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Teachers' Pension and Annuity Fund of New Jersey

Actuarial Valuation Report as of July 1, 2024

Produced by Cheiron

February 2025

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February 5, 2025

Board of Trustees
Teachers' Pension and Annuity Fund of New Jersey
State of New Jersey
Department of the Treasury
Division of Pension and Benefits, CN 295
Trenton, New Jersey 08625-0295

Dear Board Members:

We have performed the July 1, 2024 Actuarial Valuation of the Teachers' Pension and Annuity Fund of New Jersey (TPAF or Fund).

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, Data Quality.

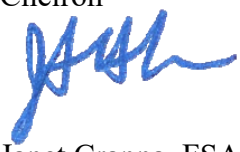
The results of this report are only applicable to the Fund's contribution for Fiscal Year Ending 2026. Future results may differ significantly from the current results presented in this report due to such factors as the following: plan experience differing from that anticipated by the assumptions; changes in assumptions; and changes in plan provisions or applicable law.

The actuarial assumptions are the same as those used in the July 1, 2023 valuation. The demographic and economic (other than the investment rate of return) actuarial assumptions are based on the recommended assumptions from the July 1, 2018 – June 30, 2021 Experience Study, approved by the Board of Trustees on December 1, 2022. The investment rate of return assumption of 7.00% 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.

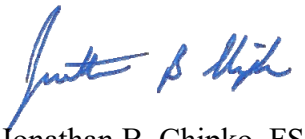
This actuarial valuation report was prepared exclusively for TPAF, the DPB and the Fund auditors for the purposes described herein and in preparing financial reports in accordance with applicable law and annual report requirements. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to such other users.

Sincerely,
Cheiron



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

Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



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

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 Teachers' Pension and Annuity Fund of New Jersey,
- Past and expected future trends and risks to the Fund's financial condition, and
- The State's Statutory pension contribution for Fiscal Year End (FYE) 2026.

In this Section we present a summary of the principal valuation results. This includes the basis on which the July 1, 2024 valuation was completed and an examination of the current financial condition of the Fund. In addition, we present a review of the key historical trends as well as the Fund'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.

SECTION I – BOARD SUMMARY

Valuation Basis

The July 1, 2024 valuation results are based on the same actuarial methods and assumptions as used in the July 1, 2023 valuation. The demographic and economic assumptions, aside from the valuation interest rate, are based on the July 1, 2018 – June 30, 2021 Experience Study, which was approved by the Board of Trustees on December 1, 2022. The valuation interest rate is 7.00% as recommended by the State Treasurer.

This report is prepared using census data, plan provisions, and financial information as of July 1, 2024 provided by the Division of Pensions and Benefits, and does not reflect any changes in the membership, plan provisions, or assets that occur after the valuation date. Events following that date are not reflected in this report. Actual experience, both demographic and economic, will be reflected in subsequent valuations as experience emerges.

This report reflects one change to the plan provisions. Chapter 121, P.L. 2023 permits teachers, as well as professional staff members who provide special services, who have retired from TPAF to return to employment for up to two years without reenrollment in the TPAF if employment commences during the 2023-2024 school year. This plan change did not affect the actuarial liability as of the July 1, 2024 valuation. The impact of this change will be recognized in subsequent years as experience emerges.

The Appropriations Act of Fiscal Year 2024 increased the State pension contribution from the Statutory amount of $4,108,956,097 to $4,281,266,000. The $4,281,266,000 is based on an appropriation of 100% of the Statutory contribution and includes revenue of $913,915,000 from the Lottery Enterprise Contribution Act.

The potential impact of the Appropriations Act of 2025 increases the State pension contribution for Fiscal Year Ending 2025 from the Statutory amount of $4,129,915,030 to $4,264,060,252 (100.00% of the State Statutory contribution less the Lottery Enterprise Contribution offset plus expected revenue from the Lottery Enterprise Contribution Act {100.00% x $4,129,915,030 - $741,605,733 + $875,750,955}). This valuation reflects the potential impact of the Appropriations Act of 2025.

Chapter 83, P.L. 2016 calls for the State to make the required pension contributions on a quarterly basis in each fiscal year according to the following schedule: at least 25% by September 30, at least 50% by December 31, at least 75% by March 31, and at least 100% by June 30. As such, State contributions are assumed to be made on a quarterly basis with the first contribution 15 months after the associated valuation date.

In accordance with Chapter 78, P.L. 2011, a pension committee is to be established for the State when the "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 Fund has not attained the required "target funded ratio" and thus the pension committee has not been established for the Fund.

Under Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, the Teachers' Pension and Annuity Fund receives 77.78% of the proceeds of the Lottery Enterprise, based on their members' past or present employment in schools and institutions in the State for a term of 30 years. As of the July 1, 2024 valuation, 22 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 (SAV). The special asset value is the present value of the projected future lottery contributions to the retirement systems. As per N. J. Statute the special asset value is to be appraised once every five years. The values shown in this report reflect the New Jersey Lottery Valuation Report as of December 31, 2021, as provided by the Division of Pensions and Benefits. Effective with 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 excludes assets and liabilities under the Non-Contributory Group Insurance Premium Fund. The Non-Contributory Group Insurance premiums are separately funded monthly on a pay-as-you-go basis.

Key Results

Table I-1 on the following page summarizes the key results of the valuation with respect to the Fund's membership, assets and liabilities, and contributions. The results are presented and compared for both the current and prior year.

SECTION I – BOARD SUMMARY

Table I-1
Summary of Key Valuation Results

Valuation Date Fiscal Year End	July 1, 2024 2026	July 1, 2023 2025	% Change
Member Data			
Contributing Actives[1]	145,354	144,016	0.9%
Non-Contributing Members[1,2]	16,287	16,259	0.2%
Deferred Vested	521	378	37.8%
Retirees and Beneficiaries[3]	114,157	112,829	1.2%
Total Members	276,319	273,482	1.0%
Appropriation Payroll[4]	$ 12,686,312,401	$ 12,217,308,333	3.8%
Annual Retirement Allowances	$ 4,840,664,967	$ 4,756,890,148	1.8%
Assets and Liabilities			
Actuarial Liability	$ 75,717,169,450	$ 74,046,870,498	2.3%
Actuarial Value of Assets (AVA)[5]	34,660,772,750	32,442,504,713	6.8%
Unfunded Actuarial Liability/(Surplus)	$ 41,056,396,700	$ 41,604,365,785	-1.3%
Funded Ratio (AVA)	45.8%	43.8%	2.0%
Actuarial Value of Assets[5] including Special Asset Value (AVA + SAV)	$ 44,193,648,923	$ 42,072,549,377	5.0%
Unfunded Actuarial Liability/(Surplus)	$ 31,523,520,527	$ 31,974,321,121	-1.4%
Funded Ratio (AVA + SAV)	58.4%	56.8%	1.6%
Market Value of Assets (MVA)[5]	$ 34,411,513,215	$ 31,197,574,340	10.3%
Unfunded Actuarial Liability/(Surplus)	$ 41,305,656,235	$ 42,849,296,158	-3.6%
Funded Ratio (MVA)	45.4%	42.1%	3.3%
Contribution Amounts[6]			
State Normal Cost at End of Year	$ 628,851,954	$ 611,807,095	2.8%
Amortization Payment of UAL	3,523,070,636	3,518,107,935	0.1%
Total Statutory Contribution for FYE	$ 4,151,922,590	$ 4,129,915,030	0.5%
Expected Percent Appropriated	100.00%	100.00%	0.0%
State Appropriation for Pension	$ 4,151,922,590	$ 4,129,915,030	0.5%
Lottery Enterprise Contribution Offset	(741,605,733)	(741,605,733)	0.0%
Net State Contribution	$ 3,410,316,857	$ 3,388,309,297	0.6%

[1] Reflects all records for multiple members, who are employed by multiple participating employers at the same time
[2] Includes 14 and 14 members reported as deferred beneficiaries as of July 1, 2024 and July 1, 2023, respectively
[3] QDRO recipients are excluded from member counts
[4] Limited annual compensation for contributing actives only
[5] Includes discounted State receivable contributions and Lottery proceeds as shown in Table III-2
[6] In addition, Early Retirement Incentive (ERI) Contributions are payable by certain Local employers. See Appendix E.

SECTION I – BOARD SUMMARY

The key results of the July 1, 2024 actuarial valuation are as follows:

- The total Statutory contribution increased from $4.1 billion for FYE 2025 to $4.2 billion for FYE 2026 prior to any adjustments for the State appropriations or the Lottery Enterprise offset.
- The funded ratio, the ratio of actuarial asset value over liabilities, increased from 43.8% as of July 1, 2023 to 45.8% as of July 1, 2024. The funded ratio based on the actuarial value of assets plus special asset value increased from 56.8% to 58.4%. Using the market value of assets, the funded ratio increased from 42.1% to 45.4%.
- The unfunded actuarial liability used in determining the Statutory contributions (excess of actuarial liability over the actuarial value of assets) decreased from $41.6 billion to $41.1 billion. The unfunded actuarial liability based on the actuarial asset value plus special asset value decreased from $32.0 billion as of July 1, 2023 to $31.5 billion as of July 1, 2024.
- During the year there was a total actuarial experience loss of $118 million, consisting of an asset loss of $87 million and a liability loss of $31 million. The liability loss of $31 million represents 0.04% of liabilities. The rate of return on the actuarial value of assets was 6.78% compared to the expected return of 7.00%, resulting in the $87 million asset loss.

Recent Trends

Although most of the attention given to the valuation reflects the current computed unfunded actuarial liability, funded ratio, and contribution amounts, each valuation is merely a snapshot of the long-term progress of a pension fund. It is important to take a step back from the current year results and view them in the context of the Fund's recent history as well as trends expected into the future. 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.

In reviewing the historic trends over the first half of 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.

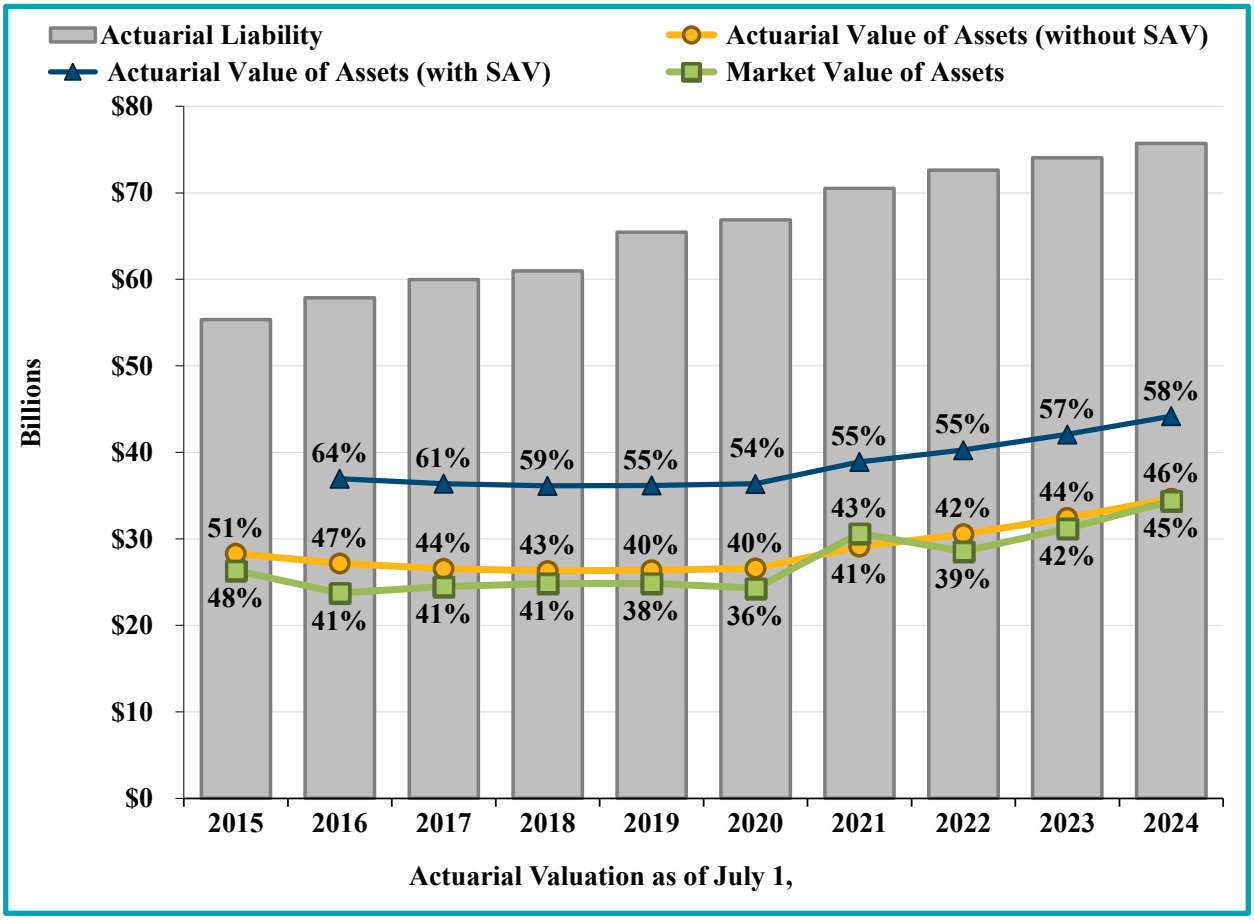
SECTION I – BOARD SUMMARY

Assets and Liabilities

In the following graph, 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 Fund's funded ratio (ratio of assets to actuarial liability) on the MVA basis, AVA basis and 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 changes in actuarial assumptions.

Until 2021, the AVA funded ratio had been decreasing over time in part due to decreases in the discount rate and because the State had not been making the full Statutory contribution. The AVA funded ratio reversed that trend in 2021 and increased due to asset returns that were higher than expected and State contributions that exceeded the Statutory contribution amount. Since 2021, the funded ratio on an actuarial basis increased each year as the State continued to contribute the full Statutory contribution amount.



The information above 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.

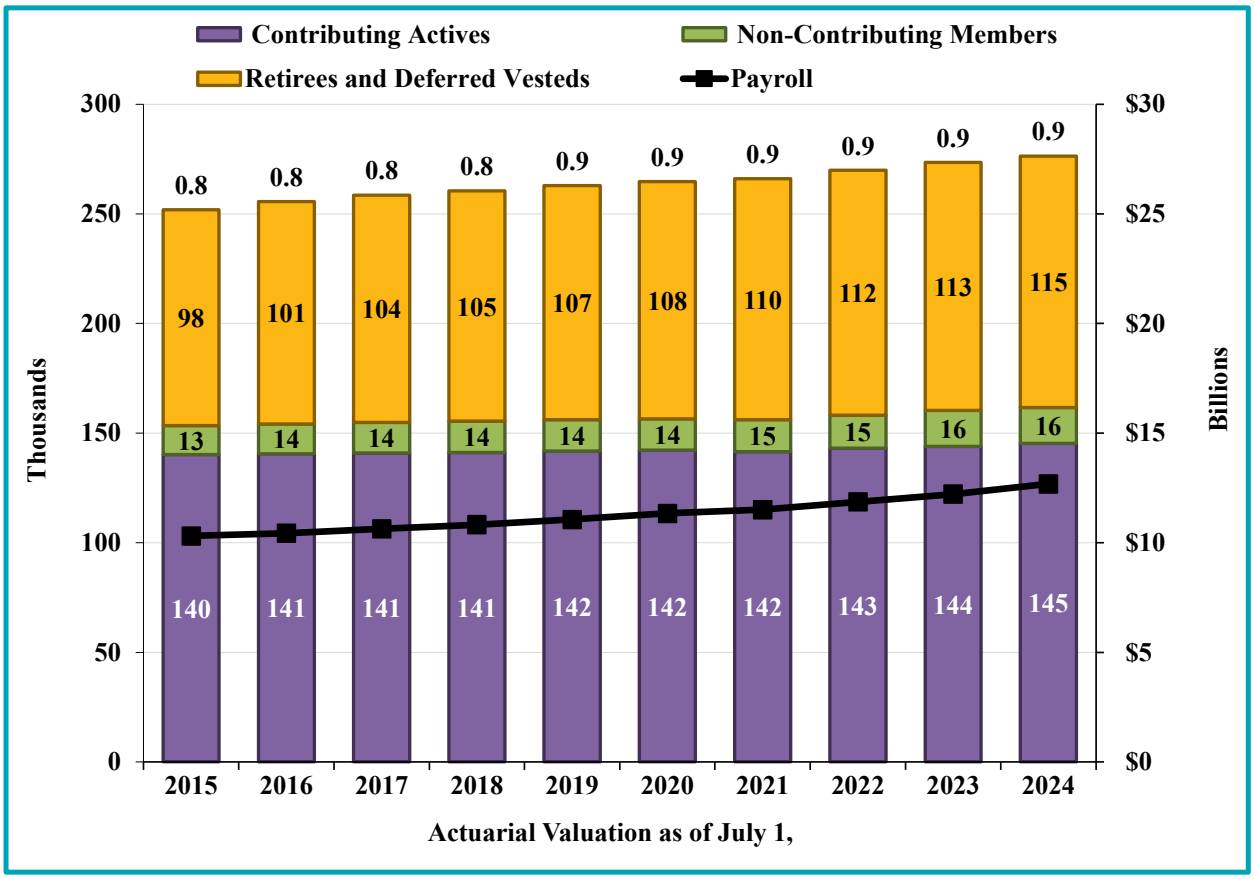
SECTION I – BOARD SUMMARY

Membership Trends

The graph below shows the membership counts of the Fund for the last ten valuations. The numbers which appear at the top of each bar represent the ratio of the number of inactive members and non-contributing members to active contributing members at each valuation date and provide a measure of the maturity of the Fund. We refer to this as the *support ratio*. The support ratio has increased over the period. As more of the liability moves from actives to inactives, the Fund will experience more volatility in contribution rates when actuarial gains and losses are recognized.

Starting with the 2018 valuation, the membership counts 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 active contributing members over the period, and it corresponds with the scale on the right.

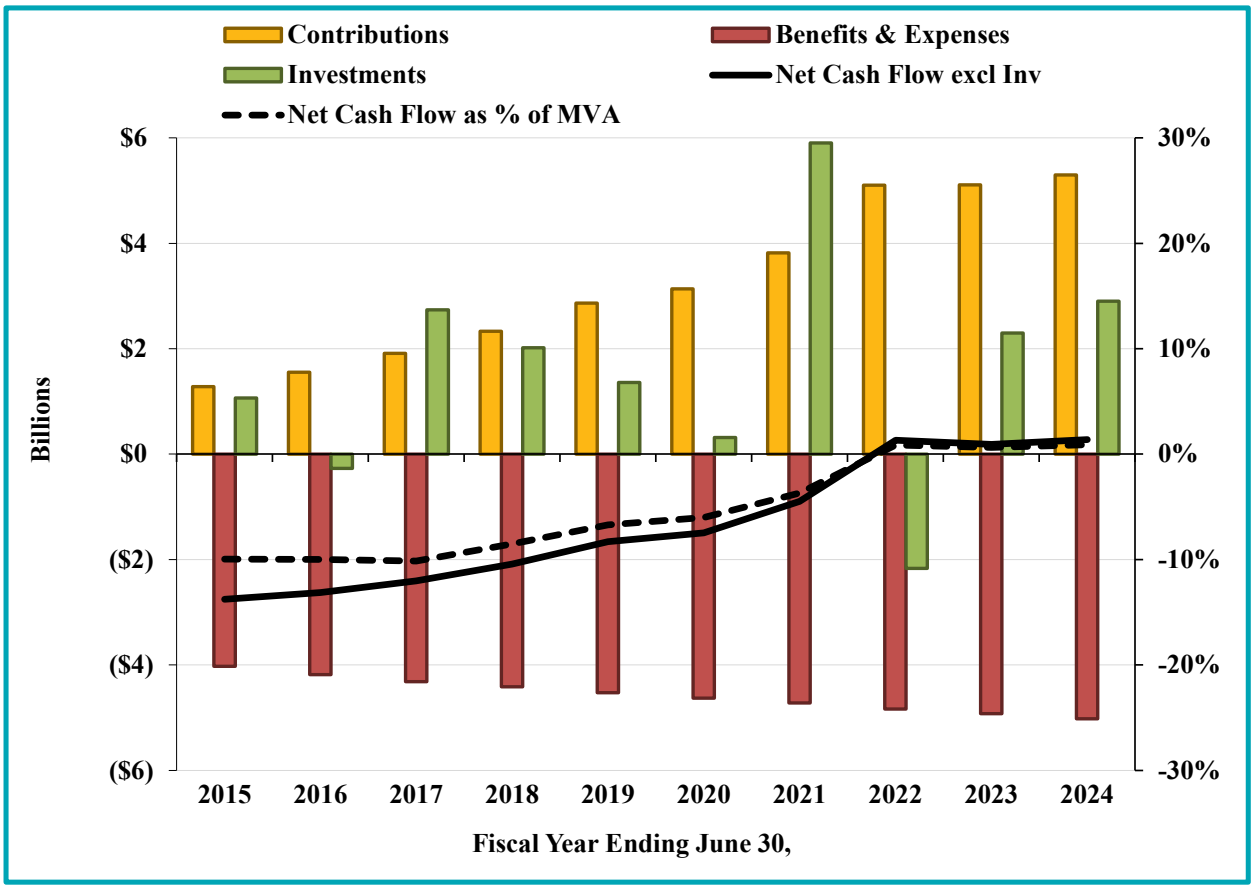


SECTION I – BOARD SUMMARY

Cash Flows

The following graph shows the Fund net cash flow (contributions less benefit payments and expenses) at the end of each fiscal year. Prior to 2022, the net cash flow, which excludes investment returns, was negative. This illustrates that contributions had not been sufficient during that period to cover benefits and expenses. A major implication of negative cash flow is that the difference each year must be met first from cash generated by investments and then paid out of the principal assets, representing additional risk for the Fund 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 percentage of the market assets and corresponds to the right-hand axis. For the first three years, the average net cash flow as a percentage of assets was -10.1%. This indicated that the Fund would be expected to defund with an increased risk of insolvency if the contributions did not consistently cover a higher portion of the benefit payments and expenses. Net cash flow has improved from -10.0% for FYE 2017 to 0.9% for FYE 2022 as a result of the increasing State appropriation percentage each year. Since FYE 2022 the net cash flow has been positive indicating that the Fund does not need to rely on investment returns to cover benefits and expenses.



