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Judicial Retirement System of New Jersey

Actuarial Valuation Report as of July 1, 2018

Produced by Cheiron

April 2019

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LETTER OF TRANSMITTAL

April 23, 2019

State House Commission
Judicial Retirement System of New Jersey
State of New Jersey
Department of the Treasury
Division of Pension and Benefits, CN 295
Trenton, NJ 08625-0295

Dear Commission Members:

At your request, we have performed the July 1, 2018 Actuarial Valuation of the Judicial Retirement System of New Jersey (JRS or System).

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

The results of this report are only applicable to the System's contribution for Fiscal Year Ending 2020. 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.

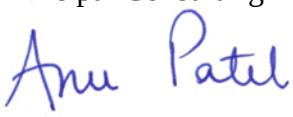
The actuarial assumptions are the same as those used by the prior actuary. Cheiron has reviewed the assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study.

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

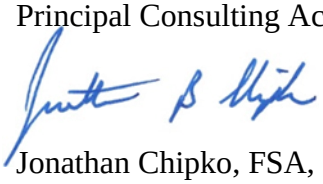
This actuarial valuation report was prepared exclusively for the Judicial Retirement System of New Jersey for the purposes described herein and for the plan auditor in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards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

Sincerely,
Cheiron

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



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



Jonathan Chipko, FSA, FCA, MAAA, EA
Consulting Actuary

cc: Kenneth Kent, FSA, FCA, MAAA, EA

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 Judicial Retirement System of New Jersey,
- Past and expected future trends and risks to the System's financial condition,
- The State's Pension Contribution for the Fiscal Year Ending (FYE) 2020.

In this Section we present a summary of the principal valuation results. This includes the basis upon which the July 1, 2018 valuation was completed and an examination of the current financial condition of the System. In addition, we present a review of the key historical trends followed by stress testing the System's projected financial outlook in accordance with the requirements set out in Chapter 277, P. L. 2017.

This report does not include reporting requirements under GASB Statements No. 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, 2018 valuation results are based on the same actuarial methods and assumptions as used in the July 1, 2017 valuation produced by the prior actuary. The demographic assumptions were based on the July 1, 2011 – June 30, 2014 Experience Study prepared by the prior actuary, which was approved by the State House Commission on October 26, 2015. The valuation is based on a 7.50% interest rate and annual salary increases that are 0.5% lower than the rates shown in the experience study, which were recommended by the State Treasurer. Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not performed our own actuarial experience study.

This report was prepared using census data and financial information as of July 1, 2018 provided by the Division of Pensions and Benefits and does not reflect any subsequent changes in the membership or the assets.

The Appropriations Act of Fiscal Year 2018 reduced the State pension contribution of $46,531,943 to $23,266,000 (50% of the Statutory contribution). The potential impact of the Appropriations Act of 2019 reduces the State pension contribution for Fiscal Year 2019 from $48,368,041 to $29,020,825 (60% of the Statutory contribution). This valuation reflects the potential impact of the Appropriations Act of 2019.

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.

The valuation excludes assets and liabilities under the Non-Contributory Group Insurance Premium Fund. The Non-Contributory Group Insurance premiums are separately funded on a pay-as-you-go basis.

SECTION I – BOARD SUMMARY

Key Results

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

Table I-1
Summary of Key Valuation Results

Valuation Date Fiscal Year Ending (FYE)	July 1, 2018 2020	July 1, 2017 2019	% Change
Member Data			
Contributing Actives	447	430	4.0%
Non-Contributing Actives	6	0	N/A
Deferred Vested Members	4	4	0.0%
Retirees and Beneficiaries[1]	614	611	0.5%
Total Members	1,071	1,045	2.5%
Appropriation Payroll[2]	$ 77,763,777	$ 71,385,705	8.9%
Annual Retirement Allowances	$ 57,164,048	$ 56,481,444	1.2%
Assets and Liabilities			
Actuarial Liability	$ 670,562,613	$ 646,507,109	3.7%
Actuarial Value of Assets (AVA)[3]	209,981,271	216,952,852	-3.2%
Unfunded Actuarial Liability/(Surplus)	$ 460,581,342	$ 429,554,257	7.2%
Funded Ratio (AVA)	31.3%	33.6%	-2.3%
Market Value of Assets (MVA)[3]	$ 195,468,291	$ 197,567,630	-1.1%
Unfunded Actuarial Liability/(Surplus)	$ 475,094,322	$ 448,939,479	5.8%
Funded Ratio (MVA)	29.1%	30.6%	-1.5%
Contribution Amounts			
State Normal Cost at End of Year	$ 13,329,514	$ 11,997,151	11.1%
Amortization Payment of UAL	38,997,991	36,370,890	7.2%
Total Statutory Contribution for FYE	$ 52,327,505	$ 48,368,041	8.2%
Percent Appropriated	70.0%	60.0%	10.0%
Net State Contribution	$ 36,629,254	$ 29,020,825	26.2%

[1] Retiree and Beneficiary counts do not include QDROs

[2] Annual compensation for contributing actives only

[3] Includes discounted State appropriations receivable

SECTION I – BOARD SUMMARY

The key results of the July 1, 2018 actuarial valuation are as follows:

- The Statutory contribution increased from $48.4 million for fiscal year ending 2019 to $52.3 million for fiscal year ending 2020.
- The unfunded actuarial liability increased from $429.6 million as of July 1, 2017 to $460.6 million as of July 1, 2018 on an actuarial value of assets basis.
- The funded ratio, the ratio of actuarial asset value over liabilities, decreased from 33.6% as of July 1, 2017 to 31.3% as of July 1, 2018. Based on the market value of assets, the funded ratio also decreased from 30.6% to 29.1%.
- During the year there was a total actuarial experience loss of $15 million, consisting of an asset loss of $4 million and a liability loss of $11 million.

SECTION I – BOARD SUMMARY

Recent Trends

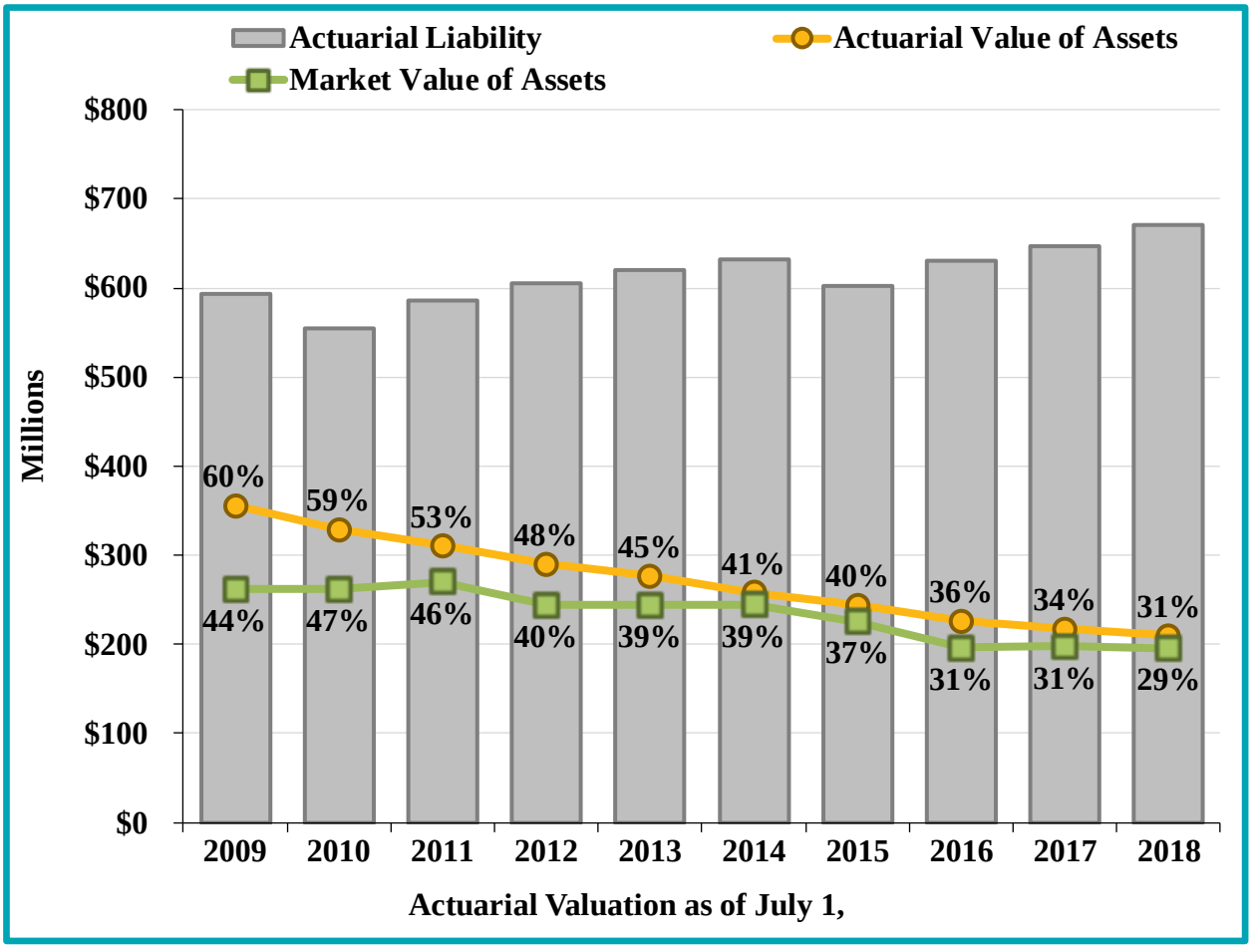
Although most of the attention given to the valuation reflects the most recently computed unfunded actuarial liability, funded ratio, and contribution amounts, each valuation is merely a snapshot of the long-term progress of a pension fund. It is important to take a step back from these latest results and view them in the context of the System's recent history. Below, we present a series of graphs which display 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 10 year period, the declining funded status coupled with significant negative net cash flow in excess of 10% of assets 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. Another observation relevant to this System is the fact that liabilities have increased relatively slowly while the assets have declined more rapidly over the historical period. This is a function of the significant negative cash flow as contributions and investment income are lower than benefit payments and expenses. This is demonstrated later in the summary section.

SECTION I – BOARD SUMMARY

Assets and Liabilities

The grey bars represent the Actuarial Liability (AL). The green line is the Market Value of Assets (MVA) and the gold line is the Actuarial Value of Assets (AVA). The System's funded ratio (ratio of assets to actuarial liability) on both a MVA basis and an AVA basis, is shown next to the respective assets lines. The liability has been increasing over time in part due to additional benefit accruals but also due to decreases in the discount rate. The liability decreased in 2015 due to the adoption of new assumptions. The funded ratio has been decreasing over time in part due to decreases in the discount rate, recognition of the 2008/2009 market losses reflected in the large gap between the MVA and AVA in 2009 and because the State has not been making the full Statutory contribution for the entire period shown.



