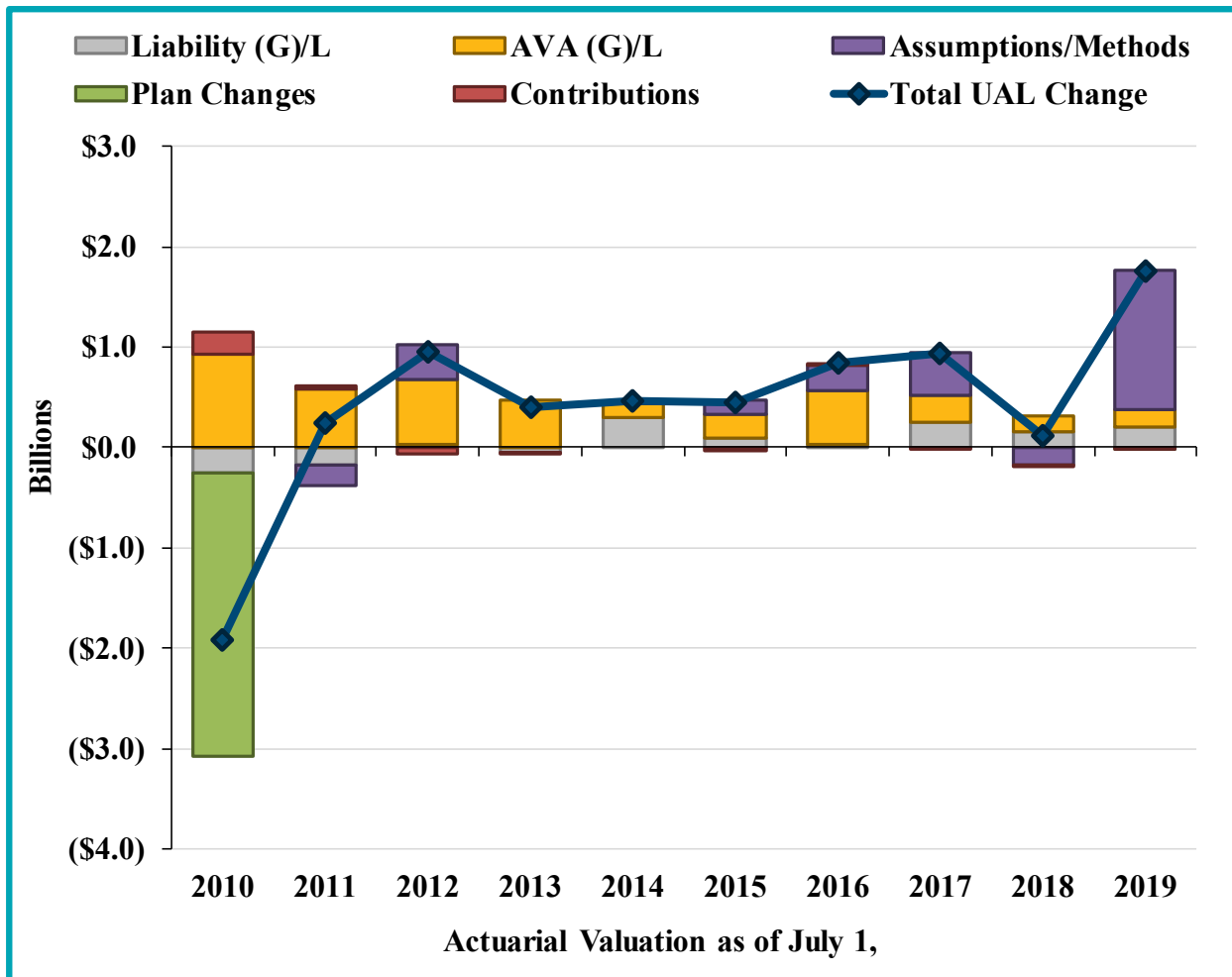
	2010	2011	2012	2013	State 2014	2015	2016	2017	2018	2019	Total
<b>Discount Rate</b>	8.25%	7.95%	7.90%	7.90%	7.90%	7.90%	7.65%	7.50%	7.50%	7.30%	
<b>Source</b>											
AVA (G)/L	\$ 490.0	\$ 243.2	\$ 346.2	\$ 243.8	\$ 87.5	\$ 162.4	\$ 274.0	\$ 171.9	\$ 131.0	\$ 140.7	\$ 2,290.7
Liability (G)/L	(296.1)	281.3	84.4	47.3	95.3	164.5	21.2	103.2	93.3	461.3	1,055.7
Assumptions/Methods	0.0	(155.1)	389.7	0.0	10.7	53.2	199.0	328.7	(112.3)	1,081.7	1,795.7
Plan/Policy Changes	(2,203.5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.6)	(2,210.1)
Contributions <sup>1</sup>	951.6	682.8	560.5	479.3	1,141.6	672.7	683.4	567.9	460.2	283.5	6,483.5
<b>Net UAL Change</b>	<b>\$(1,057.9)</b>	<b>\$ 1,052.3</b>	<b>\$ 1,380.7</b>	<b>\$ 770.4</b>	<b>\$ 1,335.2</b>	<b>\$ 1,052.8</b>	<b>\$ 1,177.6</b>	<b>\$ 1,171.7</b>	<b>\$ 572.1</b>	<b>\$ 1,960.7</b>	<b>\$ 9,415.4</b>

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

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**Local Employers**



Actuarial Valuation as of July 1,

**Table II-2  
Changes in Unfunded Actuarial Liability  
(Dollar amounts in millions)  
Local Employers**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
<b>Discount Rate</b>	8.25%	7.95%	7.90%	7.90%	7.90%	7.90%	7.65%	7.50%	7.50%	7.30%	
<b>Source</b>											
AVA (G)/L	\$ 934.2	\$ 590.3	\$ 647.7	\$ 464.5	\$ 129.1	\$ 234.6	\$ 536.0	\$ 263.1	\$ 154.9	\$ 169.8	\$ 4,124.2
Liability (G)/L	(251.1)	(169.5)	35.8	(49.5)	303.9	90.1	28.9	249.2	161.1	207.2	606.1
Assumptions/Methods	0.0	(203.3)	337.1	0.0	12.6	152.6	252.0	439.2	(176.7)	1,392.6	2,205.9
Plan/Policy Changes	(2,822.6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(6.4)	(2,829.0)
Contributions <sup>1</sup>	218.8	27.6	(70.0)	(20.1)	15.6	(29.6)	20.5	(9.2)	(16.2)	(4.2)	133.2
<b>Net UAL Change</b>	<b>\$(1,920.7)</b>	<b>\$ 245.0</b>	<b>\$ 950.7</b>	<b>\$ 394.8</b>	<b>\$ 461.2</b>	<b>\$ 447.7</b>	<b>\$ 837.4</b>	<b>\$ 942.2</b>	<b>\$ 123.0</b>	<b>\$ 1,758.9</b>	<b>\$ 4,240.3</b>

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

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On a smoothed asset basis, the investment gains and losses (gold bars) from 2010 to 2019 reflect material investment losses driven by the market decline of 2008 and 2009, which was spread over the five successive years. In aggregate, over the 10-year period, investment losses have added approximately \$2,290.7 million to the State's UAL and approximately \$4,124.2 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 \$1,055.7 million for the State and \$606.1 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 \$1,795.7 million for the State and \$2,205.9 million for Local employers. The significant assumption changes have included reductions in the discount rate from 8.25% to 7.30% 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 \$2,210.1 million for the State and \$2,829.0 million for Local employers. The significant plan change that occurred in 2010 was the suspension of future COLAs.

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 \$6,483.5 million and increased Local employers' UAL by approximately \$133.2 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.

### **Plan Maturity Measures**

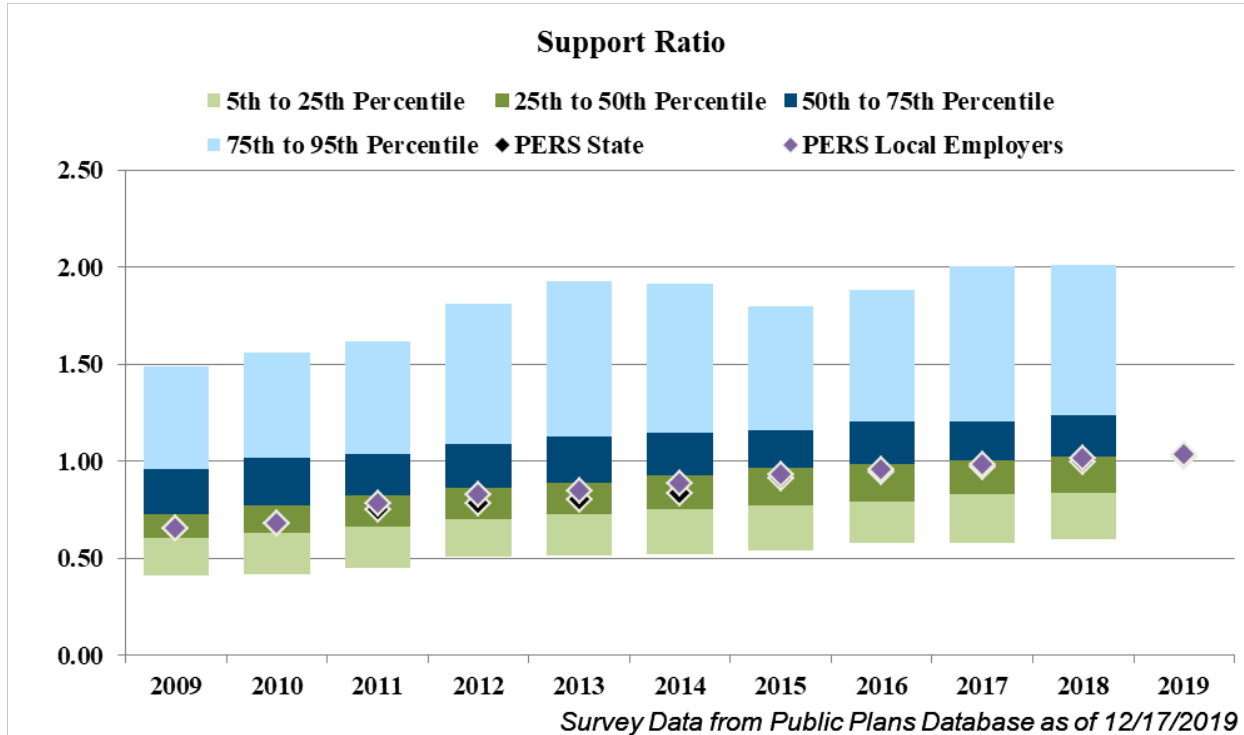
The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the plan compared to other plans and how the maturity has changed over time.

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.

**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.



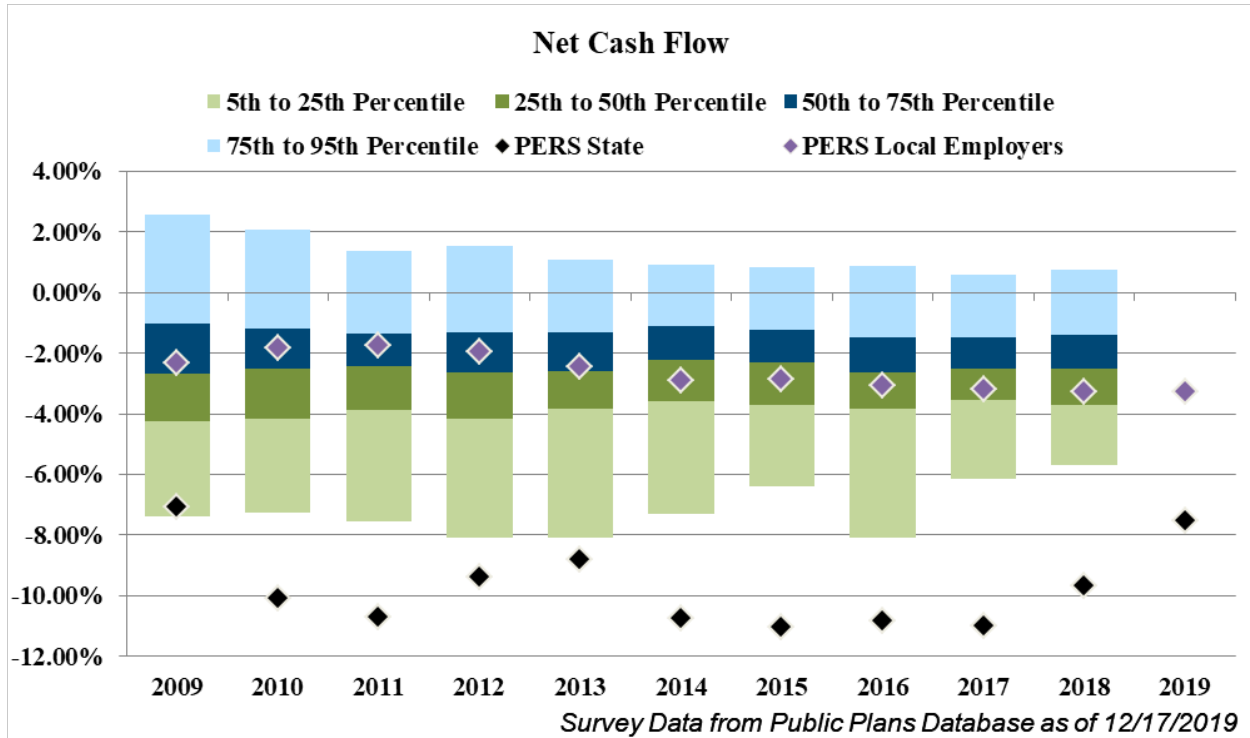
The chart above shows the distribution from the 5<sup>th</sup> to 95<sup>th</sup> percentile of support ratios for the plans in the Public Plans Database. The diamonds show how the State (black) and Local employers (purple) compare dating back to 2009. Note that the PERS support ratios for State and 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 50<sup>th</sup> 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.

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The chart above shows the distribution from the 5<sup>th</sup> to 95<sup>th</sup> 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. Since the Great Recession, the State has been at or below the 5<sup>th</sup> percentile compared to the database of other public plans in terms of negative cash flow as a percentage of assets. The Local employers were above the 50<sup>th</sup> percentile from 2009 to 2013 and have since fallen closer to the 25<sup>th</sup> 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 the ultimate 7.00% investment return assumption each and every year beginning July 1, 2019.

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**SECTION II – ASSESSMENT AND DISCLOSURE OF RISK**

For stress testing purposes, we developed six hypothetical scenarios to illustrate the impact actual 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 7.07%, standard deviation of 11.89%).

<b>Distribution of Expected Average Annual Returns</b>		
<b>Percentile</b>	<b>1 Year</b>	<b>5 Year</b>
5%	-10.7%	-1.3%
25%	-0.6%	3.6%
50%	7.1%	7.1%
75%	15.3%	10.7%
95%	28.3%	16.1%

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.

<b>FYE</b>	<b>Theoretical Scenarios</b>					
	<b>1-Yr Shock</b>		<b>5-Yr Moderate</b>		<b>5-Yr Significant</b>	
	<b>Neg</b>	<b>Pos</b>	<b>Neg</b>	<b>Pos</b>	<b>Neg</b>	<b>Pos</b>
2020	-10.7%	28.3%	3.6%	10.7%	-1.3%	16.1%
2021	7.0%	7.0%	3.6%	10.7%	-1.3%	16.1%
2022	7.0%	7.0%	3.6%	10.7%	-1.3%	16.1%
2023	7.0%	7.0%	3.6%	10.7%	-1.3%	16.1%
2024	7.0%	7.0%	3.6%	10.7%	-1.3%	16.1%
2025+	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.

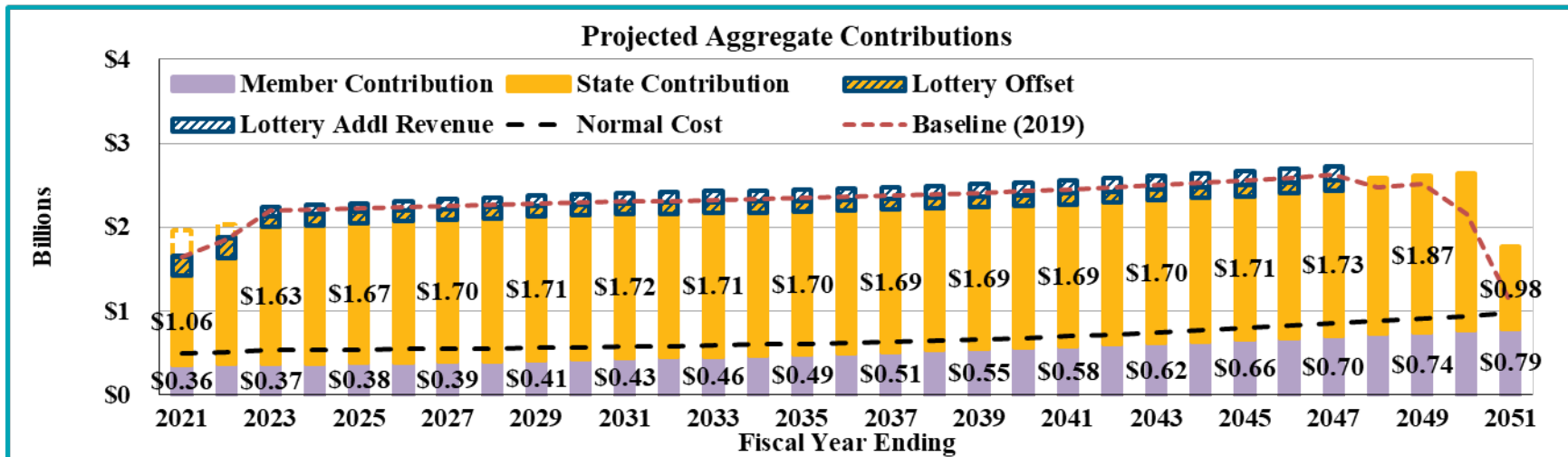
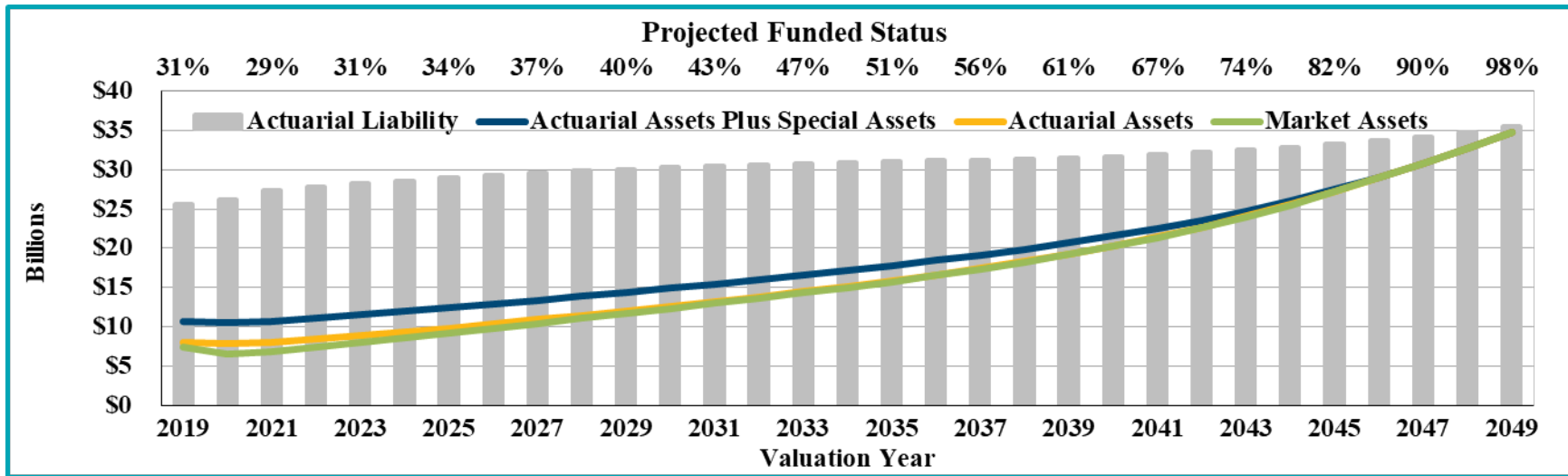
The graphs on the following pages show the projections under each of these theoretical scenarios. Instead of the tread water line shown for the baseline projection, the contribution graphs include a dashed red line representing the expected contributions under the baseline projections shown in the Summary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

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**One-Year Negative Shock Scenario: -10.7% return FYE 2020, 7.0% after**

State



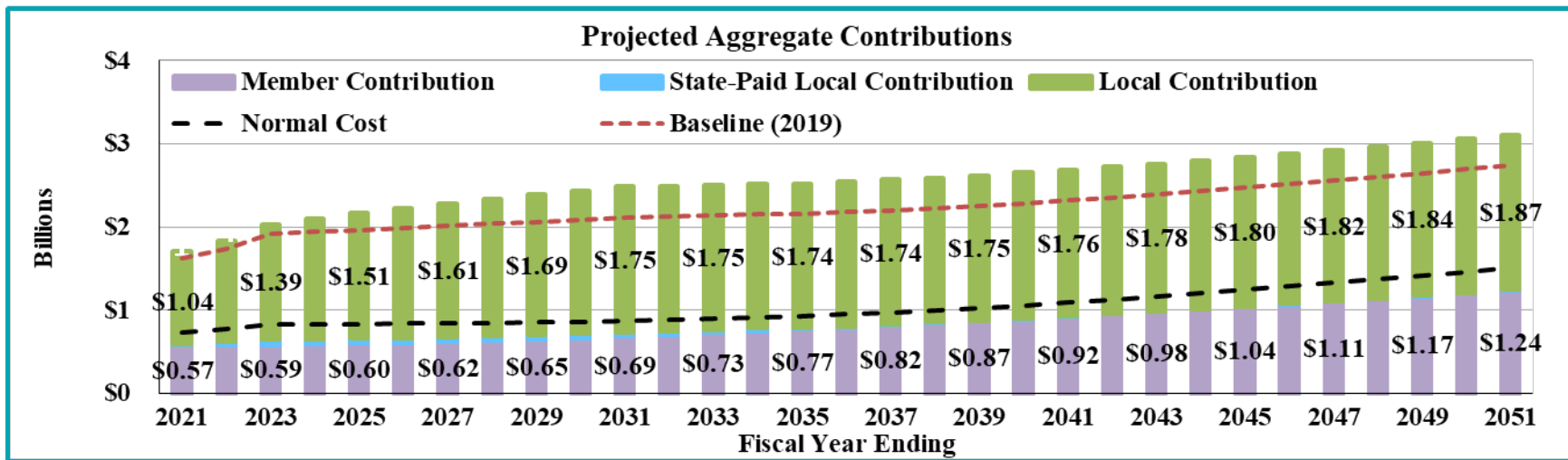
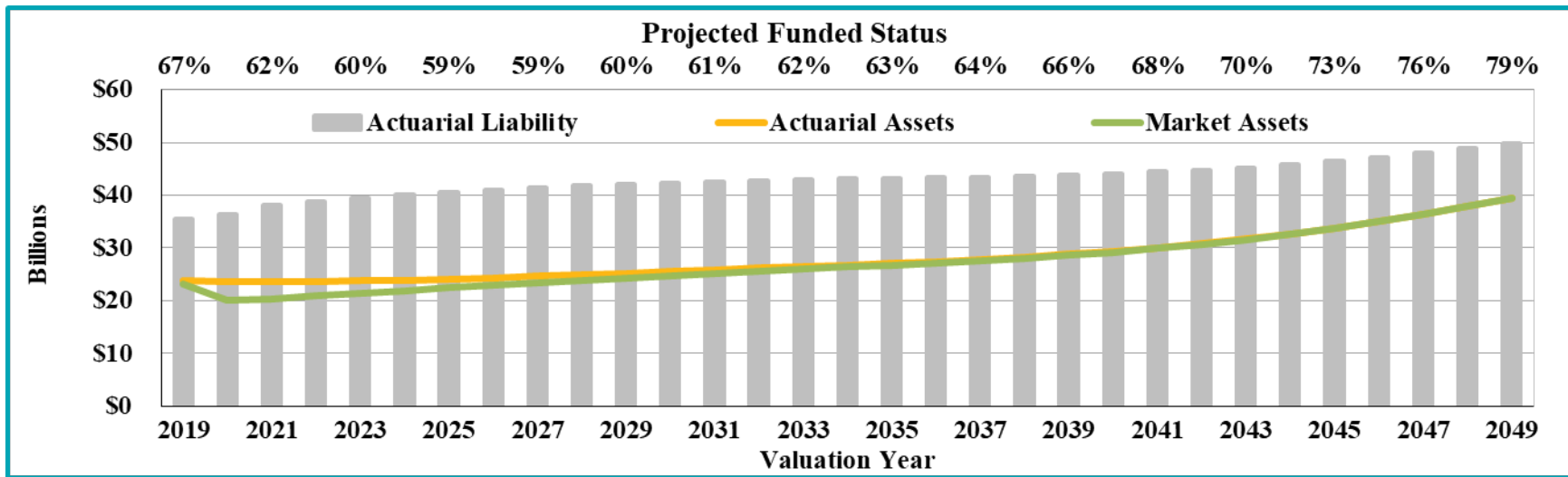


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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**One-Year Negative Shock Scenario: -10.7% return FYE 2020, 7.0% after**

**Local Employers**

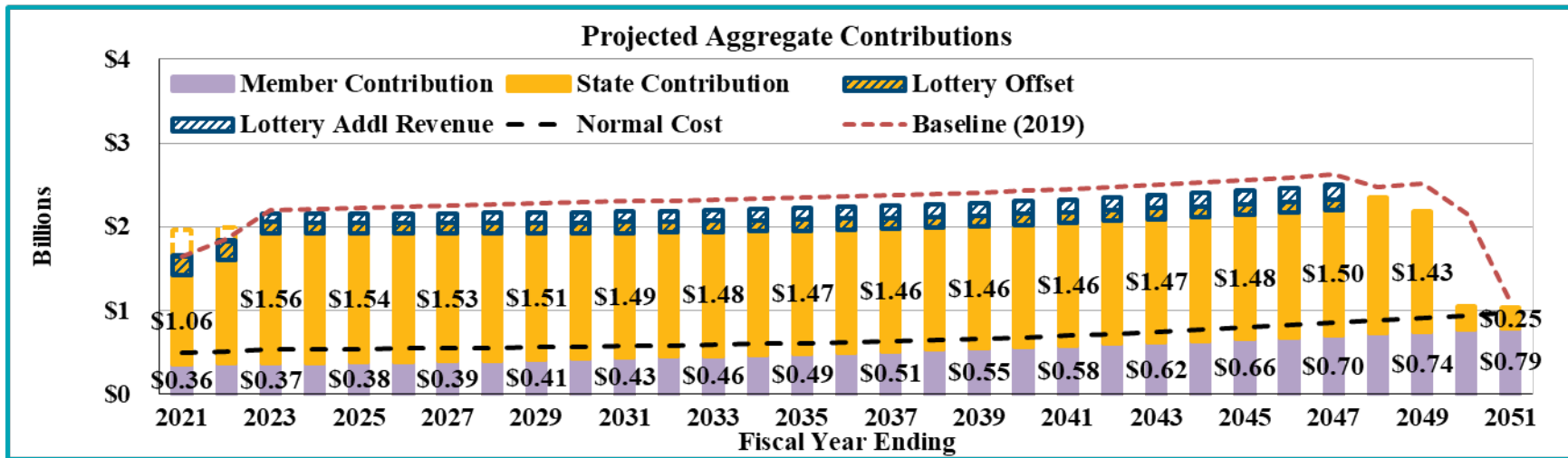
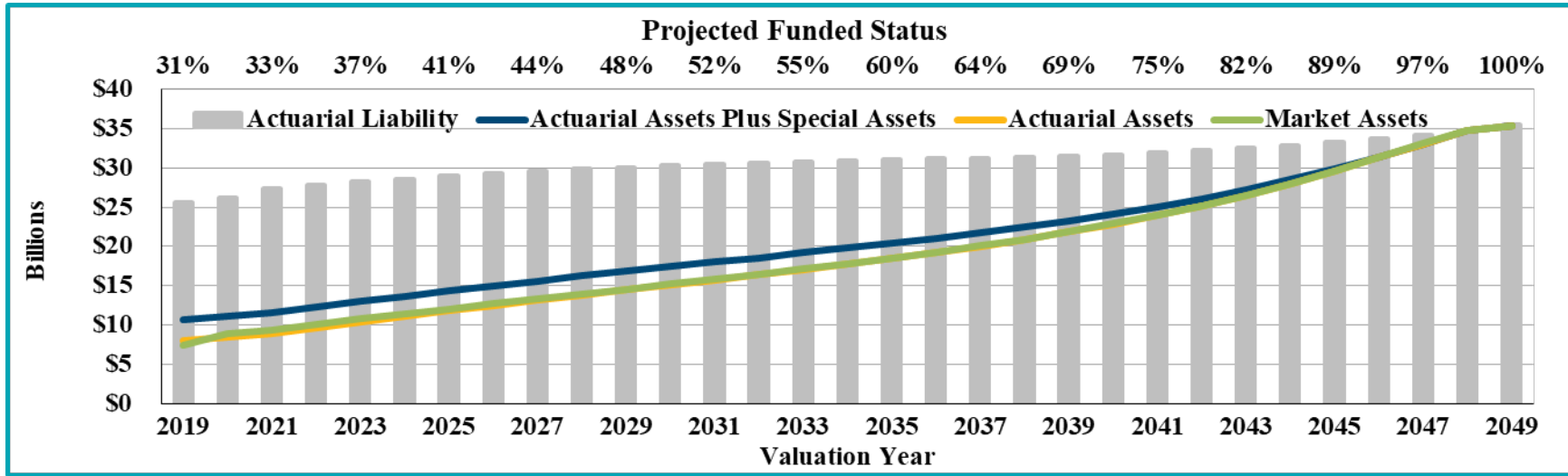