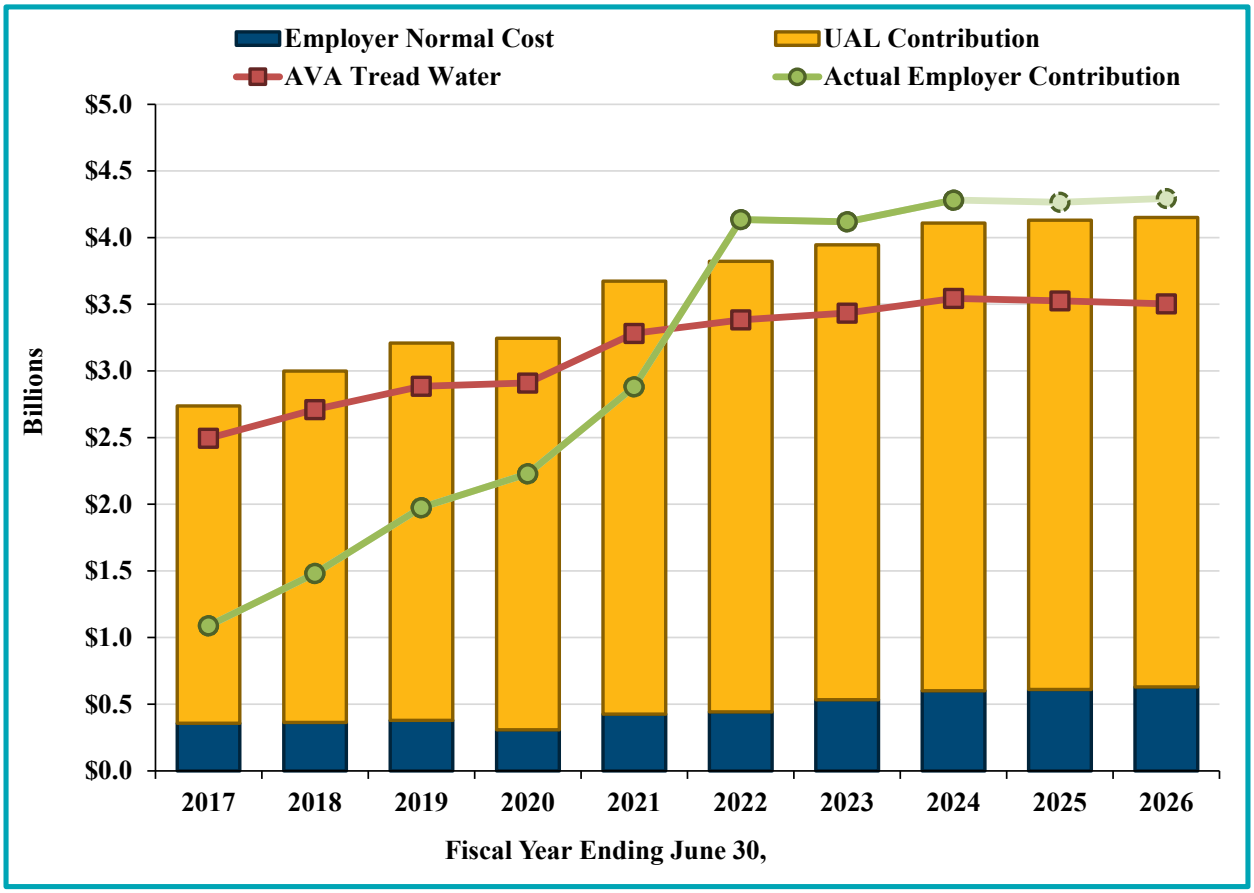
SECTION I – BOARD SUMMARY

Contributions

This graph shows the historical trends for the State contributions. The Statutory contributions are comprised of the State normal cost (blue bars) and the amortization of the UAL (gold bars). The green line shows the actual State contributions over the period. For FYE 2025 and FYE 2026, the green line has a lighter shade to indicate that these are expected, rather than actual, contributions. In FYE 2022 the State appropriation was 107.9%. Beginning in FYE 2023, the State contribution was larger than the Statutory contribution because lottery revenue was greater than the Lottery Enterprise Contribution Offset, a trend that is expected to continue in the upcoming fiscal years. The expected State appropriations are shown in Table I-1.

The red line is the **tread water** line, which is the State 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 shows that, prior to FYE 2022, not only had the State been making contributions less than required by Statute, but that the State contributions had been significantly below the tread water line. When contributions are lower than the normal cost plus interest on the UAL, the UAL is expected to grow from one year to the next. In FYE 2022, actual State contributions were greater than the tread water amount as well as the Statutory contribution for the first time during the period. State contributions are expected to be greater than the tread water amount going forward as the State continues to contribute 100% of the Statutory contribution.



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 Legislature in their adoption of Chapter 277, P.L. 2017 requiring the Fund to have stress testing performed annually. The charts presented in this section show the expected progress of the TPAF's funded status over the next 30 years, measured in terms of the expected funded ratios and State contributions assuming that the Fund 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, we provided additional **stress testing** in Section II based on varying investment returns in the future. It is our opinion that 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), the Actuarial or smoothed Value of Assets (gold line), and the Actuarial Value of Assets plus Special Asset Value (blue line) to the Fund's Actuarial Liabilities (gray bars). In addition, at the top of the graph, we show the Fund'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 Fund's funded ratio on an Actuarial Value of Assets basis is projected to steadily increase to 100% by 2049. The estimated period to fully amortize the UAL may be longer than the Statutory amortization period due to the timing of contributions during the fiscal year and the lack of a dedicated administrative expense contribution. However, the impact of these items is offset by lottery revenue in excess of the Statutory contribution as described below.

SECTION I – BOARD SUMMARY

The bottom graph shows the contributions by fiscal year. The member contributions are in purple and the State contributions are in gold.

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. Each year, the lottery revenue includes additional payments toward the UAL. The lottery offsets during the projection period are calculated based on the methodology as defined in Chapter 98, P.L. 2017.

The projection assumes the State appropriates 100% of the Statutory contribution in FYE 2025 and each year thereafter. Both the appropriated State contributions and the member contributions are also shown in dollar amounts.

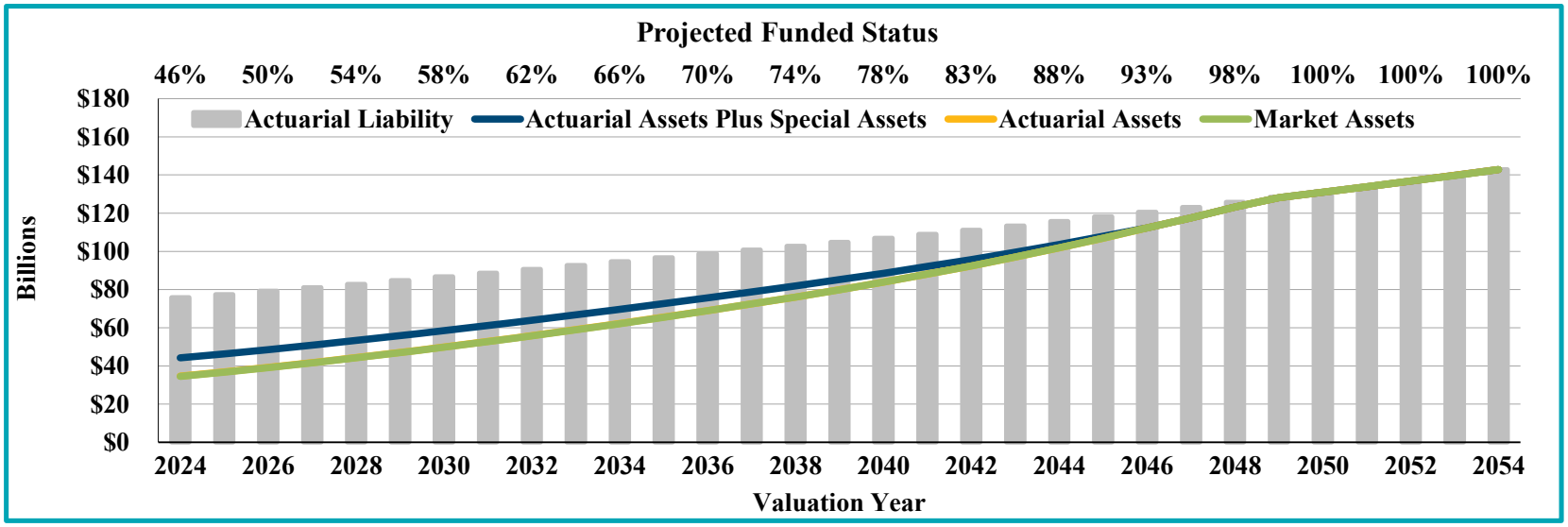
The dashed black line in the bottom graph shows the gross normal cost. The difference between the dashed black line and the purple bar is the State portion of the normal cost.

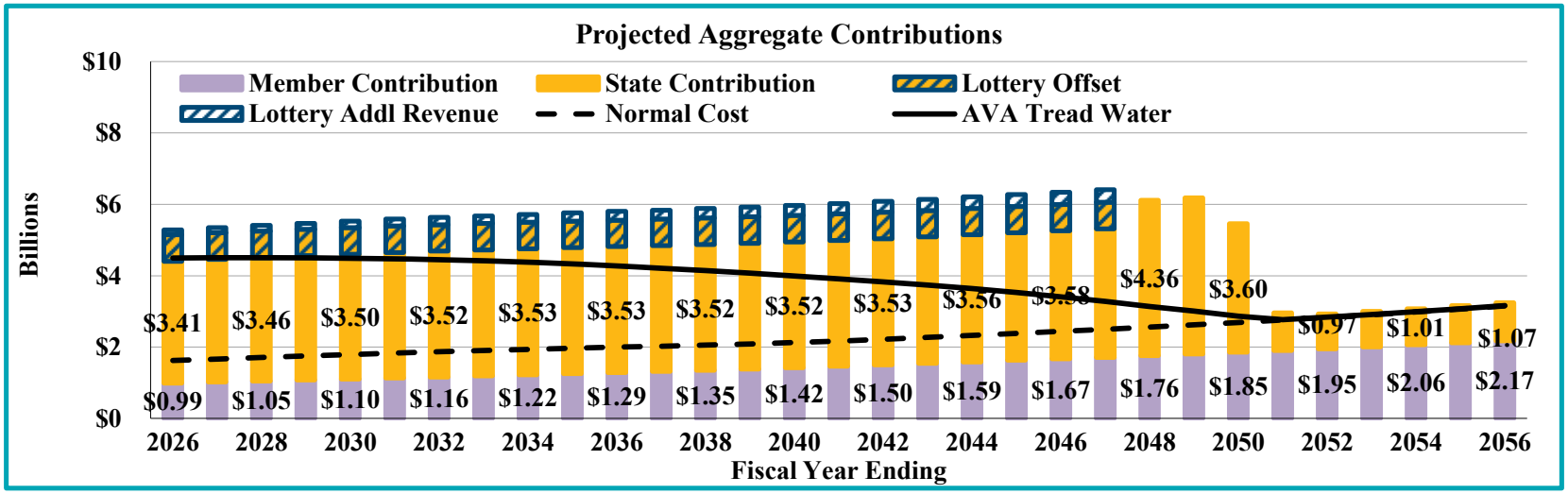
The solid black line is the tread water line based on the Actuarial Value of Assets. Because the tread water metric equals the normal cost plus interest on the UAL, the difference between the solid black line and the dashed black line is the interest on the UAL. When contributions fall below the solid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

While total member contributions are expected to increase throughout the projection period based on payroll increases, the State's contributions are expected to remain relatively steady until the projected lottery revenue offsets run out in FYE 2047, at which point there is an increase. Following that, when the Fund reaches 100% funded, the contributions drop down to the normal cost level. Because the appropriated amounts equal the Statutory contributions, the contributions are at the level necessary to pay down the UAL and the tread water line decreases relative to the Statutory contribution. Additionally, expected lottery revenue that is contributed each year in excess of the Statutory contribution also helps pay down the UAL sooner.

SECTION I – BOARD SUMMARY

Baseline: 7.0% return for all years





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 Fund 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 Fund'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 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, lottery revenue) that affect the amount of contributions the Fund can collect.

The following chart shows the components of changes in the Unfunded Actuarial Liability (UAL) for the Fund 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. Table II-1 below the chart summarizes the changes in the UAL over the last 10 years.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

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

Historical Changes in UAL 2015-2024

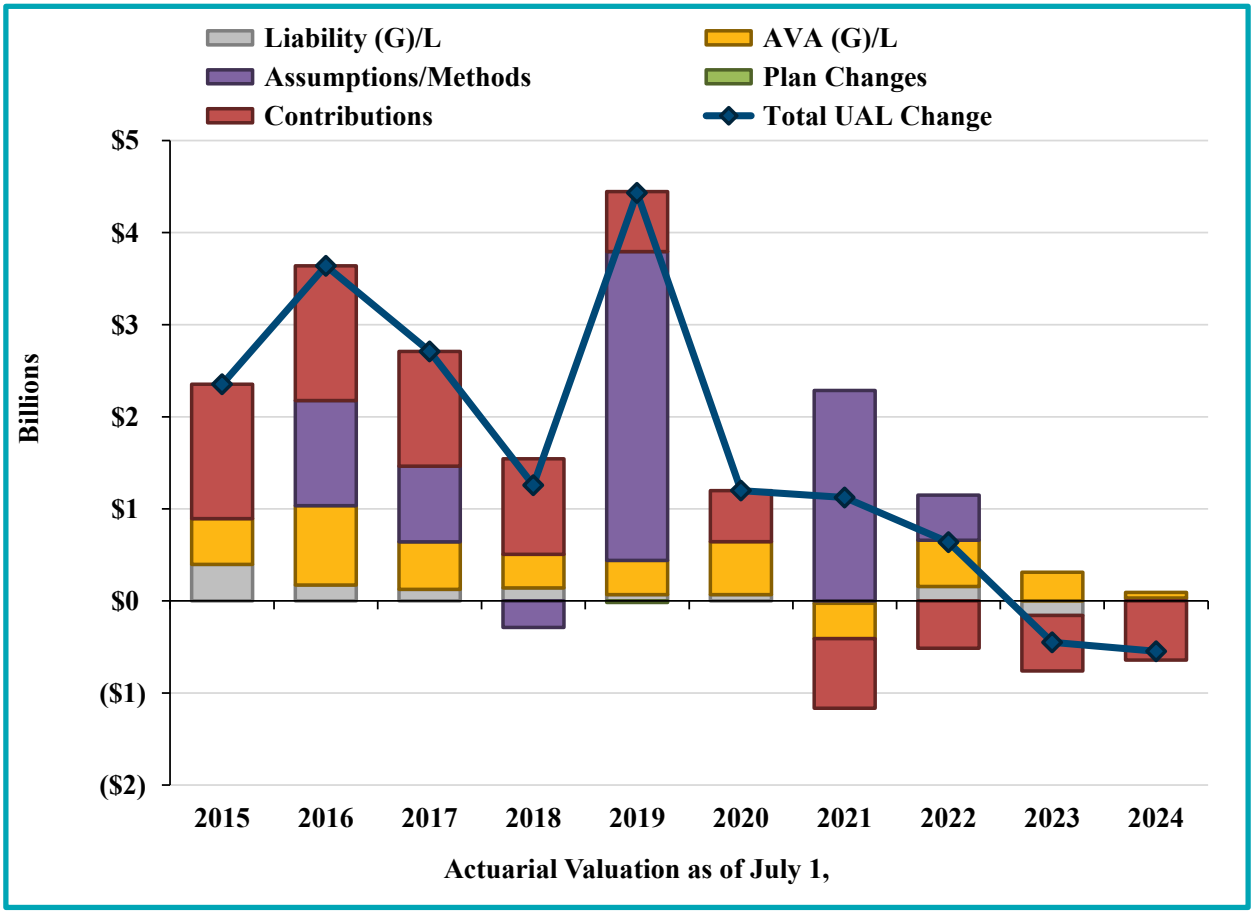


Table II-1
Changes in Unfunded Actuarial Liability
(Dollar amounts in millions)

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	Total
Discount Rate	**7.90%**	**7.65%**	**7.50%**	**7.50%**	**7.30%**	**7.30%**	**7.00%**	**7.00%**	**7.00%**	**7.00%**	
Source											
AVA (G)/L	$ 495.2	$ 859.3	$ 513.5	$ 367.6	$ 374.4	$ 575.9	$ (381.8)	$ 503.0	$ 311.2	$ 62.3	$ 3,680.5
Liability (G)/L	398.7	173.7	126.6	140.4	67.1	70.0	(26.5)	156.0	(158.3)	30.7	978.4
Assumptions/Methods	0.0	1,144.2	822.6	(286.8)	3,353.5	0.0	2,286.9	491.8	0.0	0.0	7,812.3
Plan/Policy Changes	0.0	0.0	0.0	0.0	(15.6)	0.0	0.0	0.0	0.0	0.0	(15.6)
Contributions[1]	1,458.9	1,461.1	1,246.2	1,036.8	652.8	553.1	(756.2)	(513.5)	(602.7)	(641.0)	3,895.6
Net UAL Change	**$ 2,352.8**	**$ 3,638.2**	**$2,708.9**	**$1,258.0**	**$4,432.3**	**$1,199.0**	**$1,122.4**	**$ 637.3**	**$ (449.8)**	**$ (548.0)**	**$16,351.2**

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

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

On a smoothed asset basis, the investment gains and losses (gold bars) from 2015 to 2024 largely reflect investment losses, with the exception of the investment gain during FYE 2021. In aggregate, over the 10-year period, investment losses have added approximately $3.7 billion to the UAL.

On the liability side (gray bars), the Fund has experienced a combination of gains and losses, however much smaller in magnitude compared to the assets, increasing the UAL by approximately $978.4 million over the 10-year period. Triennial experience studies are performed in an effort to identify emerging trends and avoid consistent liability gains or losses.