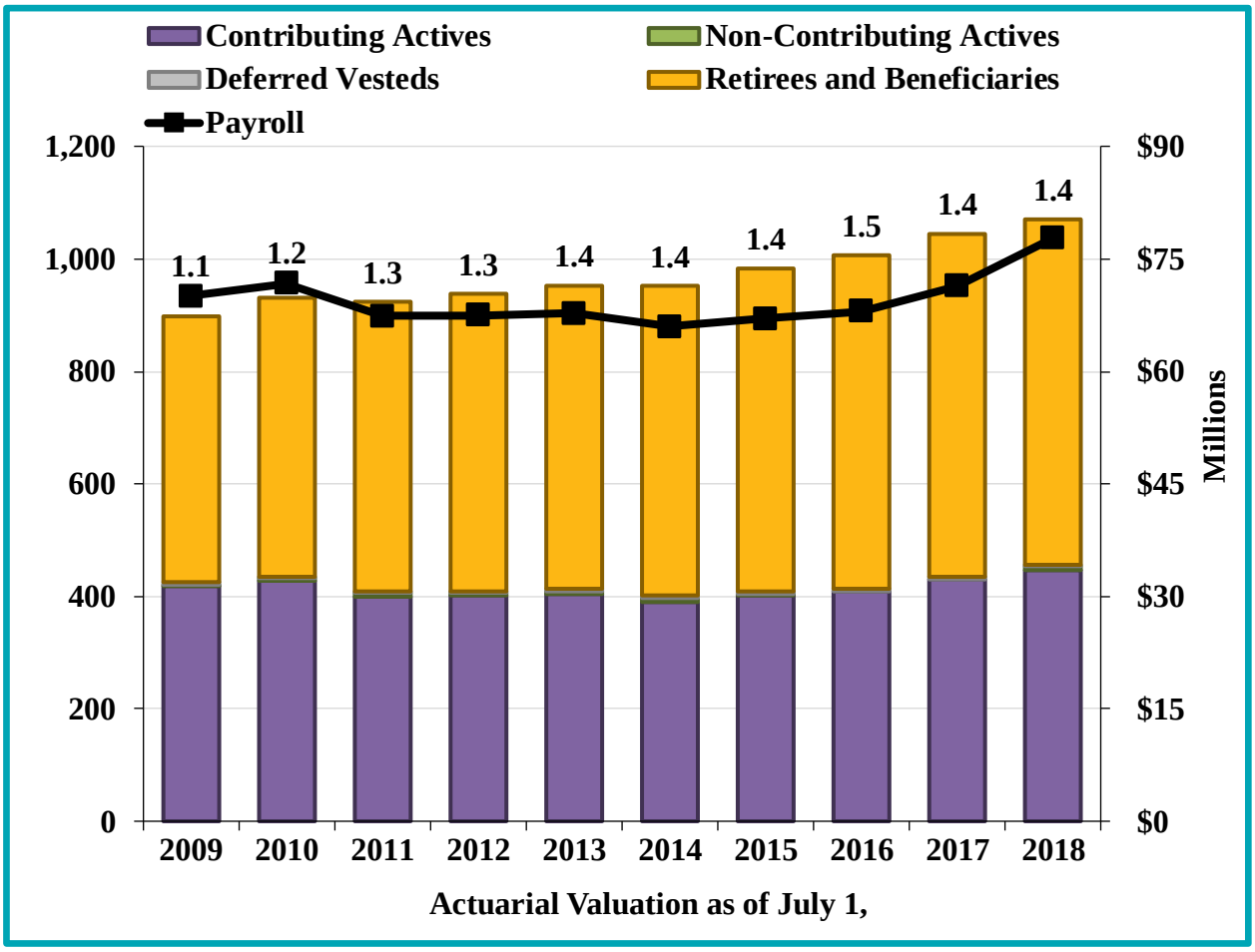
The information above is based on the final actuarial valuation reports for the given years. The amounts do not reflect differences between the discounted State appropriations receivable and the actual State contribution amounts that became known after the issuance of the reports.

SECTION I – BOARD SUMMARY

Membership Trends

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

The black line represents the appropriation payroll, for contributing active members, over the period and it corresponds with the scale on the right. Note that for valuation years prior to 2018, appropriation payroll includes payroll for non-contributing actives and the appropriation payroll for 2018 excludes the payroll for non-contributing actives.



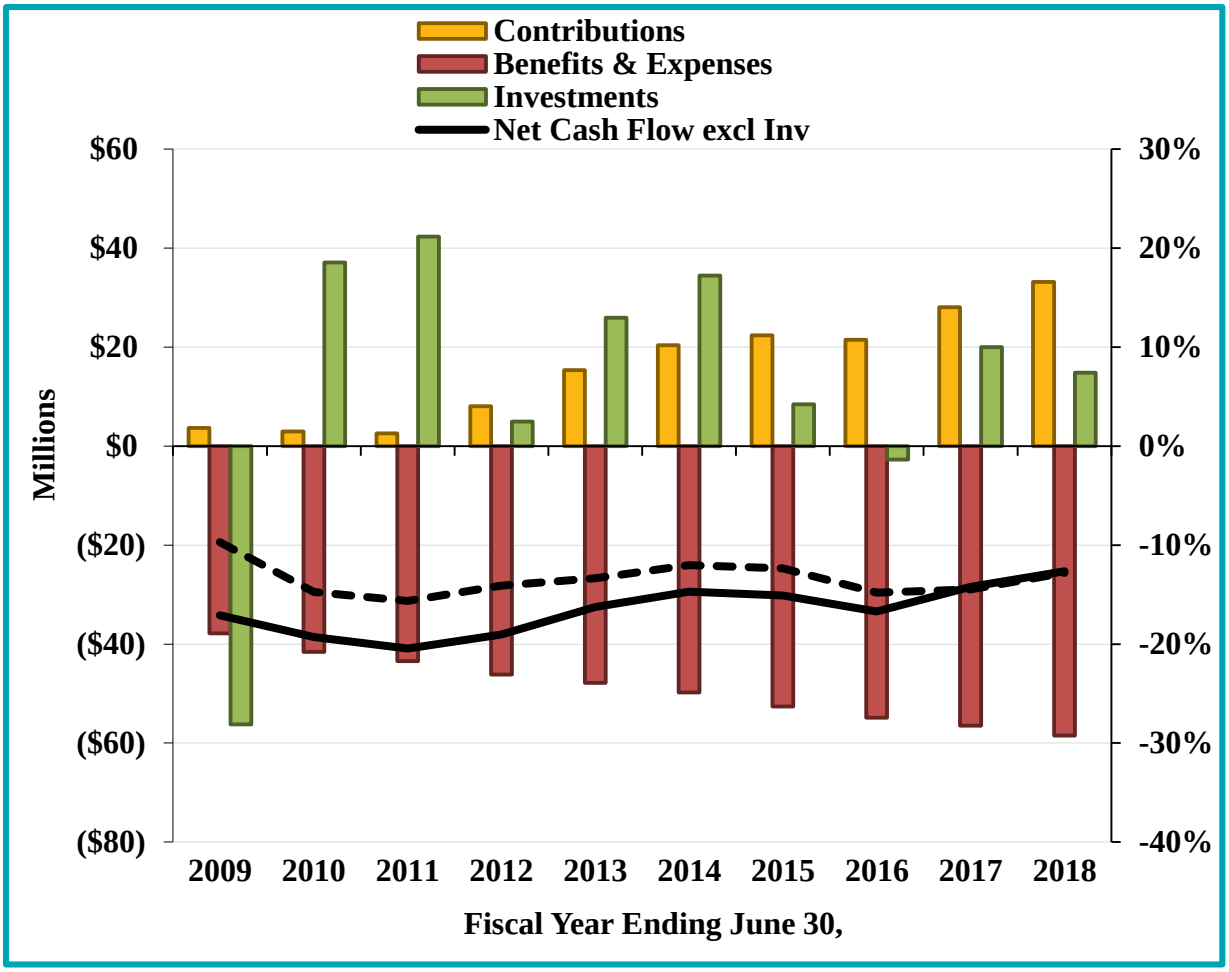
SECTION I – BOARD SUMMARY

Cash Flows

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

The black dotted line shows the net cash flow as a percent of the market assets and goes with the axis on the right.

The net cash flow for the System has been significantly negative and even more disconcerting is that the negative cash flow is greater than the long term investment assumption. This represents a plan that is expected to defund with the risk of insolvency if the contributions do not catch up to cover a higher portion of the benefit payments and expenses.

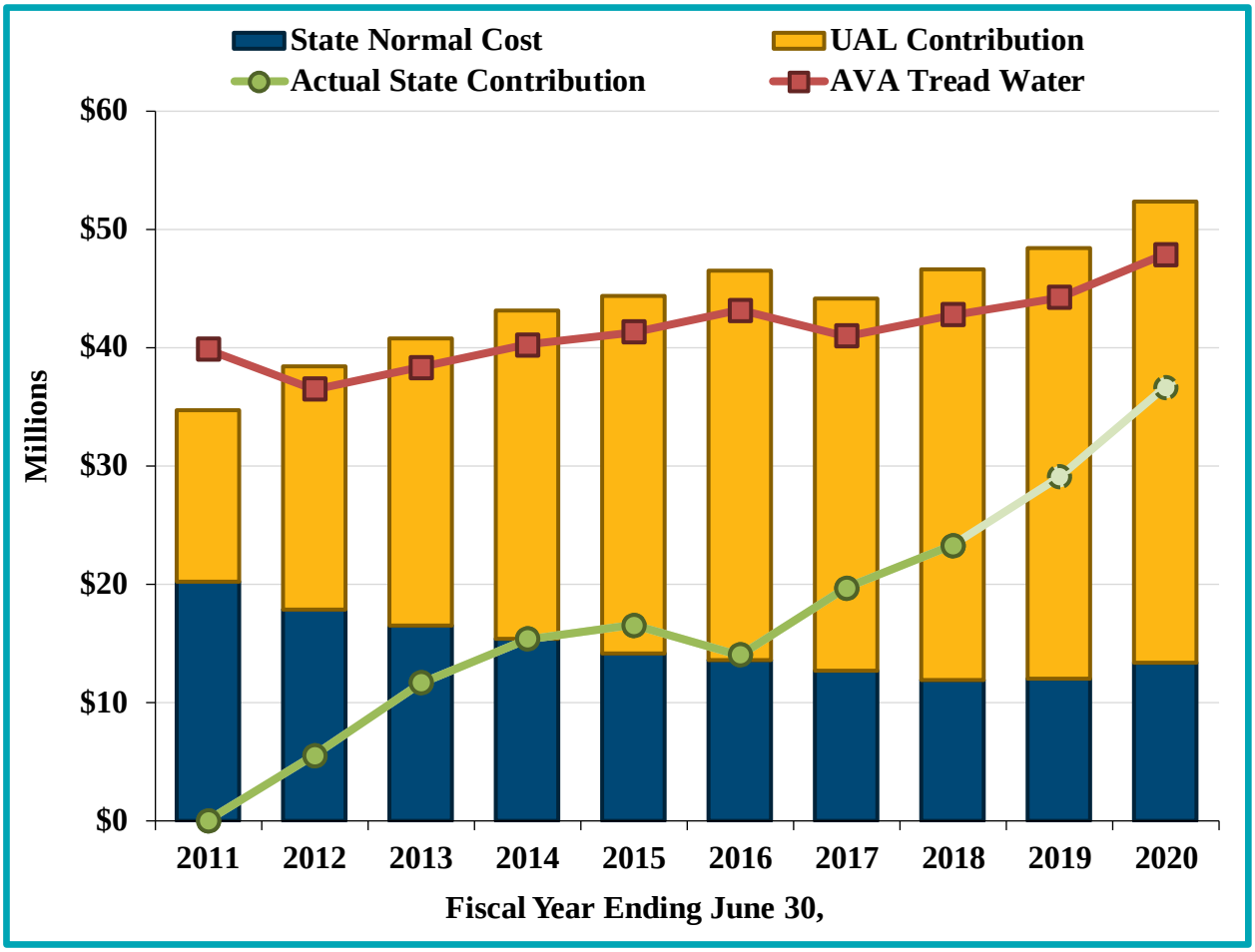


SECTION I – BOARD SUMMARY

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 2019 and 2020, the green line has a lighter shade to indicate that these are expected, rather than actual, contributions. The expected contributions are based on the anticipated appropriations shown in Table I-1.