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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**One-Year Positive Shock Scenario: 28.3% return FYE 2020, 7.0% after**

State

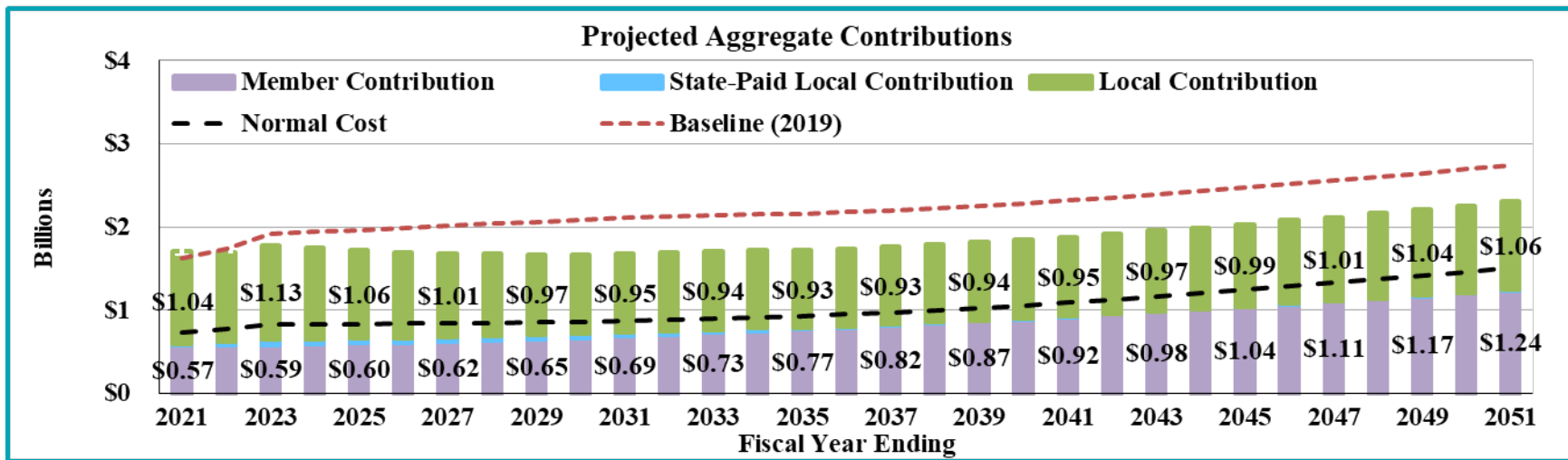
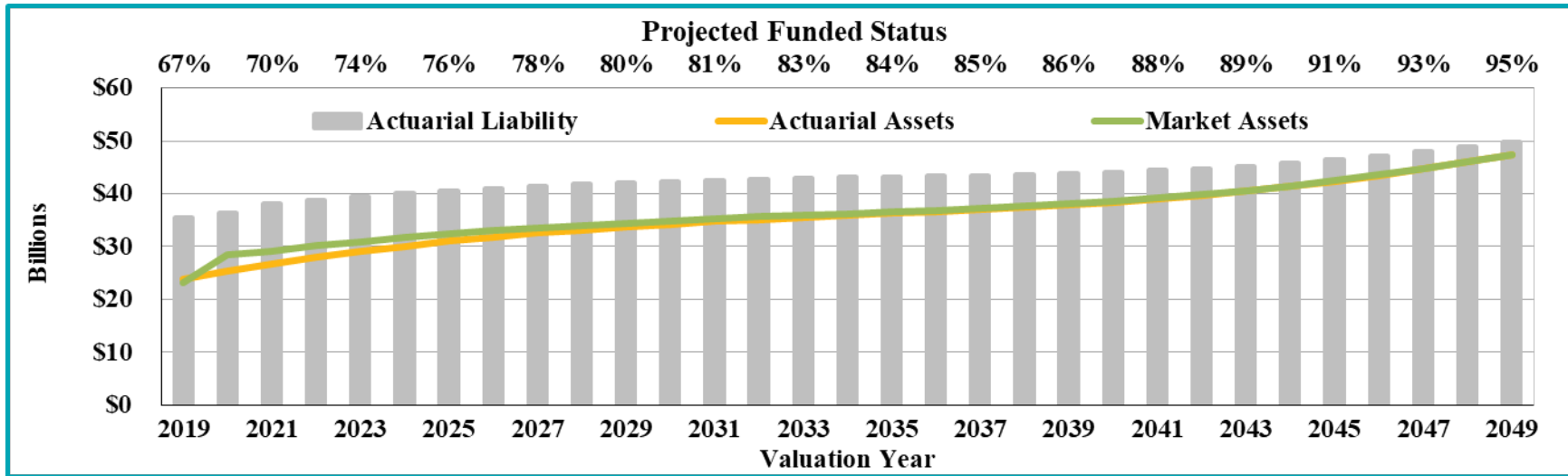


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
 JULY 1, 2019 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**One-Year Positive Shock Scenario: 28.3% return FYE 2020, 7.0% after**

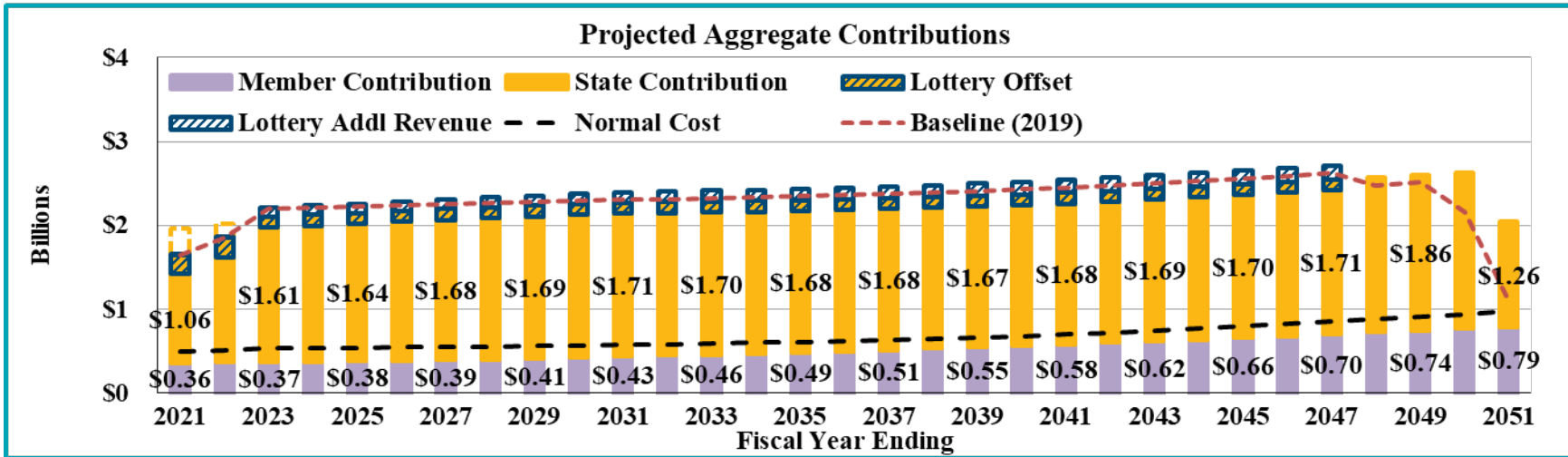
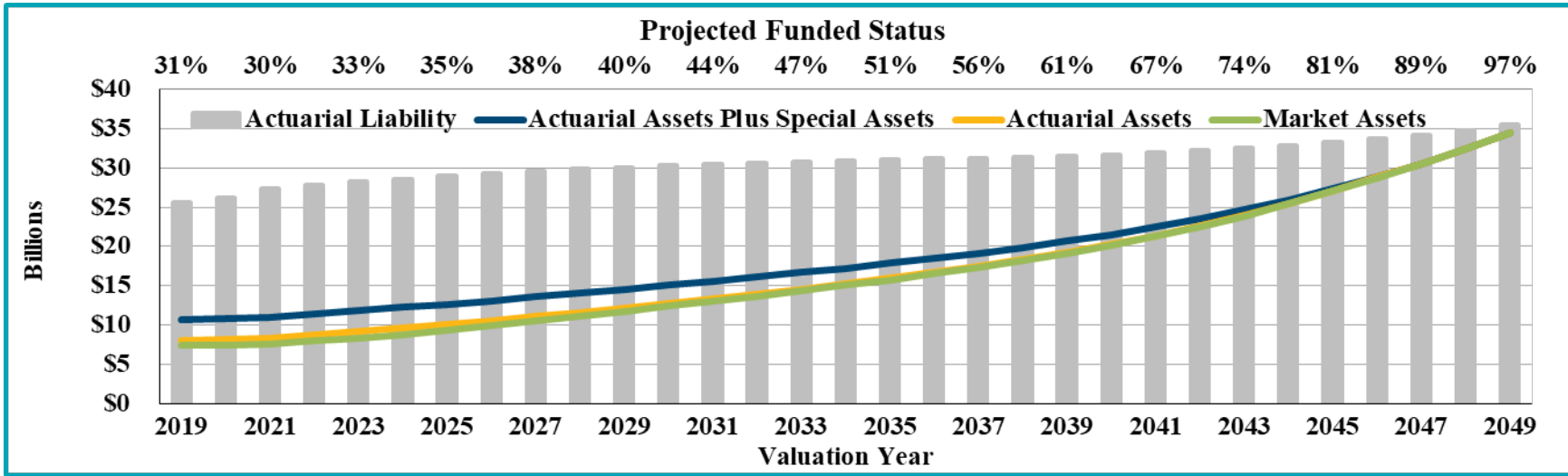
**Local Employers**



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 JULY 1, 2019 ACTUARIAL VALUATION

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

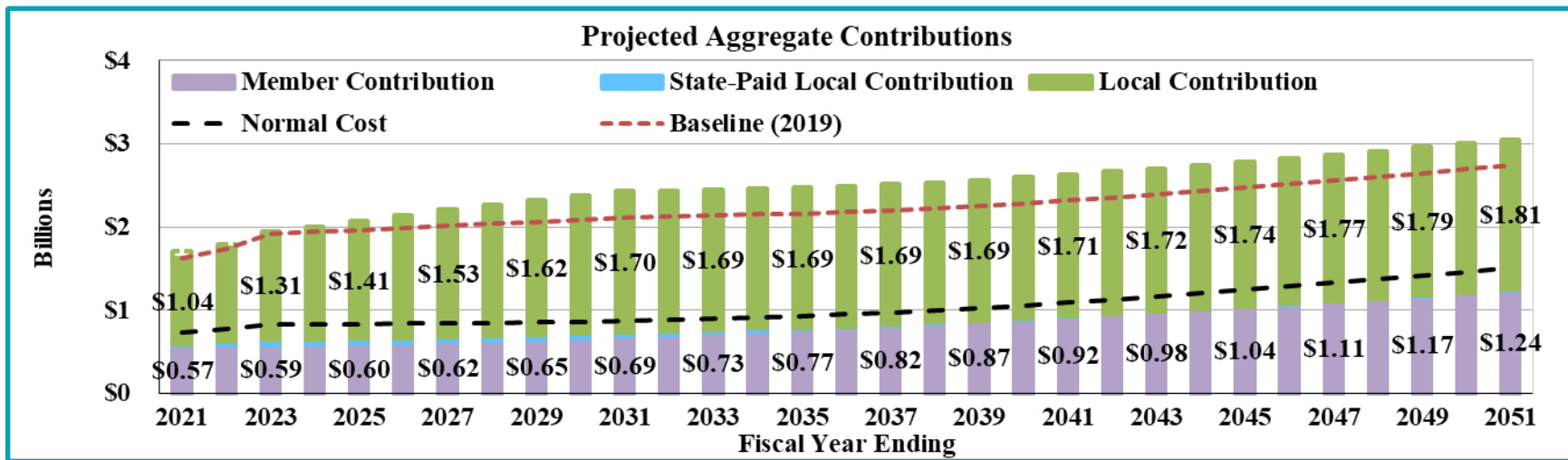
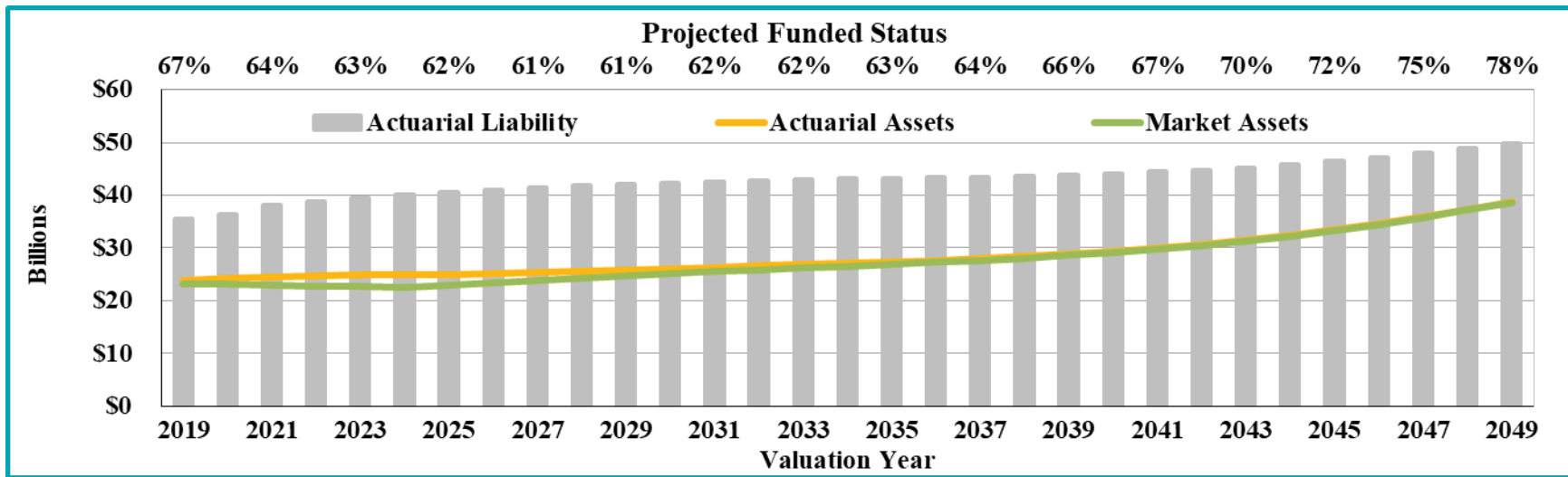
**Five-Year Moderate Negative Scenario: 3.6% return FYE 2020-2024, 7.0% after State**



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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

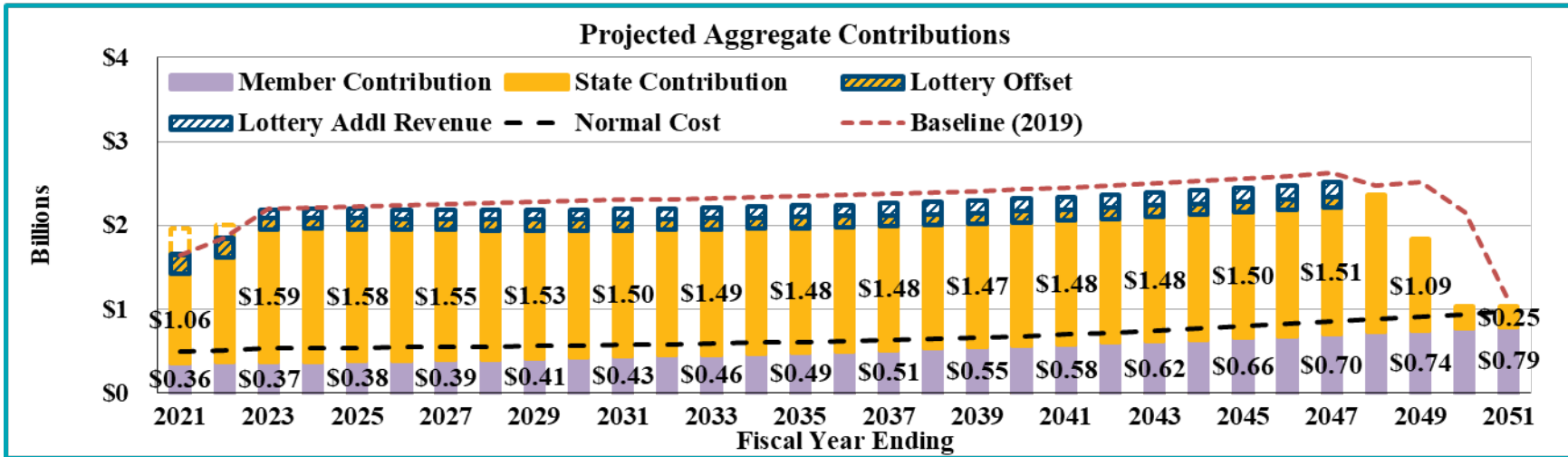
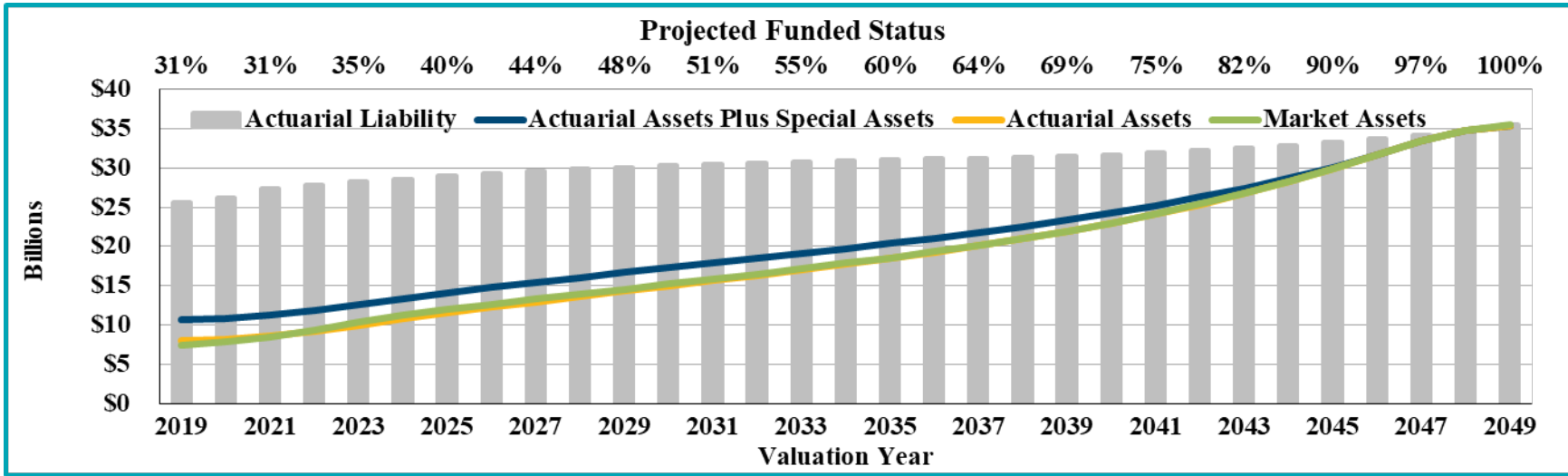
**Five-Year Moderate Negative Scenario: 3.6% return FYE 2020-2024, 7.0% after**  
**Local Employers**



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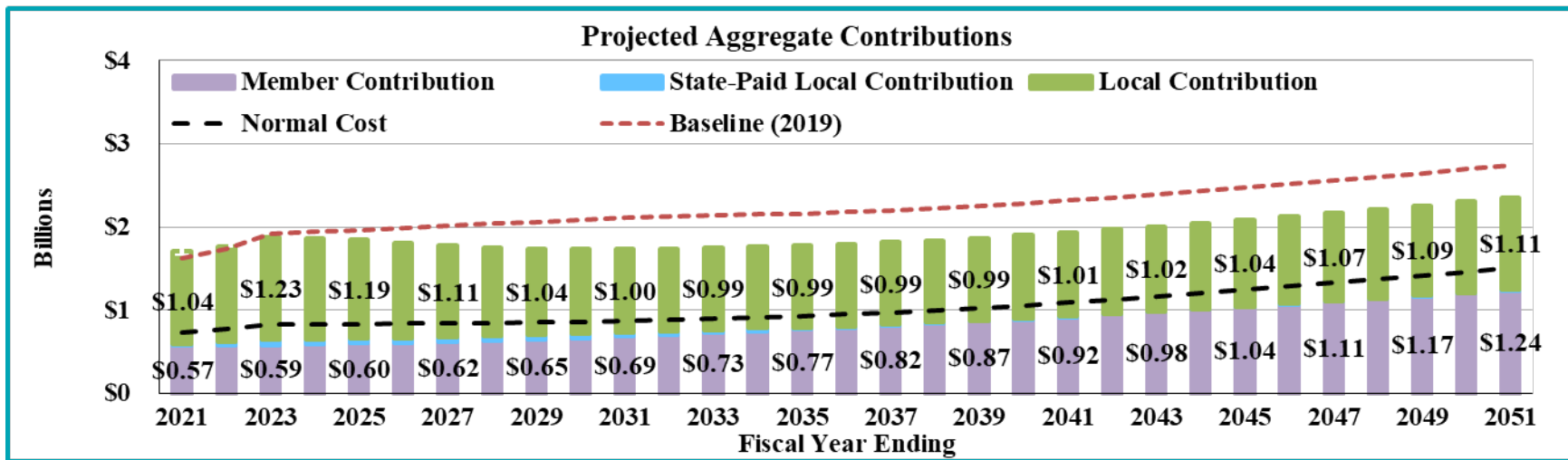
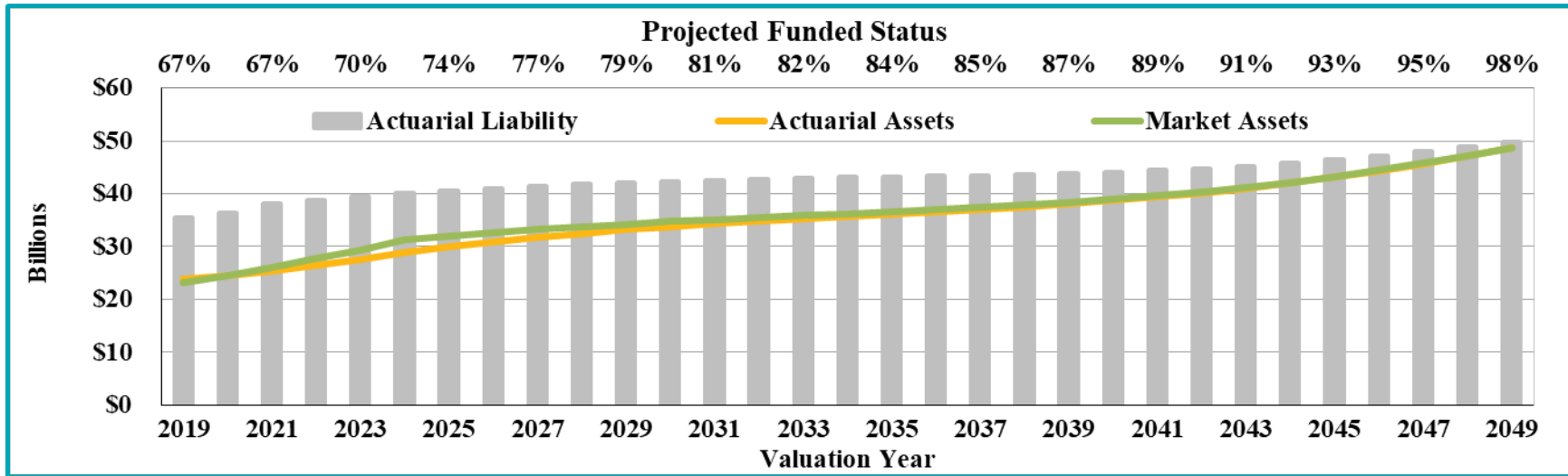
**Five-Year Moderate Positive Scenario: 10.7% return FYE 2020-2024, 7.0% after State**



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**Five-Year Moderate Positive Scenario: 10.7% return FYE 2020-2024, 7.0% after**  
**Local Employers**

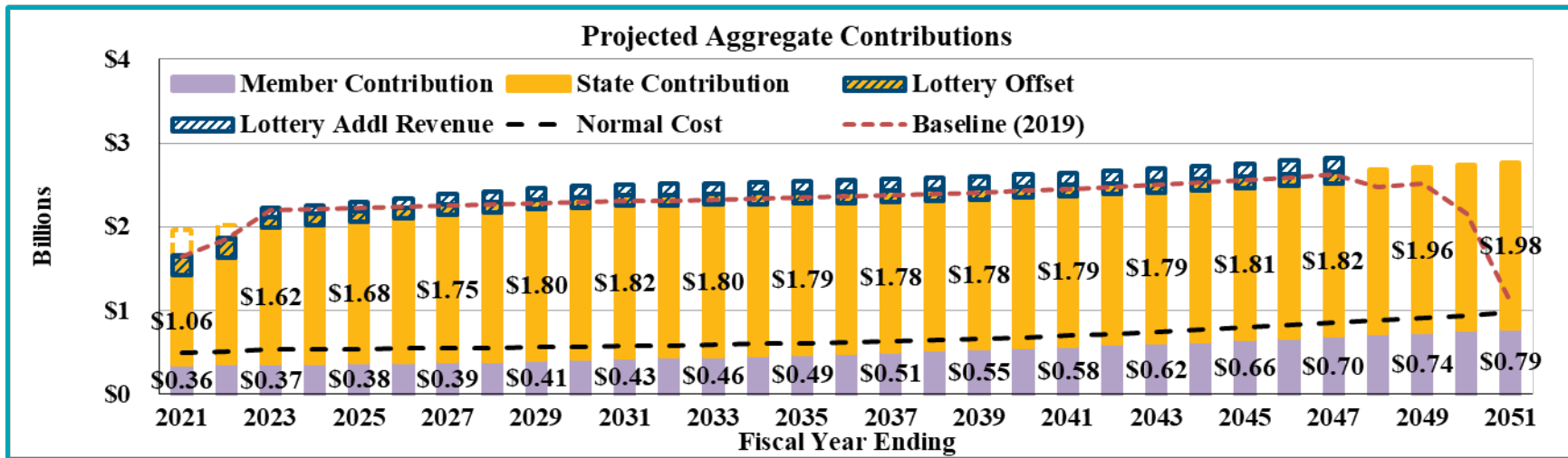
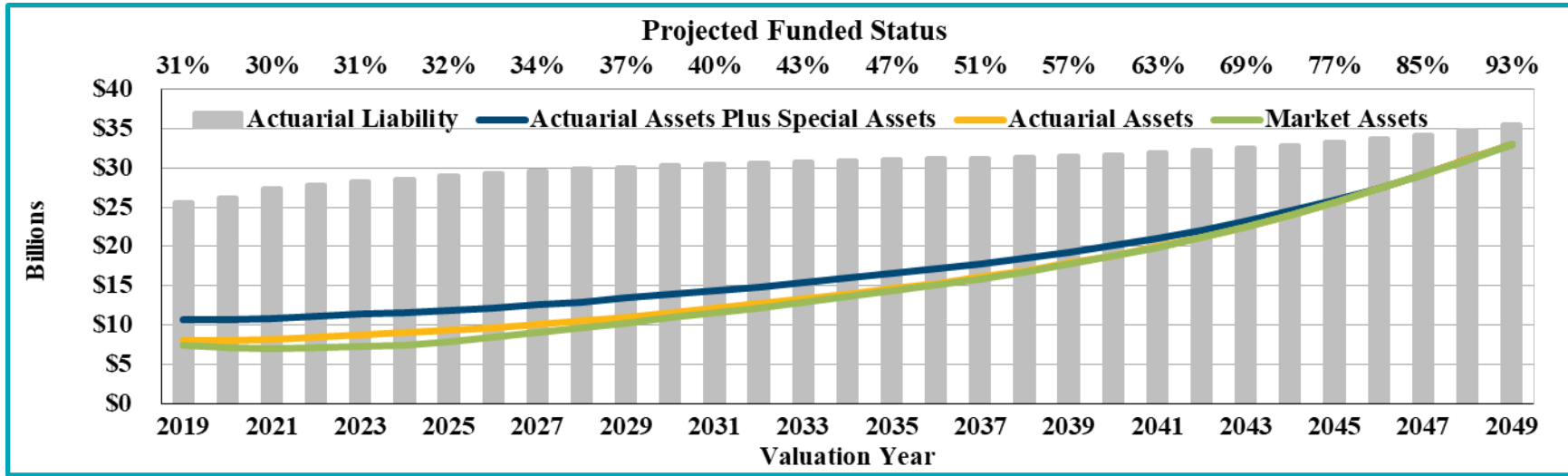