Assumption and method changes (purple bars) over the last 10 years have increased the UAL by approximately $7.8 billion. The significant assumption changes have included reductions in the discount rate from 7.90% to 7.00%, as well as decreases in mortality rates, projected mortality improvement and adjustments to salary increases. 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 and policy changes (green bars) over the last 10 years have decreased the UAL by approximately $15.6 million.

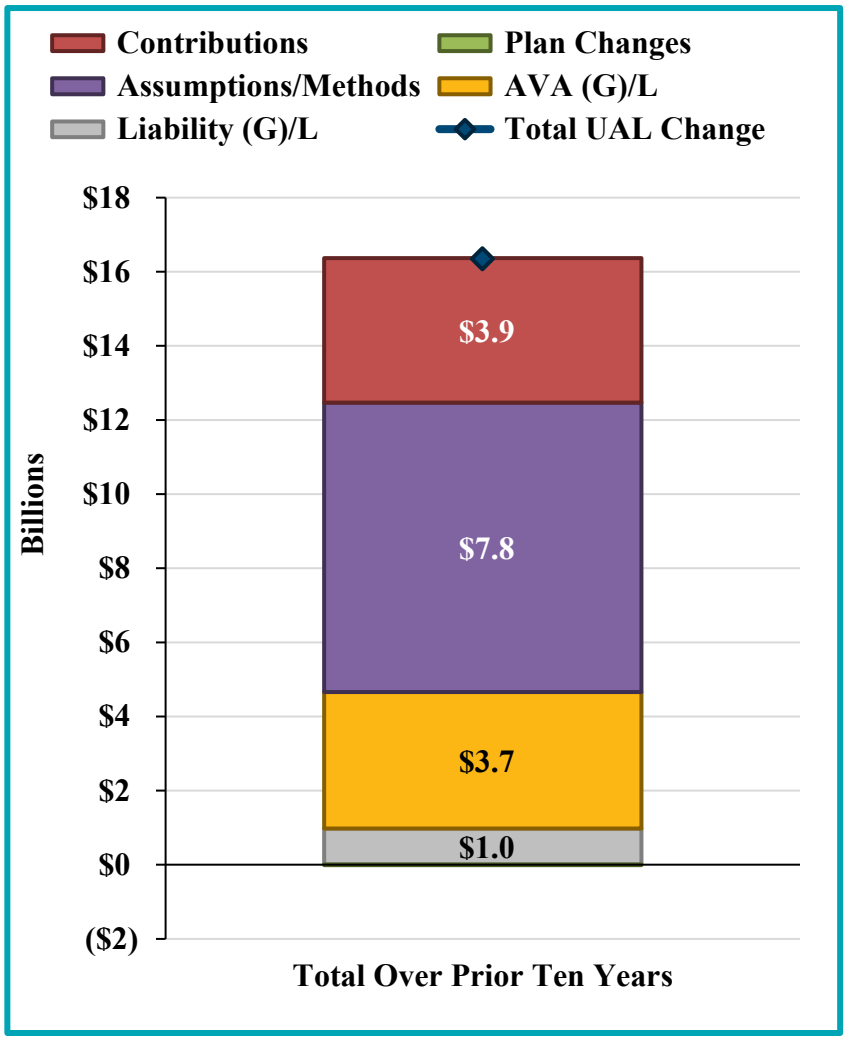
Each year the UAL is expected to increase for benefit accruals attributable to the current year (the normal cost) and interest on the UAL. This expected increase is referred to as the tread water level. If contributions are greater than the tread water level, the UAL is expected to decrease. Conversely, 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 UAL by approximately $3.9 billion over the last 10 years.

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

It also is important to consider the relative sizes of the assets and the liabilities when evaluating the changes to the UAL. Investment losses have been significantly larger than liability losses in terms of dollar amounts over the last ten years, even though the investment losses were generated by relatively small assets. Going forward, the assets are expected to grow relative to the liabilities, as illustrated in the baseline projections shown in the Summary section. In that case, investment outcomes similar to those of the last ten years could produce relatively larger investment losses.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

The following chart shows the total changes to the UAL over the 10-year period by source.



Plan Maturity Measures

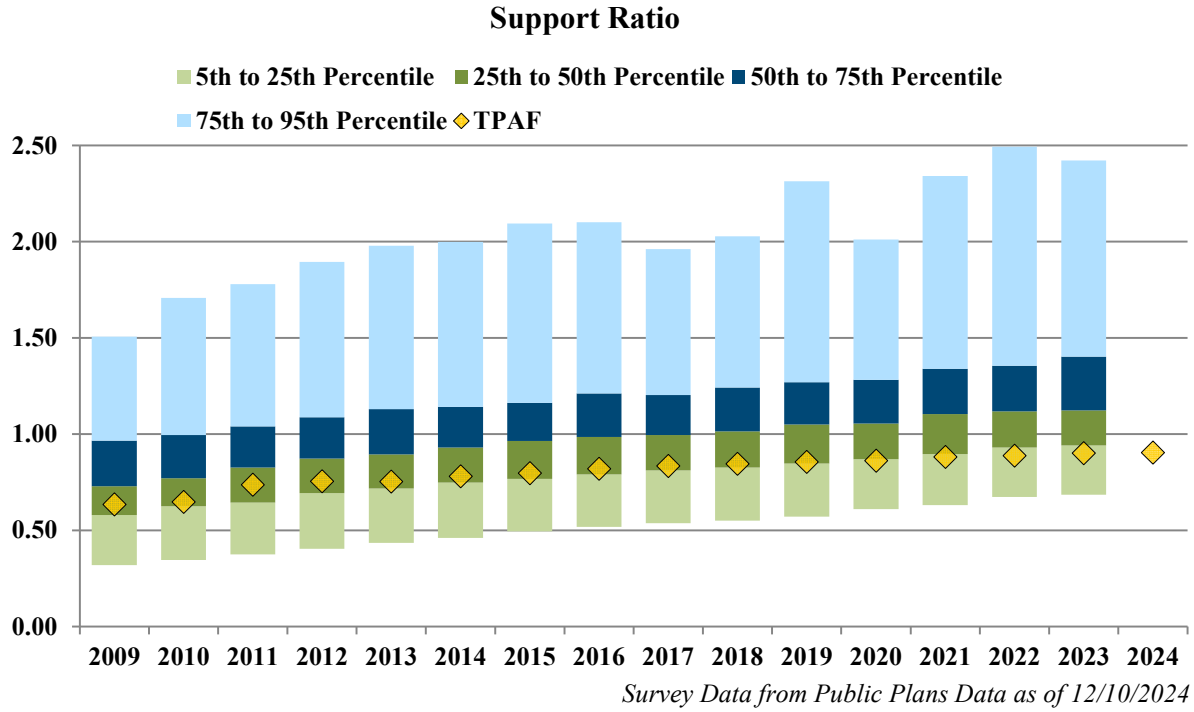
The future financial condition of a mature pension plan is more sensitive to each of the risks identified above than a less mature plan. Before assessing each of these risks, it is important to understand the maturity of the plan compared to other plans and how the maturity has changed over time.

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 Fund.

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.



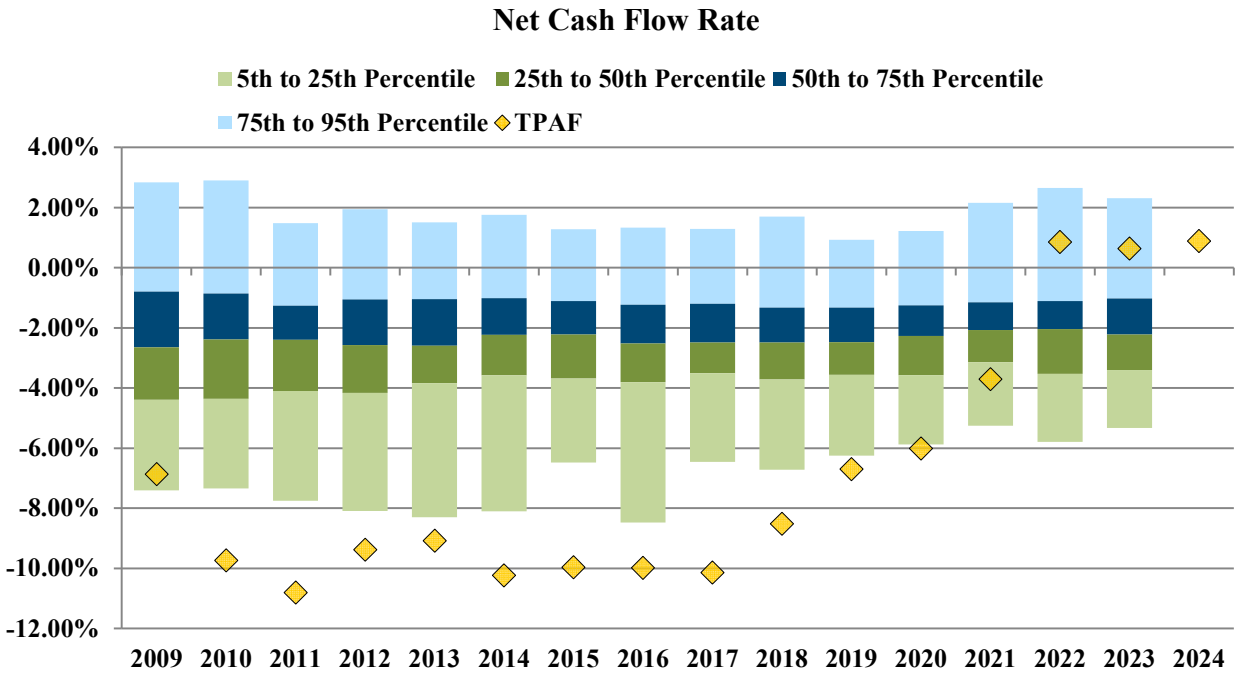
Survey Data from Public Plans Data as of 12/10/2024

The chart above shows the distribution from the 5th to 95th percentile of support ratios for the plans in the Public Plans Database. The gold diamond shows how TPAF compares dating back to 2009. TPAF has been less mature than the median plan. The support ratio increased faster than other public plans following the Great Recession. Since then, TPAF has grown more slowly, landing below the 25th percentile in 2023.

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.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK



Survey Data from Public Plans Data as of 12/10/2024

The chart above shows the distribution from the 5th to 95th percentile of net cash flow for the plans in the Public Plans Database. The gold diamond shows how TPAF compares to other public plans. Since the Great Recession, TPAF had generally been at or below the 5th percentile compared to the database of other public plans in terms of negative cash flow as a percentage of assets, which caused a serious defunding risk for the Fund. With the State's increased appropriation percentages, TPAF's net cash flow has improved considerably in recent years and has been positive since 2022.

Assessing Costs and Risks

The fundamental risk to the Fund 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 Fund, but also by the interaction of that experience and decisions by the State and the Board related to the amount of contributions appropriated, assumptions, asset smoothing methods, and amortization periods.

Investment Risk - Stress Testing

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

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 following table using the capital market assumptions from the New Jersey Division of Investments (geometric return of 8.09%, standard deviation of 11.89%).

Distribution of Expected Average Annual Returns		
Percentile	1 Year	5 Year
5%	-9.6%	-0.2%
25%	0.5%	4.6%
50%	8.1%	8.1%
75%	16.4%	11.8%
95%	29.4%	17.2%

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

Theoretical Scenarios						
	1-Yr Shock		5-Yr Moderate		5-Yr Significant	
FYE	Neg	Pos	Neg	Pos	Neg	Pos
2025	-9.6%	29.4%	4.6%	11.8%	-0.2%	17.2%
2026	7.0%	7.0%	4.6%	11.8%	-0.2%	17.2%
2027	7.0%	7.0%	4.6%	11.8%	-0.2%	17.2%
2028	7.0%	7.0%	4.6%	11.8%	-0.2%	17.2%
2029	7.0%	7.0%	4.6%	11.8%	-0.2%	17.2%
2030+	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%

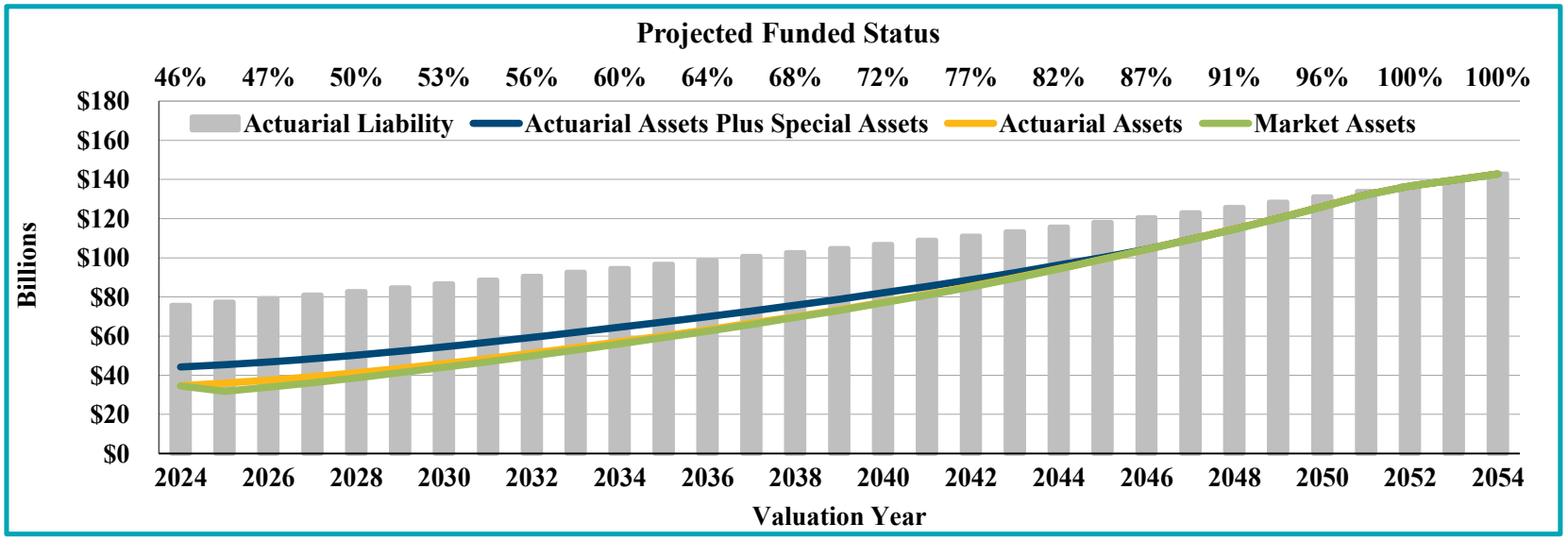
In reviewing each of these projections, it is the future trends, not necessarily the actual values, that are important to observe in consideration of the risks of the Fund and the potential volatility of future funded ratios and Statutory contribution levels.

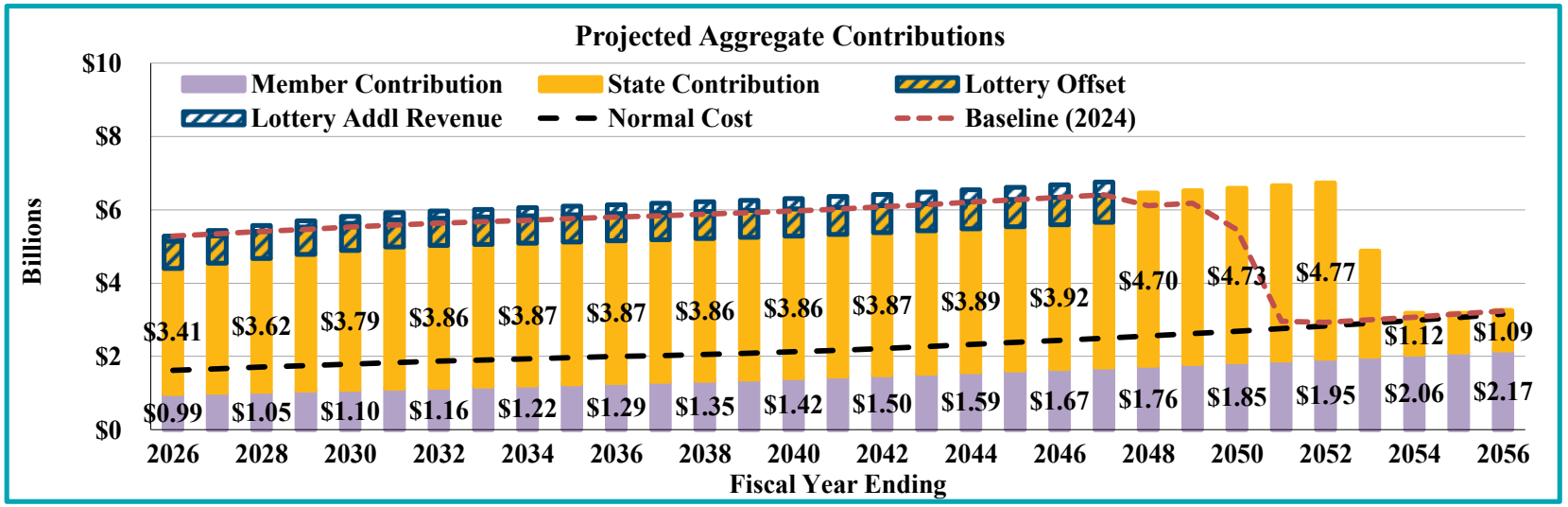
We note that when asset returns are high, excess assets may be used to offset employer costs. We have not shown the implications of a surplus and assume that the State will always contribute at least the normal cost.