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 not only has the State been making contributions less than required by Statute, but that the State contributions are 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.



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 System to have stress testing performed annually. The graphs presented in this section show the expected progress of the System's funded status over the next 30 years, measured in terms of the expected funded ratios and State contributions assuming that the System is ongoing.

While experience will not conform exactly to the assumptions every year, the trends reflect reasonable expectations. As a result, in addition to the baseline projection, we provide additional **stress testing** based on varying investment returns in the future. It is our opinion that the stress testing analyses shown in this section 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 ultimate long-term rate of return assumption of 7.00%, as recommended by the State Treasurer, are exactly met. For each scenario we show two graphs.

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

The System's funded ratio on an Actuarial Value of Assets basis is projected to drop slightly over the next few years, as the State appropriates less than the Statutory amount and the valuation investment rate of return assumption gradually decreases from 7.50% to 7.00%, before beginning a slow but steady increase to 85% by 2048.

The bottom graph shows the contributions by fiscal year. The member contributions are in purple and the State contributions are in gold. The gold outline shows the State's full Statutory contributions with the shaded portion showing the anticipated appropriated amount. The projection assumes the State appropriates 70% of the Statutory contribution in FYE 2020, and increases the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023. Both the appropriated State contributions and the member contributions are also shown in dollar amounts.

SECTION I – BOARD SUMMARY

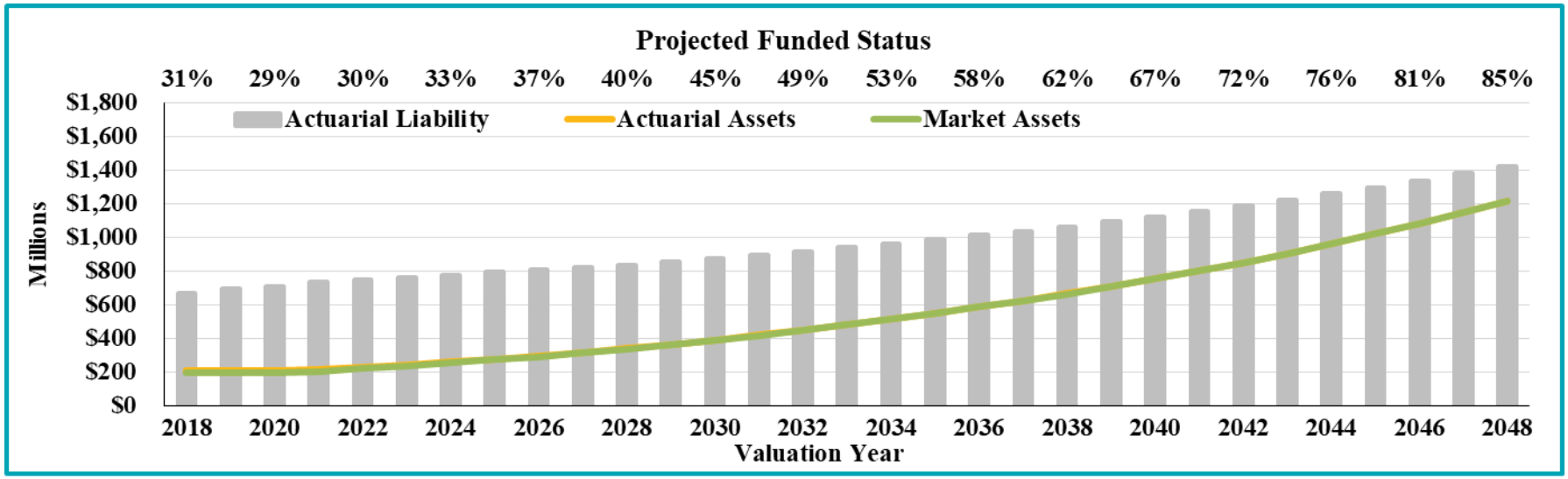
The dashed black line in the bottom graph shows the gross normal cost. The difference between the dashed black line and the purple bar is the State portion of the normal cost.

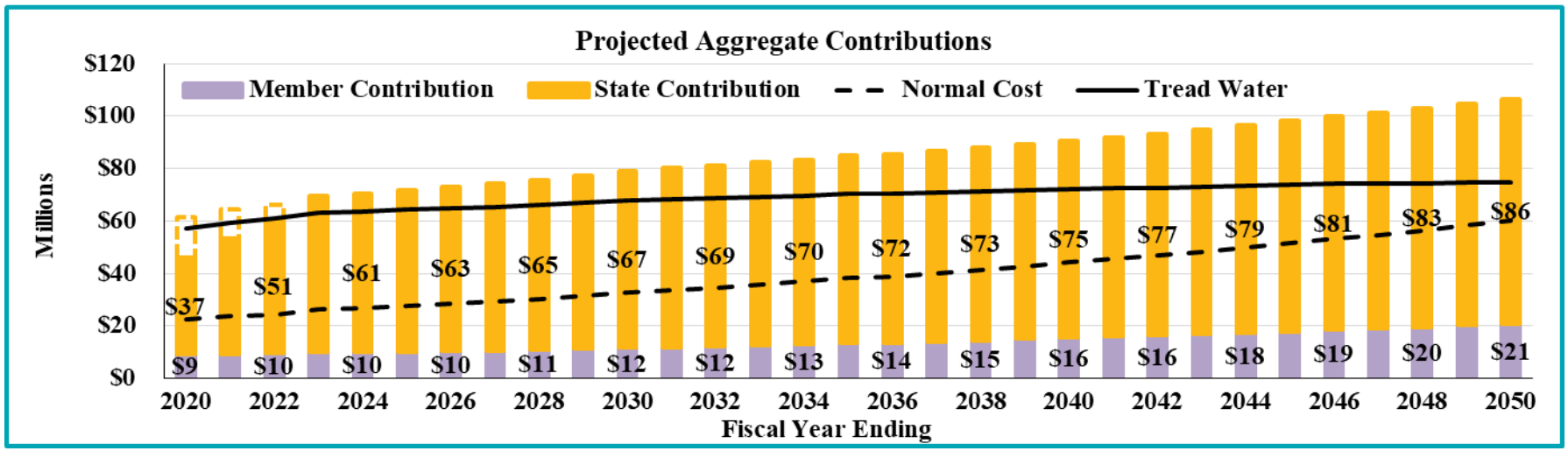
The solid black line is the tread water line based on the Actuarial Value of Assets. Because the tread water metric equals the normal cost plus interest on the UAL, the difference between the solid black line and the dashed black line is the interest on the UAL. When contributions fall below the solid black line, as is the case through FYE 2022, the UAL grows and the funded ratio falls. When the contributions exceed the solid line, as is the case beginning in FYE 2023, the UAL begins decreasing and the funded ratio increases.

The Statutory contributions increase steadily through FYE 2023 as the State appropriates less than the Statutory amount and the valuation investment rate of return assumption gradually decreases from 7.50% to 7.00%. Thereafter, the Statutory contributions continue their steady increase but at a lower rate. Once the appropriated amount equals the Statutory contribution, beginning in FYE 2023, the contributions reach the level necessary to pay down the UAL and the tread water line begins to decrease relative to the Statutory contribution.

SECTION I – BOARD SUMMARY

Baseline: 7.0% return for all years





SECTION I – BOARD SUMMARY

Stress Testing

The Baseline projections shown on the previous page assume all assumptions are met each and every year in the future. We know that will not be the case. We developed six hypothetical scenarios to illustrate the impact actual investment returns may have on future funded status and contribution amounts. The scenarios are balanced between positive and negative scenarios and are based on a lognormal distribution of one and five year expected returns as shown in the table below using the capital market assumptions from the New Jersey Division of Investments (Geometric return of 7.14%, standard deviation of 12.27%).

Distribution of Expected Average Annual Returns		
Percentile	**1 Year**	**5 Year**
5%	-11.1%	-1.4%
25%	-0.8%	3.5%
50%	7.1%	7.1%
75%	15.7%	10.9%
95%	29.1%	16.5%

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.

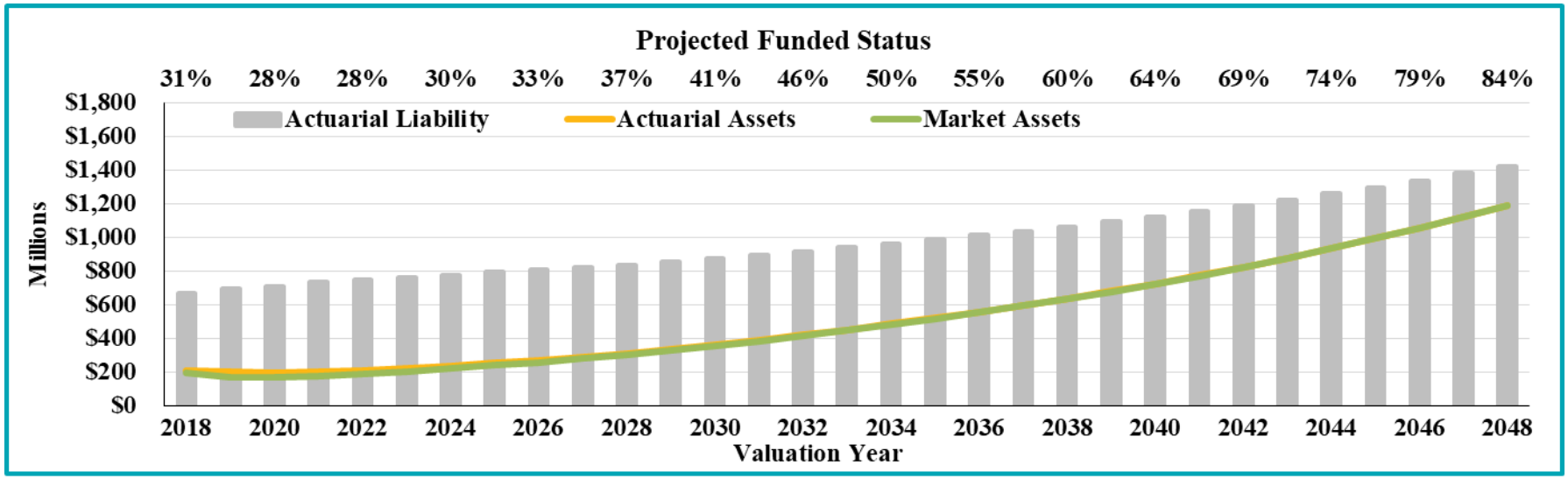
Theoretical Scenarios						
	1-Yr Shock		5-Yr Moderate		5-Yr Significant	
FYE	**Neg**	**Pos**	**Neg**	**Pos**	**Neg**	**Pos**
2019	-11.1%	29.1%	3.5%	10.9%	-1.4%	16.5%
2020	7.0%	7.0%	3.5%	10.9%	-1.4%	16.5%
2021	7.0%	7.0%	3.5%	10.9%	-1.4%	16.5%
2022	7.0%	7.0%	3.5%	10.9%	-1.4%	16.5%
2023	7.0%	7.0%	3.5%	10.9%	-1.4%	16.5%
2024+	7.0%	7.0%	7.0%	7.0%	7.0%	7.0%