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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**Five-Year Significant Negative Scenario: -1.3% return FYE 2020-2024, 7.0% after**

State



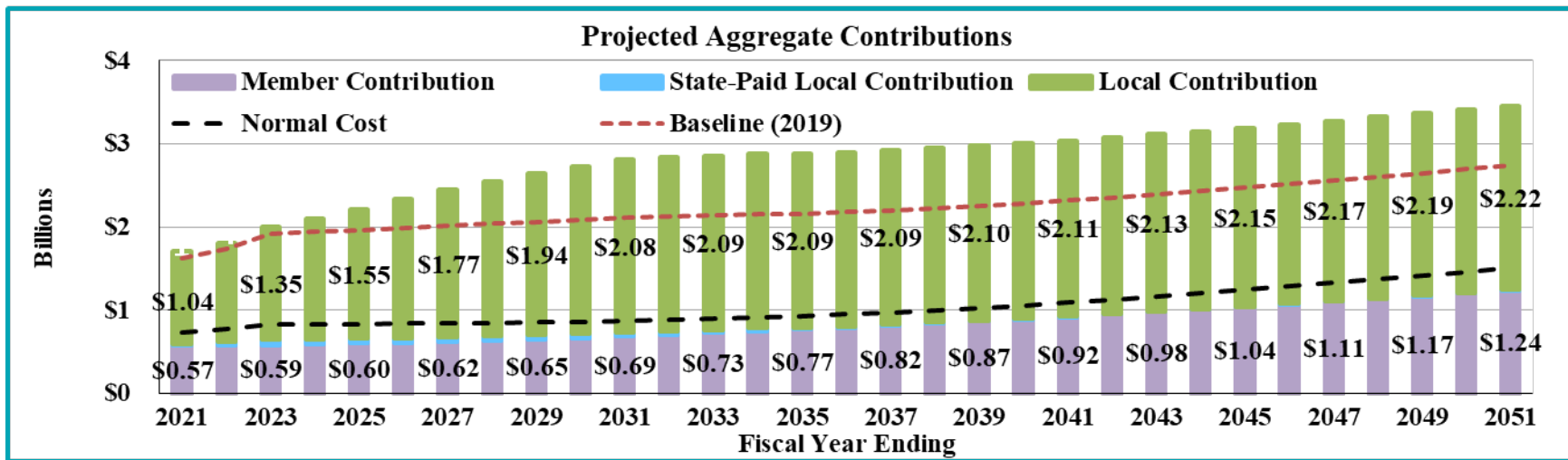
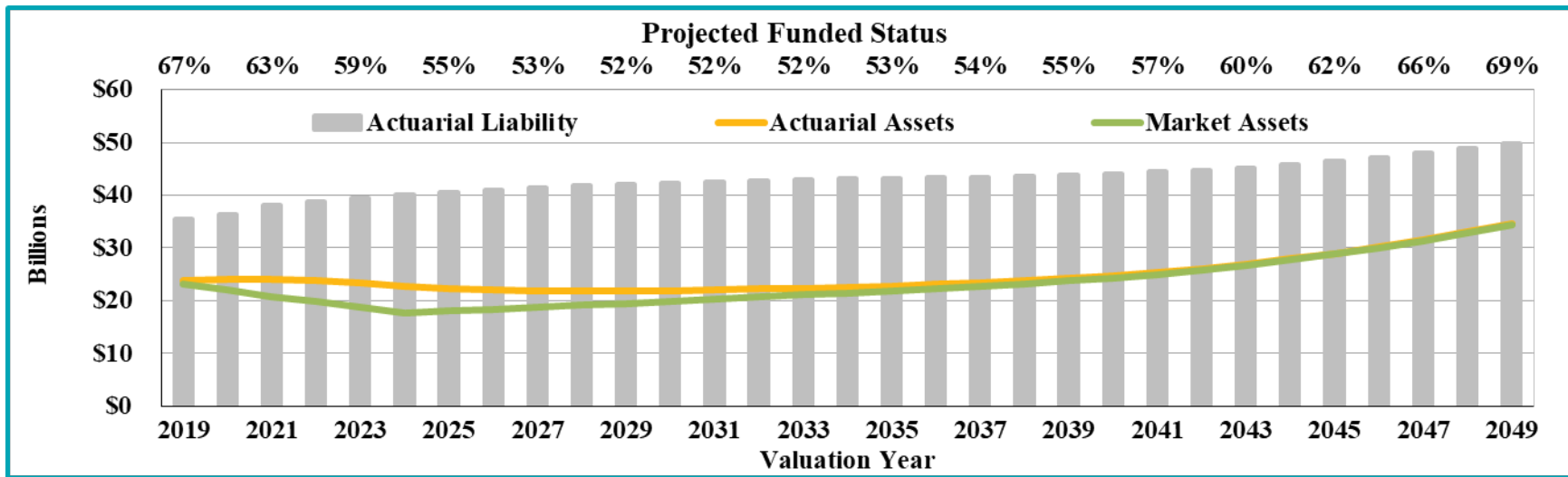


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**Five-Year Significant Negative Scenario: -1.3% return FYE 2020-2024, 7.0% after**

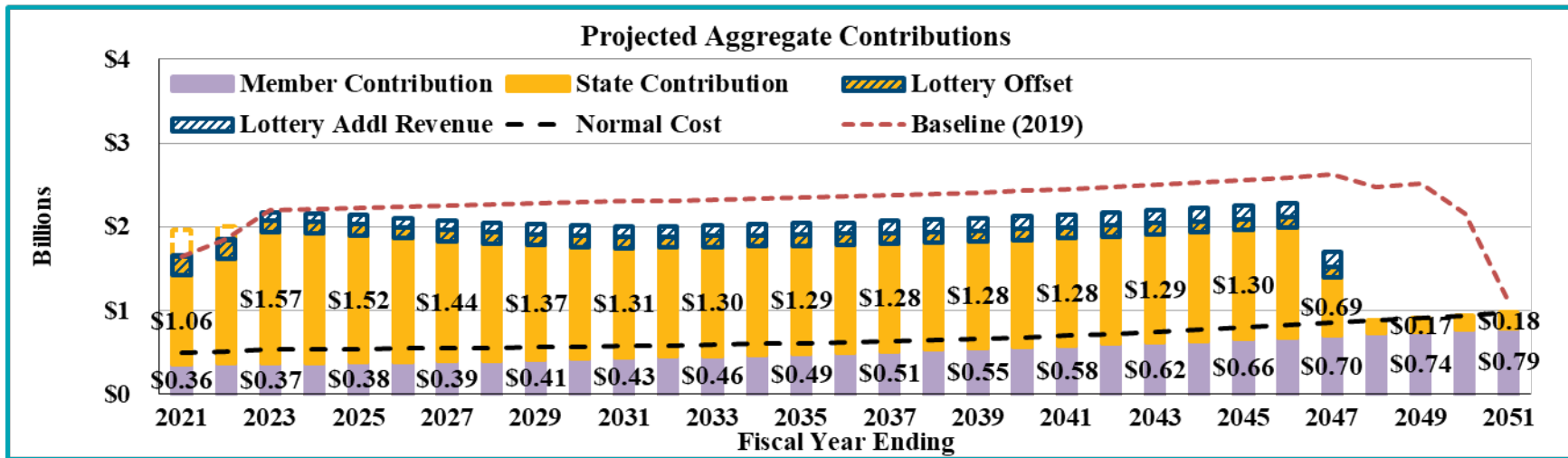
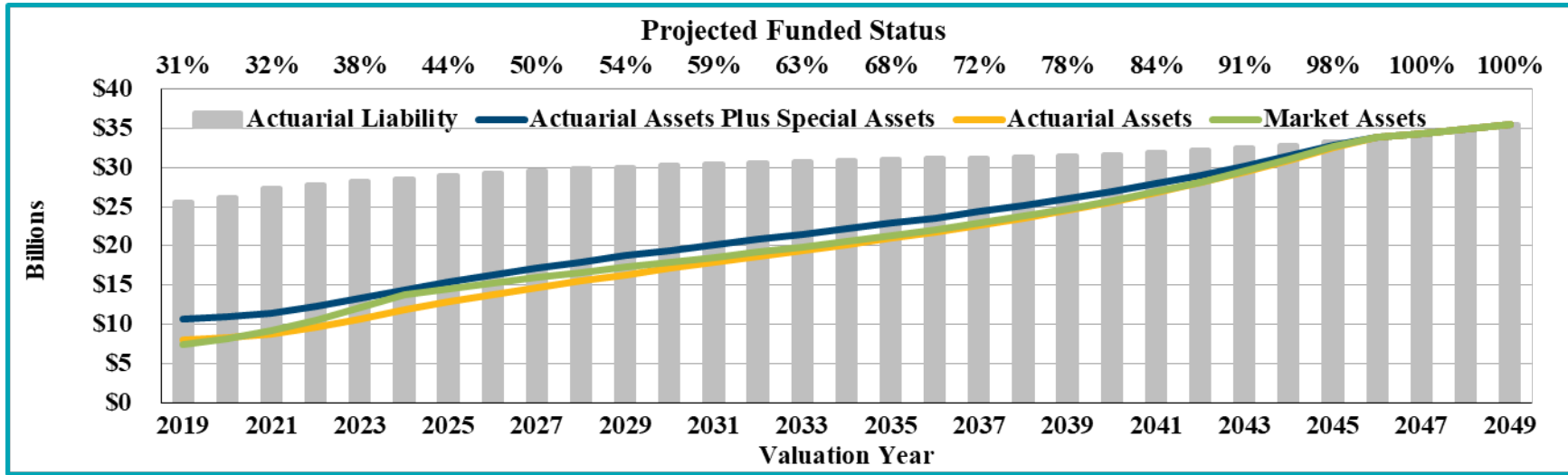
**Local Employers**



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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

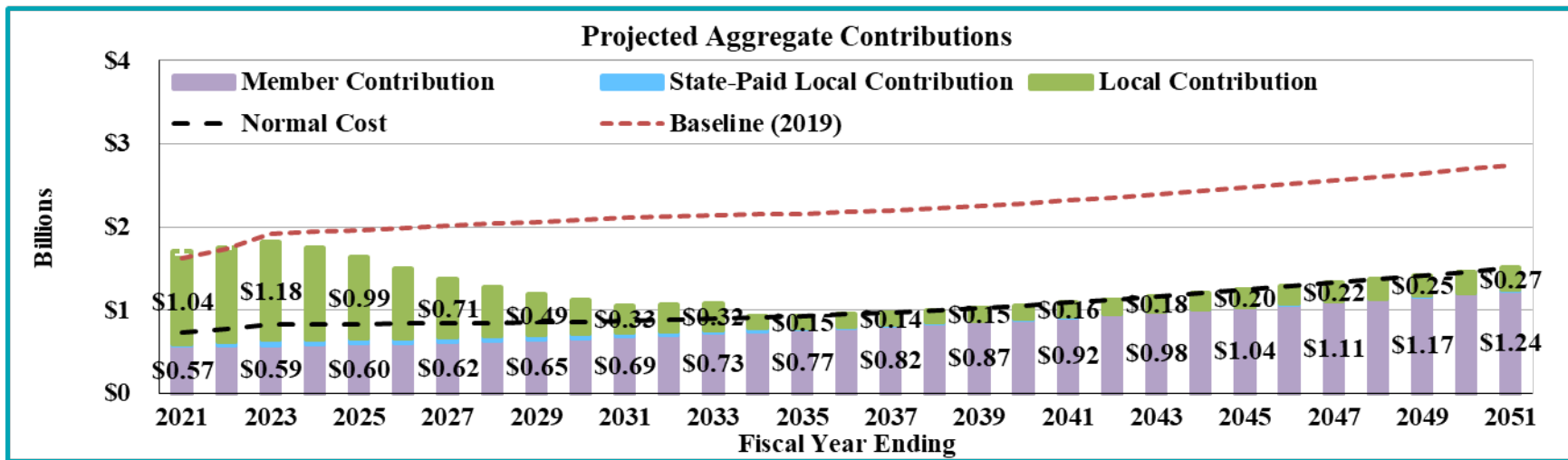
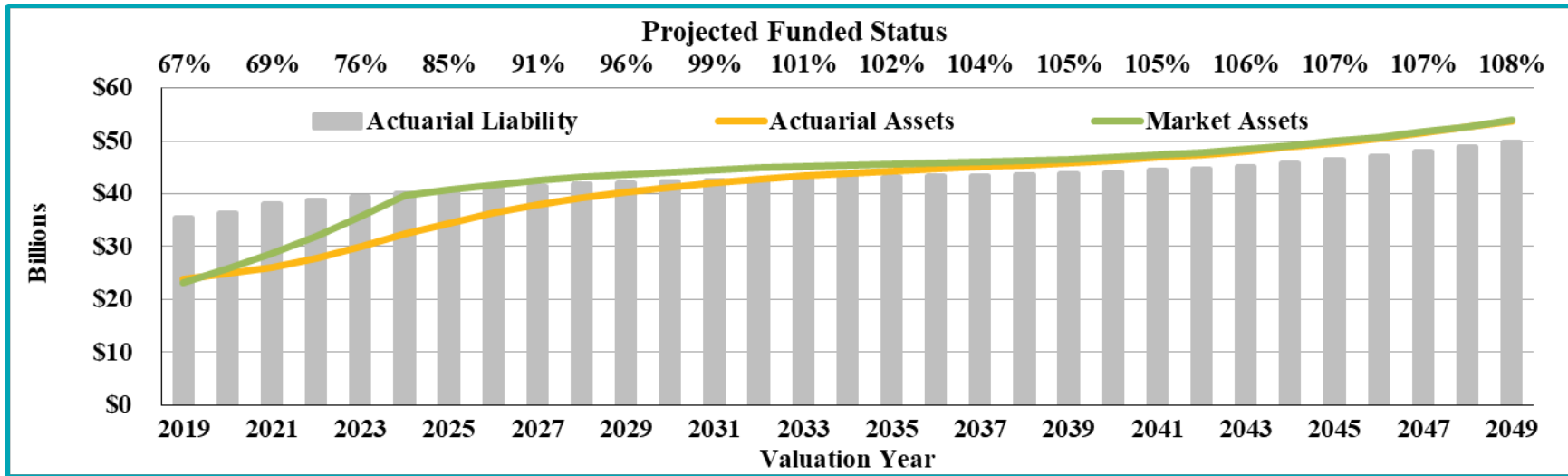
**Five-Year Significant Positive Scenario: 16.1% return FYE 2020-2024, 7.0% after**  
**State**



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**Five-Year Significant Positive Scenario: 16.1% return FYE 2020-2024, 7.0% after**  
**Local Employers**



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**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. In each of the scenarios, the State and Local employer contribution amounts gradually increase through FYE 2023 as the State is assumed to appropriate an increasing percentage of the Statutory amount, the valuation investment rate of return assumption decreases from 7.30% to 7.00% and the impact of the recent experience study on Local employers is phased in.

The following table summarizes the impact on the State and Local employer contributions in FYE 2033 for the various investment return scenarios.

<b>Table II-3 Impact on Contributions for FYE 2033 (dollar amounts in millions)</b>						
	<b>1-Yr Shock</b>		<b>5-Yr Moderate</b>		<b>5-Yr Significant</b>	
	<b>Neg</b>	<b>Pos</b>	<b>Neg</b>	<b>Pos</b>	<b>Neg</b>	<b>Pos</b>
<b><u>State</u></b>						
Amount	\$104	(\$126)	\$90	(\$112)	\$198	(\$306)
Percent	6%	-8%	6%	-7%	12%	-19%
<b><u>Local Employers</u></b>						
Amount	\$365	(\$440)	\$311	(\$388)	\$714	(\$1,060)
Percent	26%	-32%	23%	-28%	52%	-77%

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  
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**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 \$1,795.7 million and increased the Local employers' UAL by approximately \$2,205.9 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, 2020 valuation.

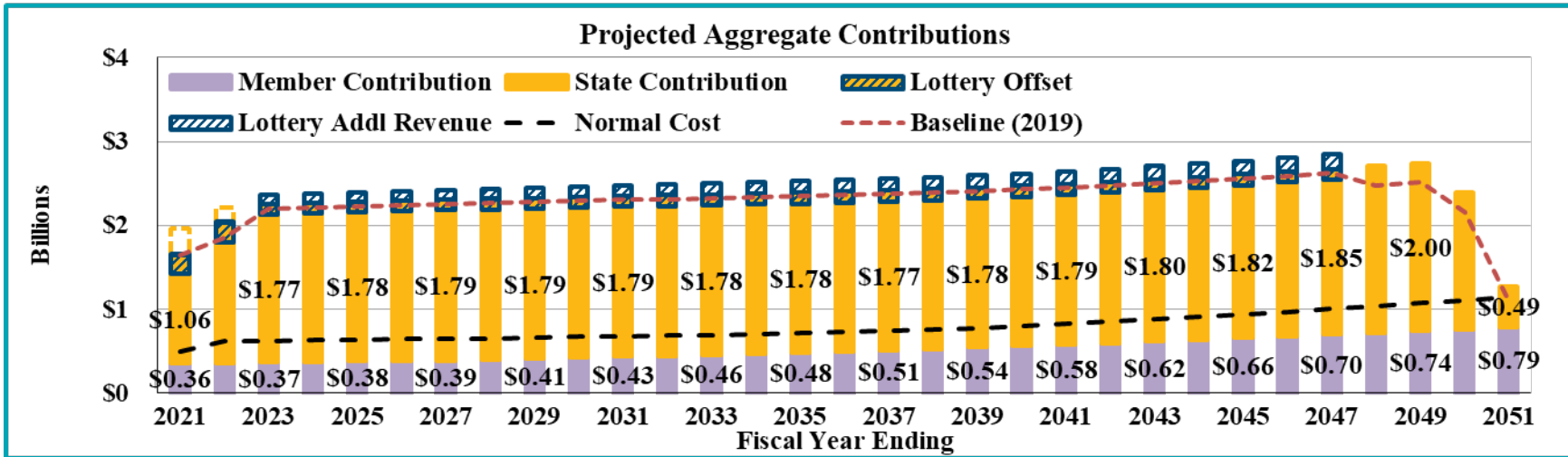
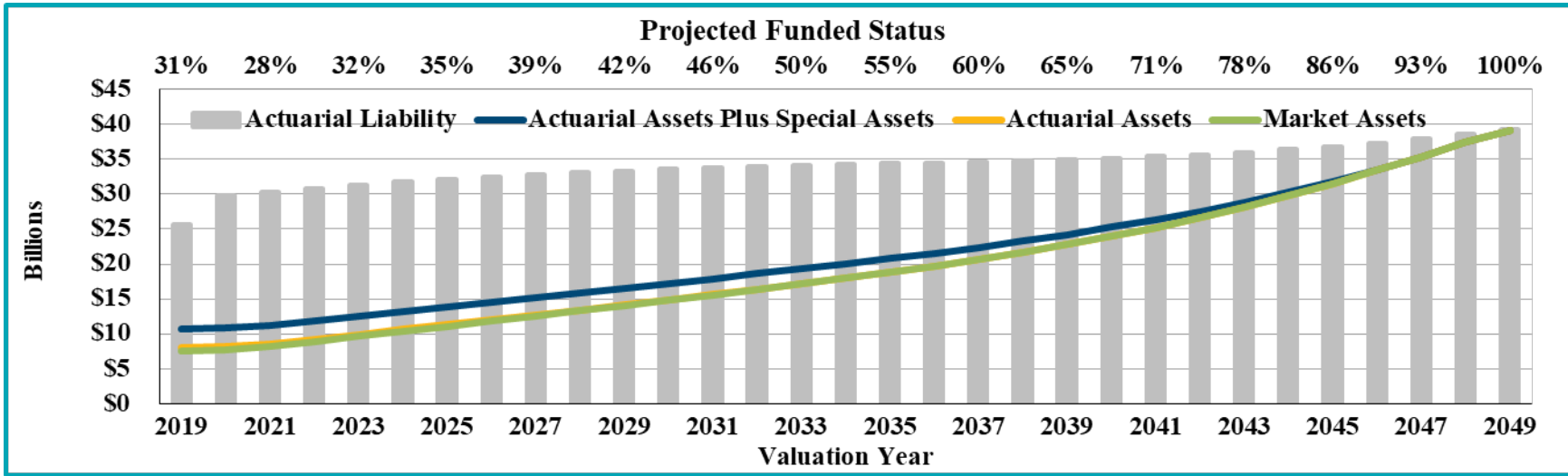
This scenario results in Statutory contributions that are about 11% higher for State and 25% higher for Local employers in FYE 2033 when compared to the baseline projection. Again, the contributions for Local employers are more sensitive to assumption changes because of the funded status at the time of the change.

PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**6.00% Discount Rate and Investment Return Assumption Effective July 1, 2020**

State

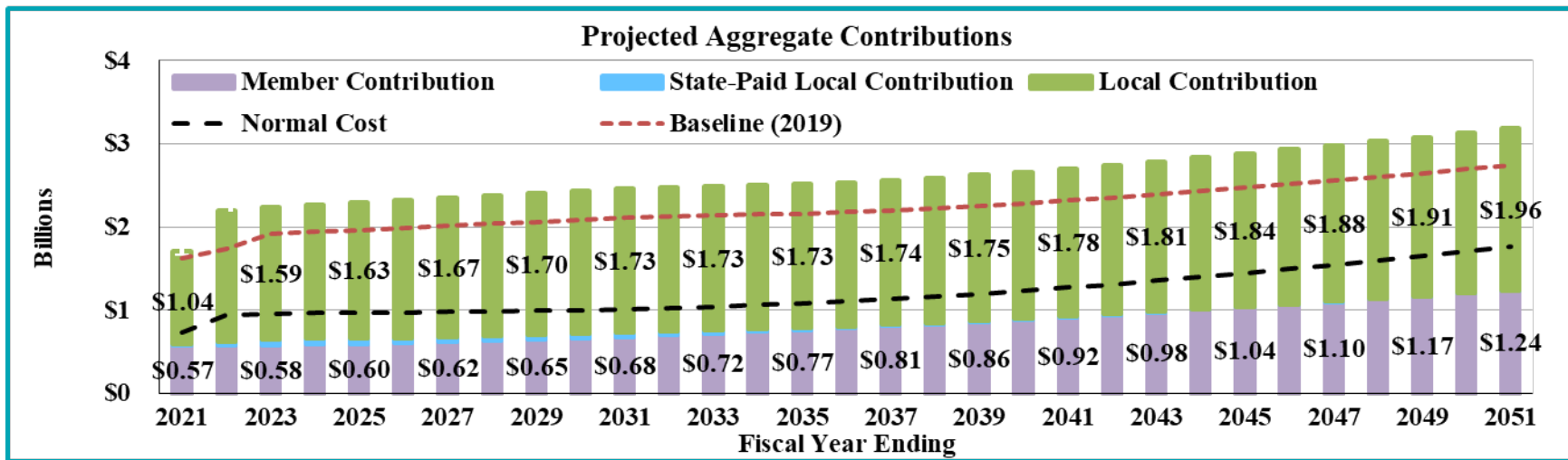
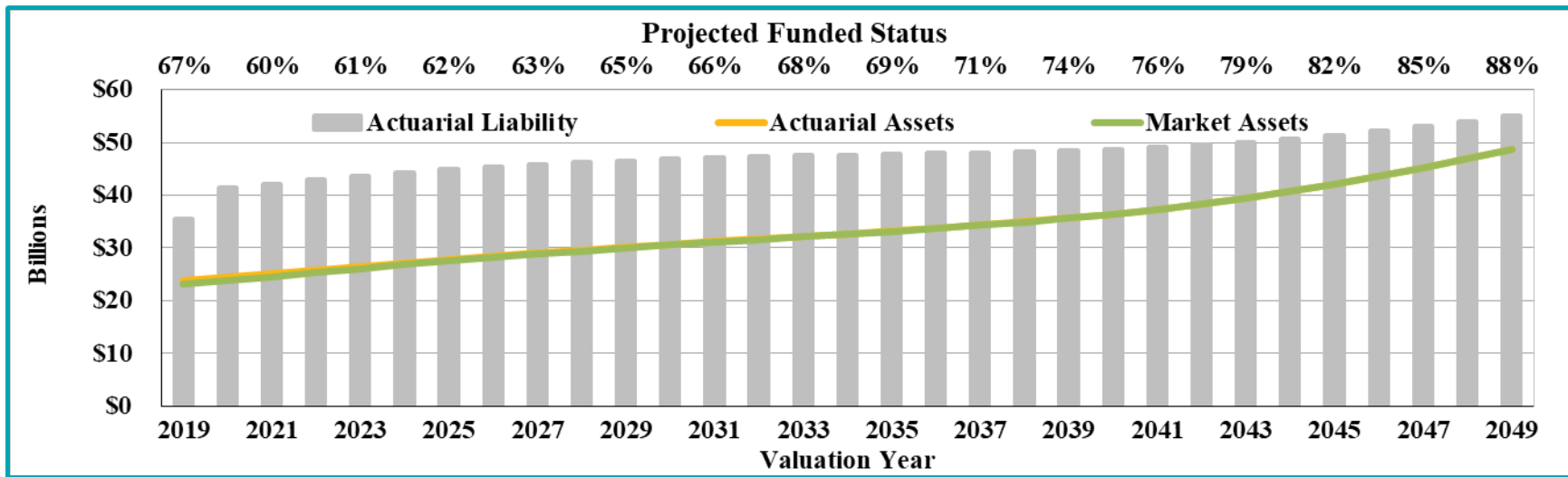


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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**6.00% Discount Rate and Investment Return Assumption Effective July 1, 2020**

**Local Employers**



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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. However, State appropriated contributions have consistently been less than the Statutory contributions and the tread water level, increasing the State's UAL by \$6,483.5 million and the Local employers' UAL by \$133.2 million over the last 10 years. The baseline projections assume the State appropriates 80% of the Statutory contribution in FYE 2021, and increases the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023. State contributions are projected to be greater than the tread water level starting in FYE 2022.

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 remains at 70% of the Statutory contribution for each year in the future, rather than gradually increasing to 100% of the Statutory contribution. In illustrating contribution risk sensitivity, we assume the State appropriation percent remains at the current level of 70%; however, 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 and 2022 when the impact of assumption changes from the recent experience study are phased-in.

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 the same level, but with a lower funded ratio. The funded ratio at the end of the projection period is 32% 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.