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.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

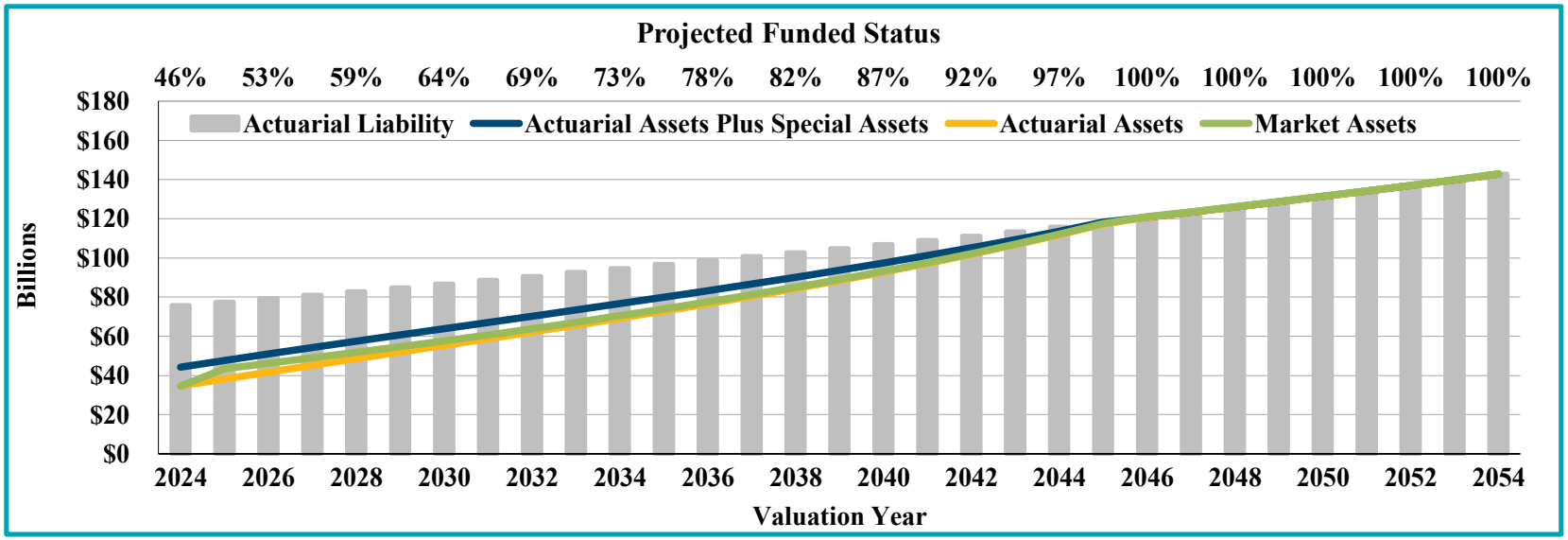
One-Year Negative Shock Scenario: -9.6% return FYE 2025, 7.0% after

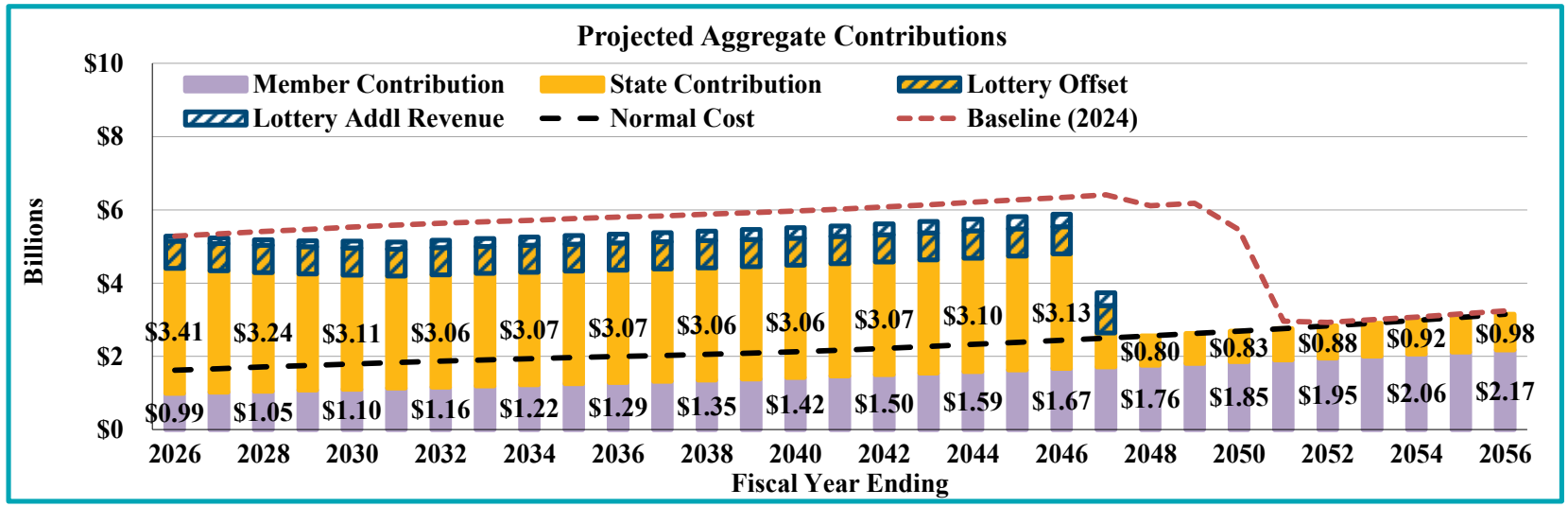




SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

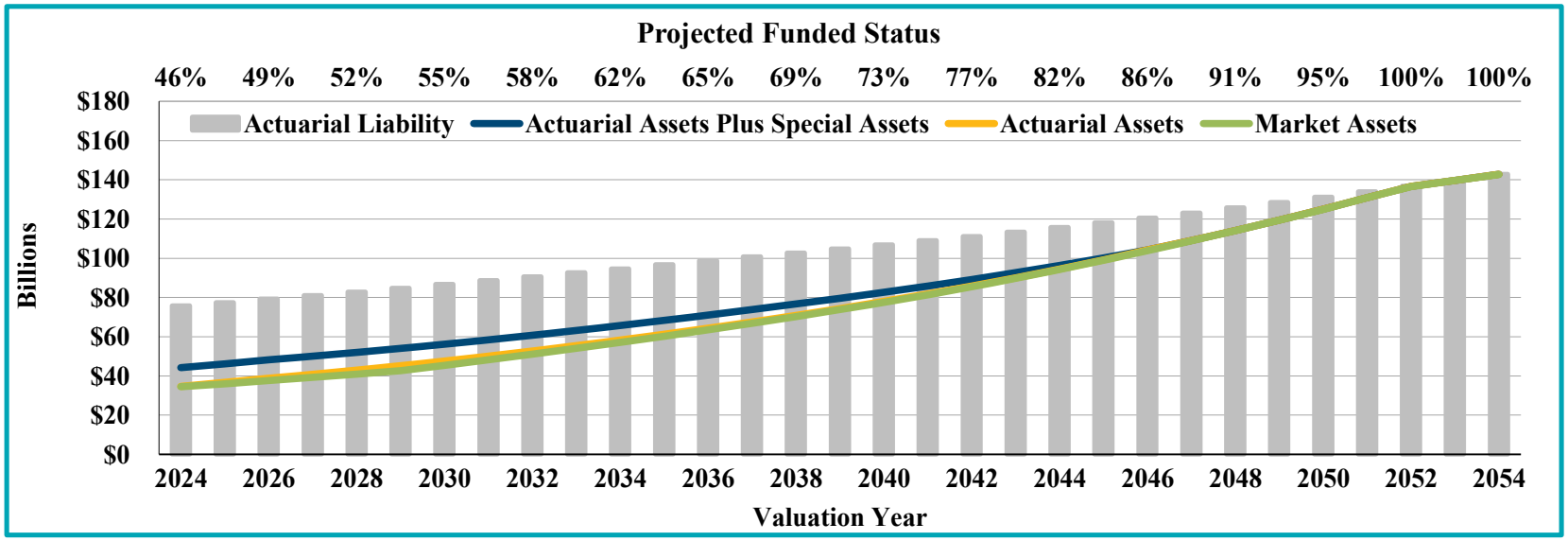
One-Year Positive Shock Scenario: 29.4% return FYE 2025, 7.0% after

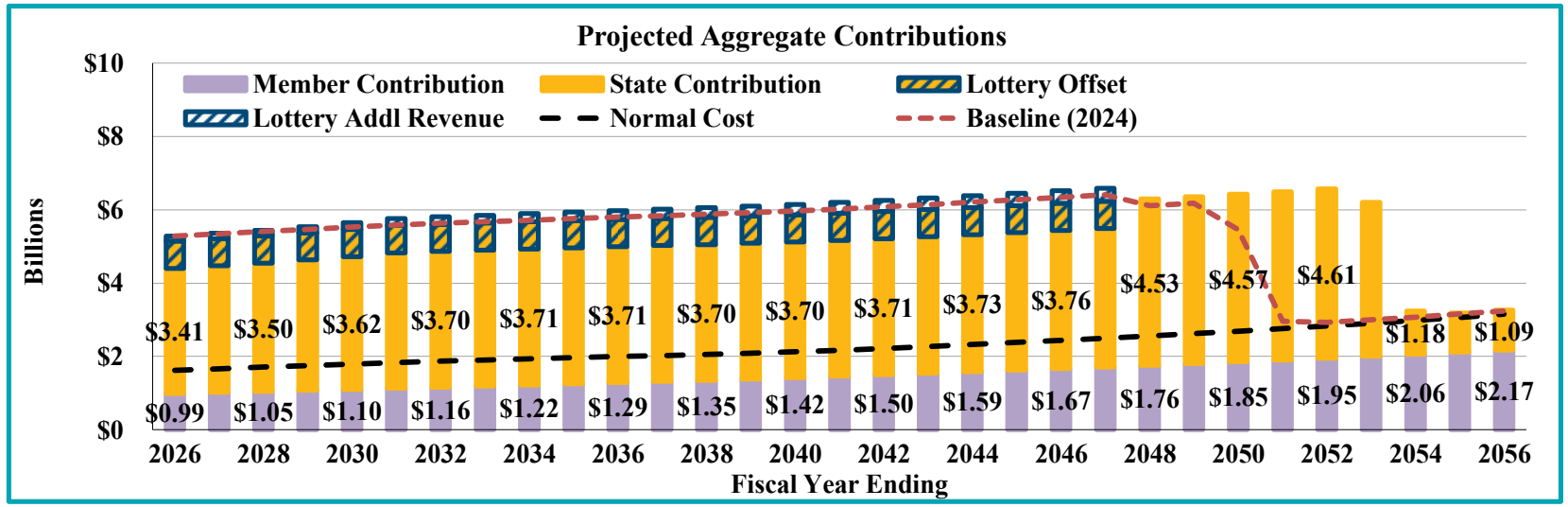




SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

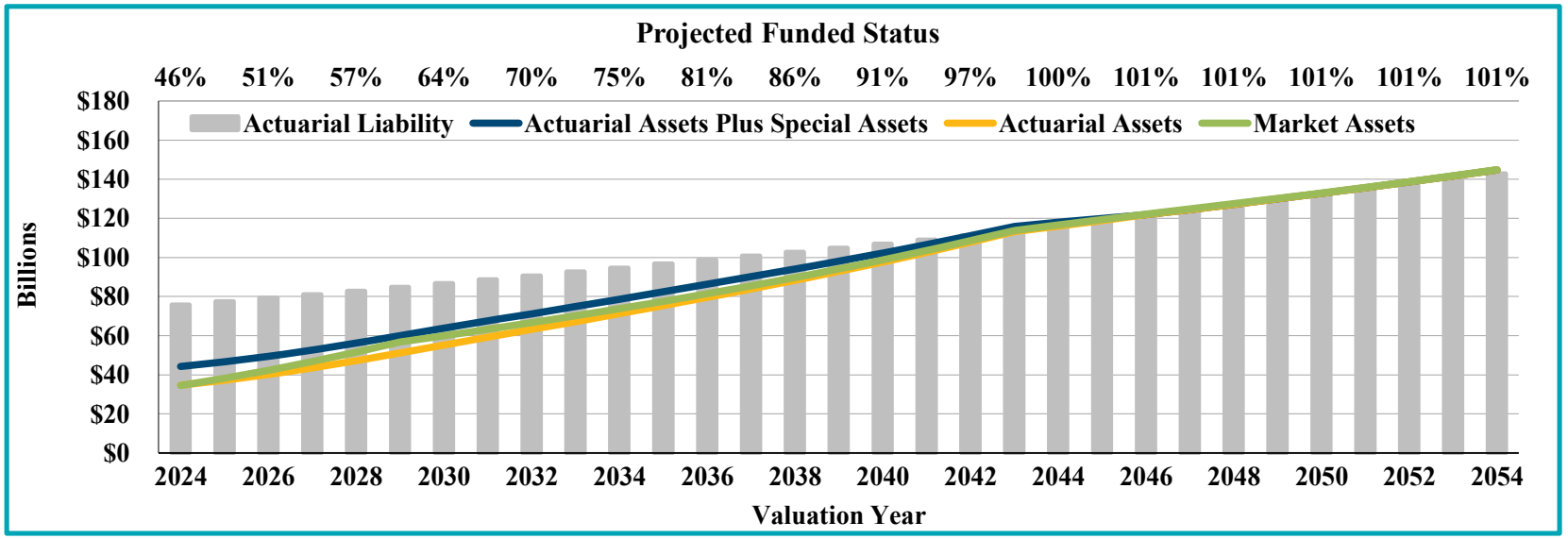
Five-Year Moderate Negative Scenario: 4.6% return FYE 2025-2029, 7.0% after

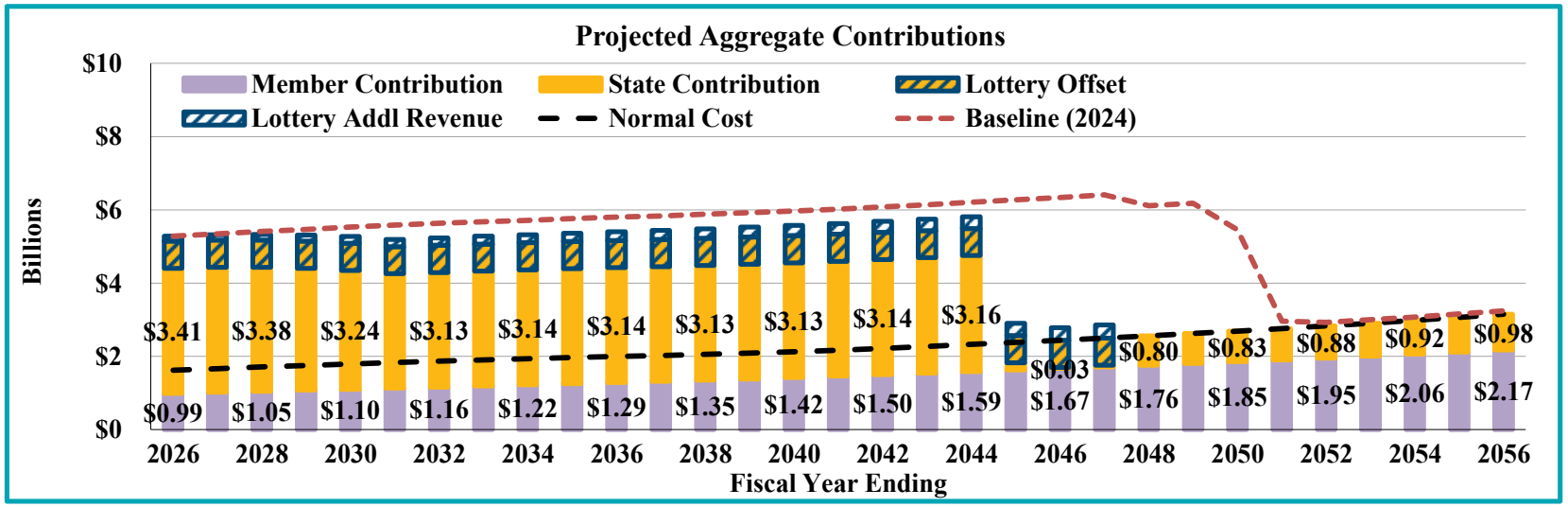




SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

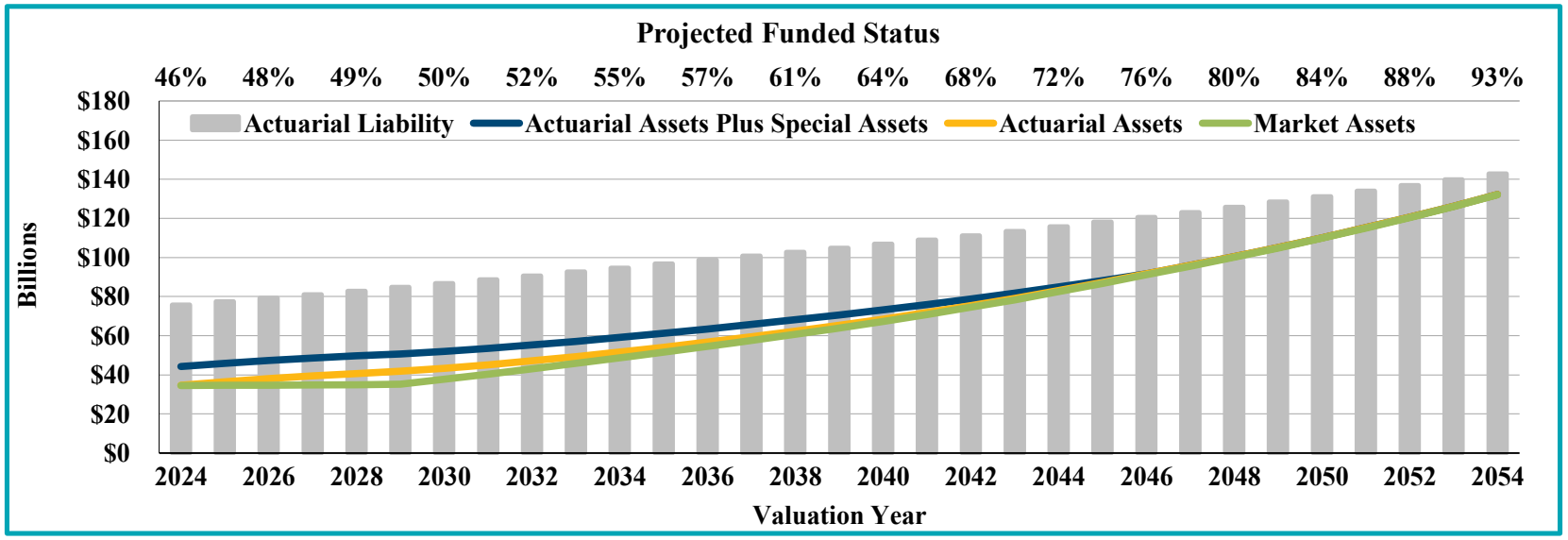
Five-Year Moderate Positive Scenario: 11.8% return FYE 2025-2029, 7.0% after

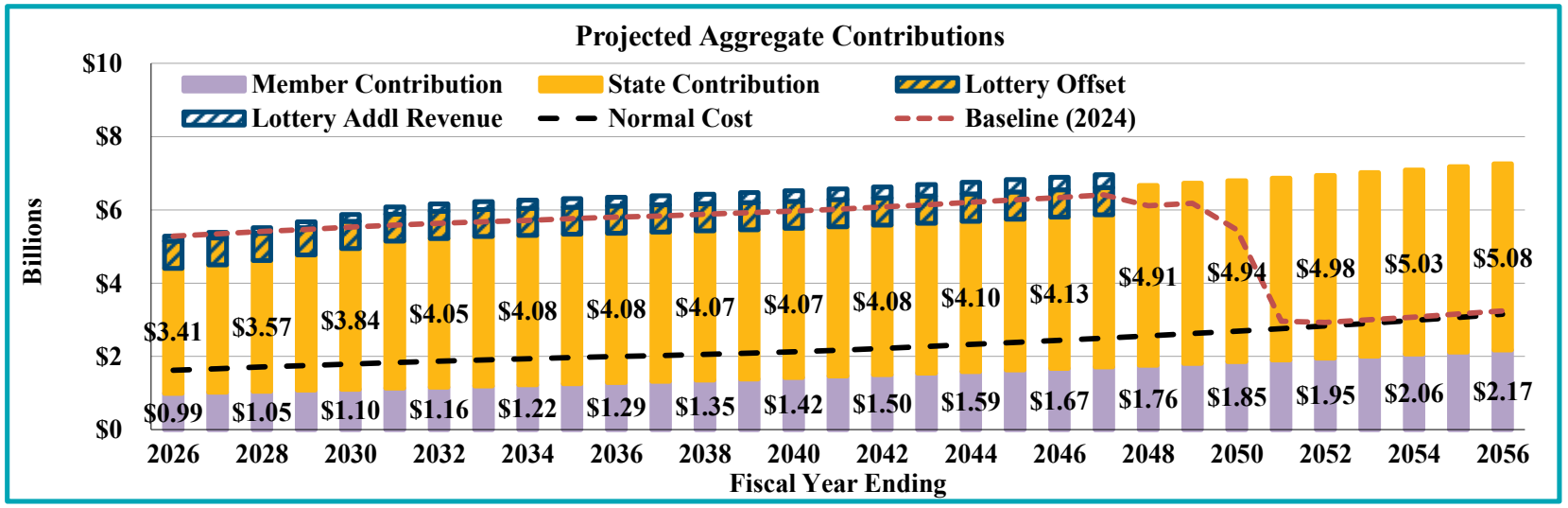




SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

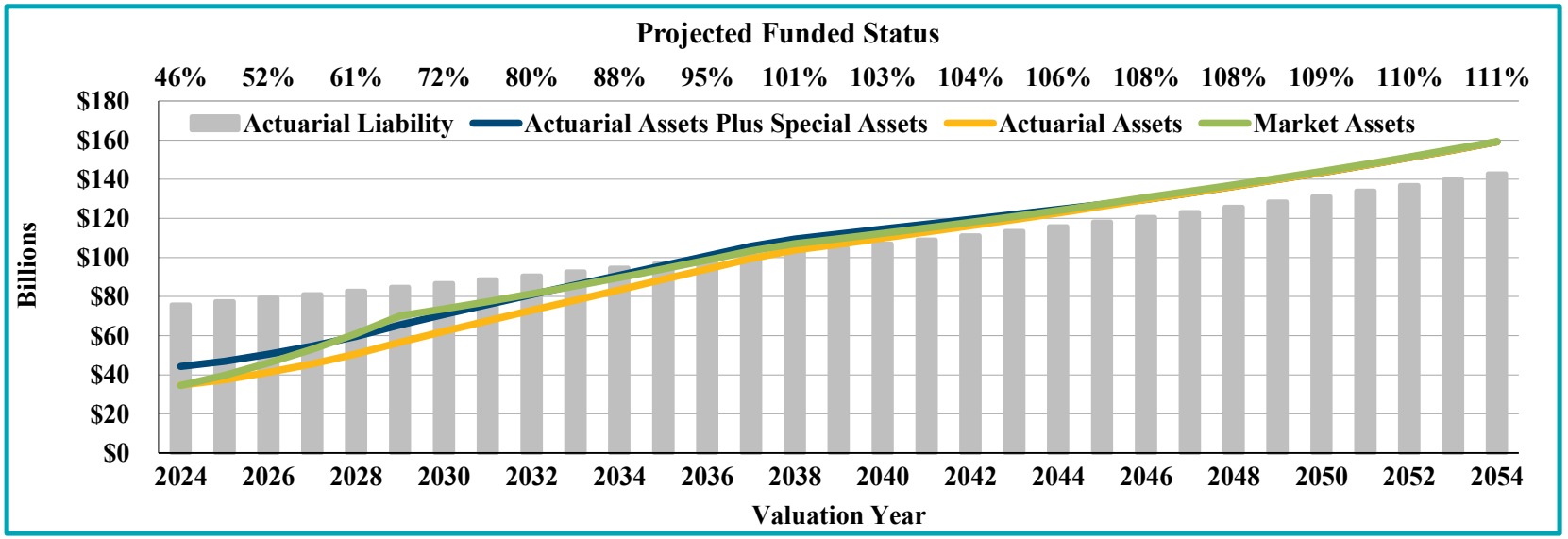
Five-Year Significant Negative Scenario: -0.2% return FYE 2025-2029, 7.0% after