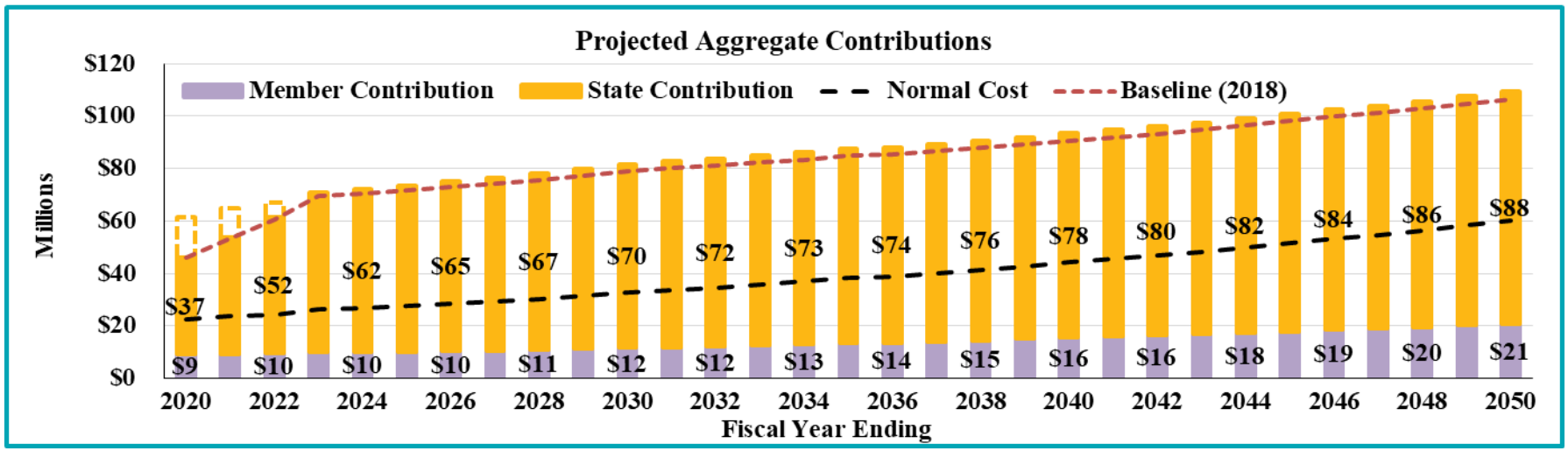
In reviewing each of these projections, it is the future trends, not necessarily the actual values, that are important to observe in consideration of the risks of the System and the potential volatility of future funded ratios and Statutory contribution levels.

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 Statutory contributions under the baseline projections shown above to facilitate the comparison between the particular scenario and the baseline projections assuming all assumptions are met.

SECTION I – BOARD SUMMARY

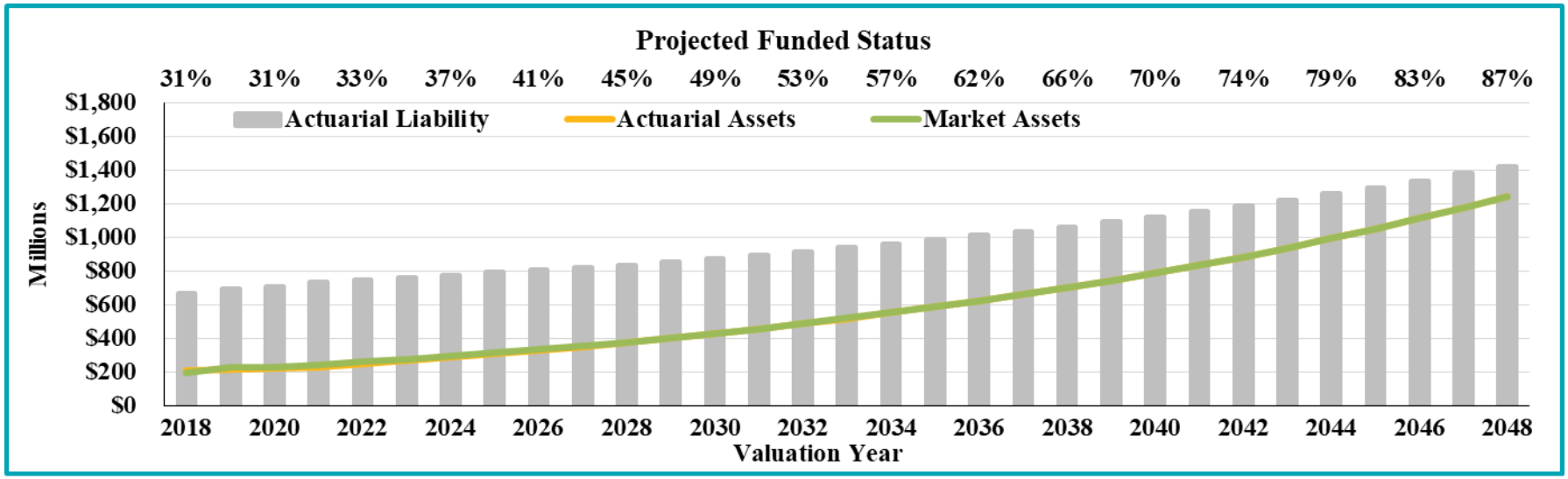
One-Year Negative Shock Scenario: -11.1% return FYE 2019, 7.0% after

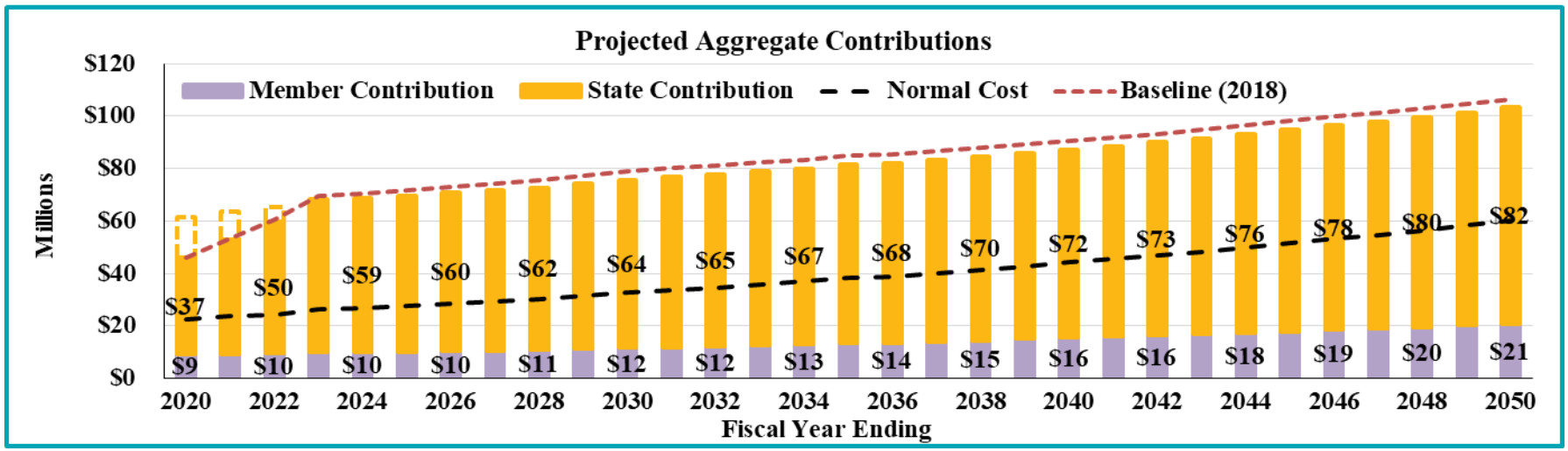




SECTION I – BOARD SUMMARY

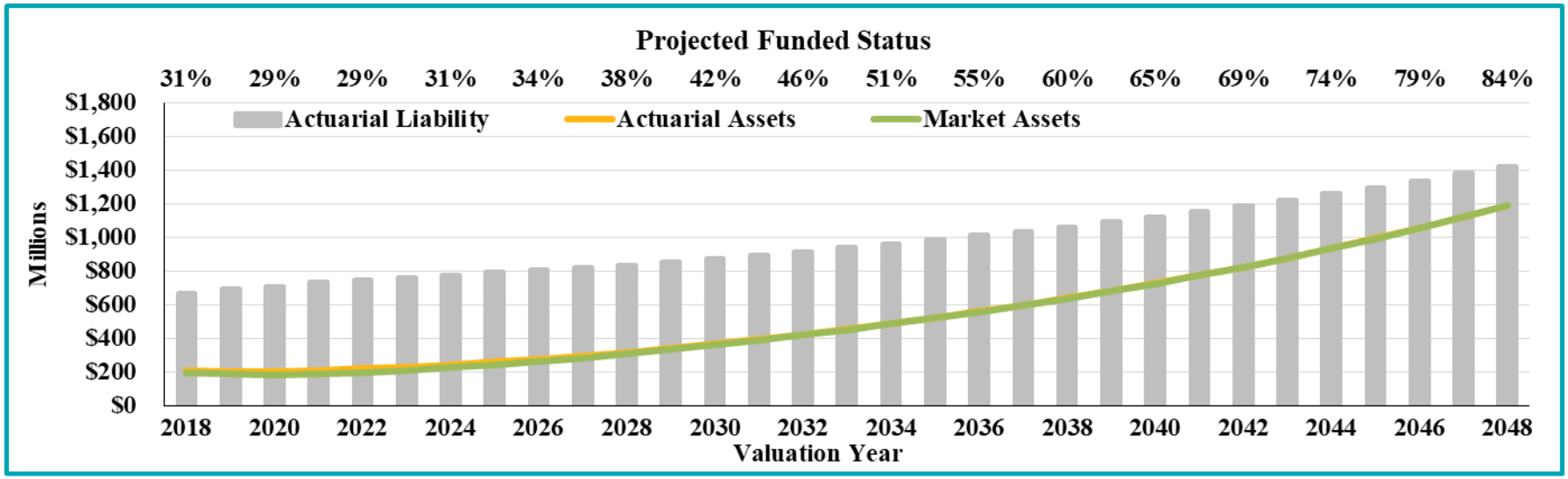
One-Year Positive Shock Scenario: 29.1% return FYE 2019, 7.0% after