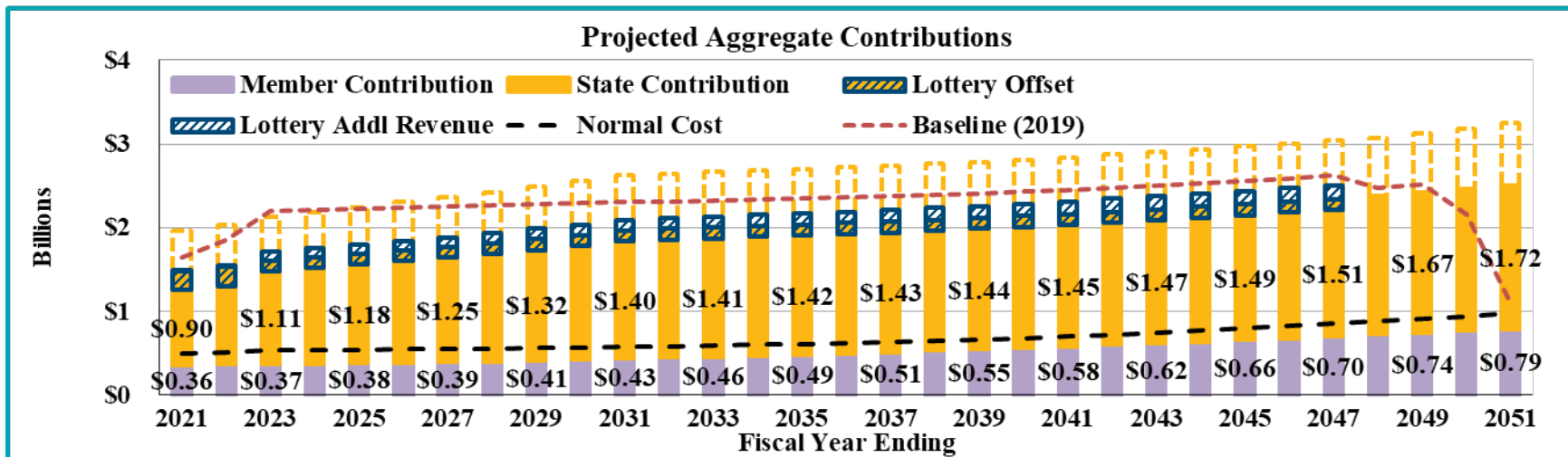
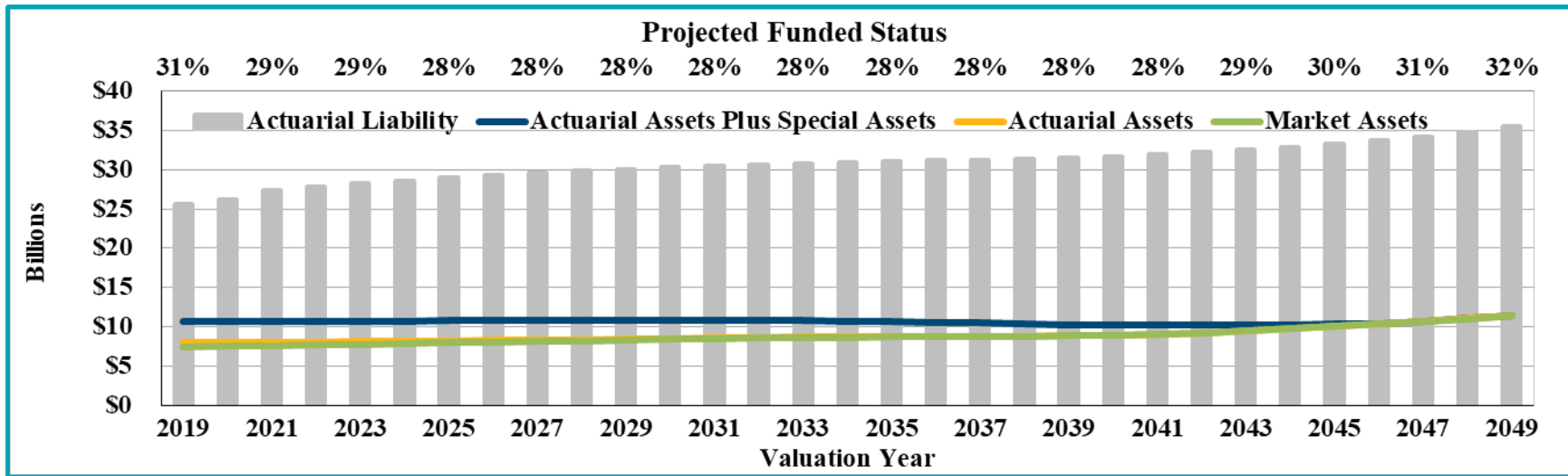


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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**State Appropriates 70% of Statutory Contribution for Fiscal Year Ending June 30, 2021 and Thereafter**

State

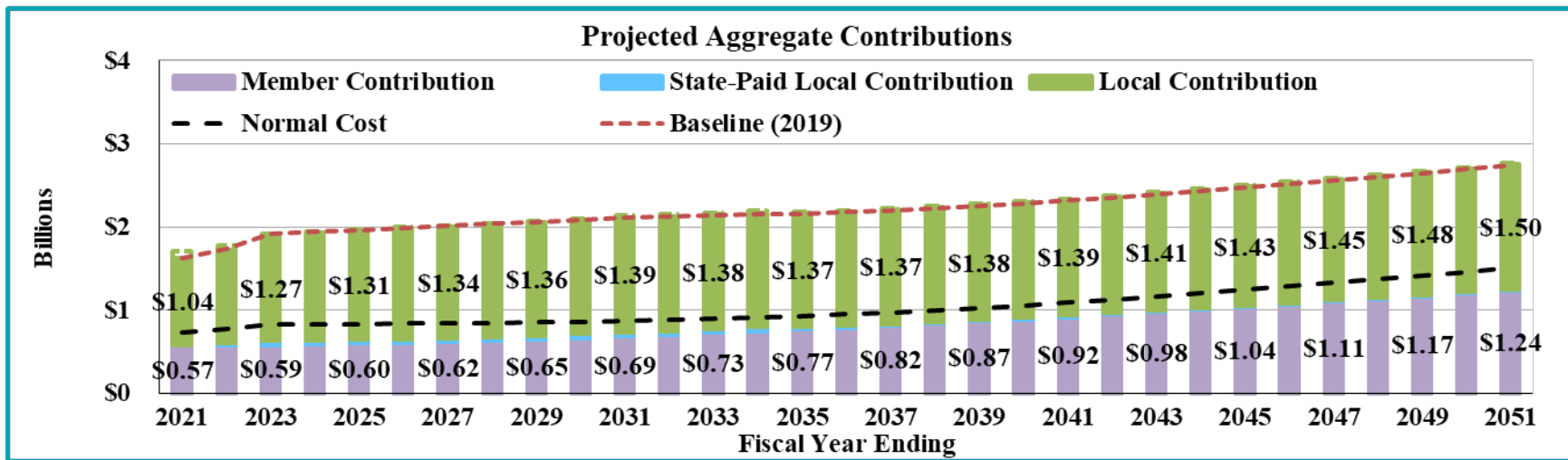
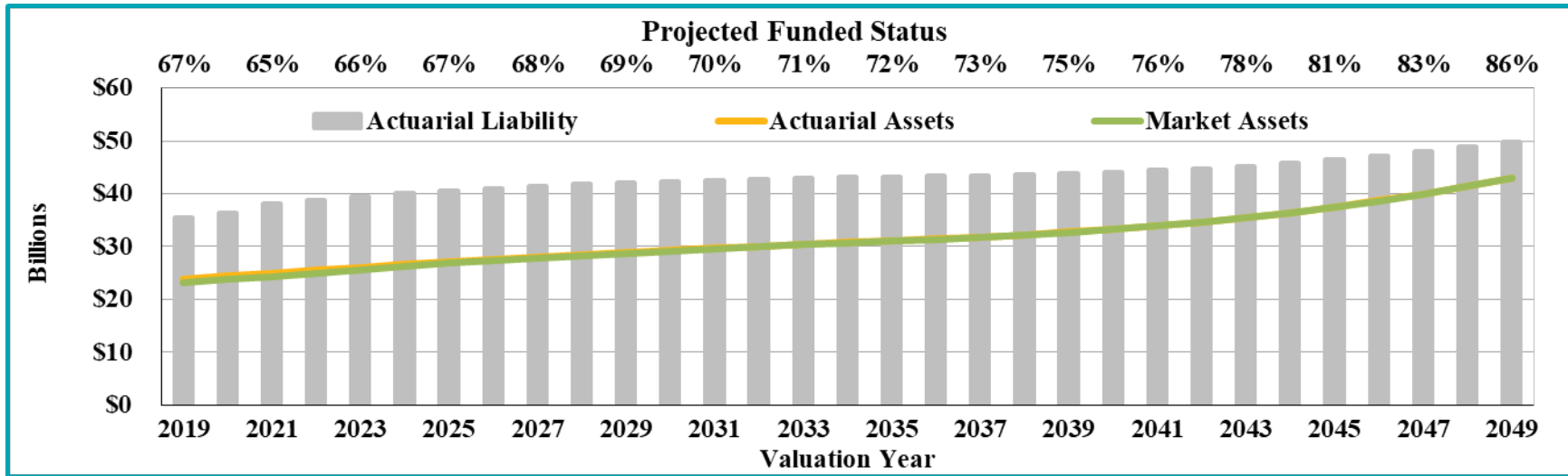


PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

**State Appropriates 70% of Statutory Contribution for Fiscal Year Ending June 30, 2021 and Thereafter**

**Local Employers**



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 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 Fund 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, 2019 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 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, 2018 and July 1, 2019,
- 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, 2018 and June 30, 2019. Table III-2 presents the System's net cash flows from June 30, 2018 to June 30, 2019. Table III-3 presents the development of the Actuarial Value of Assets as of July 1, 2019.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**SECTION III – ASSETS**

<b>Table III-1 Statement of Assets at Market Value</b>		
	<b>June 30, 2019</b>	<b>June 30, 2018</b>
<b>Assets</b>		
Cash	\$ 5,767,776	\$ 322,533,336
Investment Holdings	28,619,508,316	27,841,851,092
Employers' Contributions Receivable - Chapter 19	29,002,501	34,249,797
Employers' Contributions Receivable - NCGI State	6,848,636	3,793,857
Employers' Contributions Receivable - NCGI Local Employers	49,734,428	45,229,397
Employers' Contributions Receivable - Lottery	27,536,200	17,446,600
Employers' Contributions Receivable - Local Employers	928,080,694	955,407,386
Employers' Contributions Receivable - Local Employers ERI	37,184,186	44,128,023
Employers' Contributions Receivable - Retroactive Contributions	4,701,164	4,225,403
Employers' Contributions Receivable - Delayed Enrollments	1,024,028	1,184,991
Employers' Contributions Receivable - Delayed Appropriations	7,045,494	7,672,362
Members' Contributions Receivable	79,589,590	66,301,621
Accrued Interest on Investments	73,514	55,798
Accounts Receivable - Other	8,030,435	22,619,532
Loans Receivable	529,382,511	569,959,958
Securities Lending Collateral	368,264,027	304,075,112
<b>Total Assets</b>	<b>\$ 30,701,773,500</b>	<b>\$ 30,240,734,265</b>
<b>Liabilities</b>		
Pension Payroll Payable	\$ (294,743,097)	\$ (278,846,360)
Pension Adjustment Payroll Payable	(17,830,566)	(18,621,999)
Withholdings Payable	(32,045,038)	(31,492,873)
Death Benefits Payable	(8,854,142)	(10,022,922)
Securities Lending Collateral & Rebates Payable	(367,818,849)	(304,066,483)
Administrative Expenses Payable	0	(2,120,518)
Accounts Payable - Other	(132,504,142)	(123,188,574)
<b>Total Liabilities</b>	<b>\$ (853,795,834)</b>	<b>\$ (768,359,729)</b>
<b>Preliminary Market Value of Assets</b>	<b>\$ 29,847,977,666</b>	<b>\$ 29,472,374,536</b>
<b>Discounted Receivables</b>		
State Appropriations	\$ 744,742,236	\$ 599,154,042
Expected Lottery Revenue	217,448,119	210,358,669
<b>Adjustments to June 30, 2019 Financial Report</b>		
Discounting of Local Employers Appropriations Receivable	(47,507,180)	(50,126,765)
Discounting of Local Employers ERI Contributions Receivable	(2,599,297)	(788,238)
True-up of Present Value of Chapter 19, P.L. 2009		
Contributions Receivable	19,089,330	18,408,351
Exclusion of Reserve for Non-Contributory Group Insurance	(75,387,557)	(70,726,865)
<b>Market Value of Assets</b>	<b>\$ 30,703,763,317</b>	<b>\$ 30,178,653,730</b>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**SECTION III – ASSETS**

**System Cash Flows as of June 30, 2019**

<b>Table III-2 Changes in Market Values for FYE June 30, 2019</b>			
	<b>State</b>	<b>Local Employers</b>	<b>Total</b>
<b>Additions</b>			
Contributions			
Member Contributions	\$ 355,581,371	\$ 553,610,183	\$ 909,191,554
Member Transfer Contributions	6,764,426	514,117	7,278,543
State and Local Employers Appropriations	621,170,866	922,973,395	1,544,144,261
State Contributions on Behalf of Locals	0	6,829,134	6,829,134
State Lottery	232,271,000	0	232,271,000
NCGI Premium	36,559,347	49,732,041	86,291,388
Transfers from Other Systems	447,530	863,061	1,310,591
Delayed Enrollments	194,089	463,612	657,701
Delayed Appropriations	43,788	1,732,038	1,775,826
Retroactive Employer Contributions	0	4,623,577	4,623,577
Additional Employer Contributions	0	103,872	103,872
NCGI Adjustment	0	2,387	2,387
Total Contributions	<u>\$ 1,253,032,417</u>	<u>\$ 1,541,447,417</u>	<u>\$ 2,794,479,834</u>
Net Investment Income	337,762,489	1,403,534,398	1,741,296,887
Total Additions	<u>\$ 1,590,794,906</u>	<u>\$ 2,944,981,815</u>	<u>\$ 4,535,776,721</u>
<b>Deductions</b>			
Withdrawal of Member Contributions	\$ 50,095,815	\$ 84,701,799	\$ 134,797,614
Transfers to Other Systems - Member Contributions	6,239,128	10,118,096	16,357,224
Transfers to Other Systems - Employer Contributions	1,057,580	3,129,924	4,187,504
Adjustments to Member Account Loans	93,238	0	93,238
Retirement Allowances	1,637,003,488	2,068,009,974	3,705,013,462
Pension Adjustment Benefits	83,109,616	108,563,735	191,673,351
NGCI Premium	36,559,347	50,234,410	86,793,757
Administrative Expenses	6,593,343	14,664,098	21,257,441
Total Deductions	<u>\$ 1,820,751,555</u>	<u>\$ 2,339,422,036</u>	<u>\$ 4,160,173,591</u>
<b>Net Increase/(Decrease)</b>	<b>\$ (229,956,649)</b>	<b>\$ 605,559,779</b>	<b>\$ 375,603,130</b>
<b>Preliminary Market Value of Assets Beginning of Year</b>	<b>\$ 6,730,302,564</b>	<b>\$ 22,742,071,972</b>	<b>\$ 29,472,374,536</b>
<b>Preliminary Market Value of Assets End of Year</b>	<b>\$ 6,500,345,915</b>	<b>\$ 23,347,631,751</b>	<b>\$ 29,847,977,666</b>
<b>Discounted Receivables</b>			
State Appropriations	\$ 736,849,097	7,893,139	\$ 744,742,236
Expected Lottery Revenue	217,448,119	0	217,448,119
<b>Adjustments to June 30, 2019 Financial Report</b>			
Discounting of Local Employers Appropriations Receivable	0	(47,507,180)	(47,507,180)
Discounting of Local Employers ERI Contributions Receivable	0	(2,599,297)	(2,599,297)
True-up of Present Value of Chapter 19, P.L. 2009			
Contributions Receivable	0	19,089,330	19,089,330
Exclusion of Reserve for Non-Contributory Group Insurance	0	(75,387,557)	(75,387,557)
<b>Market Value of Assets End of Year</b>	<b>\$ 7,454,643,131</b>	<b>\$ 23,249,120,186</b>	<b>\$ 30,703,763,317</b>
<b>Approximate Return</b>	<b>5.30%</b>	<b>6.65%</b>	<b>6.33%</b>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 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.

<b>Table III-3 Development of Actuarial Value of Assets as of June 30, 2019</b>			
	<b>State</b>	<b>Local Employers</b>	<b>Total</b>
1. Preliminary Actuarial Value of Assets as of July 1, 2018 <sup>1</sup>	\$ 7,254,108,858	\$ 23,335,313,682	\$ 30,589,422,540
2. Net Cash Flow excluding Investment Income <sup>2</sup>	(567,719,138)	(789,134,234)	(1,356,853,372)
3. Expected Investment Income <sup>3</sup>	<u>517,488,005</u>	<u>1,627,935,151</u>	<u>2,145,423,156</u>
4. Expected Actuarial Value of Assets as of July 1, 2019: [1 + 2 + 3]	\$ 7,203,877,725	\$ 24,174,114,599	\$ 31,377,992,324
5. Preliminary Market Value of Assets as of June 30, 2019 <sup>4</sup>	\$ 6,500,345,915	\$ 23,324,870,338	\$ 29,825,216,253
6. 20% of Difference from MVA [20% * (5 - 4)]	\$ (140,706,362)	\$ (169,848,852)	\$ (310,555,214)
7. Preliminary Actuarial Value of Assets as of July 1, 2019: [4 + 6]	\$ 7,063,171,363	\$ 24,004,265,747	\$ 31,067,437,110
8. Discounted Receivable Contributions			
State Appropriations	\$ 736,849,097	\$ 7,893,139	\$ 744,742,236
Expected Lottery Revenue	217,448,119	0	217,448,119
Chapter 19, P.L. 2009 Contributions for FYE 2021 and Later	<u>0</u>	<u>39,706,477</u>	<u>39,706,477</u>
Total	\$ 954,297,216	\$ 47,599,616	\$ 1,001,896,832
9. Adjustments			
Discounting of Local Employers Appropriations Receivable	\$ 0	\$ (47,507,180)	\$ (47,507,180)
Discounting of Chapter 19, P.L. 2009 Contributions Receivable for FYE 2020	0	(455,031)	(455,031)
Exclusion of Reserve for Non-Contributory Group Insurance	<u>0</u>	<u>(75,387,557)</u>	<u>(75,387,557)</u>
Total	\$ 0	\$ (123,349,768)	\$ (123,349,768)
10. Actuarial Value of Assets as of July 1, 2019: [7 + 8 + 9]	\$ 8,017,468,579	\$ 23,928,515,595	\$ 31,945,984,174
11. Rate of Return on Actuarial Value of Assets	5.46%	6.72%	6.41%
12. Ratio of Actuarial Value of Assets to Market Value of Assets	107.5%	102.9%	104.0%

<sup>1</sup> Includes Local appropriations receivable from June 30, 2018 Financial Report but excludes discounted State receivable contributions, present value of Chapter 19, P.L. 2009 contributions receivable and other adjustments.

<sup>2</sup> Amount for Local Employers includes expected Chapter 19, P.L. 2009 payments for FYE 2020 of \$8,840,385.

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

<sup>4</sup> Amount for Local Employers includes adjustments to June 30, 2019 Financial Report for discounting of Local Employers ERI contributions receivable of \$(2,599,297) and true-up of Chapter 19, P.L. 2009 contributions receivable for FYE 2020 of \$(20,162,116).

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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 6.33% for the year ending June 30, 2019. This is compared to an assumed return of 7.50% for the same period. On an actuarial value of assets basis, the return for FYE 2019 was 6.41%.

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 and the timing of contributions. For the year ending June 30, 2019 the market value of assets rate of return was 5.30% and 6.65% for the State and Local employers' portions, respectively. On an actuarial value of assets basis, the return for FYE 2019 was 5.46% and 6.72% for the State and Local employers portions, respectively.

In Table III-4 below we show the historical returns on the actuarial value of asset basis for the last ten years for the System in aggregate.

We do not show a market value return prior to 2017 as the prior actuary did not include it in their reports.

<b>Table III-4 Historical Rates of Return Total System</b>			
<b>Year Ended June 30</b>	<b>Investment Return Assumption</b>	<b>Market Value</b>	<b>Actuarial Asset Value</b>
2010	8.25%		3.16%
2011	8.25%		5.26%
2012	7.95%		4.58%
2013	7.90%		5.52%
2014	7.90%		7.60%
2015	7.90%		5.94%
2016	7.90%		4.95%
2017	7.65%	12.71%	5.99%
2018	7.50%	9.17%	6.49%
2019	7.50%	6.33%	6.41%
<b>10-Year Compound Average</b>		<b>N/A</b>	<b>5.58%</b>
<b>5-Year Compound Average</b>		<b>N/A</b>	<b>5.96%</b>



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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-5 shows the development of the special asset value as of July 1, 2019. The depreciated value is a roll forward of the Lottery Enterprise Value from the appraisal date.

<b>Table III-5 Development of Special Asset Value as of July 1, 2019</b>	
1. Lottery Enterprise Value as of Appraisal Date of June 30, 2017 <sup>1</sup>	\$ 13,535,103,380
2. Depreciated Value as of end of Valuation Year at June 30, 2020 <sup>1</sup>	\$ 13,536,782,838
3. Discounted Value as of July 1, 2019 at 7.30%	\$ 12,615,827,435
4. Allocation to PERS	21.02%
5. Special Asset Value as of July 1, 2019	\$ 2,651,846,927

<sup>1</sup> Provided by the Division of Pensions and Benefits

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**SECTION III – ASSETS**

**Actuarial Balance Sheet**

<b>Table III-6 Actuarial Balance Sheet as of July 1, 2019</b>			
	<b>State</b>	<b>Local Employers</b>	<b>Total</b>
<b>Assets</b>			
<u>Retirement Fund Reserve (RFR)</u>			
Credited to Fund with Distribution of Income	\$ 14,243,227,953	\$ 19,599,487,702	\$ 33,842,715,655
Add/(Deduct) reserve transferable from/(to) ECR <sup>1</sup>	<u>1,813,738,032</u>	<u>1,317,395,889</u>	<u>3,131,133,921</u>
Adjusted RFR <sup>2</sup>	\$ 16,056,965,985	\$ 20,916,883,591 <sup>3</sup>	\$ 36,973,849,576
Members' Contributions Reserve (MCR) <sup>2</sup>	\$ 3,083,675,352	\$ 4,942,681,904	\$ 8,026,357,256
Accumulative Interest Reserve (AIR) with Distribution of Income <sup>2</sup>	\$ 3,136,939,756	\$ 4,593,519,884	\$ 7,730,459,640
<u>Employers' Contributions Reserve (ECR)</u>			
Credited to Fund with Distribution of Income	\$ (12,446,374,482)	\$ (5,302,394,280)	\$ (17,748,768,762)
Add/(Deduct) reserve transferable from/(to) RFR	(1,813,738,032)	(1,317,395,889)	(3,131,133,921)
Add/(Deduct) reserve transferable from/(to) BEF	<u>0</u>	<u>41,208,334</u>	<u>41,208,334</u>
Adjusted ECR <sup>2</sup>	\$ (14,260,112,514)	\$ (6,578,581,835)	\$ (20,838,694,349)
<u>Benefit Enhancement Fund (BEF)</u>			
Credited to Fund with Distribution of Income	\$ 0	\$ 95,220,385	\$ 95,220,385
Add/(Deduct) reserve transferable from/(to) ECR	<u>0</u>	<u>(41,208,334)</u>	<u>(41,208,334)</u>
Adjusted BEF <sup>2</sup>	\$ 0	\$ 54,012,051	\$ 54,012,051
Special Asset Value as of July 1, 2019	\$ 2,651,846,927	\$ 0	\$ 2,651,846,927
Present Value of Prospective Contributions by State and Local Employers to ECR	\$ 14,997,445,490	\$ 11,651,707,426	\$ 26,649,152,916
Assets Allocated to the BEF	<u>\$ 0</u>	<u>\$ (54,012,051)</u>	<u>\$ (54,012,051)</u>
<b>Total Assets</b>	<b>\$ 25,666,760,996</b>	<b>\$ 35,526,210,970</b>	<b>\$ 61,192,971,966</b>
<b>Liabilities</b>			
<u>Payable from RFR</u>			
Retirees, Disableds, and Beneficiaries currently receiving benefits	\$ 16,056,965,985	\$ 20,916,883,591 <sup>3</sup>	\$ 36,973,849,576
<u>Payable from MCR, AIR and ECR</u>			
Actives and Deferred Vesteds due a future benefit	\$ 9,609,795,011	\$ 14,609,327,379	\$ 24,219,122,390
<b>Total Liabilities</b>	<b>\$ 25,666,760,996</b>	<b>\$ 35,526,210,970</b>	<b>\$ 61,192,971,966</b>

<sup>1</sup> 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.

<sup>2</sup> Actuarial Value of Assets equals RFR + MCR + AIR + ECR + BEF.

<sup>3</sup> Includes the present value of ERI payments of \$26,449,411.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**SECTION IV – LIABILITIES**

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

- Disclosure of liabilities at July 1, 2018 and July 1, 2019,
- 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  
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**SECTION IV – LIABILITIES**

Table IV-1 shows the actuarial liability, unfunded actuarial liability and funded ratio as of July 1, 2019 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).

<b>Table IV-1 Disclosure of Liabilities</b>			
	<b>State</b>	<b>Local Employers</b>	<b>Total</b>
<b>Actuarial Liability</b>			
Contributing Actives	\$ 9,165,997,960	\$ 13,784,589,195	\$ 22,950,587,155
Non-Contributing Actives	413,160,011	758,195,692	1,171,355,703
Deferred Vesteds	30,637,040	66,542,492	97,179,532
Retirees	14,444,592,132	18,367,599,691	32,812,191,823
Disabled	975,221,291	1,435,799,588	2,411,020,879
Beneficiaries	637,152,562	1,113,484,312	1,750,636,874
<b>Total Actuarial Liability</b>	<b>\$ 25,666,760,996</b>	<b>\$ 35,526,210,970</b>	<b>\$ 61,192,971,966</b>
Actuarial Value of Assets	<u>\$ 8,017,468,579</u>	<u>\$ 23,928,515,595</u>	<u>\$ 31,945,984,174</u>
Unfunded Actuarial Liability/(Surplus)	\$ 17,649,292,417	\$ 11,597,695,375	\$ 29,246,987,792
Funded Ratio (AVA)	31.24%	67.35%	52.21%
Actuarial Value of Assets + Special Asset Value	<u>\$ 10,669,315,506</u>	<u>\$ 23,928,515,595</u>	<u>\$ 34,597,831,101</u>
Unfunded Actuarial Liability/(Surplus) (AVA + SAV)	\$ 14,997,445,490	\$ 11,597,695,375	\$ 26,595,140,865
	41.57%	67.35%	56.54%

<sup>1</sup> Includes the present value of ERI payments of \$26,449,411.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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, 2019.

<b>Table IV-2 Contributing Active Liabilities by Tier State</b>				
	<b>Number of Members</b>	<b>Appropriation Payroll<sup>1</sup></b>	<b>Actuarial Liability</b>	<b>Gross Normal Cost</b>
Tier 1	38,990	\$ 2,898,545,242	\$ 8,439,869,981	\$ 349,450,663
Tier 2	2,996	186,722,274	221,433,710	18,726,338
Tier 3	2,103	129,017,106	129,239,922	12,457,727
Tier 4	1,446	93,642,863	66,393,872	7,371,347
Tier 5	22,371	1,231,142,103	309,060,475	78,053,397
<b>Total</b>	<b>67,906</b>	<b>\$ 4,539,069,588</b>	<b>\$ 9,165,997,960</b>	<b>\$ 466,059,472</b>

<b>Table IV-3 Contributing Active Liabilities by Tier Local Employers</b>				
	<b>Number of Members</b>	<b>Appropriation Payroll<sup>1</sup></b>	<b>Actuarial Liability</b>	<b>Gross Normal Cost</b>
Tier 1	78,294	\$ 4,308,137,621	\$ 12,450,847,421	\$ 516,577,009
Tier 2	8,146	348,972,336	432,358,059	36,033,169
Tier 3	5,219	240,544,795	245,685,604	23,647,698
Tier 4	2,307	123,241,992	88,801,520	9,761,676
Tier 5	51,321	2,215,183,342	566,896,591	144,170,941
<b>Total</b>	<b>145,287</b>	<b>\$ 7,236,080,086</b>	<b>\$ 13,784,589,195</b>	<b>\$ 730,190,493</b>

<sup>1</sup> 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  
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**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, 2019.