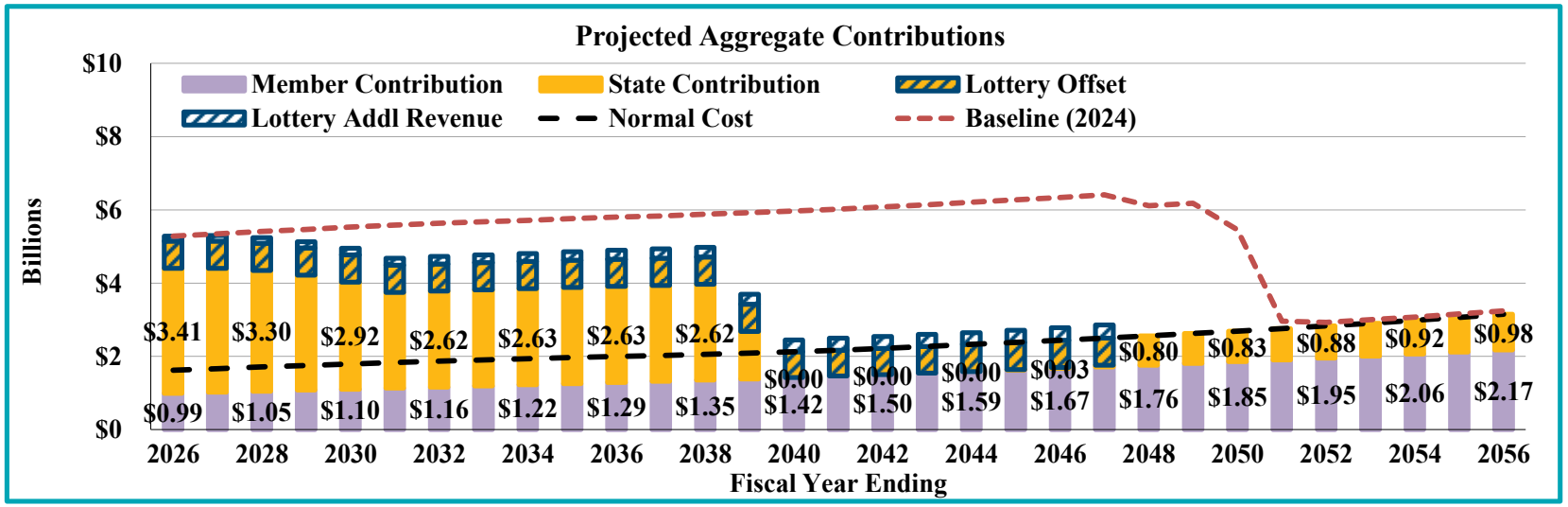




SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Five-Year Significant Positive Scenario: 17.2% return FYE 2025-2029, 7.0% after





SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

These scenarios show that actual future investment returns have a significant impact on future State contribution amounts. The following table summarizes the impact on the State contributions in FYE 2038 for the various investment return scenarios compared to the baseline projections in Section I.

Table II-2
Impact on Contributions for FYE 2038
(dollar amounts in billions)

	1-Yr Shock		5-Yr Moderate		5-Yr Significant	
	Neg	Pos	Neg	Pos	Neg	Pos
Amount	$0.34	($0.46)	$0.18	($0.39)	$0.55	($0.90)
Percent	10%	-13%	5%	-11%	16%	-26%

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

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.

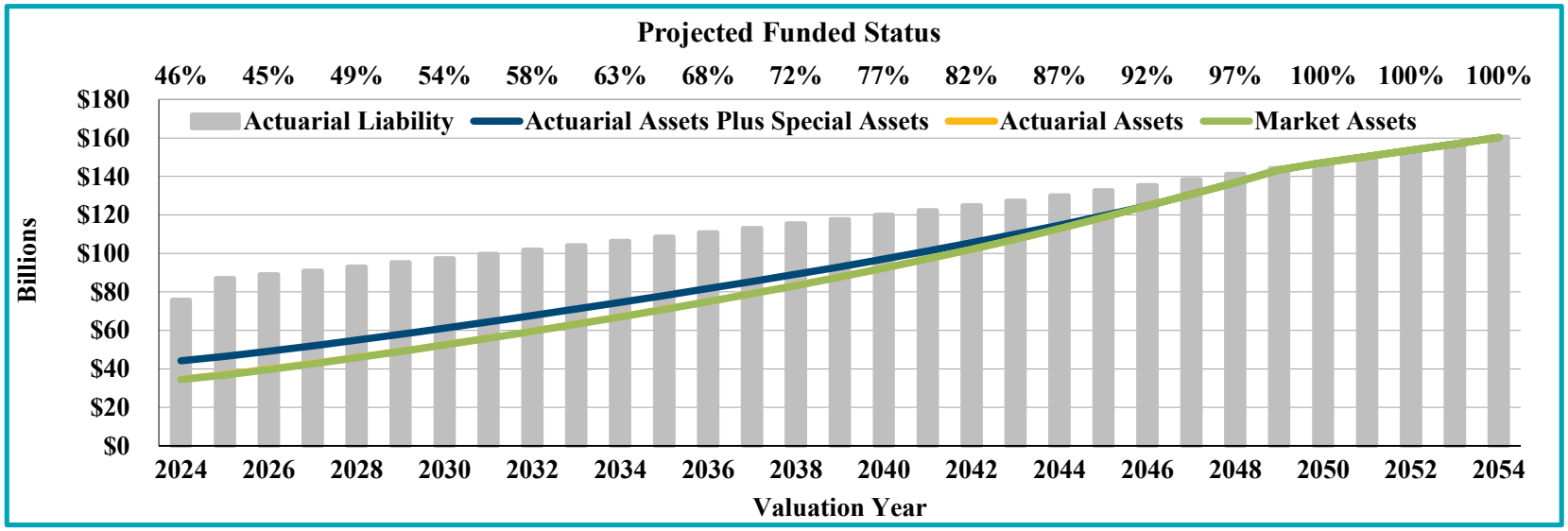
Assumption Change Risk – Sensitivity Testing

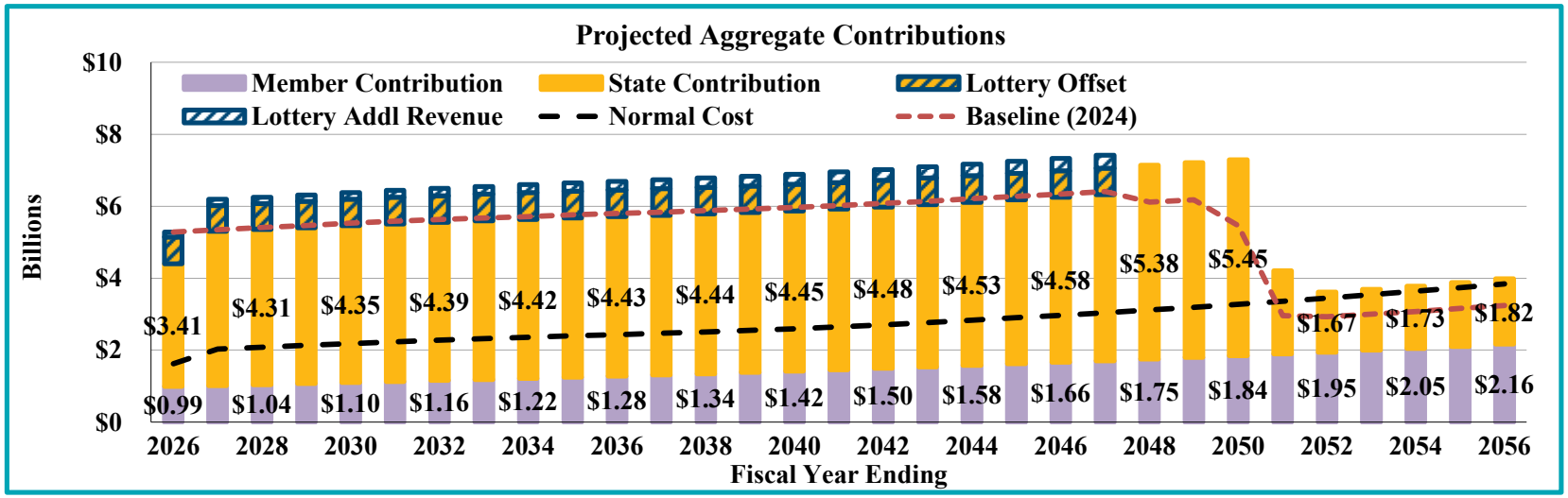
As shown in Table II-1, assumption changes over the last decade have increased the UAL by approximately $7.8 billion. The most significant changes were reductions in the discount rate, decreases in mortality rates, projected mortality improvement, and changes to the salary increase rates. While interest rates have increased over the past few years, the reductions in discount rates over the last ten years have been largely driven by declines in interest rates that affect expectations of future investment returns. If there are 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 graphs 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, 2025 valuation.

This scenario results in Statutory contributions in FYE 2038 that are approximately 26% higher than the baseline.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

6.00% Discount Rate and Investment Return Assumption Effective July 1, 2025





SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

Low-Default-Risk Obligation Measure (LDROM)

The Fund invests in a diversified portfolio to achieve the best possible return at an acceptable level of risk. The lowest investment risk portfolio for a pension plan would be composed entirely of low-default-risk fixed income securities whose cash flows approximately match the cash flow needs of the Fund. However, such a portfolio would have a lower expected rate of return (5.35% as of June 30, 2024) than the diversified portfolio (7.00%). Low-Default-Risk Obligation Measure (LDROM) represents what the Actuarial Liability would be if the Fund's assets were invested in such a portfolio. As of June 30, 2024 the LDROM is $92.6 billion[1] compared to the Actuarial Liability of $75.7 billion for the Fund. The $16.9 billion difference can be viewed as the expected savings from taking on the investment risk of the diversified portfolio. Alternatively, it can be viewed as the potential cost of eliminating the investment risk of the non-fixed income allocations of the diversified portfolio.

If the Fund were to invest in the LDROM portfolio, the funded ratios would decrease, and the State's contribution requirements would increase. The security of the Fund's pension benefits relies on the current assets, future investment earnings, and the ability and willingness of the State to make future contributions. If the Fund were to invest in the LDROM portfolio, it would not change the current assets, but it would reduce future investment earnings and increase future State contributions. However, the range of future investment earnings and future contributions would narrow significantly.

[1] Based on a discount rate equal to the June 30, 2024 FTSE Pension Liability Index of 5.35%, and all other assumptions and methods as used to calculate the Actuarial Liability

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, prior to FYE 2022, appropriated contributions had consistently been less than the Statutory contributions and the tread water level, causing an increase in the UAL of approximately $3.9 billion over the last 10 years. Since FYE 2022, the appropriated contributions have been greater than or equal to the Statutory contributions. The baseline projections assume the State appropriates 100% of the Statutory contribution each year.

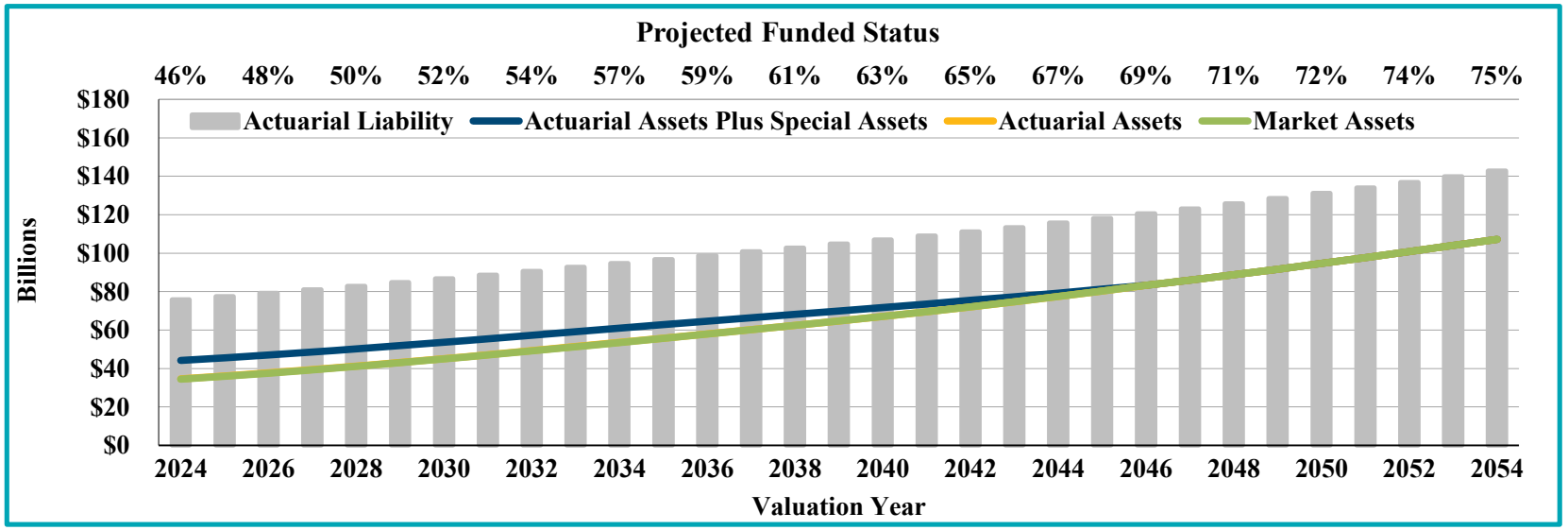
Contribution risk is the potential for actual future contributions to deviate from expected future contributions. The charts on the following page illustrate the impact on projected future funded status and contribution amounts if the State changes its appropriation to 80% of the Statutory contribution for each year in the future, rather than remaining at 100% of the Statutory contribution.

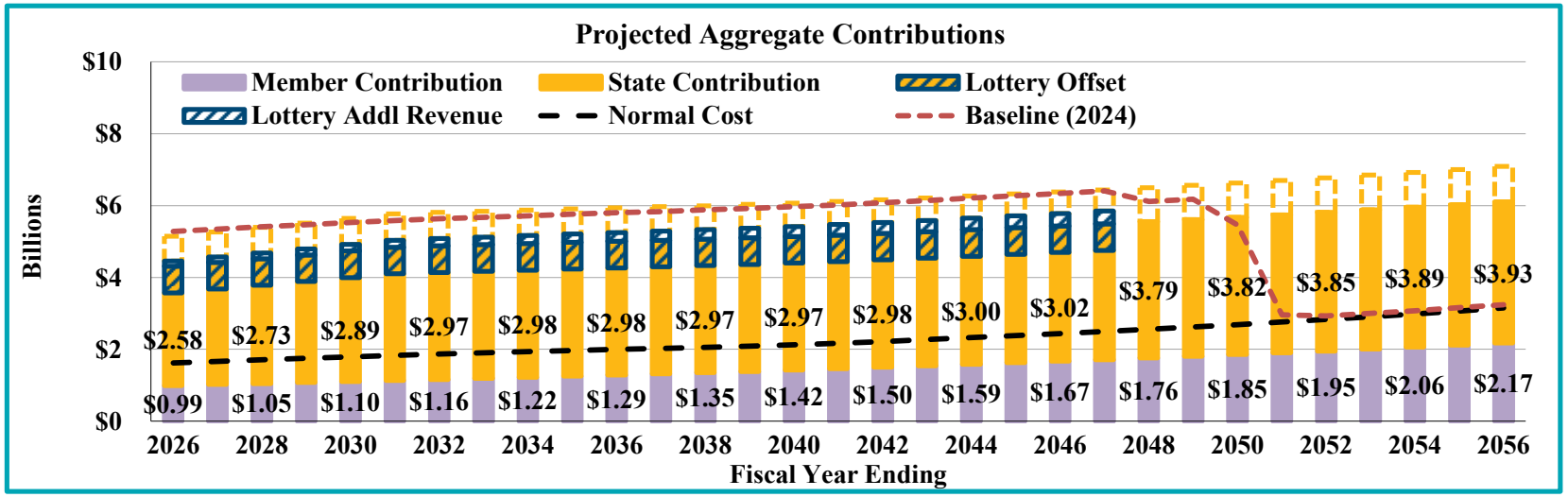
The gold outline in the bottom graph shows the State's full Statutory contributions with the shaded portion showing the anticipated appropriated amount.

This scenario shows the Statutory and appropriated State contributions gradually increasing over time. The Statutory contributions quickly exceed the baseline. The appropriated contributions are below the baseline initially but eventually grow to reach a similar level, with a lower funded ratio. The funded ratio at the end of the projection period is 75% compared to 100% under the baseline projection.

SECTION II – ASSESSMENT AND DISCLOSURE OF RISK

State Appropriates 80% of Statutory Contribution for Fiscal Year Ending June 30, 2026 and Thereafter





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.

SECTION III – ASSETS

The Fund uses and discloses two different asset measurements for funding that 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 values 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 asset values which have consistently been greater than the market asset values 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 Fund's assets:

- Disclosure of assets at July 1, 2023 and July 1, 2024,
- 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, 2023 and June 30, 2024. Table III-2 presents the Fund's cash flows from June 30, 2023 to June 30, 2024. Table III-3 presents the development of the Actuarial Value of Assets as of July 1, 2024. Tables III-4 and III-5 show the market and actuarial value of assets historical investment returns compared to the assumed return for each year, as well as the cumulative returns over various periods and durations of time.