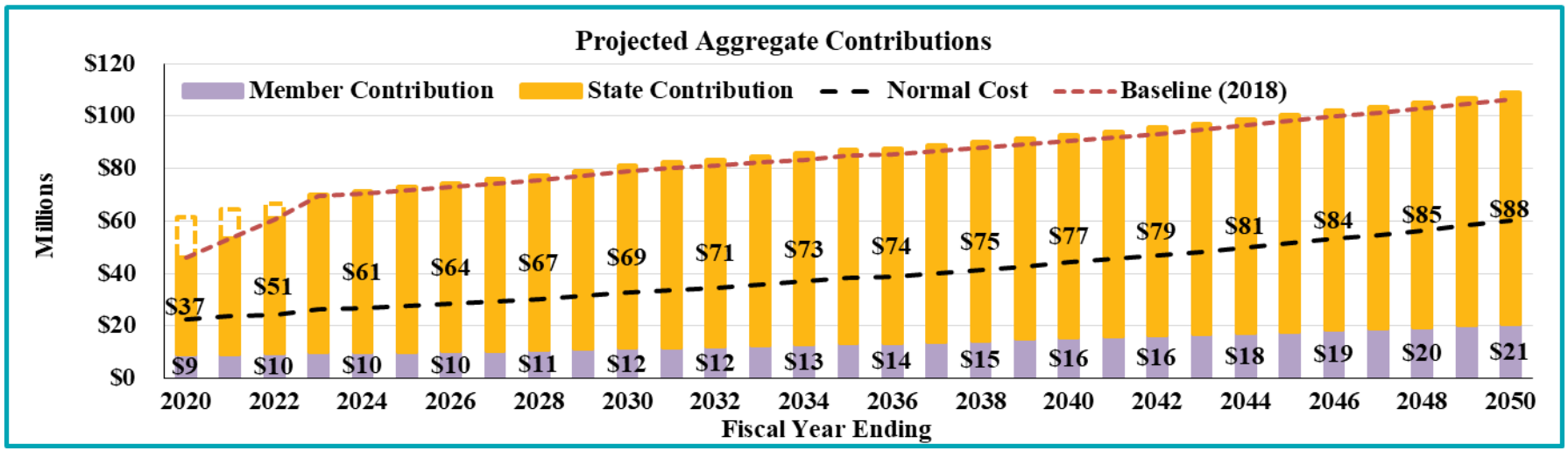




SECTION I – BOARD SUMMARY

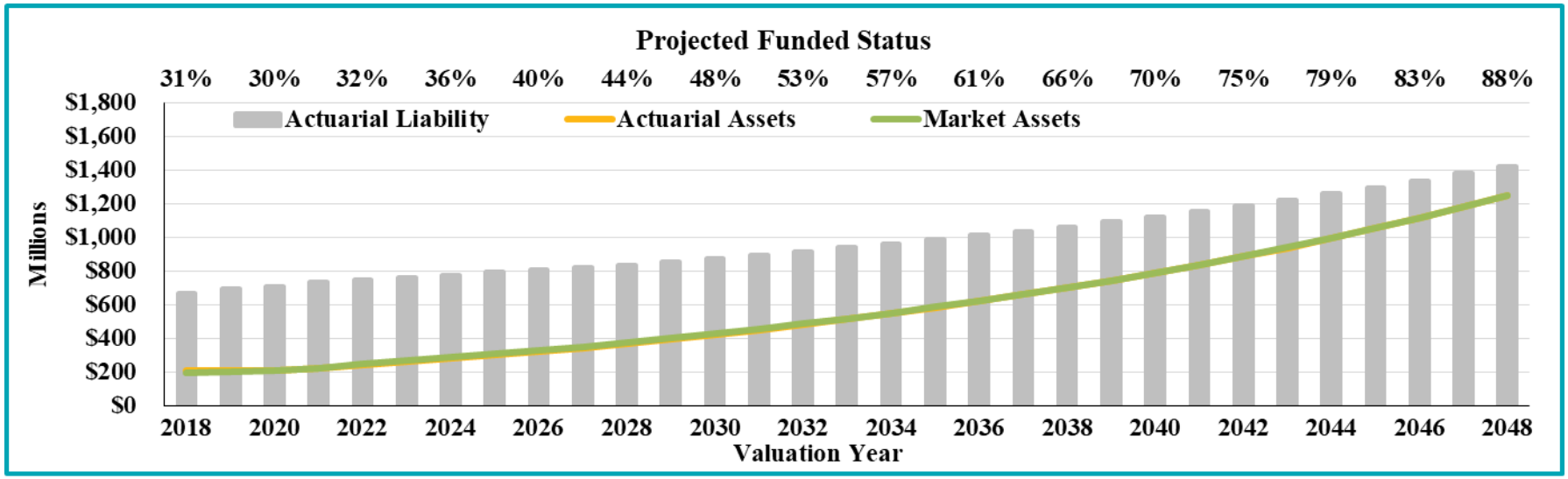
Five-Year Moderate Negative Scenario: 3.5% return FYE 2019-2023, 7.0% after

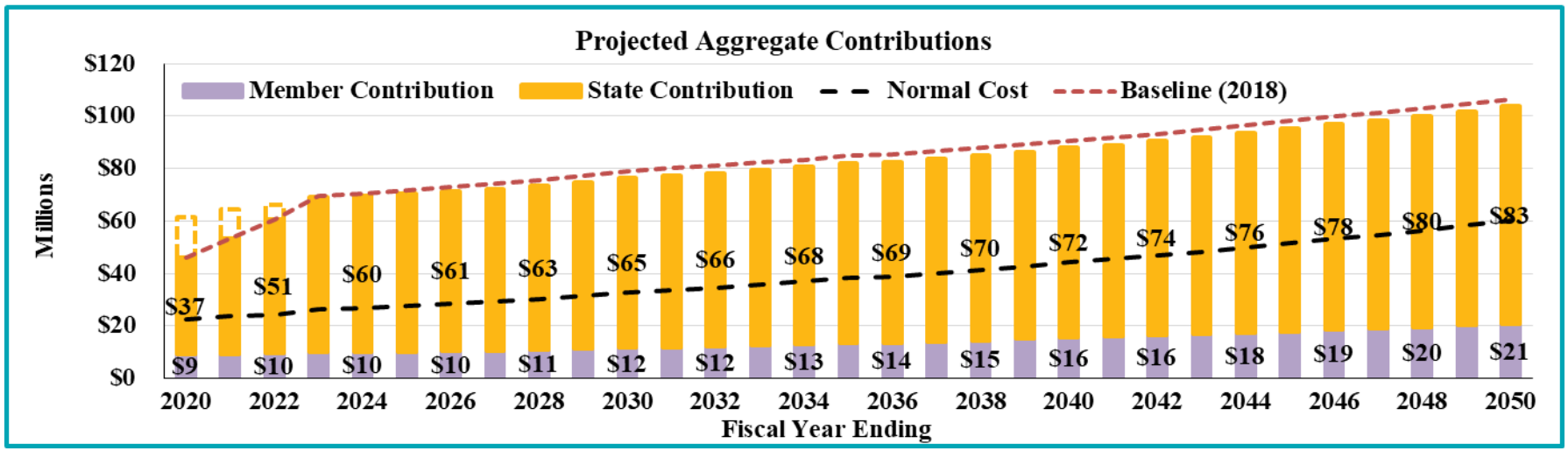




SECTION I – BOARD SUMMARY

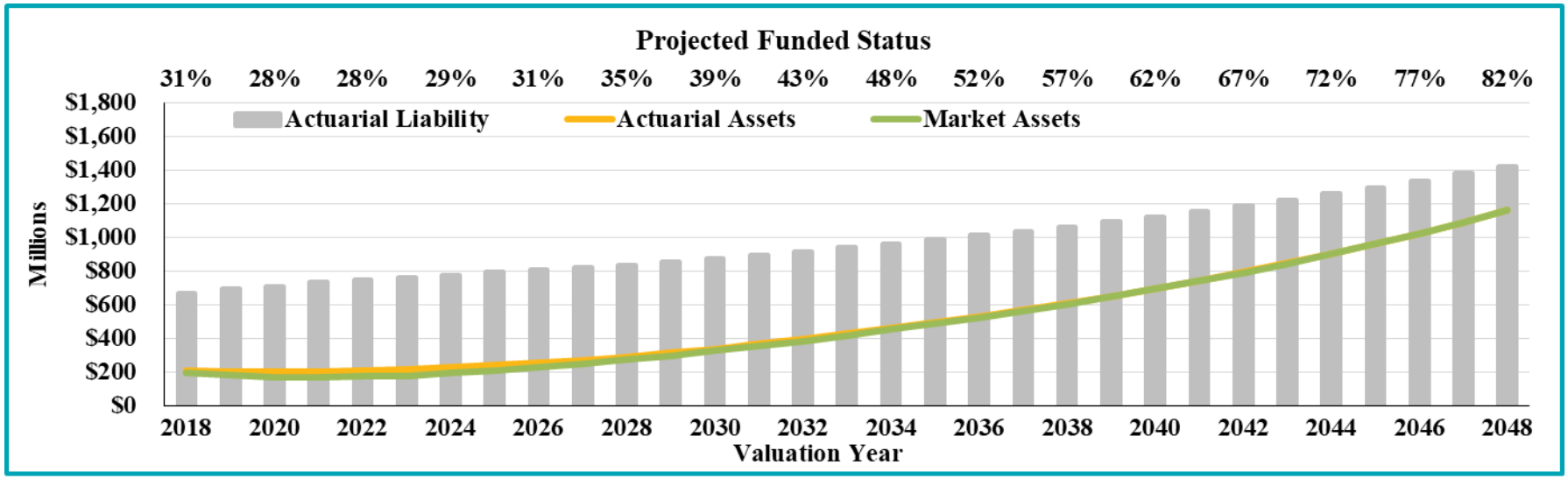
Five-Year Moderate Positive Scenario: 10.9% return FYE 2019-2023, 7.0% after