<b>Table IV-4 Non-Contributing Active Liabilities by Tier State</b>			
	<b>Number of Members</b>	<b>Actuarial Liability</b>	<b>Gross Normal Cost</b>
Tier 1	5,503	\$ 367,121,016	\$ 0
Tier 2	347	10,163,242	0
Tier 3	250	6,564,911	0
Tier 4	145	4,551,919	0
Tier 5	3,010	24,758,923	0
<b>Total</b>	<u>9,255</u>	<u>\$ 413,160,011</u>	<u>\$ 0</u>

<b>Table IV-5 Non-Contributing Active Liabilities by Tier Local Employers</b>			
	<b>Number of Members</b>	<b>Actuarial Liability</b>	<b>Gross Normal Cost</b>
Tier 1	15,540	\$ 666,422,070	\$ 0
Tier 2	1,355	21,134,562	0
Tier 3	886	12,971,945	0
Tier 4	270	4,887,391	0
Tier 5	8,546	52,779,724	0
<b>Total</b>	<u>26,597</u>	<u>\$ 758,195,692</u>	<u>\$ 0</u>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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  
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**SECTION IV – LIABILITIES**

Table IV-6 Development of 2019 Experience (Gain)/Loss State			
	Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability/(Surplus)
1. Value as of July 1, 2018	\$ 23,745,716,631	\$ (8,057,092,909)	\$ 15,688,623,722
2. Additions			
Normal Cost	\$ 408,584,037	\$ 0	\$ 408,584,037
Statutory State Contributions	0	(1,421,004,837)	(1,421,004,837)
Expected Member Contributions	0	(334,980,771)	(334,980,771)
Total Additions	\$ 408,584,037	\$ (1,755,985,608)	\$ (1,347,401,571)
3. Deductions			
Benefit Payments	\$ (1,770,302,157)	\$ 1,770,302,157	\$ 0
Expected Administrative Expenses	0	0	0
Total Deductions	\$ (1,770,302,157)	\$ 1,770,302,157	\$ 0
4. Net Transfers from Other Systems			
State Contributions	\$ (610,050)	\$ 610,050	\$ 0
Member Contributions	525,298	(525,298)	0
Total Net Transfers	\$ (84,752)	\$ 84,752	\$ 0
5. Expected Interest	\$ 1,746,383,244	\$ (551,427,346)	\$ 1,194,955,898
6. Expected Value as of July 1, 2019: [1 + 2 + 3 + 4 + 5]	\$ 24,130,297,003	\$ (8,594,118,954)	\$ 15,536,178,049
7. Other Changes			
Appropriation Adjustment	\$ 0	\$ 424,817,068	\$ 424,817,068
Contribution Timing	0	40,821,106	40,821,106
Actual Lottery Revenue	0	(14,924,492)	(14,924,492)
Other Employer Contributions	0	(246,636)	(246,636)
Actual Member Contributions	0	(21,359,157)	(21,359,157)
Change in Methods/Assumptions			
Experience Study	583,912,087	0	583,912,087
Investment Rate of Return	497,830,312	0	497,830,312
Change in Benefits/Policy	(6,603,404)	0	(6,603,404)
Total Other Changes	\$ 1,075,138,995	\$ 429,107,889	\$ 1,504,246,884
8. Expected value after changes: [6 + 7]	\$ 25,205,435,998	\$ (8,165,011,065)	\$ 17,040,424,933
9. Actual Value as of July 1, 2019	\$ 25,666,760,996	\$ (8,017,468,579)	\$ 17,649,292,417
10. Actuarial (Gain)/Loss: [9 - 8]	\$ 461,324,998	\$ 147,542,486	\$ 608,867,484



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY**  
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**SECTION IV – LIABILITIES**

<b>Table IV-7</b>			
<b>Development of 2019 Experience (Gain)/Loss</b>			
<b>Local Employers</b>			
	<b>Actuarial Liability</b>	<b>Actuarial Value of Assets</b>	<b>Unfunded Actuarial Liability/(Surplus)</b>
1. Value as of July 1, 2018	\$ 33,103,627,533	\$ (23,264,877,618)	\$ 9,838,749,915
2. Additions			
Normal Cost	\$ 654,256,043	\$ 0	\$ 654,256,043
Statutory Contributions	0	(934,757,058)	(934,757,058)
Expected Member Contributions	0	(550,243,888)	(550,243,888)
Total Additions	<u>\$ 654,256,043</u>	<u>\$ (1,485,000,946)</u>	<u>\$ (830,744,903)</u>
3. Deductions			
Benefit Payments	\$ (2,261,275,508)	\$ 2,261,275,508	\$ 0
Expected Administrative Expenses	0	0	0
Total Deductions	<u>\$ (2,261,275,508)</u>	<u>\$ 2,261,275,508</u>	<u>\$ 0</u>
4. Net Transfers from Other Systems			
State Contributions	\$ (2,266,863)	\$ 2,266,863	\$ 0
Member Contributions	(9,603,979)	9,603,979	0
Total Net Transfers	<u>\$ (11,870,842)</u>	<u>\$ 11,870,842</u>	<u>\$ 0</u>
5. Expected Interest	\$ 2,448,139,319	\$ (1,681,424,990)	\$ 766,714,329
6. Expected Value as of July 1, 2019: [1 + 2 + 3 + 4 + 5]	\$ 33,932,876,545	\$ (24,158,157,204)	\$ 9,774,719,341
7. Other Changes			
Appropriation Adjustment	\$ 0	\$ 3,536,770	\$ 3,536,770
Contribution Timing	0	47,860,934	47,860,934
Other Employer Contributions	0	(7,180,497)	(7,180,497)
Actual Member Contributions	0	(3,490,249)	(3,490,249)
ERI and Ch. 19 Receivables	0	(413,556)	(413,556)
Interest on NCGI Cash Flows	0	4,275,294	4,275,294
Change in Methods/Assumptions			
Experience Study	719,299,245	0	719,299,245
Investment Rate of Return	673,293,477	0	673,293,477
Change in Benefits/Policy	(6,437,745)	0	(6,437,745)
Total Other Changes	<u>\$ 1,386,154,977</u>	<u>\$ 44,588,696</u>	<u>\$ 1,430,743,673</u>
8. Expected value after changes: [6 + 7]	\$ 35,319,031,522	\$ (24,113,568,508)	\$ 11,205,463,014
9. Actual Value as of July 1, 2019	\$ 35,526,210,970	\$ (23,928,515,595)	\$ 11,597,695,375
10. Actuarial (Gain)/Loss: [9 - 8]	\$ 207,179,448	\$ 185,052,913	\$ 392,232,361

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**SECTION IV – LIABILITIES**

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

<b>Table IV-8 Actuarial (Gain)/Loss Analysis State</b>		
<b>Components</b>	<b>July 1, 2019</b>	<b>July 1, 2018</b>
<b>Actuarial Value of Assets</b>		
Investment Return	\$ 140,706,362	\$ 130,951,573
Administrative Expenses	6,836,124	6,826,740
<b>Total</b>	<b>\$ 147,542,486</b>	<b>\$ 137,778,313</b>
<b>Actuarial Liability</b>		
Salary Increases	\$ 280,900,892	\$ (75,652,578)
New Entrants	13,107,378	14,380,345
Demographic Experience and Census Data Updates		
Contributing and Non-Contributing Actives	158,367,428	136,168,358
Inactives	8,861,427	16,391,177
<b>Sub-Total</b>	<b>\$ 461,237,125</b>	<b>\$ 91,287,302</b>
Impact of Net Transfers from Other Systems	87,873	1,981,436
<b>Total</b>	<b>\$ 461,324,998</b>	<b>\$ 93,268,738</b>
<b>Actuarial (Gain)/Loss</b>	<b>\$ 608,867,484</b>	<b>\$ 231,047,051</b>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**SECTION IV – LIABILITIES**

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

<b>Table IV-9 Actuarial (Gain)/Loss Analysis Local Employers</b>		
<b>Components</b>	<b>July 1, 2019</b>	<b>July 1, 2018</b>
<b>Actuarial Value of Assets</b>		
Investment Return	\$ 169,848,852	\$ 154,877,626
Administrative Expenses	15,204,061	15,328,229
<b>Total</b>	<b>\$ 185,052,913</b>	<b>\$ 170,205,855</b>
<b>Actuarial Liability</b>		
Salary Increases	\$ 126,112,702	\$ 83,452,413
New Entrants	23,635,585	24,847,836
Demographic Experience and Census Data Updates		
Contributing and Non-Contributing Actives	45,323,615	35,605,788
Inactives	(200,405)	5,436,659
<b>Sub-Total</b>	<b>\$ 194,871,497</b>	<b>\$ 149,342,696</b>
Impact of Net Transfers from Other Systems	12,307,951	11,722,240
<b>Total</b>	<b>\$ 207,179,448</b>	<b>\$ 161,064,936</b>
<b>Actuarial (Gain)/Loss</b>	<b>\$ 392,232,361</b>	<b>\$ 331,270,791</b>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY**  
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**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 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, the unfunded actuarial liability for the July 1, 2018 valuation was amortized over an open 30 year period as a level dollar amount. Beginning with the July 1, 2019 valuation, the unfunded actuarial liability is amortized over a closed 30 year period as a level dollar amount.

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, 2019 there are 27 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 would reflect 1/3<sup>rd</sup> of the cost impact, or \$38,391,509. This results 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<sup>rds</sup> of the cost increase is deferred to the following two years. In FYE 2022, the Local employers' net pension contribution will reflect 2/3<sup>rds</sup> 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 will be the full cost impact, or \$115,174,528, plus an amortization of the deferred cost from the prior two years with interest. This will define the Statutory contribution amount from the assumption changes for all subsequent years.

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**SECTION V – CONTRIBUTIONS**

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.

Table V-1 below shows the development of the Lottery Enterprise contribution offset. Per N.J. Statute the methodology for determining the adjustment percentage varies depending on the applicable fiscal year. The following table shows both calculations to illustrate how the adjustment percentage may change over time.

<b>Table V-1</b>	
<b>Development of Lottery Enterprise Contribution Offset</b>	
<b><u>For Fiscal Years Through 2022</u></b>	
1. Special Asset Adjustment for FY 2021 <sup>1</sup>	\$ 1,084,354,841
2. Allocable Percentage to PERS for Fiscal Years through 2022	21.02%
3. Adjustment Percentage	100.00%
4. Lottery Enterprise Contribution Offset as of June 30, 2020: [1 x 2 x 3]	\$ 227,931,388
<b><u>For Fiscal Years Beginning 2023</u></b>	
5. Special Asset Value Allocated to PERS as of July 1, 2019	\$ 2,651,846,927
6. 27-Year Level Dollar Amortization payable June 30, 2020	\$ 227,536,260
7. Initial Special Asset Value allocable to PERS as of July 1, 2016	\$ 2,642,897,102
8. Maximum Special Asset Adjustment: 30-Year Level-Dollar Amortization at 7.65%	\$ 227,053,417
9. Special Asset Adjustment as of June 30, 2020: [lesser of 6 and 8]	\$ 227,053,417
10. Adjustment Percentage	57.29%
11. Funded Ratio based on Actuarial Value + Special Asset Value for Total System	56.54%
12. Applicable Adjustment Percentage: [If 11. < 50%, 10. - 3 x (50% - 11.), otherwise 10.]	57.29%

<sup>1</sup> This adjustment will be \$1,095,871,137 for FY 2022.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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, 2019 Valuation			July 1, 2018 Valuation		
	State	Local Employers <sup>1</sup>	Total	State	Local Employers <sup>1</sup>	Total
<b>1. Actuarial Liability</b>	\$ 25,666,760,996	\$ 35,526,210,970	\$ 61,192,971,966	\$ 23,745,716,631	\$ 33,103,627,533	\$ 56,849,344,164
<b>2. Actuarial Value of Assets<sup>2</sup></b>	\$ 8,017,468,579	\$ 23,928,515,595	\$ 31,945,984,174	\$ 8,057,092,909	\$ 23,264,877,618	\$ 31,321,970,527
<b>3. Benefit Enhancement Fund (BEF)<sup>3</sup></b>	\$ 0	\$ 54,012,051	\$ 54,012,051	\$ 0	\$ 88,742,204	\$ 88,742,204
<b>4. Unfunded Actuarial Liability including BEF</b>						
a. Basic <sup>4</sup>	\$ 17,624,444,537	\$ 11,523,605,424	\$ 29,148,049,961	\$ 15,663,557,461	\$ 9,837,607,919	\$ 25,501,165,380
b. Chapter 133, P.L. 2001 <sup>5</sup>	0	0	0	0	0	0
c. Chapter 366, P.L. 2001 <sup>6</sup>	20,491,229	128,102,002	148,593,231	20,536,165	89,884,200	110,420,365
d. Chapter 259, P.L. 2001	4,356,651	0	4,356,651	4,530,096	0	4,530,096
e. Total	\$ 17,649,292,417	\$ 11,651,707,426	\$ 29,300,999,843	\$ 15,688,623,722	\$ 9,927,492,119	\$ 25,616,115,841
<b>5. Adjustment to UAL including BEF for Phase-In of State-Paid Local Obligations</b>						
a. Chapter 133, P.L. 2001	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
b. Chapter 366, P.L. 2001	128,102,002	(128,102,002)	0	89,884,200	(89,884,200)	0
d. Total	\$ 128,102,002	\$ (128,102,002)	\$ 0	\$ 89,884,200	\$ (89,884,200)	\$ 0
<b>6. Net UAL including BEF [4 + 5]</b>	<b>\$ 17,777,394,419</b>	<b>\$ 11,523,605,424</b>	<b>\$ 29,300,999,843</b>	<b>\$ 15,778,507,922</b>	<b>\$ 9,837,607,919</b>	<b>\$ 25,616,115,841</b>

<sup>1</sup> 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.

<sup>2</sup> AVA without Special Asset Value used to calculate the Statutory Contribution.

<sup>3</sup> BEF offsets future normal costs associated with Chapter 133, P.L. 2001.

<sup>4</sup> Includes UAL amounts due to State ERI programs.

<sup>5</sup> 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.

<sup>6</sup> Local amount recalculated in 2019 to reflect that State-paid Local contributions were first credited to the Local portion of the trust in FYE June 30, 2019.

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**SECTION V – CONTRIBUTIONS**

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

	July 1, 2019 Valuation Fiscal Year Ending 2021 Payment			July 1, 2018 Valuation Fiscal Year Ending 2020 Payment		
	State	Local Employers <sup>1</sup>	Total	State	Local Employers <sup>1</sup>	Total
	<b>1. Amortization of UAL including BEF</b>					
a. Basic <sup>2</sup>	\$ 1,363,775,384	\$ 891,693,884	\$ 2,255,469,268	\$ 1,233,723,504	\$ 774,848,762	\$ 2,008,572,266
b. Chapter 133, P.L. 2001 <sup>3</sup>	0	0	0	0	0	0
c. Chapter 366, P.L. 2001 <sup>4</sup>	2,223,111	13,897,897	16,121,008	2,164,172	9,472,309	11,636,481
d. Chapter 259, P.L. 2001 <sup>4,5</sup>	472,657	0	472,657	477,397	0	477,397
e. Total	\$ 1,366,471,152	\$ 905,591,781	\$ 2,272,062,933	\$ 1,236,365,073	\$ 784,321,071	\$ 2,020,686,144
<b>2. Adjustment to UAL Contribution for State-Paid Local Obligations</b>						
a. Chapter 133, P.L. 2001	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
b. Chapter 366, P.L. 2001	13,897,897	(13,897,897)	0	9,472,309	(9,472,309)	0
c. Total	\$ 13,897,897	\$ (13,897,897)	\$ 0	\$ 9,472,309	\$ (9,472,309)	\$ 0
<b>3. UAL Contribution as of Valuation Date [1 + 2]</b>	\$ 1,380,369,049	\$ 891,693,884	\$ 2,272,062,933	\$ 1,245,837,382	\$ 774,848,762	\$ 2,020,686,144
<b>4. Interest to the Beginning of the Fiscal Year</b>	\$ 100,766,940	\$ 65,093,654	\$ 165,860,594	\$ 93,437,804	\$ 58,113,657	\$ 151,551,461
<b>5. UAL Contribution as of Beginning of Fiscal Year [3 + 4]</b>	<b>\$ 1,481,135,989</b>	<b>\$ 956,787,538</b>	<b>\$ 2,437,923,527</b>	<b>\$ 1,339,275,186</b>	<b>\$ 832,962,419</b>	<b>\$ 2,172,237,605</b>

<sup>1</sup> 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.

<sup>2</sup> Includes UAL Amounts due to State ERI programs.

<sup>3</sup> 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.

<sup>4</sup> Amortized over closed 14 and 15 year periods in 2019 and 2018, respectively, as level dollar amounts.

<sup>5</sup> Payable by the Second Injury Fund (SIF).

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**SECTION V – CONTRIBUTIONS**

Table V-4  
Development of Normal Cost

	July 1, 2019 Valuation			July 1, 2018 Valuation		
	Fiscal Year Ending 2021 Payment			Fiscal Year Ending 2020 Payment		
	State	Local Employers	Total	State	Local Employers	Total
<b>1. Gross Normal Cost, excluding NCGI Premium</b>						
a. Basic	\$ 437,162,038	\$ 684,510,148	\$ 1,121,672,186	\$ 383,265,567	\$ 613,195,200	\$ 996,460,767
b. Chapter 133, P.L. 2001	28,540,008	42,835,673	71,375,681	24,917,788	38,333,334	63,251,122
c. Chapter 366, P.L. 2001	302,117	2,844,672	3,146,789	324,366	2,727,509	3,051,875
d. Chapter 259, P.L. 2001 <sup>1</sup>	55,309	0	55,309	76,316	0	76,316
e. Total	<u>\$ 466,059,472</u>	<u>\$ 730,190,493</u>	<u>\$ 1,196,249,965</u>	<u>\$ 408,584,037</u>	<u>\$ 654,256,043</u>	<u>\$ 1,062,840,080</u>
<b>2. Expected Member Contributions<sup>2</sup></b>						
a. Basic	\$ (335,218,838)	\$ (534,398,140)	\$ (869,616,978)	\$ (322,894,325)	\$ (529,461,839)	\$ (852,356,164)
b. Chapter 366, P.L. 2001 <sup>3</sup>	(180,349)	(1,194,049)	(1,374,398)	(189,820)	(1,240,492)	(1,430,312)
c. Total	<u>\$ (335,399,187)</u>	<u>\$ (535,592,189)</u>	<u>\$ (870,991,376)</u>	<u>\$ (323,084,145)</u>	<u>\$ (530,702,331)</u>	<u>\$ (853,786,476)</u>
<b>3. Employer Normal Cost [1 + 2]</b>	\$ 130,660,285	\$ 194,598,304	\$ 325,258,589	\$ 85,499,892	\$ 123,553,712	\$ 209,053,604
<b>4. BEF Offset of Chapter 133, P.L. 2001</b>	\$ 0	\$ (42,835,673)	\$ (42,835,673)	\$ 0	\$ (38,333,334)	\$ (38,333,334)
<b>5. Portion of Local Normal Cost Payable by State</b>						
a. Chapter 133, P.L. 2001	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
b. Chapter 366, P.L. 2001	1,650,623	(1,650,623)	0	1,487,017	(1,487,017)	0
c. Total	<u>\$ 1,650,623</u>	<u>\$ (1,650,623)</u>	<u>\$ 0</u>	<u>\$ 1,487,017</u>	<u>\$ (1,487,017)</u>	<u>\$ 0</u>
<b>6. Normal Cost Contribution as of Valuation Date [3 + 4 + 5]</b>	\$ 132,310,908	\$ 150,112,008	\$ 282,422,916	\$ 86,986,909	\$ 83,733,361	\$ 170,720,270
<b>7. Interest to the Beginning of the Fiscal Year</b>	\$ 9,658,695	\$ 10,958,176	\$ 20,616,871	\$ 6,524,018	\$ 6,280,002	\$ 12,804,020
<b>8. Normal Cost Contribution as of Beginning of Fiscal Year [6 + 7]</b>	<b>\$ 141,969,603</b>	<b>\$ 161,070,184</b>	<b>\$ 303,039,787</b>	<b>\$ 93,510,927</b>	<b>\$ 90,013,363</b>	<b>\$ 183,524,290</b>
<b>9. Non-Contributory Group Insurance Premium as of Beginning of Fiscal Year (one-year term cost)</b>	N/A	\$ 52,875,923	\$ 52,875,923	N/A	\$ 49,734,428	\$ 49,734,428

<sup>1</sup> Payable by the Second Injury Fund (SIF)

<sup>2</sup> Consistent with existing methodology, expected member contributions are calculated as appropriation payroll increased with a year of general payroll inflation (2% in 2019 and 3% in 2018), multiplied by the employee contribution rate and discounted from the middle of the year to the beginning of the year.

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



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**SECTION V – CONTRIBUTIONS**

**Table V-5  
Development of Statutory Pension Contributions**

As of Beginning of Fiscal Year	July 1, 2019 Valuation Fiscal Year Ending 2021 Payment			July 1, 2018 Valuation Fiscal Year Ending 2020 Payment		
	State	Local Employers	Total	State	Local Employers	Total
<b>1. Normal Cost Contribution<sup>1</sup></b>						
a. Basic	\$ 109,385,053	\$ 161,070,184	\$ 270,455,237	\$ 64,899,084	\$ 90,013,363	\$ 154,912,447
b. Chapter 133, P.L. 2001	30,623,428	0	30,623,428	26,786,622	0	26,786,622
c. Chapter 366, P.L. 2001	1,901,775	0	1,901,775	1,743,181	0	1,743,181
d. Chapter 259, P.L. 2001 <sup>3</sup>	59,347	0	59,347	82,040	0	82,040
e. Total	\$ 141,969,603	\$ 161,070,184	\$ 303,039,787	\$ 93,510,927	\$ 90,013,363	\$ 183,524,290
<b>2. UAL Contribution<sup>1,2</sup></b>						
a. Basic <sup>4</sup>	\$ 1,463,330,987	\$ 956,787,538	\$ 2,420,118,525	\$ 1,326,252,767	\$ 832,962,419	\$ 2,159,215,186
b. Chapter 133, P.L. 2001	0	0	0	0	0	0
c. Chapter 366, P.L. 2001	17,297,841	0	17,297,841	12,509,217	0	12,509,217
d. Chapter 259, P.L. 2001 <sup>3</sup>	507,161	0	507,161	513,202	0	513,202
e. Total	\$ 1,481,135,989	\$ 956,787,538	\$ 2,437,923,527	\$ 1,339,275,186	\$ 832,962,419	\$ 2,172,237,605
<b>3. Total Statutory Pension Contribution: [1 + 2]</b>	\$ 1,623,105,592	\$ 1,117,857,722	\$ 2,740,963,314	\$ 1,432,786,113	\$ 922,975,782	\$ 2,355,761,895
<b>4. SIF Offset of Chapter 259, P.L. 2001</b>	\$ (566,508)	\$ 0	\$ (566,508)	\$ (595,242)	\$ 0	\$ (595,242)
<b>5. Lottery Enterprise Contribution Offset</b>	\$ (227,931,388)	\$ 0	\$ (227,931,388)	\$ (225,008,822)	\$ 0	\$ (225,008,822)
<b>6. Phase-in of Impact of Assumption Changes<sup>5</sup></b>	\$ 0	\$ (76,783,019)	\$ (76,783,019)	\$ 0	\$ 0	\$ 0
<b>7. Net Pension Contribution: [3 + 4 + 5 + 6]</b>	\$ 1,394,607,696	\$ 1,041,074,703	\$ 2,435,682,399	\$ 1,207,182,049	\$ 922,975,782	\$ 2,130,157,831
<b>8. Non-Contributory Group Insurance Premium</b>	N/A	\$ 52,875,923	\$ 52,875,923	N/A	\$ 49,734,428	\$ 49,734,428

<sup>1</sup> 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 \$16,683,561 and \$11,781,276 for the July 1, 2019 and July 1, 2018 valuations, respectively.

<sup>2</sup> 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.

<sup>3</sup> Payable by the Second Injury Fund (SIF).

<sup>4</sup> Includes UAL Amounts due to State ERI programs.

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

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**SECTION V – CONTRIBUTIONS**

Table V-6 shows the State and Local employer contributions as a percentage of appropriation payroll for FYE 2021 compared to FYE 2020.

<b>Table V-6 Contributions as a Percentage of Appropriation Payroll<sup>1</sup></b>				
	<b>July 1, 2019 Valuation Fiscal Year 2021 Payment</b>		<b>July 1, 2018 Valuation Fiscal Year 2020 Payment</b>	
	<b>State</b>	<b>Local Employers</b>	<b>State</b>	<b>Local Employers</b>
1. Normal Cost Rate				
a. Basic	2.410%	2.226%	1.498%	1.267%
b. Chapter 133, P.L. 2001	0.675%	0.000% <sup>2</sup>	0.618%	0.000% <sup>2</sup>
c. Total Normal Cost Rate	<u>3.085%</u>	<u>2.226%</u>	<u>2.116%</u>	<u>1.267%</u>
2. Unfunded Actuarial Liability (UAL) Contribution				
a. Basic	32.239%	13.222%	30.603%	11.722%
b. Chapter 133, P.L. 2001	0.000%	0.000%	0.000%	0.000%
c. Total UAL Contribution	<u>32.239%</u>	<u>13.222%</u>	<u>30.603%</u>	<u>11.722%</u>
3. Gross Contribution for Fiscal Year 2021: [1 + 2]	35.324%	15.448%	32.719%	12.989%
4. Phase-in of Impact of Assumption Changes	0.000%	-1.061%	0.000%	0.000%
<b>5. Contribution Net of Phase-in for Fiscal Year 2021: [3 + 4]</b>	<b>35.324%</b>	<b>14.387%</b>	<b>32.719%</b>	<b>12.989%</b>
6. State Non-Contributory Group Insurance Premium Fund	N/A	0.731%	N/A	0.700%

<sup>1</sup> Rates exclude contributions required under Chapter 366, P.L. 2001 and Chapter 259, P.L. 2001 as well as ERI and Chapter 19, P.L. 2009 payments.

<sup>2</sup> 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 0.635% and 0.580% for the July 1, 2019 and the July 1, 2018, respectively.

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**SECTION V – CONTRIBUTIONS**

Table V-7 shows the Statutory contribution payable by the State broken down by various divisions.

