The State Police Retirement System of New Jersey

Information Required Under Governmental Accounting Standards Board Statement No. 67 as of June 30, 2015

(Revised)

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September 26, 2016

Board of Trustees
The State Police Retirement System
of New Jersey
Trenton, New Jersey 08625

Members of the Board:

This valuation provides information concerning the State Police Retirement System of New Jersey in accordance with the Governmental Accounting Standards Board (GASB) Statement No. 67. This Statement is an amendment of Statements No. 25, Financial Reporting for Defined Benefit Pension Plans and Note Disclosures for Defined Contribution Plans, and No. 50, Pension Disclosures, and was effective for Plan fiscal years on ending June 30, 2014 and later.

This valuation reports the revised results presented in the Information Required Under Governmental Accounting Standards Board No. 67 as of June 30, 2015, which was published February 29, 2016, to recognize the effect of the demographic assumptions recommended on the basis of the July 1, 2011 – June 30, 2014 Experience Study and approved by the Board of Trustees on January 26, 2016 on the Plan's projected June 30, 2015 total pension liability.

I certify that the information contained in this Actuarial Report has been prepared in accordance with generally accepted actuarial principles and practices. To the best of our knowledge, the information fairly presents the actuarial position of the State Police Retirement System of New Jersey in accordance with the requirements of GASB Statement No. 67 as of June 30, 2015.

The Board of Trustees may use this report for the review of the operation of the plan and as a source of information for the State financial statements. The report may also be used in the preparation of the plan's audited financial statements.

Use of this report for any other purpose or by anyone other than the Board of Trustees or the staff of the Division of Pensions and Benefits may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. Buck should be asked to review any statement to be made on the basis of the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of such future differences is beyond the scope of this valuation.

In preparing the actuarial results, we have relied upon information provided by the Division of Pensions and Benefits regarding plan provisions, plan participants, plan assets, contribution rates and other matters used in the actuarial valuation. Although we did not audit the data, we reviewed the data for reasonableness and consistency with the prior year's information. The accuracy of the results presented herein is dependent on the accuracy of the data.

As required under Section 32 of Chapter 89, P.L. 1965, experience studies are performed once in every three year period. The valuation was prepared using demographic assumptions recommended on the basis of the July 1, 2008 – June 30, 2011 Experience Study and approved by the Board of Trustees at the September 25, 2012 Board meeting. The valuation reflects economic assumptions which include a rate of investment return of 7.90% per annum. Assumed future salary increases are 3.45% per annum through fiscal year ending 2021 and 4.45% per annum for fiscal years ending 2022 and thereafter. These assumptions will remain in effect for valuation purposes until such time the Board or the Treasurer recommends revised assumptions.

Based on discussions with the staff of the Division of Pensions and Benefits, the Plan's total pension liability as of June 30, 2015 reflects the change in demographic assumptions recommended on the basis of the July 1, 2011 – June 30, 2014 Experience Study which was adopted by the Board of Trustees on January 26, 2016. This is consistent with Paragraph 37 of GASB Statement No. 67 since the Plan's total pension liability as of June 30, 2015 was determined by rolling forward the Plan's total pension liability as of July 1, 2014 to June 30, 2015 and the Board of Trustees approved the use of recommended demographic assumptions effective with the July 1, 2015 actuarial valuation,

In my opinion, the actuarial assumptions used are appropriate for purposes of the valuation and are reasonably related to the experience of the System and to reasonable long-term expectations. The mortality improvement assumption was selected in accordance with Actuarial Standard of Practice No. 35.

If there is reason to believe that the assumptions that were used are unreasonable, that the Plan provisions are incorrectly described, that important Plan provisions relevant to this actuarial report are not described, or that conditions have changed since the calculations were made, you should contact the authors of this actuarial note prior to relying on this information.

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice. I am available to answer questions and supply any additional information.

Buck Consultants, LLC

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA
Principal, Consulting Actuary

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Section I – GASB 67 Information

Notes to the Financial Statements for the Year Ended June 30, 2015

Summary of Significant Accounting Policies

Method used to value investments. Investments are reported at fair value.