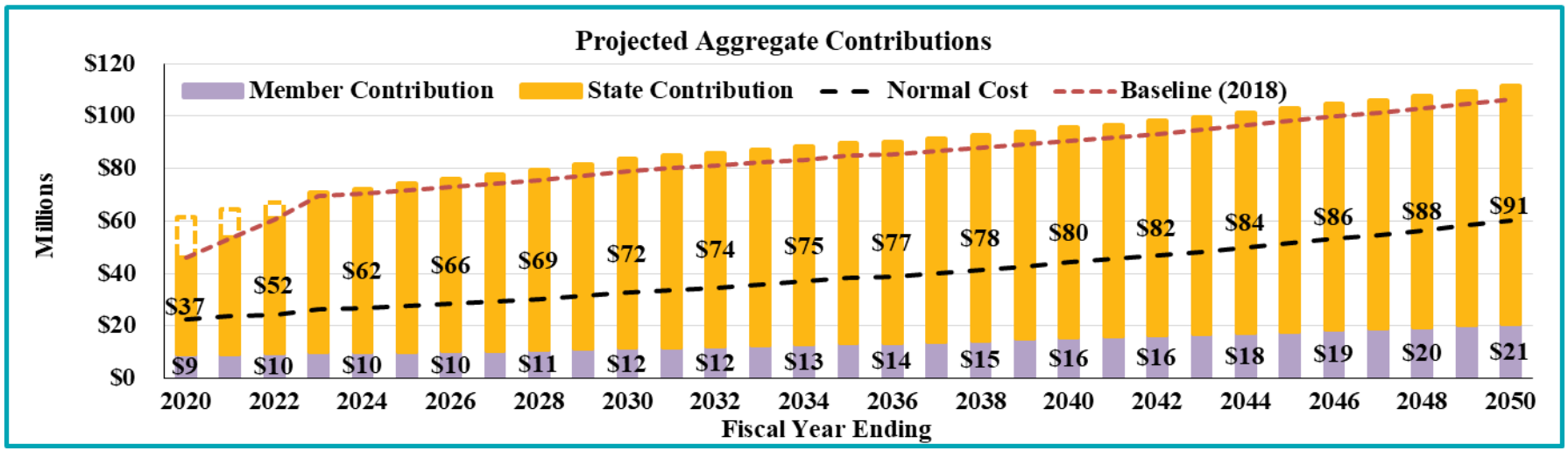




SECTION I – BOARD SUMMARY

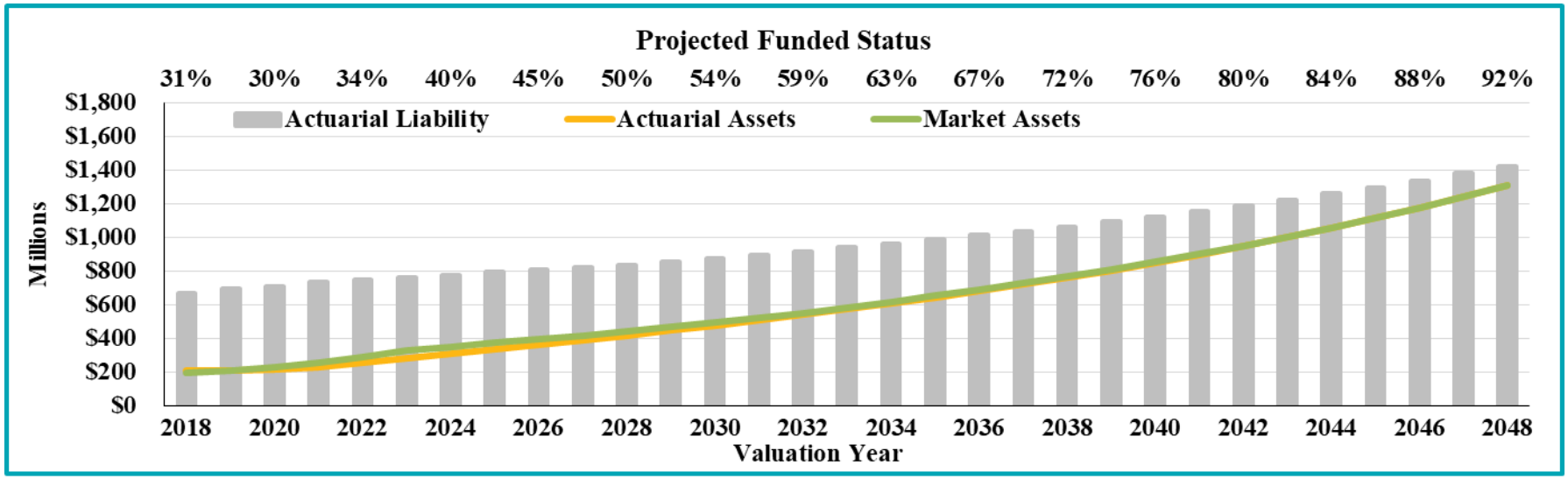
Five-Year Significant Negative Scenario: -1.4% return FYE 2019-2023, 7.0% after

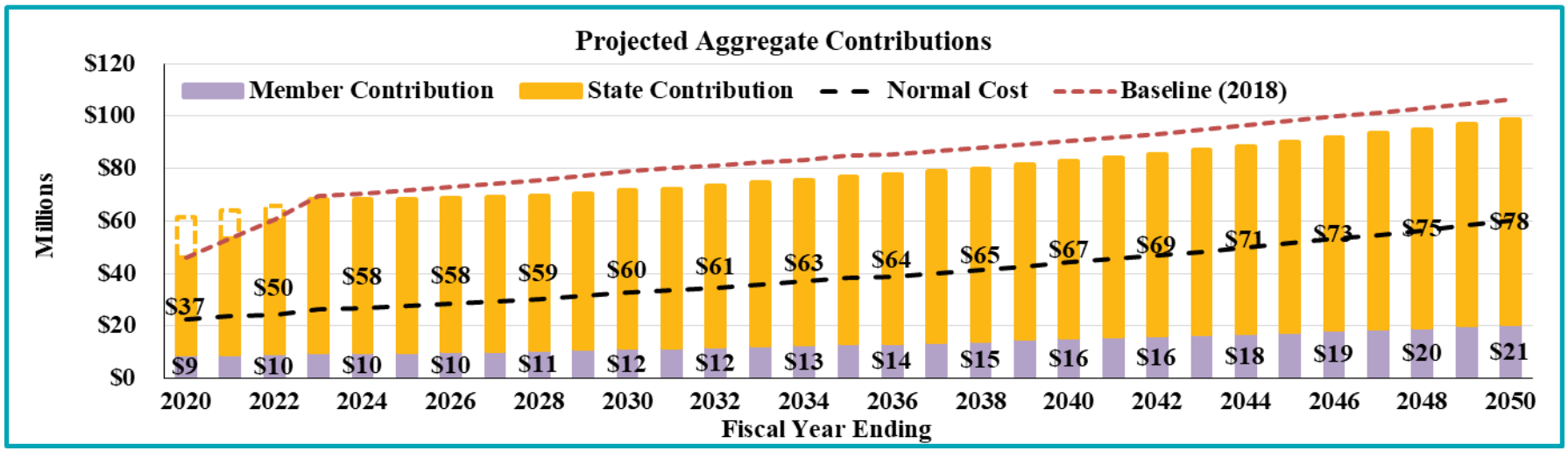




SECTION I – BOARD SUMMARY

Five-Year Significant Positive Scenario: 16.5% return FYE 2019-2023, 7.0% after





SECTION II – ASSETS

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

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

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

- Disclosure of assets at July 1, 2017 and July 1, 2018,
- Statement of cash flows during the year,
- Development of the actuarial value of assets, and
- Disclosure of investment performance for the year.

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 II-1 on the following page presents the market value by asset class as of July 1, 2017 and July, 2018. Table II-2 presents the System's net cash flows from June 30, 2017 to June 30, 2018. Table II-3 presents the development of the Actuarial Value of Assets as of July 1, 2018.

SECTION II – ASSETS

Table II-1
Statement of Assets at Market Value

	June 30, 2018	June 30, 2017
Assets		
Cash	$ 4,975,574	$ 5,000,117
Securities Lending Collateral	1,759,881	2,296,449
Investment Holdings	165,859,752	172,394,943
Interest Receivable on Investment	756	486
Members Contributions Receivable	437,098	676,066
Loans Receivable	400,378	511,721
Accounts Receivable	834,838	1,307,451
Total Assets	$ 174,268,277	$ 182,187,233
Liabilities		
Pension Payroll Payable	$ (3,610,825)	$ (3,409,986)
Pension Adjustment Payroll Payable	(261,767)	(276,601)
Withholdings Payable	(895,425)	(828,582)
Securities Lending Collateral and Rebates Payable	(1,759,831)	(2,295,771)
Accounts Payable - Other	(16,081)	(50,960)
Total Liabilities	$ (6,543,929)	$ (6,861,900)
Preliminary Market Value of Assets	**$ 167,724,348**	**$ 175,325,333**
Discounted State Appropriations Receivable	27,743,943	22,242,297
Market Value of Assets	**$ 195,468,291**	**$ 197,567,630**

SECTION II – ASSETS

System Cash Flows as of June 30, 2018

Table II-2
Changes in Market Values for FYE June 30, 2018

Additions		
Pension Contributions		
Members' Contributions	$	9,177,453
Transfers from Other Systems		810,320
Accumulated Interest		
Transfer from Other Systems		1,377,068
Employers' Contributions		
State Appropriations		23,266,000
Non-Contributory Group Insurance		757,637
Transfer from Other Systems		672,452
Administrative Fees - Loans		345
Income		
Per Statement		14,809,870
Total Additions	$	50,871,145
Deductions		
Benefits Provided by Members		
Withdrawal of Members' Contributions - Regular	$	149,186
Withdrawal of Members' Interest - Regular		129,411
Benefits Provided by Employers and Members		
Retirement Allowances		54,020,952
Benefits Provided by Employers		
Benefit Expense - Pension Adjustment		3,229,235
Administrative Expense		185,533
Administraive Expense - Loans		176
Miscellaneous Expense		0
NCGI Premium Expense		757,637
Total Deductions	$	58,472,130
Net Increase/(Decrease)	**$**	**(7,600,985)**
Preliminary Market Value of Assets Beginning of Year	$	175,325,333
Preliminary Market Value of Assets End of Year	**$**	**167,724,348**
Discounted State Appropriations Receivable		27,743,943
Market Value of Assets	**$**	**195,468,291**
Approximate Return		**9.17%**

SECTION II – ASSETS

Actuarial Value of Assets

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

Table II-3
Development of Actuarial Value of Assets for July 1, 2018

1. Preliminary Actuarial Value of Assets as of 7/1/2017[1]	$	194,710,555
2. Net Cash Flow excluding Investment Income		(22,410,855)
3. Expected Investment Income[2]		13,565,873
4. Expected Actuarial Value of Assets as of 7/1/2018: (1+2+3)	$	185,865,573
5. Preliminary Market Value as of 6/30/2018	$	167,724,348
6. 20% of Difference from MVA = (5-4) x 0.2		(3,628,245)
7. Preliminary Actuarial Value of Assets as of 7/1/2018: (4+6)	$	182,237,328
8. Discounted State Appropriations Receivable	$	27,743,943
9. Actuarial Value of Assets as of 7/1/2018: (7+8)	$	209,981,271
10. Rate of Return on Actuarial Value of Assets		5.50%

[1] Excludes discounted State appropriations receivable

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

SECTION II – ASSETS

Investment Performance

The market value of assets rate of return was 9.17% for the year ending June 30, 2018. This is compared to an assumed return of 7.50% for the same period. On an actuarial value of assets basis, the return for FYE 2018 was 5.50%. Table II-4 shows the historical returns for the last ten years.

The prior actuary did not calculate a market value return prior to 2017.

Table II-4
Annual Rates of Return

Year Ended June 30	Investment Return Assumption	Market Value	Actuarial Value
2009	8.25%		1.80%
2010	8.25%		3.23%
2011	8.25%		4.97%
2012	7.95%		3.81%
2013	7.90%		4.61%
2014	7.90%		6.27%
2015	7.90%		5.66%
2016	7.90%		4.18%
2017	7.65%	11.95%	4.82%
2018	7.50%	9.17%	5.50%
10-Year Compound Average		**N/A**	**4.5%**
5-Year Compound Average		**N/A**	**5.3%**

SECTION III – LIABILITIES

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

- Disclosure of liabilities at July 1, 2017 and July 1, 2018, and
- The development of the actuarial gain and loss.

Disclosure

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

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

SECTION III – LIABILITIES

Table III-1 shows the actuarial liability as of July 1, 2018, and July 1, 2017 for the System.

Table III-1
Actuarial Liability

	July 1, 2018	July 1, 2017
Actuarial Liability		
Contributing Actives	$ 193,164,375	$ 172,951,193
Non-Contributing Actives	3,108,982	0
Deferred Vested	1,863,707	1,841,688
Retirees	406,790,395	410,778,094
Disabled	8,151,641	5,822,977
Beneficiaries	57,483,513	55,113,157
Total	**$ 670,562,613**	**$ 646,507,109**
Actuarial Value of Assets	$ 209,981,271	$ 216,952,852
Unfunded Actuarial Liability/(Surplus)	$ 460,581,342	$ 429,554,257
Funded Ratio	31.3%	33.6%

SECTION III – LIABILITIES

Table III-2 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 System.