<b>Table V-7</b>						
<b>Fiscal Year 2021 Statutory Contributions Payable by the State</b>						
	State	Disability Insurance Services	All Other Units of Division of Employment Security	State Colleges	Total Excluding Second Injury Fund	Second Injury Fund
Member Count	52,618	242	1,504	13,542	67,906	
Appropriation Payroll	\$ 3,698,411,426	\$ 14,177,674	\$ 106,565,257	\$ 719,915,231	\$ 4,539,069,588	
<b>Normal Cost Contribution</b>						
Basic	\$ 89,126,398	\$ 341,662	\$ 2,568,070	\$ 17,348,923	\$ 109,385,053	
Chapter 133, P.L. 2001	30,623,428	0	0	0	30,623,428	
Chapter 366, P.L. 2001	1,901,775	0	0	0	1,901,775	
Sub-Total	<u>\$ 121,651,601</u>	<u>\$ 341,662</u>	<u>\$ 2,568,070</u>	<u>\$ 17,348,923</u>	<u>\$ 141,910,256</u>	
Chapter 259, P.L. 2001						\$ 59,347
<b>UAL Contribution</b>						
Basic excluding ERI amounts	\$ 1,071,109,763	\$ 4,620,039	\$ 34,726,122	\$ 209,536,532	\$ 1,319,992,456	
Chapter 23, P.L. 2002	107,881,879	0	0	9,257,301	117,139,180	
Chapter 21, P.L. 2008	26,199,351	0	0	0	26,199,351	
Chapter 133, P.L. 2001	0	0	0	0	0	
Chapter 366, P.L. 2001	17,297,841	0	0	0	17,297,841	
Sub-Total	<u>\$ 1,222,488,834</u>	<u>\$ 4,620,039</u>	<u>\$ 34,726,122</u>	<u>\$ 218,793,833</u>	<u>\$ 1,480,628,828</u>	
Chapter 259, P.L. 2001						\$ 507,161
<b>Statutory Pension Contribution</b>	<b>\$ 1,344,140,435</b>	<b>\$ 4,961,701</b>	<b>\$ 37,294,192</b>	<b>\$ 236,142,756</b>	<b>\$ 1,622,539,084</b>	<b>\$ 566,508</b>
<b>Lottery Contribution Offset</b>						
Chapter 98, P.L. 2017	\$ (107,479,786)	\$ 0	\$ 0	\$ (120,451,602)	\$ (227,931,388)	\$ 0
<b>Net Pension Contribution</b>	<b>\$ 1,236,660,649</b>	<b>\$ 4,961,701</b>	<b>\$ 37,294,192</b>	<b>\$ 115,691,154</b>	<b>\$ 1,394,607,696</b>	<b>\$ 566,508</b>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**SECTION V – CONTRIBUTIONS**

Table V-8 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 <sup>1</sup>	Net Pension Contribution
					Basic	Chapter 23, P.L. 2002			
401	State Library Affiliated <sup>2</sup>	74	\$ 5,141,500	\$ 123,903	\$ 1,675,446	\$ 0	\$ 1,799,349	\$ (149,417)	\$ 1,649,932
410	Rowan University	1,051	54,328,630	1,309,242	15,799,137	799,390	17,907,769	(9,143,947)	8,763,822
411	New Jersey City University	467	25,044,494	603,536	7,283,110	553,611	8,440,257	(4,215,190)	4,225,067
412	Kean University	392	19,830,259	477,881	5,766,775	488,011	6,732,667	(3,337,593)	3,395,074
413	William Patterson University of NJ	548	27,205,951	655,624	7,911,676	340,978	8,908,278	(4,578,981)	4,329,297
414	Monclair State University	632	31,509,506	759,334	9,163,180	216,786	10,139,300	(5,303,304)	4,835,996
415	The College of New Jersey	511	27,123,585	653,639	7,887,724	609,513	9,150,876	(4,565,118)	4,585,758
420	Ramapo College of New Jersey	305	17,818,525	429,401	5,181,749	178,493	5,789,643	(2,999,002)	2,790,641
421	Stockton University	655	36,189,842	872,123	10,524,253	469,043	11,865,419	(6,091,042)	5,774,377
430	Thomas Edison State University	90	6,709,265	161,684	1,951,100	141,570	2,254,354	(1,129,223)	1,125,131
497 & 498	Rutgers University	6,010	308,242,708	7,428,207	89,639,087	5,190,858	102,258,152	(51,879,735)	50,378,417
901	University Hospital	2,440	139,661,702	3,365,646	40,614,577	0	43,980,223	(23,506,191)	20,474,032
32700 & 55530	New Jersey Institute of Technology	367	21,109,264	508,703	6,138,718	269,048	6,916,469	(3,552,859)	3,363,610
<b>Total</b>		<b>13,542</b>	<b>\$ 719,915,231</b>	<b>\$ 17,348,923</b>	<b>\$ 209,536,532</b>	<b>\$ 9,257,301</b>	<b>\$ 236,142,756</b>	<b>\$ (120,451,602)</b>	<b>\$ 115,691,154</b>

<sup>1</sup> 52.78% of the total Lottery Enterprise Contribution offset for FYE 2021 is allocated to each State College location based on the location's 2019 appropriation payroll.

The percentage allocation to State Colleges was determined using 2019 contributing active and retiree headcounts for locations deemed to be eligible for funding under the Lottery Enterprise.

<sup>2</sup> The allocation of the Lottery Enterprise Contribution offset to State Library Affiliated is based on the 47.22% allocated to non-State College locations.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX A – MEMBERSHIP INFORMATION**

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2019. 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  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-1 Contributing Active Member Data by Tier State</b>							
	July 1, 2019	July 1, 2018	%		July 1, 2019	July 1, 2018	%
<b><u>Tier 1</u></b>				<b><u>Tier 2</u></b>			
Count	38,990	41,962	-7.1%	Count	2,996	3,133	-4.4%
Average Age	53.1	52.7	0.9%	Average Age	48.2	47.5	1.5%
Average Service	21.0	20.3	3.1%	Average Service	11.2	10.3	8.6%
Average Appropriation Pay	\$ 74,341	\$ 69,875	6.4%	Average Appropriation Pay	\$ 62,324	\$ 56,820	9.7%
Total Appropriation Payroll	\$ 2,898,545,242	\$ 2,932,098,109	-1.1%	Total Appropriation Payroll	\$ 186,722,274	\$ 178,017,536	4.9%
<b><u>Tier 3</u></b>				<b><u>Tier 4</u></b>			
Count	2,103	2,201	-4.5%	Count	1,446	1,512	-4.4%
Average Age	47.2	46.3	2.1%	Average Age	45.8	44.9	2.0%
Average Service	9.8	8.9	11.0%	Average Service	8.5	7.5	13.4%
Average Appropriation Pay	\$ 61,349	\$ 55,318	10.9%	Average Appropriation Pay	\$ 64,760	\$ 58,419	10.9%
Total Appropriation Payroll	\$ 129,017,106	\$ 121,755,110	6.0%	Total Appropriation Payroll	\$ 93,642,863	\$ 88,329,071	6.0%
<b><u>Tier 5</u></b>				<b><u>Total</u></b>			
Count	22,371	19,785	13.1%	Count	67,906	68,593	-1.0%
Average Age	39.9	39.3	1.5%	Average Age	48.2	48.2	0.0%
Average Service	3.4	3.0	15.5%	Average Service	14.2	14.2	-0.5%
Average Appropriation Pay	\$ 55,033	\$ 51,229	7.4%	Average Appropriation Pay	\$ 66,843	\$ 63,181	5.8%
Total Appropriation Payroll	\$ 1,231,142,103	\$ 1,013,573,148	21.5%	Total Appropriation Payroll	\$ 4,539,069,588	\$ 4,333,772,974	4.7%

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  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-2 Contributing Active Member Data by Tier Local Employers</b>							
	July 1, 2019	July 1, 2018	%		July 1, 2019	July 1, 2018	%
			Change				Change
<b><u>Tier 1</u></b>				<b><u>Tier 2</u></b>			
Count	78,294	84,856	-7.7%	Count	8,146	8,711	-6.5%
Average Age	56.4	55.9	0.9%	Average Age	52.2	51.5	1.4%
Average Service	20.5	19.7	4.5%	Average Service	11.3	10.4	9.5%
Average Appropriation Pay	\$ 55,025	\$ 53,147	3.5%	Average Appropriation Pay	\$ 42,840	\$ 40,544	5.7%
Total Appropriation Payroll	\$ 4,308,137,621	\$ 4,509,830,568	-4.5%	Total Appropriation Payroll	\$ 348,972,336	\$ 353,175,877	-1.2%
<b><u>Tier 3</u></b>				<b><u>Tier 4</u></b>			
Count	5,219	5,522	-5.5%	Count	2,307	2,416	-4.5%
Average Age	50.8	49.9	1.8%	Average Age	48.0	47.0	2.1%
Average Service	9.8	8.9	10.4%	Average Service	8.6	7.6	14.1%
Average Appropriation Pay	\$ 46,090	\$ 43,929	4.9%	Average Appropriation Pay	\$ 53,421	\$ 50,879	5.0%
Total Appropriation Payroll	\$ 240,544,795	\$ 242,575,203	-0.8%	Total Appropriation Payroll	\$ 123,241,992	\$ 122,923,756	0.3%
<b><u>Tier 5</u></b>				<b><u>Total</u></b>			
Count	51,321	45,110	13.8%	Count	145,287	146,615	-0.9%
Average Age	42.4	41.7	1.5%	Average Age	50.9	50.9	-0.1%
Average Service	3.4	3.0	13.4%	Average Service	13.4	13.4	0.2%
Average Appropriation Pay	\$ 43,163	\$ 41,626	3.7%	Average Appropriation Pay	\$ 49,805	\$ 48,469	2.8%
Total Appropriation Payroll	\$ 2,215,183,342	\$ 1,877,743,384	18.0%	Total Appropriation Payroll	\$ 7,236,080,086	\$ 7,106,248,788	1.8%

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  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-3 Contributing Active Member Data by Tier Total</b>							
	July 1, 2019	July 1, 2018	%		July 1, 2019	July 1, 2018	%
			Change				Change
<b><u>Tier 1</u></b>				<b><u>Tier 2</u></b>			
Count	117,284	126,818	-7.5%	Count	11,142	11,844	-5.9%
Average Age	55.3	54.9	0.9%	Average Age	51.1	50.4	1.4%
Average Service	20.7	19.9	4.1%	Average Service	11.3	10.3	9.2%
Average Appropriation Pay	\$ 61,446	\$ 58,682	4.7%	Average Appropriation Pay	\$ 48,079	\$ 44,849	7.2%
Total Appropriation Payroll	\$ 7,206,682,863	\$ 7,441,928,677	-3.2%	Total Appropriation Payroll	\$ 535,694,610	\$ 531,193,413	0.8%
<b><u>Tier 3</u></b>				<b><u>Tier 4</u></b>			
Count	7,322	7,723	-5.2%	Count	3,753	3,928	-4.5%
Average Age	49.8	48.9	1.9%	Average Age	47.1	46.2	2.1%
Average Service	9.8	8.9	10.6%	Average Service	8.6	7.6	13.8%
Average Appropriation Pay	\$ 50,473	\$ 47,175	7.0%	Average Appropriation Pay	\$ 57,790	\$ 53,781	7.5%
Total Appropriation Payroll	\$ 369,561,901	\$ 364,330,313	1.4%	Total Appropriation Payroll	\$ 216,884,855	\$ 211,252,827	2.7%
<b><u>Tier 5</u></b>				<b><u>Total</u></b>			
Count	73,692	64,895	13.6%	Count	213,193	215,208	-0.9%
Average Age	41.6	41.0	1.5%	Average Age	50.0	50.1	0.0%
Average Service	3.4	3.0	14.0%	Average Service	13.6	13.6	0.0%
Average Appropriation Pay	\$ 46,767	\$ 44,554	5.0%	Average Appropriation Pay	\$ 55,232	\$ 53,158	3.9%
Total Appropriation Payroll	\$ 3,446,325,445	\$ 2,891,316,532	19.2%	Total Appropriation Payroll	\$ 11,775,149,674	\$ 11,440,021,762	2.9%

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  
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**APPENDIX A – MEMBERSHIP INFORMATION**

Table A-4 Non-Contributing Active Member Data by Tier						
	State		Local Employers		Total	
	July 1, 2019	July 1, 2018	July 1, 2019	July 1, 2018	July 1, 2019	July 1, 2018
<b><u>Tier 1</u></b>						
Count	5,503	5,950	15,540	17,527	21,043	23,477
Average Age	58.3	58.5	61.7	61.8	60.8	61.0
Accumulated Deductions with Interest	\$ 349,854,537	\$ 357,365,625	\$ 630,969,439	\$ 668,857,429	\$ 980,823,976	\$ 1,026,223,054
<b><u>Tier 2</u></b>						
Count	347	382	1,355	1,669	1,702	2,051
Average Age	51.3	52.1	54.0	53.4	53.4	53.1
Accumulated Deductions with Interest	\$ 10,040,180	\$ 8,490,800	\$ 20,633,720	\$ 19,086,168	\$ 30,673,900	\$ 27,576,968
<b><u>Tier 3</u></b>						
Count	250	274	886	989	1,136	1,263
Average Age	47.5	47.1	50.8	49.8	50.0	49.2
Accumulated Deductions with Interest	\$ 6,481,556	\$ 5,651,543	\$ 12,699,440	\$ 11,568,516	\$ 19,180,996	\$ 17,220,059
<b><u>Tier 4</u></b>						
Count	145	167	270	333	415	500
Average Age	44.7	44.1	48.7	46.1	47.3	45.4
Accumulated Deductions with Interest	\$ 4,511,657	\$ 3,938,251	\$ 4,794,225	\$ 5,310,392	\$ 9,305,882	\$ 9,248,643
<b><u>Tier 5</u></b>						
Count	3,010	2,632	8,546	7,467	11,556	10,099
Average Age	36.7	36.1	38.3	38.1	37.9	37.5
Accumulated Deductions with Interest	\$ 24,578,352	\$ 19,292,261	\$ 52,343,828	\$ 39,043,109	\$ 76,922,180	\$ 58,335,370
<b><u>Total</u></b>						
Count	9,255	9,405	26,597	27,985	35,852	37,390
Average Age	50.5	51.4	53.3	54.2	52.6	53.5
Accumulated Deductions with Interest	\$ 395,466,282	\$ 394,738,480	\$ 721,440,652	\$ 743,865,614	\$ 1,116,906,934	\$ 1,138,604,094

Accumulated Deductions with interest as reported by the DPB

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-5 Inactive Member Data by Status</b>						
	<b>July 1, 2019</b>			<b>July 1, 2018</b>		
	<b>State</b>	<b>Local Employers</b>	<b>Total</b>	<b>State</b>	<b>Local Employers</b>	<b>Total</b>
<b>Retirees</b>						
Count	50,115	102,657	152,772	48,977	100,497	149,474
Annual Retirement Allowances	\$ 1,481,473,890	\$ 1,944,875,018	\$ 3,426,348,908	\$ 1,423,009,992	\$ 1,858,895,467	\$ 3,281,905,459
Average Retirement Allowance	\$ 29,561	\$ 18,945	\$ 22,428	\$ 29,055	\$ 18,497	\$ 21,956
<b>Beneficiaries</b>						
Count	4,593	10,951	15,544	4,437	10,739	15,176
Annual Retirement Allowances	\$ 79,876,720	\$ 142,112,121	\$ 221,988,841	\$ 76,247,249	\$ 137,597,453	\$ 213,844,702
Average Retirement Allowance	\$ 17,391	\$ 12,977	\$ 14,281	\$ 17,184	\$ 12,813	\$ 14,091
<b>Ordinary Disability</b>						
Count	4,623	8,172	12,795	4,631	8,103	12,734
Annual Retirement Allowances	\$ 93,964,621	\$ 139,748,274	\$ 233,712,895	\$ 93,021,193	\$ 137,416,595	\$ 230,437,788
Average Retirement Allowance	\$ 20,325	\$ 17,101	\$ 18,266	\$ 20,087	\$ 16,959	\$ 18,096
<b>Accidental Disability</b>						
Count	518	863	1,381	511	853	1,364
Annual Retirement Allowances	\$ 15,851,463	\$ 24,649,345	\$ 40,500,808	\$ 15,455,362	\$ 23,996,718	\$ 39,452,080
Average Retirement Allowance	\$ 30,601	\$ 28,562	\$ 29,327	\$ 30,245	\$ 28,132	\$ 28,924
<b>In-Pay Total</b>						
<b>Count</b>	<b>59,849</b>	<b>122,643</b>	<b>182,492</b>	<b>58,556</b>	<b>120,192</b>	<b>178,748</b>
<b>Annual Retirement Allowances</b>	<b>\$ 1,671,166,694</b>	<b>\$ 2,251,384,758</b>	<b>\$ 3,922,551,452</b>	<b>\$ 1,607,733,796</b>	<b>\$ 2,157,906,233</b>	<b>\$ 3,765,640,029</b>
<b>Average Retirement Allowance</b>	<b>\$ 27,923</b>	<b>\$ 18,357</b>	<b>\$ 21,494</b>	<b>\$ 27,456</b>	<b>\$ 17,954</b>	<b>\$ 21,067</b>
<b>Deferred Vested Members</b>						
Count	229	713	942	169	440	609
Annual Retirement Allowances	\$ 3,763,620	\$ 7,817,544	\$ 11,581,164	\$ 2,522,196	\$ 4,454,100	\$ 6,976,296
Average Retirement Allowance	\$ 16,435	\$ 10,964	\$ 12,294	\$ 14,924	\$ 10,123	\$ 11,455

QDRO benefits included with member records for valuation purposes.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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<b>Table A-6 Reconciliation of Plan Membership from July 1, 2018 to July 1, 2019</b>							
	<b>Contributing Actives</b>	<b>Non-Contrib. Actives</b>	<b>Deferred Vested</b>	<b>Retired</b>	<b>Disabled</b>	<b>Beneficiaries</b>	<b>Total</b>
1. July 1, 2018	<b>215,208</b>	<b>37,390</b>	<b>609</b>	<b>149,474</b>	<b>14,098</b>	<b>15,176</b>	<b>431,955</b>
2. Additions							
a. New entrants	15,337	1,241					16,578
b. Data updates	168	43		26	6	196	439
c. Total	<u>15,505</u>	<u>1,284</u>	<u>0</u>	<u>26</u>	<u>6</u>	<u>196</u>	<u>17,017</u>
3. Reductions							
a. Withdrawal/Certain Period End	(2,916)	(7,114)	(2)			(25)	(10,057)
b. Died without beneficiary	(338)	(240)	(2)	(4,327)	(449)	(863)	(6,219)
c. Data updates	(113)	(21)		(1)			(135)
d. Total	<u>(3,367)</u>	<u>(7,375)</u>	<u>(4)</u>	<u>(4,328)</u>	<u>(449)</u>	<u>(888)</u>	<u>(16,411)</u>
4. Changes in Status							
a. Contributing Actives	(7,922)	7,922					0
b. Non-Contributing Actives	1,582	(1,582)					0
c. Deferred Vested	(69)	(440)	509				0
d. Retired	(7,399)	(1,007)	(172)	8,496			(82)
e. Disabled	(320)	(327)		(5)	652		0
f. Died with beneficiary	(25)	(13)		(891)	(131)	1,060	0
g. Total	<u>(14,153)</u>	<u>4,553</u>	<u>337</u>	<u>7,600</u>	<u>521</u>	<u>1,060</u>	<u>(82)</u>
5. July 1, 2019	<b>213,193</b>	<b>35,852</b>	<b>942</b>	<b>152,772</b>	<b>14,176</b>	<b>15,544</b>	<b>432,479</b>

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  
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<b>Table A-7</b>									
<b>Counts by Age and Service Distribution of Contributing Active Members</b>									
<b>State</b>									
<b>Attained Age</b>	<b>Years of Service</b>								<b>Total</b>
	<b>Under 1</b>	<b>1 to 4</b>	<b>5 to 9</b>	<b>10 to 14</b>	<b>15 to 19</b>	<b>20 to 24</b>	<b>25 to 29</b>	<b>30 &amp; up</b>	<b>No.</b>
	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>
Under 30	1,579	3,371	416	12	0	0	0	0	5,378
30 to 34	575	2,579	1,790	715	31	0	0	0	5,690
35 to 39	400	1,720	1,593	2,879	1,209	23	0	0	7,824
40 to 44	293	1,292	1,134	2,095	2,868	428	26	0	8,136
45 to 49	293	1,129	1,029	1,731	2,358	1,413	634	114	8,701
50 to 54	251	993	937	1,607	2,059	1,215	1,537	1,567	10,166
55 & up	318	1,590	1,864	3,713	4,863	2,882	2,208	4,573	22,011
<b>Total</b>	<b>3,709</b>	<b>12,674</b>	<b>8,763</b>	<b>12,752</b>	<b>13,388</b>	<b>5,961</b>	<b>4,405</b>	<b>6,254</b>	<b>67,906</b>

<b>Table A-8</b>									
<b>Average Appropriation Pay by Age and Service Distribution of Contributing Active Members</b>									
<b>State</b>									
<b>Attained Age</b>	<b>Years of Service</b>								<b>Total</b>
	<b>Under 1</b>	<b>1 to 4</b>	<b>5 to 9</b>	<b>10 to 14</b>	<b>15 to 19</b>	<b>20 to 24</b>	<b>25 to 29</b>	<b>30 &amp; up</b>	<b>Comp.</b>
	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>
Under 30	\$ 46,201	\$ 49,486	\$ 54,729	\$ 52,289	\$ 0	\$ 0	\$ 0	\$ 0	\$ 48,933
30 to 34	49,684	53,583	62,037	58,091	55,068	0	0	0	56,423
35 to 39	50,684	55,257	65,099	70,549	69,103	60,840	0	0	64,810
40 to 44	52,786	55,817	63,129	69,692	77,515	74,508	70,303	0	68,978
45 to 49	48,767	54,206	61,276	66,678	75,091	81,302	74,565	75,707	69,165
50 to 54	53,633	54,046	59,940	64,147	70,645	79,409	83,784	80,172	71,092
55 & up	54,730	55,776	59,303	61,100	68,473	73,971	77,194	87,895	70,967
<b>Total</b>	<b>\$ 49,182</b>	<b>\$ 53,315</b>	<b>\$ 61,493</b>	<b>\$ 65,609</b>	<b>\$ 71,935</b>	<b>\$ 76,805</b>	<b>\$ 79,074</b>	<b>\$ 85,738</b>	<b>\$ 66,843</b>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-9</b>									
<b>Counts by Age and Service Distribution of Contributing Active Members</b>									
<b>Local Employers</b>									
<b>Attained Age</b>	<b>Years of Service</b>								<b>Total</b>
	<b>Under 1</b>	<b>1 to 4</b>	<b>5 to 9</b>	<b>10 to 14</b>	<b>15 to 19</b>	<b>20 to 24</b>	<b>25 to 29</b>	<b>30 &amp; up</b>	
	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>
Under 30	2,539	7,397	1,193	57	0	0	0	0	11,186
30 to 34	942	4,358	2,724	1,452	105	0	0	0	9,581
35 to 39	782	3,309	2,175	2,900	1,628	60	0	0	10,854
40 to 44	718	3,139	1,840	2,538	2,632	947	65	0	11,879
45 to 49	819	3,528	2,404	3,288	3,222	2,012	1,181	168	16,622
50 to 54	759	3,602	2,790	4,797	4,281	2,530	2,200	1,763	22,722
55 & up	1,018	5,225	5,533	12,518	14,942	10,263	6,020	6,924	62,443
<b>Total</b>	<b>7,577</b>	<b>30,558</b>	<b>18,659</b>	<b>27,550</b>	<b>26,810</b>	<b>15,812</b>	<b>9,466</b>	<b>8,855</b>	<b>145,287</b>

<b>Table A-10</b>									
<b>Average Appropriation Pay by Age and Service Distribution of Contributing Active Members</b>									
<b>Local Employers</b>									
<b>Attained Age</b>	<b>Years of Service</b>								<b>Total</b>
	<b>Under 1</b>	<b>1 to 4</b>	<b>5 to 9</b>	<b>10 to 14</b>	<b>15 to 19</b>	<b>20 to 24</b>	<b>25 to 29</b>	<b>30 &amp; up</b>	
	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>	<b>Comp.</b>
Under 30	\$ 35,839	\$ 39,707	\$ 47,314	\$ 44,056	\$ 0	\$ 0	\$ 0	\$ 0	\$ 39,662
30 to 34	39,466	43,442	51,262	51,652	53,859	0	0	0	46,633
35 to 39	39,157	44,138	52,828	55,911	58,964	68,006	0	0	51,022
40 to 44	38,186	42,904	51,417	53,688	61,341	65,688	68,913	0	52,285
45 to 49	38,845	41,296	48,555	49,337	58,912	67,447	71,033	75,033	52,850
50 to 54	39,229	41,414	46,888	43,785	52,099	64,246	73,483	76,469	52,894
55 & up	40,508	42,104	44,640	40,459	45,387	51,644	60,294	72,870	49,492
<b>Total</b>	<b>\$ 38,147</b>	<b>\$ 41,842</b>	<b>\$ 48,241</b>	<b>\$ 45,541</b>	<b>\$ 50,508</b>	<b>\$ 56,574</b>	<b>\$ 64,758</b>	<b>\$ 73,628</b>	<b>\$ 49,805</b>

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-11</b>					
<b>Counts by Age and Status of Inactive Members</b>					
<b>State</b>					
<b>Attained Age</b>	<b>Status</b>				<b>Total</b>
	<b>Retirees</b>	<b>Beneficiaries</b>	<b>Ordinary Disability</b>	<b>Accidental Disability</b>	
Under 45	0	120	96	15	231
45 to 49	55	89	176	24	344
50 to 54	557	114	364	58	1,093
55 to 59	3,068	218	679	87	4,052
60 to 64	7,286	323	823	93	8,525
65 to 69	10,899	537	843	91	12,370
70 to 74	11,192	705	753	72	12,722
75 to 79	7,454	699	521	32	8,706
80 to 84	4,661	679	257	19	5,616
85 & up	4,943	1,109	111	27	6,190
<b>Total</b>	<b>50,115</b>	<b>4,593</b>	<b>4,623</b>	<b>518</b>	<b>59,849</b>

<b>Table A-12</b>					
<b>Average Retirement Allowances by Age and Status of Inactive Members</b>					
<b>State</b>					
<b>Attained Age</b>	<b>Status</b>				<b>Total</b>
	<b>Retirees</b>	<b>Beneficiaries</b>	<b>Ordinary Disability</b>	<b>Accidental Disability</b>	
Under 45	\$ 0	\$ 10,618	\$ 22,124	\$ 31,505	\$ 16,756
45 to 49	22,607	12,619	22,565	32,547	20,695
50 to 54	30,839	12,160	21,605	32,919	25,926
55 to 59	39,470	17,402	21,336	31,777	35,079
60 to 64	36,561	17,805	21,079	30,485	34,289
65 to 69	33,449	19,989	20,242	31,888	31,953
70 to 74	30,096	21,649	19,892	31,587	29,032
75 to 79	25,462	18,857	18,628	30,213	24,540
80 to 84	21,065	16,401	17,640	21,315	20,345
85 & up	17,441	14,639	17,012	20,032	16,942
<b>Total</b>	<b>\$ 29,561</b>	<b>\$ 17,391</b>	<b>\$ 20,325</b>	<b>\$ 30,601</b>	<b>\$ 27,923</b>

QDRO benefits included with member records for valuation purposes.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX A – MEMBERSHIP INFORMATION**

<b>Table A-13 Counts by Age and Status of Inactive Members Local</b>					
<b>Attained Age</b>	<b>Status</b>				<b>Total</b>
	<b>Retirees</b>	<b>Beneficiaries</b>	<b>Ordinary Disability</b>	<b>Accidental Disability</b>	
Under 45	0	178	86	28	292
45 to 49	101	145	210	39	495
50 to 54	730	258	538	92	1,618
55 to 59	3,480	464	1,097	131	5,172
60 to 64	11,753	816	1,527	166	14,262
65 to 69	20,370	1,091	1,465	140	23,066
70 to 74	22,468	1,572	1,361	109	25,510
75 to 79	17,540	1,855	1,055	96	20,546
80 to 84	12,396	1,766	573	31	14,766
85 & up	13,819	2,806	260	31	16,916
<b>Total</b>	<b>102,657</b>	<b>10,951</b>	<b>8,172</b>	<b>863</b>	<b>122,643</b>

<b>Table A-14 Average Retirement Allowances by Age and Status of Inactive Members Local</b>					
<b>Attained Age</b>	<b>Status</b>				<b>Total</b>
	<b>Retirees</b>	<b>Beneficiaries</b>	<b>Ordinary Disability</b>	<b>Accidental Disability</b>	
Under 45	\$ 0	\$ 7,606	\$ 19,108	\$ 25,337	\$ 12,694
45 to 49	24,425	8,534	20,021	28,597	18,230
50 to 54	30,008	11,967	19,605	33,402	23,865
55 to 59	35,377	12,824	18,790	32,008	29,751
60 to 64	25,538	15,142	17,632	30,962	24,160
65 to 69	21,983	15,645	17,462	27,824	21,431
70 to 74	19,196	13,911	16,357	27,163	18,753
75 to 79	16,158	13,748	15,236	23,773	15,928
80 to 84	14,209	12,979	15,323	24,822	14,128
85 & up	11,477	10,964	11,992	16,484	11,409
<b>Total</b>	<b>\$ 18,945</b>	<b>\$ 12,977</b>	<b>\$ 17,101</b>	<b>\$ 28,562</b>	<b>\$ 18,357</b>

QDRO benefits included with member records for valuation purposes.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

**A. Actuarial Assumptions**

- |   |   |
|---|---|
| <b>1. Investment Rate of Return</b>                         | 7.30% per annum, compounded annually.   |
| <b>2. Administrative Expenses</b>                           | No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute. |
| <b>3. Interest Crediting Rate on Accumulated Deductions</b> | 7.30% per annum, compounded annually. Interest credits are assumed to end upon termination.   |
| <b>4. Cost-of-Living Adjustments (COLAs)</b>                | No future COLAs are assumed. Previously granted COLAs are included in the data.   |



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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**                      \$280,000 in 2019 increasing 2.75% per annum, compounded annually.
- 7. Social Security Wage Base**                      \$132,900 in 2019 increasing 3.25% per annum, compounded annually.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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:

<b>Termination Rates for Members Electing a Refund</b>				
<b>Service</b>	<b>State</b>		<b>Local Employers'</b>	
	<b>Less than 31 Years Old</b>	<b>31 Years or Older</b>	<b>Less than 31 Years Old</b>	<b>31 Years or Older</b>
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  
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**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

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

<b>Termination Rates for Members Electing a Deferred Annuity</b>		
<b>Service</b>	<b>State</b>	<b>Local Employers</b>
< 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, 2019 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  
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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  
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**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  
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**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

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

<b>Local Employers' Tiers 1-4 Retirement Rates</b>			
<b>Age</b>	<b>Less Than 25 Years of Service</b>	<b>25 Years of Service</b>	<b>26 or More Years of Service</b>
< 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  
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**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  
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**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**  
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**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

**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 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.

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 2018 data but omitted from the 2019 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.