SECTION III – ASSETS

Table III-1
Statement of Assets at Market Value

	June 30, 2024	June 30, 2023
Assets		
Cash	$ 8,121,840	$ 408,320,703
Investment Holdings	30,426,178,839	26,820,529,182
Employers' Contributions Receivable - State	0	0
Employers' Contributions Receivable - NCGI	6,495,702	7,204,050
Employers' Contributions Receivable - Common L	104,225,200	100,336,200
Employers' Contributions Receivable - Local Employers	0	0
Employers' Contributions Receivable - Local Employers ERI	2,321,359	2,497,428
Employers' Contributions Receivable - Delayed Enrollments	543,075	669,208
Employers' Contributions Receivable - Delayed Appropriations	0	0
Members' Contributions Receivable	100,991,021	94,258,915
Accrued Interest on Investments	511,078	353,359
Accounts Receivable	2,086,424	1,723,218
Loans Receivable	281,743,196	275,371,477
Securities Lending Collateral	268,404,431	519,019,434
Total Assets	**$ 31,201,622,165**	**$ 28,230,283,174**
Liabilities		
Pension Payroll Payable	$ (354,982,208)	$ (345,911,147)
Pension Adjustment Payroll Payable	(19,212,766)	(20,305,509)
Withholdings Payable	(45,555,569)	(45,421,904)
Administrative Expenses Payable	(31,597,089)	(19,362,129)
Death Benefits Payable	(6,537,270)	(7,204,050)
Securities Lending Collateral & Rebates Payable	(268,270,514)	(518,829,261)
Other Accounts Payable	(159,170,962)	(143,067,906)
Total Liabilities	**$ (885,326,378)**	**$ (1,100,101,906)**
Preliminary Market Value of Assets	**$ 30,316,295,787**	**$ 27,130,181,268**
Discounted Receivables		
State Appropriations	$ 3,248,597,024	$ 3,228,502,303
Expected Lottery Revenue	846,620,404	838,890,769
Market Value of Assets	**$ 34,411,513,215**	**$ 31,197,574,340**

SECTION III – ASSETS

Fund Cash Flows as of June 30, 2024

Table III-2 Changes in Market Value for FYE June 30, 2024		
Additions		
Contributions		
Member Contributions	$	968,116,740
Member Transfer Contributions		18,209,875
State Appropriations		3,367,351,000
State Lottery		913,915,000
NCGI Contributions		46,919,331
Employer Transfer Contributions from Other Systems		8,417,401
Other Contributions - Delayed Enrollments		521,718
Other Contributions - Delayed Appropriations		0
Total Contributions	$	5,323,451,065
Net Investment Income		2,900,716,901
Total Additions	**$**	**8,224,167,966**
Deductions		
Withdrawal of Member Contributions	$	82,827,661
Withdrawal of Member Transfer Contributions		13,400,666
Withdrawal of Employer Transfer Contributions		5,136,149
Adjustment for Member Loans		(337,765)
Retirement Allowances		4,647,965,834
Pension Adjustment Benefits		218,142,703
NGCI Premiums		46,919,331
Administrative Expenses		23,998,868
Total Deductions	**$**	**5,038,053,447**
Net Increase/(Decrease)	**$**	**3,186,114,519**
Preliminary Market Value of Assets Beginning of Year	**$**	**27,130,181,268**
Preliminary Market Value of Assets End of Year	**$**	**30,316,295,787**
Discounted Receivables		
State Appropriations	$	3,248,597,024
Expected Lottery Revenue		846,620,404
Market Value of Assets End of Year	**$**	**34,411,513,215**
Approximate Return		**10.80%**

SECTION III – ASSETS

Actuarial Value of Assets (AVA)

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

Table III-3
Development of Actuarial Value of Assets as of July 1, 2024

1.	Preliminary Actuarial Value of Assets as of July 1, 2023[1]	$	28,375,111,641
2.	Net Cash Flow excluding Investment Income		285,397,618
3.	Expected Investment Income[2]		1,967,360,947
4.	Expected Actuarial Value of Assets as of July 1, 2024: [1 + 2 + 3]	$	30,627,870,206
5.	Preliminary Market Value as of June 30, 2024	$	30,316,295,787
6.	20% of Difference from MVA = [(5 - 4) x 0.2]	$	(62,314,884)
7.	Preliminary Actuarial Value of Assets as of July 1, 2024[1]: [4 + 6]	$	30,565,555,322
8.	Discounted Receivables		
	State Appropriations	$	3,248,597,024
	Expected Lottery Revenue		846,620,404
	Total	$	4,095,217,428
9.	Actuarial Value of Assets as of July 1, 2024: [7 + 8]	$	34,660,772,750
10.	Rate of Return on Actuarial Value of Assets		6.78%
11.	Ratio of Actuarial Value of Assets to Market Value of Assets		100.7%

[1] Excludes discounted State appropriations receivable

[2] Refer to Appendix B, Actuarial Methods, for details on the assumed timing of contributions

SECTION III – ASSETS

Investment Performance

The market value of assets rate of return was 10.80% for the year ending June 30, 2024. This is compared to an assumed return of 7.00% for the same period. On an actuarial value of assets basis, the return for FYE 2024 was 6.78%. In the table below, we show historical asset returns compared to the investment return assumption, beginning with the year ending on June 30, 2000. As of July 1, 1999, the actuarial value of assets was reset to equal the market value of assets.

Table III-4
Annual Rates of Return

Year Ended June 30	Investment Return Assumption	Market Value	Actuarial Value[1]
2000	8.75%	11.57%	9.33%
2001	8.75%	-9.70%	5.47%
2002	8.75%	-8.25%	2.98%
2003	8.75%	2.97%	2.79%
2004	8.75%	14.22%	4.32%
2005	8.25%	8.84%	4.50%
2006	8.25%	10.30%	5.35%
2007	8.25%	15.95%	7.15%
2008	8.25%	-2.27%	5.31%
2009	8.25%	-16.29%	1.36%
2010	8.25%	13.83%	2.74%
2011	8.25%	17.91%	4.71%
2012	7.95%	2.46%	3.85%
2013	7.90%	11.69%	4.86%
2014	7.90%	16.58%	6.67%
2015	7.90%	4.15%	6.10%
2016	7.90%	-1.12%	4.68%
2017	7.65%	13.05%	5.64%
2018	7.50%	9.19%	5.97%
2019	7.50%	6.18%	5.91%
2020	7.30%	1.46%	4.83%
2021	7.30%	28.27%	8.95%
2022	7.00%	-7.66%	5.12%
2023	7.00%	9.45%	5.82%
2024	7.00%	10.80%	6.78%

[1] The prior actuary reported an actuarial value return for 2000 based on the prior actuarial value of assets method. The return shown for that year was recalculated based on available information.

SECTION III – ASSETS

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

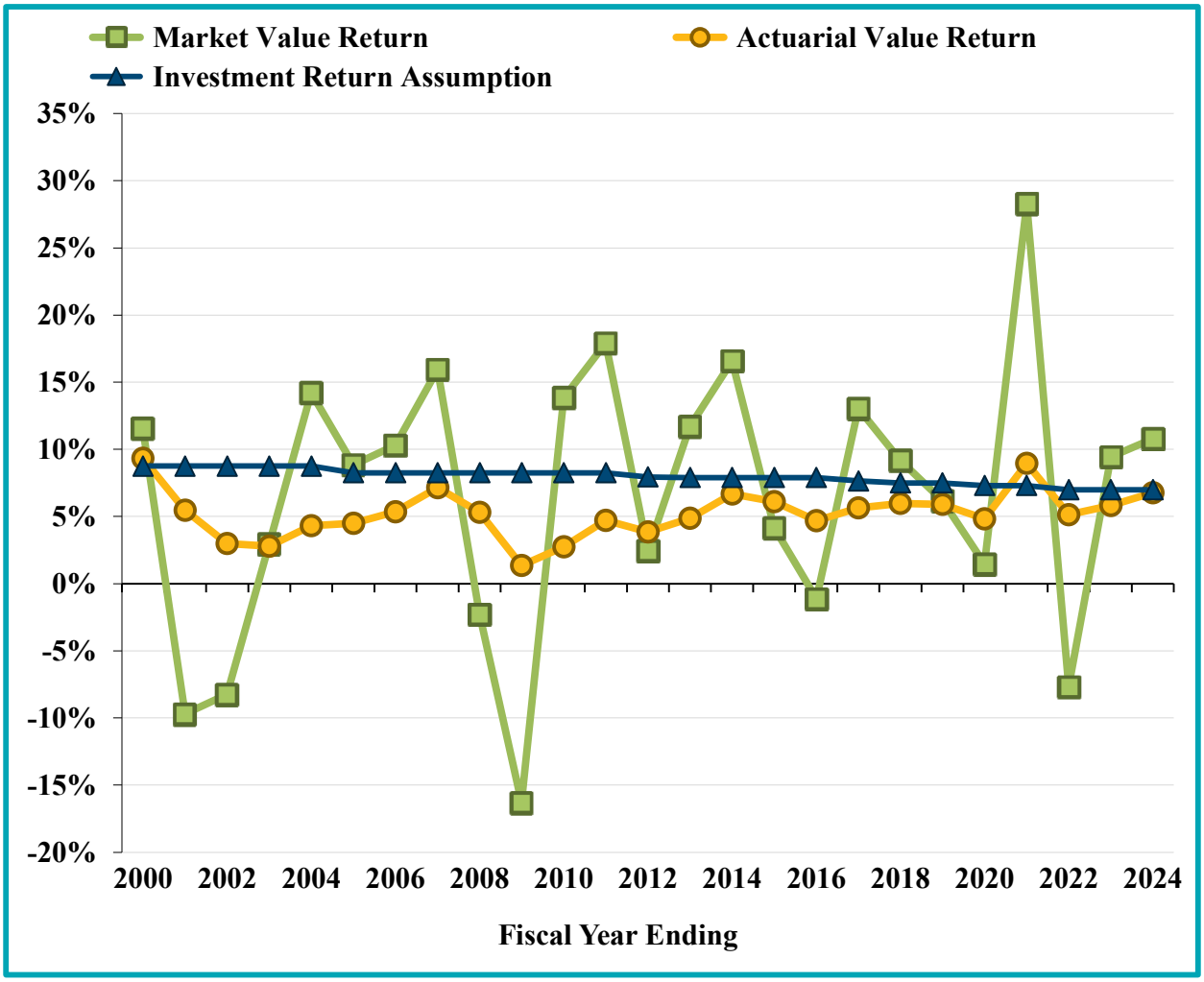
Table III-5
Compound Annualized Rates of Returns

Period	Investment Return Assumption	Market Value	Actuarial Value
Since July 1, 1999	7.97%	6.07%	5.23%
20-Year	7.78%	7.19%	5.30%
15-Year	7.62%	8.76%	5.50%
10-Year	7.40%	7.00%	5.97%
5-Year	7.12%	7.82%	6.29%
Consecutive Five-Year Periods			
2000 to 2004	8.75%	1.69%	4.95%
2005 to 2009	8.25%	2.63%	4.72%
2010 to 2014	8.05%	12.36%	4.56%
2015 to 2019	7.69%	6.18%	5.66%
2020 to 2024	7.12%	7.82%	6.29%

SECTION III – ASSETS

The annual rates of return from Table III-4 are presented in the following graph. The market value returns (green) show significant volatility with years above and below the investment return assumption (blue). The largest deviations from expectations are losses in 2001 and 2002 and again in 2008 and 2009, as well as the mostly offsetting gain and loss in 2021 and 2022, respectively. The actuarial value returns (yellow) follow the direction of market value returns, but much more gradually as gains and losses are recognized over time.

For nearly the entire period, the actuarial value returns fall short of the investment return assumption and result in AVA losses and UAL increases. When the actuarial return approaches the assumption, the MVA closes in on the AVA with the possibility of AVA gains in the near future. However, two such instances (2007 and 2014) are followed by market value losses (large, sharp losses in 2008-2009 and small cumulative losses in 2015-2020). In contrast, the 2021 market return of 28.27% was sufficiently large so that the market value of assets exceeded the actuarial value of assets, and the actuarial value return was slightly greater than the investment return assumption, resulting in an actuarial asset gain for the July 1, 2021 valuation. However, the significant negative market return in 2022 again resulted in actuarial asset losses in 2022 through 2024 as the investment loss is gradually recognized in the actuarial returns.



SECTION III – ASSETS

Development of Special Asset Value (SAV)

Under Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, TPAF receives 77.78% 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 actuarial value of assets used for the purpose of calculating the target funded ratio under Chapter 78, P.L. 2010. The special asset value is the present value of remaining lottery contributions to the retirement systems.

Table III-6 shows the development of the special asset value as of July 1, 2024. The depreciated value is a roll forward of the Lottery Enterprise value from the appraisal date.

Table III-6
Development of Special Asset Value for July 1, 2024

1.	Lottery Enterprise Value as of Appraisal Date of June 30, 2017[1]	$	13,535,103,380
2.	Depreciated Value at end of Valuation Year at June 30, 2025[1]		13,114,139,245
3.	Discounted Value as of July 1, 2024 at 7.00%		12,256,204,902
4.	Allocation to TPAF		77.78%
5.	Special Asset Value as of July 1, 2024	$	9,532,876,173

[1] Provided by the Division of Pensions and Benefits

SECTION III – ASSETS

Actuarial Balance Sheet

Table III-7
Actuarial Balance Sheet as of June 30, 2024

Assets			
Retirement Fund Reserve (RFR)			
Credited to Fund with Distribution of Income	$	45,185,921,426	
Add/(Deduct) reserve transferable from/(to) ECR[1]		358,385,860	
Adjusted RFR[2]	$	45,544,307,286	[3]
Members' Contributions Reserve (MCR)[2]	$	9,987,525,889	
Accumulative Interest Reserve (AIR) with Distribution of Income[2]	$	8,671,445,307	
Employers' Contributions Reserve (ECR)			
Credited to Fund with Distribution of Income	$	(29,184,119,872)	
Add/(Deduct) reserve transferable from/(to) RFR		(358,385,860)	
Adjusted CRF[2]	$	(29,542,505,732)	
Benefit Enhancement Fund (BEF)[2]	$	0	
Special Asset Value as of July 1, 2024	$	9,532,876,173	
Present Value of Prospective Contributions to ECR and BEF	$	31,523,520,527	
Total Assets	**$**	**75,717,169,450**	
Liabilities			
Payable from RFR			
Retirees, Disableds, and Beneficiaries currently receiving benefits	$	45,544,307,286	[3]
Payable from Annuity Savings Fund and ECR			
Active and Deferred Vested Members due a future benefit	$	30,172,862,164	
Total Liabilities	**$**	**75,717,169,450**	

[1] It is recommended that the RFR be put into balance each year by transferring assets between the ECR and the RFR so that the RFR will contain sufficient assets to cover the retiree and beneficiary liability.

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

[3] Includes the present value of Local ERI payments of $1,992,388.

SECTION IV – LIABILITIES

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

- Disclosure of liabilities at July 1, 2023 and July 1, 2024,
- 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 TPAF, 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 based on service.

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.

SECTION IV – LIABILITIES

Table IV-1 shows the actuarial liability, unfunded actuarial liability and funded ratios as of July 1, 2024, and July 1, 2023 for the Fund. 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 are different from the UAL and funded ratio used in determining the Statutory contributions which are based on just the actuarial value of assets (AVA).

Table IV-1
Disclosure of Liabilities

	July 1, 2024	July 1, 2023
Actuarial Liability		
Contributing Actives	$ 28,870,910,967	$ 27,641,913,572
Non-Contributing Members	1,209,738,696	1,188,661,847
Deferred Vested	92,212,501	67,937,109
Retirees	42,737,011,993	42,382,443,695
Disabled	1,047,496,465	1,042,030,258
Beneficiaries	1,759,798,828	1,723,884,017
Total Actuarial Liability	$ 75,717,169,450	$ 74,046,870,498
Actuarial Value of Assets	$ 34,660,772,750	$ 32,442,504,713
Unfunded Actuarial Liability/(Surplus)	$ 41,056,396,700	$ 41,604,365,785
Funded Ratio (AVA)	45.8%	43.8%
Actuarial Value of Assets + Special Asset Value	$ 44,193,648,923	$ 42,072,549,377
Unfunded Actuarial Liability/(Surplus)	$ 31,523,520,527	$ 31,974,321,121
Funded Ratio (AVA + SAV)	58.4%	56.8%

SECTION IV – LIABILITIES

Tables IV-2 and IV-3 show the number of members, total appropriation salary, actuarial liability, and gross normal cost for contributing and non-contributing members by Tier as of July 1, 2024.

Table IV-2
Contributing Active Liabilities by Tier

	Number of Members	Appropriation Payroll[1]	Actuarial Liability	Gross Normal Cost
Tier 1	58,214	$ 6,099,257,133	$ 22,897,978,324	$ 908,343,252
Tier 2	9,212	844,264,396	1,856,605,283	109,928,797
Tier 3	4,566	402,010,304	779,824,797	51,020,243
Tier 4	2,671	230,355,912	348,558,095	24,879,921
Tier 5	70,691	5,110,424,656	2,987,944,468	419,691,922
Total	145,354	$ 12,686,312,401	$ 28,870,910,967	$ 1,513,864,135

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

Table IV-3
Non-Contributing Member Liabilities by Tier

	Number of Members	Last Reported Payroll	Actuarial Liability	Gross Normal Cost
Tier 1	6,854	$ 452,460,101	$ 921,977,921	$ 0
Tier 2	978	70,472,048	78,050,936	0
Tier 3	490	35,460,461	31,164,872	0
Tier 4	282	20,916,260	15,279,657	0
Tier 5	7,683	493,460,996	163,265,310	0
Total	16,287	$ 1,072,769,866	$ 1,209,738,696	$ 0

Table IV-4 presents the change in the actuarial liabilities, actuarial assets, and unfunded actuarial liability during the plan year. 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 Fund. For this purpose, we focus on the UAL without considering the SAV because this UAL is used to determine the Statutory contribution.

SECTION IV – LIABILITIES

Table IV-4
Development of 2024 Experience (Gain)/Loss

		Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability
1.	Value as of July 1, 2023	$ 74,046,870,498	$ (32,442,504,713)	$ 41,604,365,785
2.	Additions			
	Normal Cost	$ 1,464,278,474	$ 0	$ 1,464,278,474
	Statutory State Contributions	0	(4,129,915,030)	(4,129,915,030)
	Expected Member Contributions	0	(923,205,188)	(923,205,188)
	Total Additions	$ 1,464,278,474	$ (5,053,120,218)	$ (3,588,841,744)
3.	Deductions			
	Benefit Payments	$ (4,948,598,433)	$ 4,948,598,433	$ 0
	Expected Administrative Expenses	0	0	0
	Total Deductions	$ (4,948,598,433)	$ 4,948,598,433	$ 0
4.	Net Transfers from Other Systems			
	Employer Contributions	$ 3,281,252	$ (3,281,252)	$ 0
	Member Contributions	4,809,209	(4,809,209)	0
	Total Net Transfers	$ 8,090,461	$ (8,090,461)	$ 0
5.	Expected Interest	$ 5,115,787,216	$ (2,132,747,802)	$ 2,983,039,414
6.	Expected Value as of July 1, 2024: [1 + 2 + 3 + 4 + 5]	$ 75,686,428,216	$ (34,687,864,761)	$ 40,998,563,455
7.	Other Changes			
	Appropriation Adjustment	$ 0	$ (652)	$ (652)
	Contribution Timing	0	168,842,824	168,842,824
	Actual Lottery Revenue	0	(181,893,126)	(181,893,126)
	Other Employer Contributions	0	(539,669)	(539,669)
	Actual Member Contributions	0	(46,456,871)	(46,456,871)
	Change in Methods/Assumptions	0	0	0
	Change in Benefits/Policy	0	0	0
	Total Other Changes	$ 0	$ (60,047,494)	$ (60,047,494)
8.	Expected Value after Changes: [6 + 7]	$ 75,686,428,216	$ (34,747,912,255)	$ 40,938,515,961
9.	Actual Value as of July 1, 2024	$ 75,717,169,450	$ (34,660,772,750)	$ 41,056,396,700
10.	Actuarial (Gain)/Loss: [9 - 8]	$ 30,741,234	$ 87,139,505	$ 117,880,739

SECTION IV – LIABILITIES

Table IV-5 shows the components of the Actuarial (gain)/loss.

Table IV-5
Actuarial (Gain)/Loss Analysis

Components	July 1, 2024	July 1, 2023
Actuarial Value of Assets		
Investment Return	$ 62,314,884	$ 311,232,593
Administrative Expenses	24,824,621	14,049,232
Total	$ 87,139,505	$ 325,281,825
Actuarial Liability		
Salary Increases	$ (37,740,298)	$ (190,102,332)
New Entrants	64,876,667	65,356,628
Demographic Experience and Census Data Updates		
Contributing Actives	92,546,051	89,745,334
Non-Contributing Members	(45,830,947)	(56,743,406)
Inactives	(34,741,401)	(61,392,383)
Sub-Total	$ 39,110,072	$ (153,136,159)
Impact of Net Transfers from Other Systems	(8,368,838)	(5,139,543)
Total	$ 30,741,234	$ (158,275,702)
Actuarial (Gain)/Loss	**$ 117,880,739**	**$ 167,006,123**

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 Fund. 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 funding requirement contains 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.

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

In accordance with Chapter 78, P. L. 2011, beginning with the July 1, 2019 valuation, the unfunded actuarial liability was amortized over a closed 30-year period as a level dollar amount. As of the July 1, 2024 valuation, the remaining amortization period is 25 years.

Under Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, TPAF receives 77.78% of the proceeds of the Lottery Enterprise for a term of 30 years. As of the July 1, 2024 valuation, 22 years remain. 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.