Table III-2
Development of 2018 Experience (Gain)/Loss

	Actuarial Liability	Actuarial Value of Assets	Unfunded Actuarial Liability
1. Value as of July 1, 2017	$ 646,507,109	$ (216,952,852)	$ 429,554,257
2. Additions			
a.) Normal Cost	$ 19,301,698	$ 0	$ 19,301,698
b.) Statutory State Contributions	0	(48,368,041)	(48,368,041)
c.) Exp. Member Contributions	0	(8,441,347)	(8,441,347)
3. Decreases			
a.) Benefit Payments	$ (57,528,784)	$ 57,528,784	$ 0
b.) Exp. Admin. Expenses	0	0	0
4. Net Transfers from Other Systems			
a.) Employer Contributions	$ 672,452	$ (672,452)	$ 0
b.) Member Contributions	2,187,388	(2,187,388)	$ 0
5. Expected Interest	$ 47,922,637	$ (14,569,268)	$ 33,353,369
6. Expected Value as of July 1, 2018: (1+2+3+4+5)	$ 659,062,500	$ (233,662,564)	$ 425,399,936
7. Impact of:			
a.) Appropriation Adjustment	$ 0	$ 19,347,187	$ 19,347,187
b.) Contribution Timing	0	1,276,882	1,276,882
c.) Actual Member Contributions	0	(763,211)	(763,211)
d.) Conversion from Prior Actuary	240,890	0	240,890
e.) Change in Methods/Assumptions	0	0	0
f.) Change in Benefits	0	0	0
8. Expected Value after Changes: (6+7)	$ 659,303,390	$ (213,801,706)	$ 445,501,684
9. Actual Value as of July 1, 2018	$ 670,562,613	$ (209,981,271)	$ 460,581,342
10. Actuarial (Gain)/Loss: (9-8)	$ 11,259,223	$ 3,820,435	$ 15,079,658

SECTION III – LIABILITIES

Table III-3 shows the components of the Actuarial (Gain)/Loss for the System as of July 1, 2018.

Table III-3
Actuarial (Gain)/Loss Analysis

Components		July 1, 2018
Actuarial Value of Assets		
Investment Return	$	3,628,245
Administrative Expenses		192,190
Total	$	3,820,435
Actuarial Liability		
Salary Increases	$	5,231,141
New Entrants		1,409,501
Demographic Experience and Census Data Updates		
Contributing Actives		645,101
Non-Contributing Actives		1,859,888
Inactives		5,078,737
Sub-Total	$	14,224,368
Impact of Net Transfers from Other Systems		(2,965,145)
Total	$	11,259,223
Actuarial (Gain)/Loss	**$**	**15,079,658**

SECTION IV – 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 funded status of the Plan. Typically, the actuarial process will use a funding technique that will result in a pattern of contributions that are both stable and predictable.

Under the current funding policy, the State funding requirement contains two components: the employer normal cost and an amortization of the unfunded actuarial liability (UAL). The funding methodology prescribed by NJ State Statute does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment rate of return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption and we are unable to evaluate whether the investment rate of return assumption includes an appropriate adjustment for administrative expenses.

For JRS, 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. The unfunded actuarial liability is the actuarial liability on the valuation date less the actuarial value of assets.

In accordance with Chapter 78, P. L. 2011, the unfunded actuarial liability as of July 1, 2018 is amortized over 30 years as a level dollar amount.

SECTION IV – CONTRIBUTIONS

Table IV-1 shows the development of the Statutory Pension Contribution for the current and prior year. Table IV-2 summarizes the contributions as a percentage of payroll.

Table IV-1
Development of Statutory Pension Contribution

Valuation Date Fiscal Year Ending	July 1, 2018 2020	July 1, 2017 2019
1. Actuarial Liability	$ 670,562,613	$ 646,507,109
2. Actuarial Value of Assets	209,981,271	216,952,852
3. Unfunded Actuarial Liability: (1-2)	$ 460,581,342	$ 429,554,257
4. Amortization Period (years)	30	30
5. Amortization of UAL payable Beginning of Fiscal Year (Level Dollar)	$ 38,997,991	$ 36,370,890
6. a. Gross Normal Cost	$ 21,046,935	$ 19,301,698
b. Expected Member Contributions	8,647,387	8,141,558
c. State Normal Cost: (a.-b.)	$ 12,399,548	$ 11,160,140
d. State Normal Cost payable Beginning of Fiscal Year: (c.)*1.075	$ 13,329,514	$ 11,997,151
7. Total Statutory Pension Contribution as of Beginning of Fiscal Year: (5+6d.)	$ 52,327,505	$ 48,368,041

Table IV-2
Statutory Contributions as a Percent of Appropriation Payroll

Valuation Date Fiscal Year Ending	July 1, 2018 2020	July 1, 2017 2019
Statutory Contribution		
State Normal Cost	17.14%	16.81%
UAL Amortization Payment	50.15%	50.95%
Total Statutory Pension Contribution	67.29%	67.76%

APPENDIX A – MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2018. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1: Contributing Active Member Data
- A-2: Non-Contributing Active Member Data
- A-3: Inactive Member Data, Total Annual and Average Retirement Allowances by Status
- A-4: Reconciliation of Plan Membership
- A-5 and A-6: Contributing Active Member Data by Age and Service
- A-7 and A-8: Inactive Member Data by Age and Status

APPENDIX A – MEMBERSHIP INFORMATION

Table A-1
Contributing Active Member Data

	July 1, 2018	July 1, 2017	% Change
Count	447	430	4.0%
Average Age	58.3	58.3	0.1%
Average Judicial Service	8.2	8.3	-1.2%
Average Appropriation Pay	$ 173,968	$ 166,013	4.8%
Total Appropriation Payroll	$ 77,763,777	$ 71,385,705	8.9%

Table A-2
Non-Contributing Active Member Data

	July 1, 2018	July 1, 2017	% Change
Members Eligible for Annuity			
Count	5	0	N/A
Average Age	60.7	N/A	N/A
Average Judicial Service	10.2	N/A	N/A
Average Last Reported Pay	$ 165,000	N/A	N/A
Total Last Reported Pay	$ 825,000	$ 0	N/A
Members Only Eligible for Refund			
Count	1	0	N/A
Total Accumulated Savings Fund	43,514	N/A	N/A
Total			
Count	6	0	N/A

APPENDIX A – MEMBERSHIP INFORMATION

Table A-3
Inactive Member Data by Status

	July 1, 2018	July 1, 2017	% Change
Retirees			
Count	444	442	0.5%
Annual Retirement Allowances	$ 47,161,286	$ 47,014,884	0.3%
Average Retirement Allowance	$ 106,219	$ 106,369	-0.1%
Beneficiaries			
Count	161	162	-0.6%
Annual Retirement Allowances	$ 8,953,548	$ 8,647,996	3.5%
Average Retirement Allowance	$ 55,612	$ 53,383	4.2%
Disabled			
Count	9	7	28.6%
Annual Retirement Allowances	$ 1,049,214	$ 818,564	28.2%
Average Retirement Allowance	$ 116,579	$ 116,938	-0.3%
In-Pay Total			
Count	**614**	**611**	**0.5%**
Annual Retirement Allowances	**$ 57,164,048**	**$ 56,481,444**	**1.2%**
Average Retirement Allowance	**$ 93,101**	**$ 92,441**	**0.7%**
Deferred Vested Members			
Count	4	4	0.0%
Annual Retirement Allowances	$ 183,500	$ 183,500	0.0%
Average Retirement Allowance	$ 45,875	$ 45,875	0.0%

QDRO benefits included with member records for valuation purposes.

APPENDIX A – MEMBERSHIP INFORMATION

Table A-4
Reconciliation of Plan Membership from July 1, 2017 to July 1, 2018

	Contributing Actives	Non-Contrib. Actives	Deferred Vested	Retired	Disabled	Beneficiaries	Total
1. July 1, 2017	**430**	**0**	**4**	**442**	**7**	**162**	**1,045**
2. Additions							
a. New entrants	45						45
b. New dependents						3	3
c. Data correction							0
d. Total	45	0	0	0	0	3	48
3. Reductions							
a. Withdrawal	(2)						(2)
b. Died without beneficiary		(1)		(5)		(13)	(19)
c. Payments ceased						(1)	(1)
d. Total	(2)	(1)	0	(5)	0	(14)	(22)
4. Changes in Status							
a. Contributing Active							0
b. Non-Contributing Active	(16)	16					0
c. Deferred Vested							0
d. Retired	(9)	(7)		16			0
e. Disabled	(1)	(1)			2		0
f. Died with beneficiary		(1)		(9)		10	0
g. Total	(26)	7	0	7	2	10	0
5. July 1, 2018	**447**	**6**	**4**	**444**	**9**	**161**	**1,071**

QDRO benefits included with member records for valuation purposes.

APPENDIX A – MEMBERSHIP INFORMATION

Table A-5
Counts by Age and Service of Contributing Active Members
As of July 1, 2018

Attained Age	Years of Judicial Service								
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & up	Total
Under 40	1	2	0	0	0	0	0	0	3
40 to 44	4	11	1	0	0	0	0	0	16
45 to 49	8	27	11	1	0	0	0	0	47
50 to 54	10	32	20	7	1	0	0	0	70
55 to 59	10	27	29	26	14	1	0	0	107
60 to 64	3	33	28	21	28	9	3	0	125
65 & up	1	7	24	23	14	3	7	0	79
Total	37	139	113	78	57	13	10	0	447

Table A-6
Average Appropriation Pay by Age and Service of Contributing Active Members
As of July 1, 2018

Attained Age	Years of Judicial Service								
	Under 1	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 & up	Total
Under 40	$ 173,000	$ 173,000	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0	$ 173,000
40 to 44	173,000	173,000	173,000	0	0	0	0	0	173,000
45 to 49	173,000	173,000	173,000	173,000	0	0	0	0	173,000
50 to 54	173,000	173,000	173,000	173,962	173,000	0	0	0	173,096
55 to 59	173,000	173,000	173,938	174,879	173,481	173,000	0	0	173,774
60 to 64	173,000	173,000	174,129	174,825	175,717	174,918	178,755	0	174,444
65 & up	173,000	175,926	173,000	173,293	179,187	180,023	176,971	0	175,059
Total	$ 173,000	$ 173,147	$ 173,520	$ 174,290	$ 175,972	$ 175,949	$ 177,506	$ 0	$ 173,968

APPENDIX A – MEMBERSHIP INFORMATION

Table A-7
Counts by Age and Status of Inactive Members
As of July 1, 2018

Attained Age	Status			Total
	Retiree	Beneficiary	Disabled	
Under 45	0	6	0	6
45 to 49	0	2	0	2
50 to 54	0	1	0	1
55 to 59	1	0	1	2
60 to 64	13	4	1	18
65 to 69	65	10	3	78
70 to 74	133	20	3	156
75 to 79	97	29	0	126
80 to 84	71	34	0	105
85 & up	64	55	1	120
Total	444	161	9	614

Table A-8
Average Retirement Allowances by Age and Status of Inactive Members
As of July 1, 2018

Attained Age	Status			Total
	Retiree	Beneficiary	Disabled	
Under 45	$ 0	$ 12,118	$ 0	$ 12,118
45 to 49	0	85,181	0	85,181
50 to 54	0	21,252	0	21,252
55 to 59	54,676	0	99,000	76,838
60 to 64	107,617	59,271	115,531	97,313
65 to 69	112,950	69,876	126,774	107,960
70 to 74	106,662	62,501	119,749	101,252
75 to 79	110,593	73,058	0	101,954
80 to 84	100,094	53,479	0	85,000
85 & up	99,150	46,662	95,115	75,059
Total	$ 106,219	$ 55,612	$ 116,579	$ 93,101

QDRO benefits included with member records for valuation purposes.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Methods

1. Investment Rate of Return

7.50% 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. Cost-of-Living Adjustments (COLAs)

No future COLA is assumed. Previously granted COLAs are included in the data.

4. Salary Increases

Salaries are assumed to increase by 2.00% per year through fiscal year 2025 and 3.00% per year for fiscal years 2026 and thereafter.