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**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

**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 assumed rates of termination, disability, retirement, mortality, salary increase and inflation were updated based on the July 1, 2014 – June 30, 2018 Experience Study, which was approved by the Board of Trustees on February 19, 2020. For a detailed description of each of the assumptions before and after the changes reflected in this valuation, please refer to the Experience Study.

The assumed rate of investment return was decreased from 7.50% to 7.30% per annum, compounded annually.

In connection with a new policy adopted by the DPB, interest credits are assumed to end upon termination, instead of continuing through retirement.

Also in connection with the new interest credit policy adopted by the DPB, for purposes of valuing the liability for non-contributing active members, the reported ASF is adjusted to include interest through the valuation date. Previously, the ASF as reported was used to value the liability. Such a change is appropriate because many non-contributing actives will receive annuity benefits in the future. Therefore, using the ASF amounts as reported under the new policy may result in future liability losses.

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**APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS**

**B. Projection Assumptions**

- |                                     |   |
|-------------------------------------|---|
| <b>1. Investment Rate of Return</b> | <ul style="list-style-type: none"><li>• July 1, 2020 valuation: 7.30% per annum, compounded annually.</li><li>• July 1, 2021 and later valuations: 7.00% per annum, compounded annually.</li></ul>  |
| <b>2. Appropriation Percentages</b> | The State is assumed to appropriate 80% of the Statutory contribution in FYE 2021, and to increase the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023.  |
| <b>3. Administrative Expenses</b>   | 0.37% of expected pension benefit payments for the year for the State and 0.65% of expected pension benefit payments for the year for Local employers.  |
| <b>4. New Entrants</b>              | <ul style="list-style-type: none"><li>• Contributing active population assumed to remain at 2019 levels.</li><li>• Assumed to join mid-year.</li><li>• Age/sex distributions based on the last three years of new hires.</li><li>• Salary based on salary for most recent hires reported on 2019 data.</li><li>• New entrant salary assumed to increase with the salary increase rates applicable for members with 29 or more years of service.</li></ul> |
| <b>5. Demographic Assumptions</b>   | Same as those used for valuation purposes.  |

**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. 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.

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**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.

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 will be fully phased-in by 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.

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**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.

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.

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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.

**4. Changes Since Last Valuation**

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 will be fully phased-in by the FYE 2023 contribution.



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**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, 2019 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.

**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 1/7<sup>th</sup> 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.

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**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.

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**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.

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. 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.

**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).

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(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.

(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.

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- (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:

- 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.

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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 Part (WCJ) (Chapter 259, P.L. 2001):**

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.

(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.



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- 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.

- (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.

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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, 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.
- 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, plus
  - ii. Any survivor benefit due under the Member's optional form of payment election. Previously granted COLAs also apply to life annuities.

**APPENDIX C – SUMMARY OF PLAN PROVISIONS**

**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**

Effective July 1, 2018, the DPB adopted a new policy regarding the crediting of interest on member contributions for the purpose of refund of Accumulated Deductions. Previously, after termination of employment but prior to retirement or death, interest was credited on member Accumulated Deductions at the valuation interest rate for the entire period. Effective July 1, 2018, interest is only credited at the valuation interest rate for the first two years of inactivity prior to retirement or death. Thereafter, no additional interest is credited.

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**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR 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.

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**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR EXHIBITS**

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

Valuation Date July 1,	Market Value of Assets	Actuarial Value of Assets with Special Asset Value <sup>1</sup>	Actuarial Liability	Funded Ratio	
				Market Value	Actuarial Value
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%
2011	9,089,849,561	10,062,648,618	18,290,829,021	49.7%	55.0%
2010	8,293,130,301	10,253,254,901	17,429,178,021	47.6%	58.8%

<sup>1</sup> Includes Special Asset Value beginning with July 1, 2016 valuation

**Table D-2  
Historical Summary of Employer Contributions<sup>1</sup>  
State**

Fiscal Year Ending June 30,	Statutory Contribution / Actuarially Determined Contribution	Actual State Appropriation	Lottery Revenue	Contribution Deficiency/ (Excess)	Percentage of Contribution Covered
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%
2012	874,346,428	124,906,634	0	749,439,794	14.3%
2011	754,168,635	0	0	754,168,635	0.0%

<sup>1</sup> Excludes contributions from NCGI and contributions payable from the Second Injury Fund for Chapter 259, P.L. 2001

<sup>2</sup> Reflects the State's planned contribution of 70% of the Statutory contribution and expected lottery revenue

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR 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
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%
2011	16,636,380,039	18,997,383,783	24,679,095,575	67.4%	77.0%
2010	14,745,211,693	18,481,952,370	23,918,658,044	61.6%	77.3%

**Table D-4  
Historical Summary of Employer Contributions<sup>1</sup>  
Local Employers**

Fiscal Year Ending June 30,	Statutory Contribution / Actuarially Determined Contribution	Actual Local Appropriation	Contribution Deficiency/ (Excess)	Percentage of Contribution Covered
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%
2012	797,707,909	797,707,909	0	100.0%
2011	768,479,627	768,479,676	(49)	100.0%

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

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**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR EXHIBITS**

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), 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 <sup>1</sup>	% Increase in Average Annual Allowance <sup>1</sup>
	Number	Annual Allowance	Number <sup>1</sup>	Annual Allowance	Number <sup>1</sup>	Annual Allowance		
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%
2011	4,365	135,383,063	1,782	28,241,754	47,590	1,133,192,150	23,812	5.36%
2010	2,628	74,214,851	1,456	22,991,138	45,007	1,017,211,463	22,601	2.57%

<sup>1</sup> 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		
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%
2011	9,296	195,153,024	4,529	48,064,677	100,495	1,541,951,837	15,344	6.25%
2010	6,182	115,153,073	3,805	42,585,361	95,728	1,382,400,685	14,441	2.94%

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR 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 <sup>1</sup>	% Increase in Average Annual Allowance <sup>1</sup>
	Number	Annual Allowance	Number <sup>1</sup>	Annual Allowance	Number <sup>1</sup>	Annual Allowance		
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%
2011	13,661	330,536,087	6,311	76,306,431	148,085	2,675,143,987	18,065	5.95%
2010	8,810	189,367,924	5,261	65,576,499	140,735	2,399,612,148	17,051	2.80%

<sup>1</sup> 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 <sup>1</sup>	Annual Compensation <sup>2</sup>	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers <sup>3</sup>
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
2011	77,109	4,608,926,826	59,772	6.44%	N/A
2010	81,288	4,564,850,886	56,157	0.86%	N/A

<sup>1</sup> Beginning with the 2018 valuation, reflects all records for multiple members

<sup>2</sup> Limited annual compensation

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



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**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR EXHIBITS**

Table D-9 Schedule of Active Member Valuation Data Local Employers						
Valuation Date July 1,	Number of Contributing Active Members <sup>1</sup>	Annual Compensation <sup>2</sup>	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers <sup>3</sup>	
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	
2011	171,881	7,000,115,900	40,727	2.98%	N/A	
2010	187,526	7,416,503,897	39,549	3.37%	N/A	

<sup>1</sup> Beginning with the 2018 valuation, reflects all records for multiple members

<sup>2</sup> Limited annual compensation

<sup>3</sup> 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 Members <sup>1</sup>	Annual Compensation <sup>2</sup>	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers <sup>3</sup>	
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	
2011	248,990	11,609,042,726	46,625	4.61%	N/A	
2010	268,814	11,981,354,783	44,571	2.43%	N/A	

<sup>1</sup> Beginning with the 2018 valuation, reflects all records for multiple members

<sup>2</sup> Limited annual compensation

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

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**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR EXHIBITS**

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

Valuation Date July 1,	Actuarial Value of Assets <sup>1</sup> (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded		Covered Payroll <sup>2</sup> (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
			Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)		
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%
2011	10,062,648,618	18,290,829,021	8,228,180,403	55.01%	4,608,926,826	178.53%
2010	10,253,254,901	17,429,178,021	7,175,923,120	58.83%	4,564,850,886	157.20%

<sup>1</sup> Includes receivable amounts. Excludes Special Asset Value.

<sup>2</sup> Limited annual compensation for contributing actives

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

Valuation Date July 1,	Actuarial Value of Assets <sup>1</sup> (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded		Covered Payroll <sup>2</sup> (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
			Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)		
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%
2011	18,997,383,783	24,679,095,575	5,681,711,792	76.98%	7,000,115,900	81.17%
2010	18,481,952,370	23,918,658,044	5,436,705,674	77.27%	7,416,503,897	73.31%

<sup>1</sup> Includes receivable amounts. Excludes Special Asset Value.

<sup>2</sup> Limited annual compensation for contributing actives

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**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR EXHIBITS**

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

Valuation Date July 1,	Actuarial Value of Assets <sup>1</sup> (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded		Covered Payroll <sup>2</sup> (d)	(Surplus)/Unfunded
			Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)		Actuarial Liability as % of Covered Payroll (c) / (d)
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%
2011	29,060,032,401	42,969,924,596	13,909,892,195	67.63%	11,609,042,726	119.82%
2010	28,735,207,271	41,347,836,065	12,612,628,794	69.50%	11,981,354,783	105.27%

<sup>1</sup> Includes receivable amounts. Excludes Special Asset Value.

<sup>2</sup> 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 <sup>2</sup>	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vested <sup>1</sup> (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer <sup>1</sup> (3)		(1)	(2)	(3)
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%
2011	4,295,868,689	10,055,639,293	3,939,321,039	10,062,648,618	100.00%	57.35%	0.00%
2010	4,218,496,038	8,891,761,902	4,318,920,081	10,253,254,901	100.00%	67.87%	0.00%

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

<sup>2</sup> Includes receivable amounts. Excludes Special Asset Value.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR EXHIBITS**

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

Valuation Date July 1,	Actuarial Accrued Liability for			Actuarial Value of Assets <sup>2</sup>	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vested <sup>1</sup> (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer <sup>1</sup> (3)		(1)	(2)	(3)
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%
2011	6,244,282,760	13,077,334,135	5,357,478,680	18,997,383,783	100.00%	97.52%	0.00%
2010	6,130,352,551	11,541,556,714	6,246,748,779	18,481,952,370	100.00%	100.00%	12.97%

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

<sup>2</sup> 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 July 1,	Actuarial Accrued Liability for			Actuarial Value of Assets <sup>2</sup>	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vested <sup>1</sup> (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer <sup>1</sup> (3)		(1)	(2)	(3)
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%
2011	10,540,151,449	23,132,973,428	9,296,799,719	29,060,032,401	100.00%	80.06%	0.00%
2010	10,348,848,589	20,433,318,616	10,565,668,860	28,735,207,271	100.00%	89.98%	0.00%

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

<sup>2</sup> Includes receivable amounts. Excludes Special Asset Value.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR EXHIBITS**

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

<b>Valuation Date July 1,</b>	<b>Actuarial Value Of Assets Investment (Gain)/Loss</b>	<b>Actuarial Accrued Liability (Gain)/Loss</b>	<b>Assumption &amp; Method Changes</b>	<b>Plan/Policy Changes</b>	<b>Contributions<sup>1</sup></b>	<b>Change in Unfunded Actuarial Accrued Liability</b>
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
2011	243,199,764	281,342,822	(155,073,784)	0	682,788,481	1,052,257,283
2010	490,031,150	(296,076,730)	0	(2,203,526,220)	951,641,088	(1,057,930,712)

<sup>1</sup> 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**

<b>Valuation Date July 1,</b>	<b>Actuarial Value Of Assets Investment (Gain)/Loss</b>	<b>Actuarial Accrued Liability (Gain)/Loss</b>	<b>Assumption &amp; Method Changes</b>	<b>Plan/Policy Changes</b>	<b>Contributions<sup>1</sup></b>	<b>Change in Unfunded Actuarial Accrued Liability</b>
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
2011	590,250,936	(169,526,692)	(203,334,001)	0	27,615,875	245,006,118
2010	934,185,169	(251,066,225)	0	(2,822,582,781)	218,796,604	(1,920,667,233)

<sup>1</sup> 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, 2019 ACTUARIAL VALUATION**

**APPENDIX D – HISTORICAL DATA AND REQUIRED CAFR 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 <sup>1</sup>	Change in Unfunded Actuarial Accrued Liability
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
2011	833,450,700	111,816,130	(358,407,785)	0	710,404,356	1,297,263,401
2010	1,424,216,319	(547,142,955)	0	(5,026,109,001)	1,170,437,692	(2,978,597,945)

<sup>1</sup> 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, 2019 ACTUARIAL VALUATION**

**APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS**

<b>Table E-1 State ERI Contribution Schedule</b>			
<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
<b>Chapter 23, P.L. 2002</b>			
410	ROWAN UNIVERSITY	\$ 799,390	\$ 9,627,906
411	NEW JERSEY CITY UNIVERSITY	553,611	6,667,728
412	KEAN UNIVERSITY	488,011	5,877,629
413	WILLIAM PATTERSON UNIVERSITY OF NJ	340,978	4,106,761
414	MONCLAIR STATE UNIVERSITY	216,786	2,610,982
415	THE COLLEGE OF NEW JERSEY	609,513	7,341,010
420	RAMAPO COLLEGE OF NEW JERSEY	178,493	2,149,784
421	STOCKTON UNIVERSITY	469,043	5,649,185
430	THOMAS EDISON STATE UNIVERSITY	141,570	1,705,082
498	RUTGERS UNIVERSITY	5,190,858	62,518,998
32700	NEW JERSEY INSTITUTE OF TECHNOLOGY	269,048	3,240,425
	ALL OTHER STATE LOCATIONS	<u>107,881,879</u>	<u>1,299,335,695</u>
	<b>Sub-Total</b>	<b>\$ 117,139,180</b>	<b>\$ 1,410,831,185</b>
	<b>Chapter 21, P.L. 2008</b>	<b>\$ 26,199,351</b>	<b>\$ 315,546,524</b>
	<b>Total</b>	<b>\$ 143,338,531</b>	<b>\$ 1,726,377,709</b>

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

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, 2019 ACTUARIAL VALUATION**

**APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS**

**Table E-2  
Local Employers ERI 1 Contribution Schedule**

<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
10022	OCEAN CO MOSQUITO COMM	\$ 15,595	\$ 14,792
10030	ATLANTIC COUNTY	155,704	147,690
10031	ATLANTIC COUNTY WELFARE BD	48,124	45,647
10041	MIDDLESEX CO BD OF SOCIAL SRV	23,866	22,638
10063	MORRIS CO VOCATIONAL SCH DIST	11,863	11,252
10070	BURLINGTON COUNTY/PAYROLL DEPT	390,946	370,823
10071	BURLINGTON CO BD OF SOCIAL SERV	36,469	34,592
10110	WARREN CO BD OF CHOSEN FRHLDRS	126,104	119,613
10111	WARREN CO WELFARE BOARD	4,215	3,998
10171	MERCER CO BD OF SOCIAL SERVICE	40,184	38,116
20114	LINDEN CTY FREE PUBLIC LIBRARY	38,906	36,903
20160	ASBURY PARK CITY	59,711	56,638
20163	ASBURY PARK BD OF ED	25,515	24,202
20220	BELLEVILLE TOWNSHIP	166,709	158,128
20240	DOVER TOWN	10,042	9,525
20320	PALMYRA BOROUGH	830	787
20550	RIDGEFIELD PARK VILLAGE	44,678	42,378
20570	SOUTH ORANGE VILLAGE	43,503	41,264
20690	ROSELLE PARK BOROUGH	6,243	5,922
20860	COLLINGSWOOD BOROUGH	18,690	17,728
20910	HADDONFIELD BOROUGH	9,326	8,846
20990	POINT PLEASANT BOROUGH	24,341	23,088
21040	SPRING LAKE BOROUGH	20,002	18,972
21090	MILLBURN TOWNSHIP	77,665	73,667
21180	OCEANPORT BOROUGH	5,862	5,560
21200	RUMSON BOROUGH	5,558	5,272
21260	ABSECON CITY	19,708	18,694
21330	CARTERET BOROUGH	28,862	27,376
21480	EATONTOWN BOROUGH	16,837	15,970
21590	GLASSBORO BOROUGH	14,633	13,880
21600	HO-HO-KUS BOROUGH	9,711	9,211
21650	SECAUCUS TOWN	5,018	4,760
21710	RAMSEY BOROUGH	88,622	84,060
21810	NEPTUNE CITY BOROUGH	2,339	2,219
21930	SPARTA TOWNSHIP	18,261	17,321
22030	VERONA TOWNSHIP	54,647	51,834

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS**

Table E-2 (cont.) Local Employers ERI 1 Contribution Schedule			
Location Number	Location Name	Fiscal Year 2021 Payment	Present Value as of 7/1/2019
22050	CINNAMINSON TOWNSHIP	\$ 4,765	\$ 4,520
22120	MENDHAM TOWNSHIP	16,826	15,960
22290	BORDENTOWN CITY	12,945	12,279
22350	MIDDLETOWN TOWNSHIP	67,198	63,739
22400	CHATHAM TOWNSHIP	26,440	25,079
22430	HARRINGTON PARK BOROUGH	28,248	26,794
22540	BOUND BROOK BOROUGH	12,960	12,293
22670	CHESTER TOWNSHIP	18,612	17,654
22730	BLOOMINGDALE BOROUGH	29,661	28,134
22760	LINCOLN PARK BOROUGH	19,878	18,855
22800	WASHINGTON TWP (GLOUCESTER)	34,379	32,609
22900	MILFORD BOROUGH	13,916	13,200
23020	GLOUCESTER TOWNSHIP	28,621	27,148
23060	CAPE MAY CITY	10,806	10,250
23073	PLEASANTVILLE BD OF ED	4,453	4,224
23080	SEA ISLE CITY	48,612	46,110
23120	HOLMDEL TOWNSHIP	13,922	13,205
23130	NORTH HALEDON BOROUGH	10,027	9,511
23190	MIDDLE TOWNSHIP	12,829	12,169
23200	BEDMINSTER TOWNSHIP	14,615	13,863
23220	BERLIN TOWNSHIP	589	559
23223	BERLIN TOWNSHIP BD OF ED	1,266	1,201
23230	LITTLE SILVER BOROUGH	4,285	4,064
23240	WESTAMPTON TOWNSHIP	12,952	12,285
23290	PAULSBORO BOROUGH	14,510	13,763
23370	TETERBORO BOROUGH	18,632	17,673
23490	PINE HILL BOROUGH	11,276	10,696
23493	PINE HILL BOROUGH BD OF ED	1,090	1,034
23630	SOUTH AMBOY CITY	26,779	25,401
30010	NORTH JERSEY WATER SUPPLY COMM	51,345	48,702
30030	PASSAIC VALLEY WATER COMM	116,651	110,647
30130	TRENTON HOUSING AUTHORITY	77,304	73,325
30300	PASSAIC VALLEY SEWERAGE COMM	35,333	33,514
30320	EWING LAWRENCE SEWERAGE AUTH	19,737	18,721
30360	IRVINGTON HOUSING AUTH	8,300	7,873
30420	BURLINGTON COUNTY BRIDGE COMM	74,574	70,736

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS**

**Table E-2 (cont.)  
Local Employers ERI 1 Contribution Schedule**

<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
30510	PATERSON HOUSING AUTHORITY	\$ 32,207	\$ 30,549
30560	MIDDLESEX CO UTILITIES AUTH	104,615	99,230
30630	SOMERSET RARITAN VALL SEW AUTH	25,948	24,612
30680	STAFFORD MUNICIPAL UTL AUTH	16,332	15,491
30730	DELAWARE RIVER BASIN COMM	98,359	93,296
30820	HAMILTON TWP FIRE DISTRICT 3	2,732	2,591
31210	NJ HOUSING & MTG FINANCE AGENCY	33,414	31,694
31510	BRICK TWP MUN UTILITIES AUTH	34,485	32,710
31830	S MONMOUTH REG SEWERAGE AUTH	7,012	6,651
32000	MANASQUAN RIVER REG SEW AUTH	526	499
32280	MONTCLAIR REDEVELOPMENT AGENCY	14,500	13,754
32700	NJ INSTITUTE OF TECHNOLOGY	151,473	143,676
32900	NJ TRANSIT CORPORATION	56,975	54,042
34340	OLD BRIDGE MUNICIPAL UTIL AUTH	4,885	4,634
34920	SOUTH JERSEY TRANS AUTHORITY	85,515	81,113
39990	COMPENSATION RATING & INS BUR	67,064	63,612
50050	ALLENTOWN BOROUGH	27,600	26,179
50533	CHESILHURST BORO BD OF ED	194	184
50593	CLEMENTON BD OF ED	719	682
50740	DEPTFORD TOWNSHIP	5,305	5,032
50830	EAST HANOVER TOWNSHIP	19,828	18,807
50890	ELK TOWNSHIP	3,355	3,182
51440	HELMETTA BOROUGH	7,176	6,807
51520	HOPATCONG BOROUGH	62,116	58,919
51880	LOWER TOWNSHIP	16,408	15,563
51940	MAGNOLIA BOROUGH	5,539	5,254
51960	MANALAPAN TOWNSHIP	20,527	19,470
52630	PENNSAUKEN TOWNSHIP	7,054	6,691
52810	RARITAN TOWNSHIP	20,511	19,455
52820	HAZLET TOWNSHIP	1,636	1,552
53080	SOUTHAMPTON TOWNSHIP	8,982	8,520
53360	UNION BEACH BOROUGH	11,538	10,944
53670	WEST LONG BRANCH BOROUGH	15,945	15,124
53743	WHITE TOWNSHIP BD OF ED	19,085	18,103
53820	WOODLAND TOWNSHIP	19,719	18,704
56190	SOMERS POINT SEWERAGE AUTHORITY	2,915	2,765
<b>Total</b>		<b>\$ 3,585,819</b>	<b>\$ 3,401,247</b>

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS**

**Table E-3  
Local Employers ERI 2 Contribution Schedule**

<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
10071	BURLINGTON CO BD OF SOCIAL SERV	\$ 47,801	\$ 460,486
10171	MERCER CO BD OF SOCIAL SERVICE	103,284	994,977
20100	LAVALLETTE BOROUGH	14,245	137,232
20114	LINDEN CTY FREE PUBLIC LIBRARY	14,155	136,358
20264	MONTCLAIR PUBLIC LIBRARY	35,848	345,334
20320	PALMYRA BOROUGH	22,027	212,191
20720	WASHINGTON BOROUGH	9,209	88,714
21303	WEST NEW YORK BD OF ED	3,504	29,302
21480	EATONTOWN BOROUGH	22,329	215,106
21663	BEVERLY CITY BD OF ED	905	7,567
22030	VERONA TOWNSHIP	15,339	147,771
22540	BOUND BROOK BOROUGH	8,868	85,433
30130	TRENTON HOUSING AUTHORITY	97,765	941,810
30160	ATLANTIC CITY HOUSING AUTHORITY	52,732	507,987
30230	ASBURY PK HOUSING AUTHORITY	1,674	16,125
30250	NEW BRUNSWICK HOUSING AUTHORITY	3,176	30,594
30420	BURLINGTON COUNTY BRIDGE COMM	19,294	185,862
30510	PATERSON HOUSING AUTHORITY	4,805	46,289
30560	MIDDLESEX CO UTILITIES AUTH	154,507	1,488,429
30770	PATERSON PARKING AUTHORITY	3,125	30,101
30900	GLOUCESTER TWP M U A	12,838	123,669
31190	BRIDGETON CITY HOUSING AUTH	1,580	15,218
31250	JERSEY CITY MUNICIPAL UT. AUTH	3,313	31,917
31260	LINDEN CITY HOUSING AUTHORITY	17,622	179,274
31370	MERCER CO IMPROVEMENT AUTHORITY	14,090	135,736
31580	MOUNT LAUREL TWP MUN UTIL AUTH	1,674	16,125
31680	OCEAN GROVE BD OF FIRE COMM	14,049	135,336
31720	NJ SPORTS & EXPOSITION AUTH	1,626	15,662
32080	OCEAN TWP MUN UTIL AUTHORITY	3,318	31,965
32260	HUDSON CO COMMUNITY COLLEGE	5,000	48,169
32700	NJ INSTITUTE OF TECHNOLOGY	83,080	800,344
39990	COMPENSATION RATING & INS BUR	86,758	835,778
50050	ALLENTOWN BOROUGH	1,649	15,885
50130	AUDUBON BOROUGH	3,546	34,162
50830	EAST HANOVER TOWNSHIP	20,065	193,296
51750	LEBANON BOROUGH	1,595	15,362

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS**

<b>Table E-3 (cont.) Local Employers ERI 2 Contribution Schedule</b>			
<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
51800	LINWOOD CITY	\$ 35,773	\$ 344,617
52630	PENNSAUKEN TOWNSHIP	8,249	79,464
53490	WALLINGTON BOROUGH	17,167	165,379
53670	WEST LONG BRANCH BOROUGH	8,862	85,375
55640	FLORHAM PARK SEW AUTHORITY	5,124	49,362
55880	WRIGHTSTOWN MUN UTIL AUTH	1,646	15,861
60023	HUDSON CO SCHOOLS OF TECHNOLOGY	9,819	82,123
<b>Total</b>		<b>\$ 993,035</b>	<b>\$ 9,557,747</b>

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS**

<b>Table E-4</b>					
<b>Local Employer ERI Contribution Schedules due to Recent ERI Legislation</b>					
<b>Location Number</b>	<b>Location Name</b>	<b>Years and Form of Payment</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>	
<b>Chapter 59, P.L. 1999</b>					
21960	WOODBRIIDGE TOWNSHIP	15 Year - Level	\$ 406,772	\$	2,208,024
<b>Chapter 126, P.L. 2000</b>					
10100	UNION COUNTY	15 Year - Level	\$ 823,553	\$	2,187,668
10101	UNION CO BD OF SOCIAL SERVICES	15 Year - Level	372,988		990,796
	<b>Sub-Total</b>		<b>\$ 1,196,541</b>	<b>\$</b>	<b>3,178,464</b>
<b>Chapter 23, P.L. 2002</b>					
30440	SOUTH JERSEY PORT CORPORATION	30 Year - Increasing	\$ 112,156	\$	1,141,014
31210	NJ HOUSING & MTG FINANCE AGENCY	30 Year - Increasing	136,070		1,384,301
34920	SOUTH JERSEY TRANS AUTHORITY	30 Year - Increasing	118,016		1,200,627
39990	COMPENSATION RATING & INS BUR	30 Year - Increasing	144,582		1,470,892
	<b>Sub-Total</b>		<b>\$ 510,824</b>	<b>\$</b>	<b>5,196,834</b>
<b>Chapter 127, P.L. 2003</b>					
20114	LINDEN CTY FREE PUBLIC LIBRARY	15 Year - Level	\$ 44,239	\$	41,962
20264	MONTCLAIR PUBLIC LIBRARY	15 Year - Level	24,305		23,054
21284	ELIZABETH PUBLIC LIBRARY	15 Year - Level	112,702		106,901
30120	HARRISON TOWN HOUSING AUTHORITY	15 Year - Level	55,103		100,978
30230	ASBURY PK HOUSING AUTHORITY	15 Year - Level	8,876		8,419
30290	BAYONNE HOUSING AUTHORITY	15 Year - Level	77,032		73,067
30380	PERTH AMBOY HOUSING AUTHORITY	15 Year - Level	13,727		13,020
30510	PATERSON HOUSING AUTHORITY	15 Year - Level	38,194		36,228
30550	GARFIELD HOUSING AUTHORITY	15 Year - Level	39,179		37,162
30600	EDISON TWP HOUSING AUTHORITY	15 Year - Level	1,443		1,369
30690	NEPTUNE TWP HOUSING AUTHORITY	15 Year - Level	2,112		2,003
31050	JERSEY CITY INCINERATOR AUTH	15 Year - Level	37,974		36,019
31190	BRIDGETON CITY HOUSING AUTH	15 Year - Level	2,249		2,133
31250	JERSEY CITY MUNICIPAL UT. AUTH	15 Year - Level	27,413		26,002
31870	DOVER TOWN HOUSING AUTHORITY	15 Year - Level	22,787		21,614
31960	WEEHAWKEN TWP HOUSING AUTHORITY	15 Year - Level	1,361		1,291
32010	CAMDEN CO MUN UTIL AUTHORITY	15 Year - Level	56,521		53,612
32030	MONROE TWP MUN UT AUTH (MDDLX)	15 Year - Level	4,045		3,837
32310	OCEAN CO SOIL CONSRV DISTRICT	15 Year - Level	36,612		67,093
34340	OLD BRIDGE MUNICIPAL UTIL AUTH	15 Year - Level	55,374		52,524
34760	CAMDEN CO POLLUTION CONTROL FIN	15 Year - Level	7,726		7,328
55130	CAPE MAY CO BRIDGE COMM	15 Year - Level	10,276		9,747
	<b>Sub-Total</b>		<b>\$ 679,250</b>	<b>\$</b>	<b>725,363</b>