SECTION V – CONTRIBUTIONS

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

Table V-1
Development of Lottery Enterprise Contribution Offset for Fiscal Year Ending 2026

1. Special Asset Value Allocated to TPAF as of July 1, 2024	$	9,532,876,173
2. 22-Year Level Dollar Amortization payable June 30, 2025	$	861,827,041
3. Initial Special Asset Value Allocated to TPAF as of July 1, 2016	$	9,779,398,978
4. Maximum Special Asset Adjustment: 30-Year Level Dollar Amortization at 7.65%	$	840,156,036
5. Special Asset Adjustment as of June 30, 2025 [lesser of 2 and 4]	$	840,156,036
6. Adjustment Percentage		88.27%
7. Funded Ratio based on Actuarial Value + Special Asset Value		58.37%
8. Applicable Adjustment Percentage [If 7 < 50%, 6 - 3 x (50% - 7), otherwise 6]		88.27%
9. Lottery Enterprise Contribution Offset as of June 30, 2025 [5 x 8]	$	741,605,733

SECTION V – CONTRIBUTIONS

Table V-2 shows the development of the Statutory pension contributions for the FYE 2026 and 2025 in dollar amounts. Table V-3 shows the components of the Statutory pension contribution as a percent of appropriation payroll.

Table V-2
Development of Statutory Pension Contributions

Valuation Date Fiscal Year Ending	July 1, 2024 2026	July 1, 2023 2025
1. Unfunded Actuarial Liability Contribution[1]		
a. Actuarial Liability	$ 75,717,169,450	$ 74,046,870,498
b. Actuarial Value of Assets	34,660,772,750	32,442,504,713
c. Unfunded Actuarial Liability (UAL): [a - b]	$ 41,056,396,700	$ 41,604,365,785
d. Amortization Period (years)	25	26
e. Amortization of UAL Payable at Valuation Date (Level Dollar)	$ 3,292,589,379	$ 3,287,951,341
f. UAL Contribution Payable Beginning of Fiscal Year [1e with one year of interest]	$ 3,523,070,636	$ 3,518,107,935
2. Normal Cost Contribution		
a. Gross Basic Normal Cost	$ 1,427,697,242	$ 1,377,920,935
b. Expected Member Contributions	(926,152,028)	(892,496,142)
c. State Basic Normal Cost	$ 501,545,214	$ 485,424,793
d. Chapter 133, P.L. 2001	86,166,893	86,357,539
e. State Normal Cost at Valuation Date	$ 587,712,107	$ 571,782,332
f. State Normal Cost Payable Beginning of Fiscal Year [2e with one year of interest]	$ 628,851,954	$ 611,807,095
3. Total Statutory Pension Contribution as of Beginning of Fiscal Year [1 + 2]	**$ 4,151,922,590**	**$ 4,129,915,030**
4. Lottery Enterprise Contribution Offset	**$ (741,605,733)**	**$ (741,605,733)**
5. Net Pension Contribution as of Beginning of Fiscal Year [3 + 4]	**$ 3,410,316,857**	**$ 3,388,309,297**

[1] Includes UAL contributions due to State ERI programs.

Table V-3
Statutory Pension Contributions as a Percent of Appropriation Payroll

Valuation Date Fiscal Year Ending	July 1, 2024 2026	July 1, 2023 2025
State Basic Normal Cost Rate	4.23%	4.25%
Chapter 133, P.L. 2001 Rate	0.73%	0.76%
UAL Contribution Rate[1]	27.77%	28.80%
Total Statutory Pension Contribution	32.73%	33.81%

[1] Includes UAL contributions due to State ERI programs.

SECTION V – CONTRIBUTIONS

Table V-4 shows the breakdown of the Statutory contributions payable by various State departments and certain State colleges.

Table V-4
Fiscal Year Ending 2026 Statutory Contributions Payable by the State and Certain State Colleges

Group	Appropriation Payroll	Basic Normal Cost Contribution	Ch. 133, P.L. 2001 Normal Cost Contribution	UAL Contribution		Lottery Enterprise Contribution Offset	Net Pension Contribution
				Basic	State ERI		
Certain State Colleges							
NJ Institute for Technology	$ 0	$ 0	$ 0	$ 0	$ 75,362	$ 0	$ 75,362
Rowan University	0	0	0	0	63,567	0	63,567
New Jersey City University	0	0	0	0	374,754	0	374,754
Kean University	0	0	0	0	196,017	0	196,017
William Patterson University	0	0	0	0	72,377	0	72,377
Monclair State University	0	0	0	0	155,071	0	155,071
The College of New Jersey	0	0	0	0	39,857	0	39,857
Stockton State College	0	0	0	0	0	0	0
Total Certain State Colleges	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 977,005**	**$ 0**	**$ 977,005**
State							
Department of Higher Education	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
Department of Education	8,248,700	348,935	59,948	2,288,276	2,776,931	(482,196)	4,991,894
County Colleges	175,070	7,406	1,272	48,566	0	(10,234)	47,010
Charter Schools	351,695,571	14,877,343	2,555,970	97,564,056	0	(20,559,123)	94,438,246
Other	12,326,193,060	521,419,695	89,581,385	3,419,415,802	0	(720,554,180)	3,309,862,702
Total State	**$ 12,686,312,401**	**$ 536,653,379**	**$ 92,198,575**	**$ 3,519,316,700**	**$ 2,776,931**	**$ (741,605,733)**	**$ 3,409,339,852**
Total System	**$ 12,686,312,401**	**$ 536,653,379**	**$ 92,198,575**	**$ 3,519,316,700**	**$ 3,753,936**	**$ (741,605,733)**	**$ 3,410,316,857**

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by the Division of Pensions and Benefits as of July 1, 2024. 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 Standards of Practice No. 23, Data Quality. The following is a list of data charts contained in this section:

- A-1: Contributing Active Member Data by Tier
- A-2: Non-Contributing Member Data by Tier
- A-3: Inactive Member Data by Status
- A-4: Reconciliation of Membership
- A-5 to A-6: Contributing Active Member Data by Age and Service
- A-7 to A-8: Inactive Member Data by Age and Status

APPENDIX A – MEMBERSHIP INFORMATION

Table A-1
Contributing Active Member Data by Tier

	July 1, 2024	July 1, 2023	% Change		July 1, 2024	July 1, 2023	% Change
Tier 1				**Tier 2**			
Count	58,214	61,669	-5.6%	Count	9,212	9,348	-1.5%
Average Age	52.0	51.5	0.9%	Average Age	46.2	45.4	1.8%
Average Service	23.5	22.7	3.2%	Average Service	16.5	15.5	6.3%
Average Appropriation Pay	$ 104,773	$ 101,502	3.2%	Average Appropriation Pay	$ 91,648	$ 86,737	5.7%
Total Appropriation Payroll	$ 6,099,257,133	$ 6,259,532,671	-2.6%	Total Appropriation Payroll	$ 844,264,396	$ 810,821,676	4.1%
Tier 3				**Tier 4**			
Count	4,566	4,646	-1.7%	Count	2,671	2,709	-1.4%
Average Age	45.2	44.3	1.9%	Average Age	43.7	42.7	2.2%
Average Service	14.9	13.9	7.0%	Average Service	13.7	12.7	7.9%
Average Appropriation Pay	$ 88,044	$ 82,949	6.1%	Average Appropriation Pay	$ 86,243	$ 81,207	6.2%
Total Appropriation Payroll	$ 402,010,304	$ 385,381,093	4.3%	Total Appropriation Payroll	$ 230,355,912	$ 219,990,387	4.7%
Tier 5				**Total**			
Count	70,691	65,644	7.7%	Count	145,354	144,016	0.9%
Average Age	38.2	37.7	1.5%	Average Age	44.6	44.4	0.3%
Average Service	6.4	5.9	6.9%	Average Service	14.3	14.1	0.8%
Average Appropriation Pay	$ 72,292	$ 69,185	4.5%	Average Appropriation Pay	$ 87,279	$ 84,833	2.9%
Total Appropriation Payroll	$ 5,110,424,656	$ 4,541,582,506	12.5%	Total Appropriation Payroll	$ 12,686,312,401	$ 12,217,308,333	3.8%

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

APPENDIX A – MEMBERSHIP INFORMATION

Table A-2
Non-Contributing Member Data by Tier

	July 1, 2024	July 1, 2023	% Change		July 1, 2024	July 1, 2023	% Change
Tier 1				**Tier 2**			
Count	6,854	7,122	-3.8%	Count	978	1,021	-4.2%
Average Age	53.1	52.4	1.4%	Average Age	45.5	44.9	1.5%
Average Service	13.9	13.8	0.5%	Average Service	12.1	11.9	2.0%
Average Last Reported Pay	$ 70,312	$ 70,071	0.3%	Average Last Reported Pay	$ 73,332	$ 72,483	1.2%
Total Last Reported Pay	$ 452,460,101	$ 468,565,091	-3.4%	Total Last Reported Pay	$ 70,472,048	$ 72,772,567	-3.2%
Tier 3				**Tier 4**			
Count	490	500	-2.0%	Count	282	292	-3.4%
Average Age	44.7	44.0	1.6%	Average Age	42.6	41.9	1.8%
Average Service	11.6	11.2	3.4%	Average Service	11.2	10.5	6.5%
Average Last Reported Pay	$ 73,265	$ 72,793	0.6%	Average Last Reported Pay	$ 75,510	$ 72,884	3.6%
Total Last Reported Pay	$ 35,460,461	$ 35,886,788	-1.2%	Total Last Reported Pay	$ 20,916,260	$ 20,771,840	0.7%
Tier 5				**Total**			
Count	7,683	7,324	4.9%	Count	16,287	16,259	0.2%
Average Age	38.4	37.8	1.6%	Average Age	45.3	44.9	0.8%
Average Service	4.7	4.5	5.1%	Average Service	9.3	9.3	-0.2%
Average Last Reported Pay	$ 67,312	$ 65,159	3.3%	Average Last Reported Pay	$ 69,265	$ 68,139	1.7%
Total Last Reported Pay	$ 493,460,996	$ 457,548,992	7.8%	Total Last Reported Pay	$ 1,072,769,866	$ 1,055,545,278	1.6%

Average pay calculations exclude 799 and 768 members with no reported pay information as of July 1, 2024 and July 1, 2023, respectively.
Includes 14 and 14 members reported as deferred beneficiaries as of July 1, 2024 and July 1, 2023, respectively.

APPENDIX A – MEMBERSHIP INFORMATION

Table A-3
Inactive Member Data by Status

	July 1, 2024	July 1, 2023	% Change
Retirees			
Count	102,219	101,094	1.1%
Annual Retirement Allowances	$ 4,490,990,358	$ 4,415,747,459	1.7%
Average Retirement Allowance	$ 43,935	$ 43,680	0.6%
Beneficiaries			
Count	8,279	8,063	2.7%
Annual Retirement Allowances	$ 233,740,176	$ 226,343,723	3.3%
Average Retirement Allowance	$ 28,233	$ 28,072	0.6%
Ordinary Disability			
Count	3,380	3,392	-0.4%
Annual Retirement Allowances	$ 102,405,586	$ 101,418,091	1.0%
Average Retirement Allowance	$ 30,298	$ 29,899	1.3%
Accidental Disability			
Count	279	280	-0.4%
Annual Retirement Allowances	$ 13,528,847	$ 13,380,875	1.1%
Average Retirement Allowance	$ 48,490	$ 47,789	1.5%
In-Pay Total			
Count	**114,157**	**112,829**	1.2%
Annual Retirement Allowances	**$ 4,840,664,967**	**$ 4,756,890,148**	1.8%
Average Retirement Allowance	**$ 42,404**	**$ 42,160**	0.6%
Deferred Vested Members			
Count	521	378	37.8%
Annual Retirement Allowances	$ 10,782,540	$ 7,269,000	48.3%
Average Retirement Allowance	$ 20,696	$ 19,230	7.6%

QDRO benefits included with member records for valuation purposes.

APPENDIX A – MEMBERSHIP INFORMATION

Table A-4
Reconciliation of Plan Membership from July 1, 2023 to July 1, 2024

	Contributing Actives	Non-Contrib. Members	Deferred Beneficiaries	Deferred Vested	Retired	Disabled	Beneficiaries	Total
1. July 1, 2023	**144,016**	**16,245**	**14**	**378**	**101,094**	**3,672**	**8,063**	**273,482**
2. Additions								
a. New Entrants	8,105	432						8,537
b. New Beneficiaries							93	93
c. Data Corrections		0			7			7
d. Total	8,105	432	0	0	7	0	93	8,637
3. Reductions								
a. Withdrawal/Certain Period End	(755)	(2,384)						(3,139)
b. Died without Beneficiary	(53)	(39)		(1)	(1,999)	(114)	(453)	(2,659)
c. Data Corrections	(2)							(2)
d. Total	(810)	(2,423)	0	(1)	(1,999)	(114)	(453)	(5,800)
4. Changes in Status								
a. Contributing Actives	2,055	(2,054)		(1)				0
b. Non-Contributing Members	(4,539)	4,541		(1)	(1)			0
c. Deferred Beneficiary								0
d. Deferred Vested	(48)	(188)		236				0
e. Retired	(3,355)	(218)		(90)	3,663			0
f. Disabled	(64)	(59)			(1)	124		0
g. Died with Beneficiary	(6)	(3)			(544)	(23)	576	0
h. Total	(5,957)	2,019	0	144	3,117	101	576	0
5. July 1, 2024	**145,354**	**16,273**	**14**	**521**	**102,219**	**3,659**	**8,279**	**276,319**

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

QDRO benefits included with member records for valuation purposes.

APPENDIX A – MEMBERSHIP INFORMATION

Table A-5
Counts by Age and Service Distribution of Contributing Active Members

Attained Age	Years of Service: Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & up	Total
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Under 30	839	10,836	2,770	0	0	0	0	0	14,445
30 to 34	318	4,681	9,850	2,226	5	0	0	0	17,080
35 to 39	296	3,053	5,262	9,113	2,554	13	0	0	20,291
40 to 44	238	2,516	2,861	3,969	10,593	3,435	10	1	23,623
45 to 49	202	1,980	2,146	2,106	4,453	10,674	1,985	8	23,554
50 to 54	136	1,512	1,757	1,766	2,588	5,454	6,471	1,095	20,779
55 & up	177	1,398	1,715	2,284	4,135	6,754	4,578	4,541	25,582
Total	2,206	25,976	26,361	21,464	24,328	26,330	13,044	5,645	145,354

Table A-6
Average Appropriation Pay by Age and Service Distribution of Contributing Active Members

Attained Age	Years of Service: Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & up	Total
	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.	Comp.
Under 30	$ 61,393	$ 62,111	$ 66,160	$ 0	$ 0	$ 0	$ 0	$ 0	$ 62,846
30 to 34	65,776	65,577	69,908	78,036	73,371	0	0	0	69,704
35 to 39	69,591	68,930	72,824	80,889	91,985	88,741	0	0	78,235
40 to 44	72,920	71,563	76,194	83,342	94,686	104,867	124,187	118,160	89,352
45 to 49	73,162	72,660	77,513	85,980	96,429	105,074	112,333	99,748	96,833
50 to 54	74,869	74,644	78,330	84,613	95,092	103,822	110,656	115,872	99,397
55 & up	74,624	75,386	78,980	84,073	94,311	101,840	108,111	115,558	99,428
Total	$ 67,338	$ 66,700	$ 72,549	$ 82,192	$ 94,696	$ 103,950	$ 110,028	$ 115,597	$ 87,279

APPENDIX A – MEMBERSHIP INFORMATION

Table A-7
Counts by Age and Status of Inactive Members

Attained Age	Status				Total
	Retiree	Beneficiary	Ordinary Disability	Accidental Disability	
Under 45	0	109	60	3	172
45 to 49	29	50	127	10	216
50 to 54	539	97	230	8	874
55 to 59	3,229	142	286	16	3,673
60 to 64	8,449	261	429	27	9,166
65 to 69	16,013	537	603	54	17,207
70 to 74	24,908	1,183	653	61	26,805
75 to 79	24,951	1,892	526	56	27,425
80 to 84	13,732	1,795	288	26	15,841
85 & up	10,369	2,213	178	18	12,778
Total	102,219	8,279	3,380	279	114,157

Table A-8
Average Retirement Allowances by Age and Status of Inactive Members

Attained Age	Status				Total
	Retiree	Beneficiary	Ordinary Disability	Accidental Disability	
Under 45	$ 0	$ 13,857	$ 28,343	$ 51,022	$ 19,558
45 to 49	38,069	18,152	31,643	51,146	30,286
50 to 54	45,526	20,876	33,743	51,915	39,748
55 to 59	52,911	23,109	32,402	57,151	50,180
60 to 64	46,642	26,207	32,786	49,766	45,420
65 to 69	44,194	26,784	31,278	50,533	43,218
70 to 74	45,007	28,856	29,904	47,055	43,931
75 to 79	44,375	29,097	28,984	46,412	43,030
80 to 84	42,065	29,481	26,350	48,519	40,364
85 & up	37,311	28,327	24,557	40,624	35,582
Total	$ 43,935	$ 28,233	$ 30,298	$ 48,490	$ 42,404

QDRO benefits included with member records for valuation purposes.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

1. Investment Rate of Return	7.00% per annum, compounded annually.
2. Administrative Expenses	No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute.
3. Interest Crediting Rate on Accumulated Deductions	7.00% per annum, compounded annually. Interest credits are assumed to end upon termination.
4. Cost-of-Living Adjustments (COLAs)	No future COLAs are assumed. Previously granted COLAs are included in the data.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

5. Salary Increases

Salary increases vary by years of service. Annual salary increases are shown below.

Years of Service	Salary Increase
0-2	4.25%
3	4.40
4	4.55
5	4.70
6	4.85
7	5.00
8	5.15
9	5.30
10	5.40
11	5.50
12-16	5.65
17	4.90
18	4.50
19	4.25
20	4.05
21	3.85
22	3.65
23	3.45
24	3.25
25	3.05
26	2.95
27-28	2.85
29+	2.75

Salary increases are assumed to occur on October 1.

The average assumed salary increase for active contributing members as of July 1, 2024 is 4.00%.

Non-contributing members reported with a salary are assumed to have no future salary increases.

6. 401(a)(17) Pay Limit

$345,000 in 2024 increasing 2.75% per annum, compounded annually.

7. Social Security Wage Base

$168,600 in 2024 increasing 3.25% per annum, compounded annually.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

8. Termination Termination rates are as follows:

Service	Rates
0	6.75%
1	6.75
2	5.50
3	4.50
4	4.00
5	3.00
6	2.75
7	2.50
8	2.50
9	2.25
10	2.25
11	2.10
12	1.95
13	1.65
14	1.35
15	1.05
16	1.00
17	0.90
18	0.70
19	0.55
20	0.55
21	0.50
22	0.40
23	0.30
24-29	0.30

No termination is assumed after attainment of retirement eligibility.

70% of members with 10 or more years of service at termination are assumed to elect a deferred retirement benefit.

All other members are assumed to receive a refund of Accumulated Deductions with credited interest.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

9. Disability

Representative disability rates are as follows:

Age	Ordinary	Accidental
25	0.005%	0.006%
30	0.005	0.006
35	0.040	0.006
40	0.085	0.006
45	0.110	0.006
50	0.160	0.006
55	0.245	0.006

Accidental disability rates apply at all ages.

Ordinary disability rates apply upon attainment of 10 years of service until the attainment of age 55 with at least 25 years of service.

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.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

10. Mortality

Pre-Retirement Mortality (Non-Annuitants): The Pub-2010 Teachers Above-Median Income Employee mortality table *[PubT-2010(A) Employee]* as published by the Society of Actuaries with a 93.9% adjustment for males and 85.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2021. All pre-retirement deaths are assumed to be ordinary deaths.

Healthy Retirees and Beneficiaries (Healthy Annuitants): The Pub-2010 Teachers Above-Median Income Healthy Retiree mortality table *[PubT-2010(A) Healthy Retiree]* as published by the Society of Actuaries with a 114.7% adjustment for males and 99.6% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2021.