Salary increases are assumed to occur on January 1.

5. 401(a)(17) Pay Limit

$275,000 in 2018 increasing 3.00% per annum, compounded annually.

6. Disability

Representative disability rates are as follows:

Age	Rates
30	0.022%
35	0.026
40	0.033
45	0.064
50	0.114
55	0.197
60	0.326
65	0.473

7. Mortality

Healthy Mortality: RP-2000 Combined Healthy Mortality Tables (unadjusted for males and set forward 3 years for females) projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB and the Conduent Modified 2014 Projection scale thereafter.

Disabled Mortality: RP-2000 Disability Mortality Tables (set forward 2 years for males and females) without projection.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

8. Retirement

Retirement Rates

Age	Age 60 with 20 Years of Judicial Service or Age 65 with 15 Years of Judicial Service	After Age 59 with Less than 12 Years of Judicial Service	After Age 59 with 12 or More Years of Judicial Service (but have not attained 60/20JS or 65/15JS)	Prior to age 60 with 5 Years of Judicial Service and 25 Years of Public Service
50	0.0%	0.0%	0.0%	0.0%
51	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0
53	0.0	0.0	0.0	0.0
54	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0
56	0.0	0.0	0.0	0.0
57	0.0	0.0	0.0	0.0
58	0.0	0.0	0.0	0.0
59	0.0	0.0	0.0	0.0
60	30.0	2.5	0.0	0.0
61	20.0	2.5	0.0	0.0
62	20.0	2.5	0.0	0.0
63	30.0	2.5	0.0	0.0
64	30.0	2.5	0.0	0.0
65	37.5	2.5	10.0	0.0
66	24.0	2.5	0.0	0.0
67	24.0	2.5	0.0	0.0
68	24.0	2.5	0.0	0.0
69	24.0	2.5	0.0	0.0

100% at Age 70

9. Termination None assumed.

10. Family Composition Assumptions For members not currently in receipt, 90% of members are assumed married. Husbands are assumed to be three years older than wives.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

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 with husbands assumed to be three years older than wives.

For purposes of the statutory death benefit for members currently in receipt, 100% of participants are assumed married, with the exception of those members who elected Optional Forms A, B, C or D and are currently in receipt of their maximum retirement allowance. The spouse is assumed to be the reported beneficiary. If no beneficiary date of birth is provided, husbands are assumed to be three years older than wives.

No additional dependent children or parents are assumed.

Current dependents under age 21 are assumed to receive a benefit until age 21. Current dependents over age 21 are assumed to receive a benefit for the remainder of their lifetime.

11. Form of Payment

Current actives are assumed to elect the Maximum Option.

12. Data

Information provided by the prior actuary was relied upon for the purposes of valuing the deferred vested members.

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

Inactives receiving benefits according to the 2017 data but omitted from the 2018 data are assumed to have died without a beneficiary.

13. Rationale for Assumptions

The demographic assumptions used in this report reflect the results of the July 1, 2011 – June 30, 2014 Experience Study prepared by the prior actuary, which was approved by the State House Commission on October 26, 2015. The valuation is based on a 7.50% interest rate and annual salary increases that are 0.5% lower than the rates shown in the experience study, which were recommended by the State Treasurer. Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not performed our own actuarial experience study.

14. Changes in Assumptions Since Last Valuation

None

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Projection Assumptions

1. Investment Rate of Return

- July 1, 2019 valuation: 7.30% per annum, compounded annually.
- July 1, 2020 valuation: 7.30% per annum, compounded annually.
- July 1, 2021 and later valuations: 7.00% per annum, compounded annually.

2. Appropriation Percentages

The State is assumed to appropriate 70% of the Statutory contribution in FYE 2020, and to increase the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023.

3. Administrative Expenses

0.32% of expected pension benefit payments for the year.

4. New Entrants

- Contributing active population assumed to remain at 2018 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 2018 data.

5. Demographic Assumptions

Same as those used for valuation purposes.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

C. Actuarial Methods

The actuarial methods used for determining State contributions are described as follows.

1. Actuarial Cost Method

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

The actuarial liability is calculated as the actuarial present value of the projected benefits linearly allocated to periods prior to the valuation year based on judicial service. 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.

2. Asset Valuation Method

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

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

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

3. State Contribution Payable Dates

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.

4. Changes in Methods Since the Last Valuation

None

APPENDIX C – SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the JRS used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 43, Chapter 6A, 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.

1. Eligibility for Membership

Chief Justice and Associate Justices of the State Supreme Court, and judges of the Appellate Court, Superior Court and Tax Court of the State of New Jersey.

2. Plan Year

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

3. Service Credit

A year is credited for each year of service as a public employee in the State of New Jersey. Any service, for which the member did not receive annual salary of at least $500, shall be excluded.

4. Final Salary

Annual salary received by the member at the time of retirement or other termination of service. (Effective June 30, 1996, Chapter 113, P.L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the program cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code.)

5. Accumulated Deductions

The sum of all amounts deducted from the compensation of a member or contributed by him or on his behalf.

6. Employee Contributions

Any member enrolled prior to January 1, 1996 contributes 3% of the difference between current salary and salary for the position on January 18, 1982. Members enrolled on or after January 1, 1996 contribute 3% of their full salary.

Chapter 78, P.L. 2011 increases Member Contributions by 9% of salary phased in over a period of seven years beginning October 2011. (The additional 9% of salary will be fully recognized in July 2017.)

a) For Members enrolled prior to January 1, 1996:

(1) Member contributes 9% (phased in over a period of seven years beginning October 2011) of the salary for that position on January 18, 1982.

(2) Member contributes 12% (9% of that phased in over a period of seven years beginning October 2011) of the difference between current salary and salary for that position on January 18, 1982.

b) For members enrolled on or after January 1, 1996, Member contributes 12% (9% of that phased in over a period of seven years beginning October 2011) of full salary.

7. Retirement Allowance

Pension derived from contributions of the State plus the annuity derived from employee contributions.

8. Benefits

a) Service Retirements

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

(1) Age 70 and 10 years of judicial service; or

Age 65 and 15 years of judicial service; or

Age 60 and 20 years of judicial service.

Benefit is an annual retirement allowance equal to 75% of final salary.

(2) Age 65 while serving as a judge, 5 consecutive years of judicial service and 15 years in the aggregate of public service; or

Age 60 while serving as a judge, 5 consecutive years of judicial service and 20 years in the aggregate of public service.

Benefit is an annual retirement allowance equal to 50% of final salary.

(3) Age 60 while serving as a judge, 5 consecutive years of judicial service and 15 years in the aggregate of public service.

Benefit is an annual retirement allowance equal to 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year of public service in excess of 25 years.

(4) Age 60 while serving as a judge.

Benefit is an annual retirement allowance equal to 2% of final salary for each year of judicial service up to 25 years plus 1% for each year of public service in excess of 25 years.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

b) Early Retirement

Prior to age 60 while serving as a judge, 5 consecutive years of judicial service and 25 or more years in the aggregate of public service.

Benefit is an annual retirement allowance equal to 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year of public service in excess of 25 years, actuarially reduced for commencement prior to age 60.

c) Vested Termination

Termination of service prior to age 60, with 5 consecutive years of judicial service and 10 years in the aggregate of public service.

Benefit is a refund of accumulated deductions, or a deferred life annuity beginning at age 60 equal to 2% of final salary for each year of public service up to 25 years, plus 1% of final salary for each year of public service in excess of 25 years.

d) Disability Retirement

Physically or otherwise incapacitated for the full and efficient service to State in his judicial capacity and such incapacity is likely to be permanent.

Benefit is an annual retirement allowance of 75% of final salary.

e) Death Benefits

(1) Before Retirement: Death of an active member of the plan. Benefit is equal to:

a) Lump sum payment equal to 1-1/2 times compensation, plus

b) Spousal life annuity of 25% of final salary payable until spouse's remarriage plus 10% (15%) to one (two or more) dependent child(ren). If there is no surviving spouse, or upon death or remarriage, a total of 15% (20%, 30%) of final salary payable to one (two, three or more) dependent child(ren). If there is no surviving spouse or dependent child(ren), 20% (30%) of final salary to one (two) dependent parent(s). If there is no surviving spouse, dependent child(ren) or parent(s), the benefit is a refund of accumulated deductions with interest. This is also known as the statutory death benefit.

(2) After Retirement: Death of a retired member of the plan. The benefit is equal to:

a) Lump sum of 25% of final salary for a member retired under service or early retirement. For a member receiving a disability benefit, a lump sum of 150% of final salary if death occurred before the member attained age 60 and 25% of final salary if death occurred after age 60, plus

b) Spousal life annuity of 25% of final salary adjusted for any previously granted Cost-of-Living Adjustments, or the salary of an active judge in the member's final position at retirement, if larger, payable until spouse's remarriage plus 10% (15%) to one (two or more) dependent child(ren). If there is no surviving spouse, or upon death or remarriage, a total of 15% (20%, 30%) of final salary payable to one (two, three or more) dependent child(ren). This is also known as the statutory death benefit.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

9. Forms of Payment

In addition to the postretirement death benefits listed above, the member may elect the following forms of payment.

a) Maximum Option: Single life annuity with a return of the balance of the member accumulated deductions with 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

10. Changes in Plan Provisions since Last Valuation

None.

APPENDIX D – HISTORICAL DATA

Table D-1
Historical Summary of Assets and Liabilities

Valuation Date July 1,	Market Value of Assets	Actuarial Value of Assets	Actuarial Liability	Funded Ratio Market Value	Funded Ratio Actuarial Value
2018	$ 195,468,291	$ 209,981,271	$ 670,562,613	29.1%	31.3%
2017	197,567,630	216,952,852	646,507,109	30.6%	33.6%
2016	196,407,352	226,310,119	629,810,812	31.2%	35.9%
2015	225,712,843	243,864,022	602,364,200	37.5%	40.5%
2014	244,567,822	258,101,497	632,679,937	38.7%	40.8%
2013	244,280,889	276,966,331	620,376,292	39.4%	44.6%
2012	243,679,037	290,191,842	605,180,634	40.3%	48.0%
2011	270,183,306	310,724,782	585,700,787	46.1%	53.1%
2010	261,523,992	329,030,387	554,540,403	47.2%	59.3%
2009	261,751,336	355,522,646	594,043,375	44.1%	59.9%

Table D-2
Historical Summary of Employer Contributions

Fiscal Year Ending June 30,	Statutory/ Actuarially Determined Contribution	Actual Pension Contributions	Contribution Deficiency (Excess)	Percentage of Contribution Covered
2019	$ 48,368,041	$ 29,020,825	$ 19,347,216	60.00%
2018	46,531,943	23,266,000	23,265,943	50.00%
2017	44,156,771	19,677,000	24,479,771	44.56%
2016	46,502,819	13,951,000	32,551,819	30.00%
2015	44,334,504	16,506,000	27,828,504	37.23%
2014	43,050,167	15,334,000	27,716,167	35.62%
2013	40,751,804	11,643,000	29,108,804	28.57%
2012	38,352,572	5,479,000	32,873,572	14.29%
2011	34,653,737	0	34,653,737	0.00%
2010	28,857,945	0	28,857,945	0.00%

FYE 2019 actual contribution is based on the State's anticipated appropriation of 60% of the Statutory Contribution.

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 E – 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 E – 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 E – GLOSSARY OF TERMS

15. Projected Unit Credit Cost Method

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

16. Unfunded Actuarial Liability

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