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 ACTUARIAL VALUATION**

**APPENDIX E – EARLY RETIREMENT INCENTIVE PROGRAMS**

Table E-4 (cont.) Local Employer ERI Contribution Schedules due to Recent ERI Legislation				
Location Number	Location Name	Years and Form of Payment	Fiscal Year 2021 Payment	Present Value as of 7/1/2019
<b>Chapter 128, P.L. 2003</b>				
10100	UNION COUNTY	15 Year - Level	\$ 135,188	\$ 128,230
10101	UNION CO BD OF SOCIAL SERVICES	15 Year - Level	24,691	23,420
10121	CAPE MAY CO BD SOCIAL SERVICES	15 Year - Level	211,522	200,635
10141	CUMBERLAND CO BD SOCIAL SERV	15 Year - Level	377,956	358,502
20110	LINDEN CITY	15 Year - Level	40,220	38,150
20220	BELLEVILLE TOWNSHIP	15 Year - Level	197,136	186,989
21110	WEEHAWKEN TOWNSHIP	15 Year - Level	35,854	34,009
21430	LIVINGSTON TOWNSHIP	15 Year - Level	126,432	119,924
21740	EWING TOWNSHIP	15 Year - Level	301,102	285,604
22670	CHESTER TOWNSHIP	15 Year - Level	48,303	45,817
23700	LAMBERTVILLE CITY	15 Year - Level	18,038	17,110
51210	GREEN TOWNSHIP	15 Year - Level	6,933	6,576
51640	JERSEY CITY	15 Year - Level	270,556	256,630
52210	MONROE TOWNSHIP (MIDDLESEX)	15 Year - Level	63,078	59,831
52630	PENNSAUKEN TOWNSHIP	15 Year - Level	88,107	83,572
52660	PINE BEACH BOROUGH	15 Year - Level	14,054	13,331
52810	RARITAN TOWNSHIP	15 Year - Level	36,822	34,927
52920	ROSELAND BOROUGH	15 Year - Level	15,026	14,253
	<b>Sub-Total</b>		<b>\$ 2,011,018</b>	<b>\$ 1,907,510</b>
<b>Chapter 129, P.L. 2003</b>				
20833	PASSAIC BOARD OF EDUCATION	15 Year - Level	\$ 172,618	\$ 163,733
21163	HARRISON TOWN BD OF ED(HUDSON)	15 Year - Level	4,100	3,889
22223	HOWELL TWP BD OF ED	15 Year - Level	15,676	28,726
60023	HUDSON CO SCHOOLS OF TECHNOLOGY	15 Year - Level	82,100	77,874
	<b>Sub-Total</b>		<b>\$ 274,494</b>	<b>\$ 274,222</b>
	<b>Total</b>		<b>\$ 5,078,899</b>	<b>\$ 13,490,417</b>

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX F – CHAPTER 19, P.L. 2009**

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

<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
10042	MIDDLESEX CO MOSQ EXTERM COMM	\$ 5,293	\$ 23,711
10100	UNION COUNTY	488,114	2,186,568
10101	UNION CO BD OF SOCIAL SERVICES	157,263	704,480
10152	SALEM CO MOSQUITO COMMISSION	1,719	7,701
20050	NORTH ARLINGTON BOROUGH	15,328	68,664
20080	POINT PLEASANT BEACH BOROUGH	15,331	68,677
20090	LAKEWOOD TOWNSHIP	59,753	267,671
20093	LAKEWOOD TWP BD OF ED	31,376	140,554
20110	LINDEN CITY	104,037	466,047
20114	LINDEN CTY FREE PUBLIC LIBRARY	5,517	24,712
20130	PLAINFIELD CITY	68,213	305,568
20150	SEASIDE HEIGHTS BOROUGH	14,404	64,526
20160	ASBURY PARK CITY	39,911	178,786
20170	EAST ORANGE CITY	151,606	679,138
20180	EGG HARBOR CITY	6,602	29,574
20200	PERTH AMBOY CITY	72,014	322,595
20210	WILDWOOD CITY	35,973	161,147
20220	BELLEVILLE TOWNSHIP	35,855	160,619
20230	BLOOMFIELD TOWNSHIP	45,748	204,936
20243	DOVER BD OF ED	114	511
20250	IRVINGTON TOWNSHIP	62,172	278,508
20270	MORRISTOWN TOWN	36,079	161,622
20283	WEST ORANGE TOWNSHIP BD OF ED	73,989	331,442
20350	ORANGE CITY	42,202	189,049
20353	ORANGE CITY BD OF ED	25,834	115,725
20413	WESTFIELD TOWN BD OF ED	43,452	194,648
20440	GLEN RIDGE BOROUGH	11,228	50,297
20483	RIDGEFIELD BORO BD OF ED	25,960	116,293
20533	SOUTH HACKENSACK BD OF ED	2,850	12,768
20570	SOUTH ORANGE VILLAGE	31,316	140,284
20590	HACKENSACK CITY	62,638	280,596
20650	FAIRVIEW BOROUGH	17,052	76,388
20680	NEW MILFORD BOROUGH	15,435	69,143
20700	RUTHERFORD BOROUGH	33,327	149,291
20703	RUTHERFORD BORO BD OF ED	19,286	86,395
20710	SOMERVILLE BOROUGH	22,246	99,653

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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 2021 Payment	Present Value as of 7/1/2019
20720	WASHINGTON BOROUGH	\$ 8,231	\$ 36,873
20760	MAPLEWOOD TOWNSHIP	38,665	173,203
20780	ATLANTIC CITY	167,583	750,710
20790	BRIDGETON CITY	24,250	108,629
20800	CLIFTON CITY	79,288	355,182
20810	GARFIELD CITY	27,611	123,685
20830	PASSAIC CITY	67,638	302,993
20840	RAHWAY CITY	34,700	155,442
20844	RAHWAY PUBLIC LIBRARY	4,575	20,493
20849	RAHWAY WATER COMM	1,275	5,712
20850	BRIELLE BOROUGH	7,375	33,036
20860	COLLINGSWOOD BOROUGH	15,859	71,042
20900	GARWOOD BOROUGH	6,049	27,096
20920	KEANSBURG BOROUGH	13,684	61,299
20950	MATAWAN BOROUGH	10,151	45,472
20960	MIDDLESEX BOROUGH	18,843	84,408
20980	PALISADES PARK BOROUGH	16,087	72,064
21003	ROCKAWAY BOROUGH BD OF ED	4,885	21,885
21010	ROSELLE BOROUGH	19,288	86,402
21080	HILLSIDE TOWNSHIP	27,773	124,414
21093	MILLBURN TWP PUBLIC SCHOOLS	37,842	169,519
21110	WEEHAWKEN TOWNSHIP	27,400	122,741
21120	HOBOKEN CITY	75,242	337,057
21130	LONG BRANCH CITY	47,465	212,624
21160	HARRISON TOWN (HUDSON)	39,907	178,767
21180	OCEANPORT BOROUGH	5,589	25,038
21190	ORADELL BOROUGH	10,545	47,237
21210	FAIRFIELD TOWNSHIP (ESSEX)	19,250	86,234
21250	UNION TOWNSHIP (UNION)	56,580	253,456
21254	UNION TOWNSHIP LIBRARY	5,740	25,714
21270	BAYONNE CITY	91,592	410,300
21280	ELIZABETH CITY	155,934	698,525
21284	ELIZABETH PUBLIC LIBRARY	8,595	38,504
21290	UNION CITY	67,306	301,507
21300	WEST NEW YORK TOWN	47,462	212,612
21373	MONMOUTH BEACH BD OF ED	1,283	5,746

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.



**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 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 2021 Payment	Present Value as of 7/1/2019
21470	BOGOTA BOROUGH	\$ 5,189	\$ 23,246
21500	MOUNTAINSIDE BOROUGH	8,318	37,261
21560	GLOUCESTER CITY	18,571	83,190
21650	SECAUCUS TOWN	42,715	191,348
21653	SECAUCUS TOWN BD OF ED	22,254	99,688
21690	FREEHOLD BOROUGH	17,919	80,272
21700	MANVILLE BOROUGH	13,971	62,585
21740	EWING TOWNSHIP	38,301	171,573
21760	SALEM CITY	11,714	52,472
21780	TRENTON CITY	237,892	1,065,669
21800	MAYWOOD BOROUGH	11,066	49,571
21850	CAMDEN CITY	146,117	654,550
21853	CAMDEN CITY BD OF ED	242,177	1,084,861
21910	PATERSON CITY	131,322	588,272
22030	VERONA TOWNSHIP	25,097	112,427
22050	CINNAMINSON TOWNSHIP	13,037	58,402
22113	HAWTHORNE BD OF ED	20,666	92,576
22150	HAWORTH BOROUGH	7,110	31,851
22180	CEDAR GROVE TOWNSHIP	16,601	74,367
22190	EMERSON BOROUGH	9,043	40,511
22220	HOWELL TOWNSHIP	54,807	245,513
22230	MILLTOWN BOROUGH	13,995	62,690
22310	FANWOOD BOROUGH	8,242	36,922
22350	MIDDLETOWN TOWNSHIP	72,744	325,867
22380	WALL TOWNSHIP	48,462	217,094
22440	SOMERDALE BOROUGH	5,758	25,796
22500	WILLINGBORO TOWNSHIP	37,175	166,530
22520	JEFFERSON TOWNSHIP	28,985	129,842
22533	PENNSVILLE TWP BD OF ED	15,585	69,814
22540	BOUND BROOK BOROUGH	10,191	45,651
22580	LYNDHURST TOWNSHIP	30,102	134,844
22583	LYNDHURST TWP BD OF ED	14,482	64,873
22620	PISCATAWAY TOWNSHIP	63,276	283,452
22710	WEST MILFORD TOWNSHIP	60,188	269,618
22720	RINGWOOD BOROUGH	15,912	71,282
22730	BLOOMINGDALE BOROUGH	10,632	47,628

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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 2021 Payment	Present Value as of 7/1/2019
22770	PARAMUS BOROUGH	\$ 66,045	\$ 295,859
22780	METUCHEN BOROUGH	15,096	67,626
22810	MOUNT ARLINGTON BOROUGH	7,141	31,988
22850	WINFIELD TOWNSHIP	1,440	6,449
22930	LITTLE FALLS TWP	11,540	51,696
22990	BERLIN BOROUGH	9,471	42,426
23020	GLOUCESTER TOWNSHIP	36,889	165,248
23030	SOUTH BRUNSWICK TOWNSHIP	79,573	356,457
23040	BARNEGAT TOWNSHIP	19,311	86,507
23070	PLEASANTVILLE CITY	22,042	98,740
23120	HOLMDEL TOWNSHIP	20,717	92,803
23130	NORTH HALEDON BOROUGH	10,185	45,627
23170	RUNNEMEDE BOROUGH	7,922	35,489
23273	LITTLE FERRY BD OF ED	5,562	24,916
23300	BUENA VISTA TOWNSHIP	5,529	24,769
23323	MINE HILL TWP BD OF ED	2,354	10,544
23340	WEST PATERSON BOROUGH	12,487	55,936
23343	WOODLAND PARK BD OF ED	7,989	35,787
23350	NORWOOD BOROUGH	6,323	28,325
23360	MARLBORO TOWNSHIP	43,828	196,334
23400	WINSLOW TOWNSHIP	32,237	144,410
23490	PINE HILL BOROUGH	5,088	22,791
23510	LEBANON TOWNSHIP	5,166	23,142
23560	WEST AMWELL TOWNSHIP	3,491	15,638
23570	EGG HARBOR TOWNSHIP	34,349	153,871
23630	SOUTH AMBOY CITY	16,364	73,303
23660	WEST DEPTFORD TOWNSHIP	35,356	158,383
23700	LAMBERTVILLE CITY	4,610	20,651
23823	MILLSTONE TOWNSHIP BD OF ED	16,971	76,022
30070	NEWARK HOUSING AUTHORITY	161,945	725,452
30130	TRENTON HOUSING AUTHORITY	17,874	80,068
30160	ATLANTIC CITY HOUSING AUTHORITY	20,616	92,352
30200	ORANGE CITY HOUSING AUTHORITY	5,529	24,769
30220	HOBOKEN HOUSING AUTHORITY	15,291	68,500
30250	NEW BRUNSWICK HOUSING AUTHORITY	8,885	39,803
30360	IRVINGTON HOUSING AUTH	9,756	43,702

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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 2021 Payment	Present Value as of 7/1/2019
30400	UNION CITY HOUSING AUTHORITY	\$ 9,815	\$ 43,969
30430	NEW BRUNSWICK PARKING AUTHORITY	13,832	61,964
30450	MORRISTOWN HOUSING AUTHORITY	5,793	25,951
30460	PASSAIC CITY HOUSING AUTHORITY	9,440	42,288
30480	WEST NEW YORK HOUSING AUTHORITY	7,498	33,589
30490	NORTH BERGEN HOUSING AUTHORITY	8,233	36,882
30510	PATERSON HOUSING AUTHORITY	16,299	73,014
30520	HACKENSACK HOUSING AUTHORITY	4,722	21,153
30550	GARFIELD HOUSING AUTHORITY	5,800	25,980
30570	CAMDEN CITY HOUSING AUTHORITY	20,550	92,056
30580	TRENTON PARKING AUTHORITY	1,478	6,620
30590	PLAINFIELD HOUSING AUTHORITY	9,555	42,805
30600	EDISON TWP HOUSING AUTHORITY	2,501	11,203
30660	UNION CITY PARKING AUTHORITY	4,008	17,955
30710	HADDON TWP FIRE DISTRICT 1	114	510
30770	PATERSON PARKING AUTHORITY	7,362	32,979
30790	FRANKLIN TWP SEWERAGE AUTH	6,115	27,395
30830	HAMILTON TWP FIRE DISTRICT 2	126	564
30900	GLOUCESTER TWP M U A	9,904	44,366
30970	GUTTENBERG HOUSING AUTHORITY	3,508	15,713
31000	OCEAN CITY HOUSING AUTHORITY	1,135	5,085
31030	FRANKLIN TWP HOUSING AUTHORITY	619	2,772
31050	JERSEY CITY INCINERATOR AUTH	41,545	186,104
31070	MILLVILLE HOUSING AUTHORITY	8,977	40,212
31170	RARITAN VALL COMMUNITY COLLEGE	37,491	167,945
31190	BRIDGETON CITY HOUSING AUTH	5,018	22,477
31250	JERSEY CITY MUNICIPAL UT. AUTH	26,582	119,080
31350	CLEMENTON HOUSING AUTHORITY	975	4,368
31360	BERGEN CO HOUSING AUTHORITY	17,116	76,674
31370	MERCER CO IMPROVEMENT AUTHORITY	10,292	46,103
31520	CARLSTADT SEWERAGE AUTHORITY	588	2,633
31560	WOODBINE MUNICIPAL UTIL AUTH	399	1,786
31600	WILDWOOD CITY HOUSING AUTHORITY	2,363	10,584
31640	RARITAN TWP MUN UTIL AUTHORITY	8,341	37,366
31680	OCEAN GROVE BD OF FIRE COMM	147	657
31710	WEYMOUTH TWP MUN UTIL AUTHORITY	79	354

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX F – CHAPTER 19, P.L. 2009**

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

<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
31720	NJ SPORTS & EXPOSITION AUTH	\$ 107,063	\$ 479,603
31730	EDGEWATER HOUSING AUTHORITY	1,461	6,547
31870	DOVER TOWN HOUSING AUTHORITY	714	3,199
31890	BURLINGTON CO AVA COMM	1,432	6,417
31970	NEPTUNE TWP SEWERAGE AUTHORITY	7,458	33,408
32250	NEWTON TOWN HOUSING AUTHORITY	753	3,375
32300	DOVER TWP PARKING AUTHORITY	1,394	6,245
32350	GLOUCESTER TWP FIRE DISTRICT 2	469	2,100
32360	HUNTERDON CO SOIL CONSERV DIST	3,113	13,944
32420	CAPE ATL SOIL CONSRVTN DIST	2,197	9,841
32440	TOMS RIVER FIRE DISTRICT # 2	728	3,260
32460	BERGEN COUNTY SOIL CONSER DIST	1,751	7,845
32530	COLLINGSWOOD BORO HOUSING AUTH	793	3,552
32660	MID BERGEN REG HEALTH COMM	1,201	5,379
32720	BURLINGTON CO SOIL CON DIST	1,743	7,808
32870	MADISON BORO HOUSING AUTHORITY	3,251	14,565
32900	NJ TRANSIT CORPORATION	19,346	86,662
32950	NEPTUNE CITY HOUSING AUTHORITY	330	1,478
33000	CAMDEN CO SOIL CONSERVATN DIST	1,576	7,061
33020	MONMOUTH OCEAN ED SERV COMM	23,982	107,429
34120	GLOUCESTER TWP FIRE DISTRICT 3	139	622
34240	WARREN CO AUDIO VISUAL AIDS	183	818
34260	OCEAN TWP FIRE DISTRICT 2	835	3,742
34270	CAMDEN CO IMPROVEMENT AUTHORITY	4,830	21,638
34380	SALEM CITY MUNICIPAL PORT AUTH	147	659
34400	BRICK TWP JOINT BD OF FIRE COMM	2,914	13,056
34420	UNION CO UTILITIES AUTHORITY	6,145	27,527
34500	SOUTH TOMS RIVER SEWERAGE AUTH	173	776
34560	LAKWOOD TWP FIRE DISTRICT 1	630	2,824
34630	CAMDEN CO HEALTH SERVICES CTR	122,694	549,625
34640	NJ SCHOOL BD ASSOC INS GROUP	15,887	71,167
34680	DELAWARE RIVER JT TOLL BRG COM	1,717	7,690
34690	DELTRAN TWP FIRE DISTRICT #1	773	3,462
34710	NORTH BERGEN M.U.A.	16,465	73,755
34770	HOWELL TWP FIRE DISTRICT 3	227	1,016
34840	EAST BRUNSWICK TWP FIRE DIST #2	1,219	5,462

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX F – CHAPTER 19, P.L. 2009**

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

<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
34880	BURLINGTON TWP FIRE DISTRICT 1	\$ 681	\$ 3,051
34940	WILDWOODS JOINT CONSTRUCTION	319	1,428
34990	TRENTON DOWNTOWN ASSOCIATION	1,201	5,379
35130	WESTVILLE FIRE DISTRICT # 1	488	2,184
35200	VINELAND-MILLVILLE URB. ENT.ZON	571	2,560
35210	NORTH HUDSON REG. COMM CENTER	3,849	17,241
35250	NJ REDEVELOPMENT AUTHORITY	5,061	22,671
35290	HAZLET TWP FIRE DIST	600	2,686
35370	OLD BRIDGE TWP DISTRICT 1	33	146
35400	SOARING HEIGHTS CHARTER SCHOOL	1,434	6,425
35420	JERSEY CITY COMM CHARTER SCHOOL	8,389	37,580
35530	EMILY FISHER CHARTER SCHOOL	8,544	38,276
35620	EAST ORANGE COMMUNITY CHART SCH	8,203	36,747
35670	RED BANK CHARTER SCHOOL	1,244	5,573
35690	INTERNATIONAL CHARTER SCHOOL	623	2,791
35900	CLASSICAL ACAD. CHARTER SCHOOL	284	1,272
36500	CAMDEN CITY REDEVELOPMENT AGENCY	6,816	30,535
37800	ENGLEWOOD ON THE PALISADES CHAR	1,140	5,107
38400	HUDSON CO ECONOMIC DEVELOP CORP	977	4,378
38500	HOWELL TWP FIRE DISTRICT 4	132	592
39100	BRICK TWP FIRE DISTRICT 1	137	615
39200	QUEEN CITY ACADEMY CHARTER SCH	2,372	10,625
39800	WALL TOWNSHIP FIRE DISTRICT 3	1,023	4,584
40150	BORDENTOWN REG SCH DISTRICT	21,931	98,245
40340	TOMS RIVER SCHOOL DIST	153,034	685,534
40380	WOODSTOWN-PILES GROVE REG SCH	12,621	56,537
41000	RAHWAY CITY REDEVELOPMENT AG	945	4,234
41100	UNIVERSITY ACADEMY CHARTER HS	1,148	5,143
41400	BAYSHORE JOINTURE COMMISSION	2,739	12,268
41600	TEAM ACADEMY CHARTER SCHOOL	3,958	17,729
42000	CARTERET REDEVELOPMENT AGENCY	210	939
42400	PATERSON CHART SCH-SCIENCE/TECH	2,867	12,843
43800	SECAUCUS MUNICIPAL UTIL. AUTH.	5,447	24,400
43900	MONTCLAIR PARKING AUTHORITY	761	3,410

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Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX F – CHAPTER 19, P.L. 2009**

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

<b>Location Number</b>	<b>Location Name</b>	<b>Fiscal Year 2021 Payment</b>	<b>Present Value as of 7/1/2019</b>
44600	MIDDLE TOWNSHIP FIRE DIST #1	\$ 974	\$ 4,365
45000	CUMBERLAND-SALEM CONSERV. DIST.	1,375	6,159
45100	BRICK TOWNSHIP FIRE DIST 2	143	642
45300	FREEDOM ACADEMY CHARTER SCHOOL	955	4,278
45800	BLOOMFIELD PARKING AUTHORITY	597	2,675
50033	ALLAMUCHY BD OF ED	3,358	15,041
50050	ALLENTOWN BOROUGH	1,844	8,261
50130	AUDUBON BOROUGH	8,943	40,059
50250	BERKELEY TOWNSHIP MUNICIPAL BLD	42,800	191,730
50410	BROOKLAWN BOROUGH	3,484	15,606
50413	BROOKLAWN BORO BD OF ED	2,226	9,971
50420	BUENA BOROUGH	4,544	20,355
50530	CHESILHURST BOROUGH	1,559	6,982
50733	DENNIS TWP BD OF ED	6,928	31,033
50770	DUNELLEN BOROUGH	6,727	30,135
50790	EASTAMPTON TOWNSHIP	2,961	13,264
50830	EAST HANOVER TOWNSHIP	27,705	124,108
50840	EAST NEWARK BOROUGH	871	3,901
50930	ENGLEWOOD CLIFFS BOROUGH	8,305	37,203
50940	ENGLISHTOWN BOROUGH	2,702	12,102
50973	FAIRFIELD TWP BD ED (CUMBERLND)	2,330	10,439
51080	FRANKLIN TOWNSHIP (GLOUCESTER)	12,661	56,715
51093	FRANKLIN TWP BD OF ED (HUNTRDN)	2,094	9,382
51140	FRELINGHUYSEN TWP	1,234	5,527
51260	GUTTENBERG TOWN	6,725	30,127
51283	HAINESPORT TOWNSHIP BD OF ED	4,278	19,162
51290	HALEDON BOROUGH	9,461	42,383
51333	HAMPTON BOROUGH BD OF ED	1,175	5,265
51360	HARDWICK TOWNSHIP	1,558	6,981
51400	HARRISON TOWNSHIP (GLOUCESTER)	7,162	32,084
51470	HIGHTSTOWN BOROUGH	11,746	52,616
51520	HOPATCONG BOROUGH	21,481	96,227
51640	JERSEY CITY	111,429	499,160
51670	KNOWLTON TOWNSHIP	3,013	13,497
51730	LAWNSIDE BOROUGH	5,576	24,978
51790	LINDENWOLD BOROUGH	13,133	58,831

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**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 2021 Payment	Present Value as of 7/1/2019
51970	MANCHESTER TOWNSHIP	\$ 28,697	\$ 128,550
52000	MANSFIELD TOWNSHIP (WARREN)	5,061	22,671
52050	ABERDEEN TOWNSHIP	16,752	75,041
52060	MAURICE RIVER TOWNSHIP	4,101	18,373
52203	MONROE TWP BD OF ED (GLOUCESTR)	25,913	116,080
52340	NATIONAL PARK BOROUGH	2,480	11,109
52360	NEWARK CITY	529,263	2,370,902
52363	NEWARK PUBLIC SCHOOLS	599,736	2,686,594
52620	PENNS GROVE BOROUGH	4,566	20,452
52720	PLAINSBORO TOWNSHIP	27,282	122,212
52770	PROSPECT PARK BOROUGH	3,426	15,346
52920	ROSELAND BOROUGH	14,583	65,327
52960	SADDLE BROOK TOWNSHIP	17,961	80,458
53100	LAKE COMO BOROUGH	4,536	20,319
53110	SOUTH BOUND BROOK BOROUGH	4,410	19,756
53140	SOUTH TOMS RIVER BOROUGH	2,381	10,665
53260	SUSSEX BOROUGH	2,151	9,635
53360	UNION BEACH BOROUGH	6,704	30,032
53420	UPPER SADDLE RIVER BORO	9,691	43,412
53510	WANAQUE BOROUGH	12,835	57,497
53800	WOODBURY HEIGHTS BOROUGH	4,886	21,889
53823	WOODLAND TWP BD OF ED	1,740	7,795
55130	CAPE MAY CO BRIDGE COMM	6,245	27,975
55450	BERKELEY TWP SEWERAGE AUTHORITY	4,816	21,573
55510	HADDON TOWNSHIP HOUSING AUTH	925	4,142
55520	PRINCETON HOUSING AUTHORITY	2,108	9,441
55950	HIGHLANDS HOUSING AUTH	1,032	4,623
55970	PLEASANTVILLE HOUSING AUTH	3,894	17,446
56120	RED BANK BORO HOUSING AUTH	2,354	10,545
56140	CARTERET HOUSING AUTHORITY	4,726	21,169
56170	EDGEWATER PARK SEWERAGE AUTH	318	1,423
56300	KEANSBURG BORO HOUSING AUTH	1,272	5,698
56320	NEWARK PARKING AUTHORITY	735	3,291
56370	BEVERLY CITY HOUSING AUTHORITY	656	2,939
56400	HIGHLAND PARK HOUSING AUTHORITY	1,482	6,638
56440	FLORENCE TWP HOUSING AUTHORITY	366	1,638

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
JULY 1, 2019 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 2021 Payment	Present Value as of 7/1/2019
56480	BOONTON HOUSING AUTHORITY	\$ 1,324	\$ 5,932
57270	SHORE REGIONAL H S DISTRICT	5,721	25,629
57530	NEW HANOVER TWP BD OF ED	1,463	6,554
60023	HUDSON CO SCHOOLS OF TECHNOLOGY	60,926	272,926
60030	PASSAIC COUNTY	473,804	2,122,465
60031	PASSAIC CO BD OF SOCIAL SERVICE	187,595	840,355
60050	WATERFRONT COMM OF NY HARBOR	1,548	6,934
70023	GUTTENBERG BORO BD OF ED	4,003	17,931
79100	NJ FIREMENS HOME	14,066	63,011
	<b>Total</b>	<b>\$ 8,863,793</b>	<b>\$ 39,706,477</b>

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

Present values as of July 1, 2019 exclude expected payments for fiscal year ending 2020.



**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.

**PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY  
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**APPENDIX G – GLOSSARY OF TERMS**

**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.