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 106.3% adjustment for males and 100.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis using SOA's Scale MP-2021.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

11. Retirement

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

Age	Less Than 25 Years of Service	25 Years of Service	26 or More Years of Service
< 50	N/A	1.5%	1.5%
50	N/A	1.5	1.5
51	N/A	2.0	2.0
52	N/A	3.0	2.5
53	N/A	4.0	3.0
54	N/A	6.0	3.5
55	N/A	10.0	13.0
56	N/A	18.0	17.0
57	N/A	18.0	17.0
58	N/A	20.0	17.0
59	N/A	25.0	17.0
60	4.0	25.0	20.0
61	6.0	25.0	22.0
62	6.0	33.0	27.0
63	8.0	42.0	30.0
64	8.0	42.0	30.0
65	12.0	42.0	30.0
66	18.0	55.0	35.0
67	18.0	55.0	40.0
68	18.0	55.0	30.0
69	18.0	55.0	30.0
70	18.0	55.0	30.0
71	18.0	55.0	30.0
72	18.0	55.0	30.0
73	18.0	55.0	30.0
74	18.0	55.0	30.0
75	100.0	100.0	100.0

Rates apply upon retirement eligibility by tier.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Retirement rates for Tier 5 members are as follows:

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
< 50	N/A	N/A	N/A	1.5%	1.5%
50	N/A	N/A	N/A	1.5	1.5
51	N/A	N/A	N/A	2.0	2.0
52	N/A	N/A	N/A	3.0	2.5
53	N/A	N/A	N/A	4.0	3.0
54	N/A	N/A	N/A	6.0	3.5
55	N/A	N/A	N/A	10.0	13.0
56	N/A	N/A	N/A	18.0	17.0
57	N/A	N/A	N/A	18.0	17.0
58	N/A	N/A	N/A	20.0	17.0
59	N/A	N/A	N/A	25.0	17.0
60	N/A	N/A	N/A	25.0	20.0
61	N/A	N/A	N/A	25.0	22.0
62	N/A	N/A	N/A	33.0	27.0
63	N/A	N/A	N/A	42.0	30.0
64	N/A	N/A	N/A	42.0	30.0
65	12.0	42.0	42.0	42.0	30.0
66	18.0	55.0	35.0	35.0	35.0
67	18.0	55.0	40.0	40.0	40.0
68	18.0	55.0	30.0	30.0	30.0
69	18.0	55.0	30.0	30.0	30.0
70	18.0	55.0	30.0	30.0	30.0
71	18.0	55.0	30.0	30.0	30.0
72	18.0	55.0	30.0	30.0	30.0
73	18.0	55.0	30.0	30.0	30.0
74	18.0	55.0	30.0	30.0	30.0
75	100.0	100.0	100.0	100.0	100.0

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

12. Family Composition Assumptions

For members not currently in receipt, 60% of members are assumed married to spouses of the opposite sex. Males are assumed to be two 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 two years older than females.

No additional dependent children or parents are assumed.

13. Form of Payment

Current actives are assumed to elect the Maximum Option.

14. Data

Information provided by the prior actuary was relied upon for the purposes of setting the status of and valuing non-contributing records. For non-contributing terminated members, a deferred retirement benefit is estimated, when applicable, based on the last known salary. For non-contributing members with incomplete information, the benefit is based on the Annuity Savings Fund.

Deferred beneficiaries were reported separately from other non-contributing members for the first time in 2021. The benefit is based on the Annuity Savings Fund.

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

Inactive participants receiving benefits according to the 2023 data but omitted from the 2024 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.

Special asset values shown in this report are based on the New Jersey Lottery Valuation Report as of December 31, 2021, as provided by the Division of Pensions and Benefits.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

15. 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, 2018 – June 30, 2021 Experience Study, which was approved by the Board of Trustees on December 1, 2022.

The investment return assumption was recommended by the State Treasurer. We find the investment return assumption to be reasonable based on the Fund's current asset allocation and the capital market outlook of the New Jersey Division of Investment.

The combined effect of the assumptions in aggregate is expected to have no significant bias.

16. Changes in Assumptions since Last Valuation

None.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Projection Assumptions

1. Investment Rate of Return

7.00% per annum, compounded annually.

2. Appropriation Percentages

The State is assumed to appropriate 100% of the Statutory contribution in FYE 2026 and each year thereafter.

3. Administrative Expenses

The actual administrative expenses paid in FYE 2024 are assumed to increase by 2.75% per annum, compounded annually.

4. New Entrants

- Contributing active population assumed to remain at 2024 levels.
- Assumed to join mid-year.
- Age/sex distributions based on the last three years of new hires.
- Salary based on salary for most recent hires reported on 2024 data.
- New entrant salary assumed to increase with the salary increase rates applicable for members with 29 or more years of service.

5. Demographic Assumptions

Same as those used for valuation purposes.

6. Projection Basis

This report includes projections of future assets, liabilities, funded status and contributions for the purpose of assisting the Board of Trustees with the management of the Fund.

The projections are based on the same census data and financial information as of July 1, 2024 which has been used for the actuarial valuation. The projections assume continuation of the plan provisions and actuarial assumptions in effect as of July 1, 2024 and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after July 1, 2024 unless otherwise indicated. While the assumptions individually are reasonable for the underlying valuation that supports the projections, specifically for projection purposes, they are also considered reasonable in the aggregate.

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

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Methods

The actuarial methods used for determining State contributions are described below.

1. Actuarial Cost Method

The actuarial cost method for funding calculations is the Projected Unit Credit Cost Method. Non-contributing members reported with a salary use the Projected Unit Credit Cost Method without any future projected salary increases.

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 Accumulated Deductions with interest as of the valuation date as provided by the Division of Pensions and Benefits. The unfunded actuarial liability is the actuarial liability on the valuation date less the actuarial value of assets.

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

- Beginning with the July 1, 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.

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.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

2. Asset Valuation Method

For the purpose 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 Fund assets.

3. Contributions

Chapter 83, P.L. 2016 requires the State to make the required pension contributions on a quarterly basis in each fiscal year according to the following schedule: 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, contributions are assumed to be made on a quarterly basis with the first contribution 15 months after the associated valuation date.

Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, allows the TPAF to receive 77.78% of the proceeds of the Lottery Enterprise, based upon their 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 TPAF, the adjustment percentage, and the special asset value.

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.

Early Retirement Incentive Programs

State and 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 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. As of July 1, 2024, there are no assets in the BEF.

4. ASOP No. 4 Disclosure

ASOP No. 4 requires the disclosure of a reasonable actuarially determined contribution (ADC), which includes the use of an asset valuation method that complies with ASOP No. 44. For purposes of this disclosure requirement only, we have calculated an ADC based on the market value of assets instead of the actuarial value of assets. Using the market value of assets would result in more volatile contribution requirements but would avoid deferral of contribution increases due to unrecognized asset losses. This reasonable ADC is $21.4 million, or 0.5%, greater than the FYE 2026 Statutory contribution shown in Table I-1. For purposes of this reasonable ADC calculation, we use an investment rate of return assumption of 7.00%, net of administrative expenses.

The actuarial methods used to determine the reasonable ADC described above have been selected to balance benefit security, intergenerational equity and stability of contributions. The selection of the actuarial methods has taken into account the demographics of plan members, the funding goals and objectives of the State (as expressed through the Statutory contribution), and the need to accumulate assets to make benefit payments when due. The methods used are not the only methods that would result in a reasonable ADC. There are a range of methods that would result in reasonable ADCs. For example, a reasonable ADC could be based on a different asset smoothing method that complies with ASOP No. 44.

5. Valuation Software

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

6. Changes in Methods since Last Valuation

None.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the TPAF used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 18A, Chapter 66, 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, 2024 and does not reflect the impact of any changes in benefits that may have been approved after the valuation date.

1. Eligibility for Membership

Employees appointed to positions requiring certification by the New Jersey Department of Education as members of a regular teaching or professional staff of a public school system in New Jersey are required to enroll as a condition of employment. Employees of the Department of Education holding unclassified, professional and certificated titles are eligible for membership. Temporary or substitute employees are not eligible. The eligible employee must be scheduled to work at least 32 hours per week effective May 22, 2010, per Chapter 1, P.L. 2010.

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 Fund plus service, if any, covered by a prior service liability. Tier 4 members must be scheduled to work at least 32 hours per week, Tier 3 members must have an annual salary of $7,500 (indexed for inflation) and other members must have an annual salary of $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 of 1% each July thereafter until it attained an ultimate rate of 7.5% on July 1, 2018.

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 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.

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 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 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 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.

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 Fund and is not considered for valuation purposes.

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 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 allowance of 72.7% of the 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 Fund and is not considered for valuation purposes. Both Member and employer contributions to the Fund 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 Fund.

11. 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.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

12. 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.

13. Changes in Plan Provisions since Last Valuation

Chapter 121, P.L. 2023 permits teachers, as well as professional staff members who provide special services, who have retired from TPAF to return to employment for up to two years without reenrollment in the TPAF if employment commences during the 2023-2024 school year.

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

Table D-1
Historical Summary of Assets and Liabilities

Valuation Date July 1,	Market Value of Assets	Actuarial + Special Asset Value [1]	Actuarial Liability	Funded Ratio Market Value	Funded Ratio Actuarial + Special Asset Value [1]
2024	$ 34,411,513,215	$ 44,193,648,923	$ 75,717,169,450	45.45%	58.37%
2023	31,197,574,340	42,072,549,377	74,046,870,498	42.13%	56.82%
2022	28,543,336,431	40,268,774,185	72,609,415,596	39.31%	55.46%
2021	30,630,748,379	38,886,013,570	70,520,215,914	43.44%	55.14%
2020	24,279,469,173	36,358,679,516	66,877,318,975	36.30%	54.37%
2019	24,877,874,495	36,188,020,515	65,470,847,885	38.00%	55.27%
2018	24,838,481,325	36,127,247,378	60,971,919,315	40.74%	59.25%
2017	24,495,303,183	36,367,511,298	59,954,548,700	40.86%	60.66%
2016	23,732,571,086	36,949,157,326	57,865,971,163	41.01%	63.85%
2015	26,320,738,690	28,301,404,184	55,359,377,071	47.55%	51.12%

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

Table D-2
Historical Summary of State Appropriation for Pension[1]

Fiscal Year Ending June 30,	Gross Statutory Contribution	Actual State Appropriation	Actual Lottery Revenue	Contribution Deficiency (Excess)	Percentage of Contribution Covered
2025[2]	$ 4,129,915,030	$ 3,388,309,297	$ 875,750,955	$ (134,145,222)	103.25%
2024	4,108,956,097	3,367,351,000	913,915,000	(172,309,903)	104.19%
2023	3,946,564,204	3,207,731,000	910,026,000	(171,192,796)	104.34%
2022	3,821,395,432	3,271,136,000	864,201,913	(313,942,481)	108.22%
2021	3,672,624,754	2,021,236,000	859,469,000	791,919,754	78.44%
2020	3,244,013,909	1,439,027,000	789,467,000	1,015,519,909	68.70%
2019	3,208,116,552	1,114,920,000	859,469,000	1,233,727,552	61.54%
2018	2,999,577,684	721,230,000	759,134,509	1,519,213,175	49.35%
2017	2,737,175,151	1,087,919,000	0	1,649,256,151	39.75%
2016	2,544,811,534	764,489,000	0	1,780,322,534	30.04%

[1]Excludes contributions for NCGI

[2]Reflects the State's planned contribution of 100% of the Statutory contribution and expected lottery revenue

The information above 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.

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

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

Table D-3
Schedule Retirees and Beneficiaries Added to and Removed From Rolls

Valuation Date July 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance[1]	% Increase in Average Annual Allowance[1]
	Number	Annual Allowance	Number[1]	Annual Allowance	Number[1]	Annual Allowance		
2024	4,462	$ 198,525,142	3,134	$ 116,316,637	114,157	$ 4,840,664,967	$ 42,404	0.58%
2023	4,654	200,637,665	3,245	118,636,925	112,829	4,756,890,148	42,160	0.52%
2022	4,723	202,806,854	2,980	109,642,204	111,420	4,673,383,001	41,944	0.47%
2021	4,838	208,732,721	3,051	109,537,806	109,677	4,578,893,564	41,749	0.58%
2020	4,485	190,920,500	2,983	104,839,770	107,890	4,478,447,877	41,509	0.57%
2019	4,500	190,652,924	2,815	95,949,554	106,388	4,391,260,795	41,276	0.61%
2018	4,634	192,293,599	2,511	82,862,457	104,703	4,295,446,681	41,025	1.50%
2017	4,792	N/A	2,510	N/A	103,528	4,184,662,175	40,421	0.61%
2016	5,460	N/A	2,444	N/A	101,246	4,067,574,984	40,175	0.75%
2015	5,789	N/A	2,381	N/A	98,230	3,916,956,144	39,875	0.81%

[1] Beginning with the 2018 valuation, QDRO records excluded from headcounts and QDRO benefits included with member records. This change resulted in 948 fewer records on the rolls as of July 1, 2018.

Table D-4
Schedule of Active Member Valuation Data

Valuation Date July 1,	Number of Contributing Active Members[1]	Annual Compensation[1]	Annual Average Compensation[1]	% Increase in Average Annual Compensation[1]	Number of Participating Employers[2]
2024	145,354	$ 12,686,312,401	$ 87,279	2.88%	675
2023	144,016	12,217,308,333	84,833	2.28%	676
2022	143,071	11,866,192,351	82,939	1.98%	678
2021	141,521	11,509,652,923	81,328	2.05%	678
2020	142,283	11,338,928,538	79,693	2.16%	680
2019	141,795	11,061,603,138	78,011	1.72%	677
2018	141,128	10,823,504,797	76,693	1.84%	678
2017	143,092	10,775,872,458	75,307	1.59%	N/A
2016	142,845	10,588,493,706	74,126	1.02%	N/A
2015	142,454	10,453,176,648	73,379	0.82%	N/A

[1] Prior to July 1, 2018, includes non-contributing members reported on active data with compensation.

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

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

Table D-5
Schedule of Funding Progress

Valuation Date July 1,	Actuarial Value of Assets[1] (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2024	$ 34,660,772,750	$ 75,717,169,450	$ 41,056,396,700	45.78%	$ 12,686,312,401	323.63%
2023	32,442,504,713	74,046,870,498	41,604,365,785	43.81%	12,217,308,333	340.54%
2022	30,555,283,645	72,609,415,596	42,054,131,951	42.08%	11,866,192,351	354.40%
2021	29,103,426,597	70,520,215,914	41,416,789,317	41.27%	11,509,652,923	359.84%
2020	26,582,892,740	66,877,318,975	40,294,426,235	39.75%	11,338,928,538	355.36%
2019	26,375,429,936	65,470,847,885	39,095,417,949	40.29%	11,061,603,138	353.43%
2018	26,308,754,955	60,971,919,315	34,663,164,360	43.15%	10,823,504,797	320.26%
2017	26,549,410,215	59,954,548,700	33,405,138,485	44.28%	10,775,872,458	310.00%
2016	27,169,758,348	57,865,971,163	30,696,212,815	46.95%	10,588,493,706	289.90%
2015	28,301,404,184	55,359,377,071	27,057,972,887	51.12%	10,453,176,648	258.85%

[1] Includes receivable amounts. Excludes Special Asset Value.

Table D-6
Schedule of Funded Liabilities by Type (Solvency Test)

Valuation Date July 1,	Actuarial Accrued Liability for: Contributing Active & Non-Contributing Member Contributions (1)	Retirees, Beneficiaries & Deferred Vesteds (2)	Contributing Active & Non-Contributing Member Benefits Financed by Employer (3)	Actuarial Value of Assets[1]	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets (1)	(2)	(3)
2024	$ 18,530,698,134	$ 45,636,519,787	$ 11,549,951,529	$ 34,660,772,750	100.00%	35.34%	0.00%
2023	17,553,963,289	45,216,295,079	11,276,612,130	32,442,504,713	100.00%	32.93%	0.00%
2022	16,635,719,916	44,772,504,693	11,201,190,987	30,555,283,645	100.00%	31.09%	0.00%
2021	15,771,203,493	44,565,286,920	10,183,725,501	29,103,426,597	100.00%	29.92%	0.00%
2020	14,960,290,939	42,958,862,310	8,958,165,726	26,582,892,740	100.00%	27.06%	0.00%
2019	14,079,166,893	42,467,777,887	8,923,903,105	26,375,429,936	100.00%	28.95%	0.00%
2018	13,283,767,530	40,171,903,581	7,516,248,204	26,308,754,955	100.00%	32.42%	0.00%
2017	12,466,587,057	39,224,970,512	8,262,991,131	26,549,410,215	100.00%	35.90%	0.00%
2016	11,709,150,079	38,027,977,392	8,128,843,692	27,169,758,348	100.00%	40.66%	0.00%
2015	11,129,745,608	36,128,130,029	8,101,501,434	28,301,404,184	100.00%	47.53%	0.00%

[1] Includes receivable amounts. Excludes Special Asset Value.

APPENDIX D – HISTORICAL DATA AND REQUIRED EXHIBITS

Table D-7
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Valuation Date July 1,	Actuarial Value of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan/Policy Changes	Contributions[1]	Change in Unfunded Actuarial Accrued Liability
2024	$ 62,314,884	$ 30,741,234	$ 0	$ 0	$ (641,025,203)	$ (547,969,085)
2023	311,232,593	(158,275,702)	0	0	(602,723,057)	(449,766,166)
2022	502,986,803	155,998,253	491,814,993	0	(513,457,415)	637,342,634
2021	(381,830,446)	(26,516,157)	2,286,940,239	0	(756,230,554)	1,122,363,082
2020	575,855,892	70,026,855	0	0	553,125,539	1,199,008,286
2019	374,388,860	67,077,019	3,353,517,001	(15,561,490)	652,832,199	4,432,253,589
2018	367,568,407	140,440,865	(286,796,037)	0	1,036,812,640	1,258,025,875
2017	513,526,758	126,550,240	822,620,195	0	1,246,228,477	2,708,925,670
2016	859,296,816	173,672,067	1,144,195,634	0	1,461,075,411	3,638,239,928
2015	495,166,374	398,659,572	0	0	1,458,948,202	2,352,774,148

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

APPENDIX E – EARLY RETIREMENT INCENTIVE CONTRIBUTION SCHEDULE

Table E-1
ERI Contribution Schedule - Local Employers

Group	Location Number	Location Name	ERI 2 Information Fiscal Year 2026 Payment	ERI 2 Information Present Value as of 7/1/2024
3	981	NJ Institute of Technology	$ 41,838	$ 259,123
6	911	Allamuchy Board of Education	9,754	55,365
6	956	Hudson County Vocational Schools	65,526	371,918
6	8070	West New York Township Board of Education	230,094	1,305,982
		Total	**$ 347,212**	**$ 1,992,388**

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

Present values as of July 1, 2024 exclude expected payments for fiscal year ending 2025.

APPENDIX E – EARLY RETIREMENT INCENTIVE CONTRIBUTION SCHEDULE

Table E-2
ERI Contribution Schedule - State Locations

Group	Location Number	Location Name	ERI 3 Information: Fiscal Year 2026 Payment	ERI 3 Information: Present Value as of 7/1/2024	ERI 5 Information: Fiscal Year 2026 Payment	ERI 5 Information: Present Value as of 7/1/2024
2	90400	Education Department	$ 1,804,988	$ 19,658,485	$ 444,655	$ 4,842,823
2	90416	Marie Katzenback School for Deaf	321,209	3,498,349	130,080	1,416,722
2	90207	Office of Adm. Law	75,999	827,721	N/A	N/A
3	981	NJ Institute of Technology	75,362	820,787	N/A	N/A
4	90411	New Jersey City University	374,754	4,081,525	N/A	N/A
4	90412	Kean University	196,017	2,134,865	N/A	N/A
4	90414	Montclair State University	155,071	1,688,905	N/A	N/A
4	90410	Rowan University	63,567	692,319	N/A	N/A
4	90415	The College of New Jersey	39,857	434,089	N/A	N/A
4	90413	William Paterson University	72,377	788,273	N/A	N/A
		Total	**$ 3,179,201**	**$ 34,625,318**	**$ 574,735**	**$ 6,259,545**

Consistent with established methodology, payment amounts are calculated using a payment date 24 months after the valuation date.

Present values as of July 1, 2024 exclude expected payments for fiscal year ending 2025.

APPENDIX F – 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:

Amount		Probability of Payment		1/(1+Investment Return)	
$100	x	(1 - .01)	x	1/(1+.1)	= $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 F – 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.

APPENDIX F – 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 based on service.

16. Unfunded Actuarial Liability

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