Actuarial cost method. Entry Age Normal – Level Percentage of Pay

Plan Description

Plan administration. The State of New Jersey Division of Pensions and Benefits administers the State Police Retirement System of New Jersey (Plan), a single-employer defined benefit pension plan that provides pensions for all individuals who become full-time troopers or commissioned or noncommissioned officers of the Division of State Police enrolled in the Plan.

The general responsibility for the proper operation of the Plan is vested in the Board of Trustees (Board), and the pension committee established pursuant to Chapter 78 P.L. 2011.

The Board of Trustees consists of two active or retired members of the system appointed by the Superintendent of State Police, two members appointed by the Governor, the State Treasurer, who serves as an ex-officio member, and a member appointed by the Director of the Division of Pensions and Benefits of the State Department of the Treasury who shall be the secretary of the Board.

In accordance with Chapter 78, P.L. 2011, a pension committee is to be established when the Plan's "target funded ratio" is achieved. The "target funded ratio" is defined as the ratio of the actuarial value of assets over the actuarially determined accrued liabilities expressed as a percentage that will be 75% in State fiscal year 2012, and increased annually by equal increments in each of the subsequent seven fiscal years, until the ratio reaches 80% at which it is to remain for all subsequent fiscal years. The Plan attained the required 75% "target funded ratio" in Fiscal Year 2012, establishing the pension committee for the Plan.

The pension committee consists of four members appointed by the Governor as representatives of the public employer whose employees are enrolled in the Plan, three members appointed by the head of the State Troopers Fraternal Association, and one who is appointed by the head of the union representing the greatest number of members of the Plan who are supervisory officers having union membership.

Chapter 78, P.L. 2011 grants the authority to amend the benefit terms of the Plan to the pension committee. The pension committee will have the discretionary authority to modify the member contribution rate, formula for calculation of final compensation, fraction used to calculate the retirement allowance, age at which a member may be eligible and the benefits for service or early retirement and benefits provided for disability benefit. The pension committee will not have the authority to change the number of years required for vesting. The pension committee will have the authority to reactivate the cost of living adjustment and set the duration and extent of the activation. The pension committee must give priority consideration to the reactivation of the cost of living adjustment. No decision of the pension committee shall be implemented if the direct or indirect result of the decision will be that the Plan's funded ratio falls below the target funded ratio in any valuation period during the 30 years following the implementation of the decision.

Plan membership. Pension plan membership consisted of the following:

	June 30, 2013	June 30, 2014
Inactive plan members or beneficiaries currently receiving	3,253	3,409
Inactive plan members entitled to but not yet receiving	0	0
Active plan members	2,481	2,522
	5,734	5,931

Benefits provided. Please see Section III of the report for a summary of plan provisions.

Contributions. The Board establishes contributions based on an actuarially determined contribution recommended by an independent actuary and a contribution for the Non-Contributory Group Insurance Premium Fund (NCGIPF). The actuarially determined contribution is the estimated amount necessary to finance the costs of benefits earned by plan members during the year, with an additional amount to finance a portion of any unfunded accrued liability. For the year ended June 30, 2015, the State contributed $38,527,297 to the plan per the financial statement. This amount excludes transfers from other systems. In addition, the administrative loan fee revenue is not included and has been used as an offset to administrative expenses.

Investments

Rate of return. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested. A system specific money-weighted rate of return has not been calculated. The annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, for the co-mingled trust is as follows.

June 30, 2014	June 30, 2015
16.636%	4.05%

Receivables

N/A.

Net Pension Liability

The components of the net pension liability were as follows:

	June 30, 2014	June 30, 2015
Total pension liability	$ 4,246,118,723	$ 4,821,505,776
Plan fiduciary net position	(1,937,956,394)	(1,867,709,111)
State's net pension liability	$ 2,308,162,329	$ 2,953,796,665
Plan fiduciary net position as a percentage of the total pension liability	45.64%	38.74%

Actuarial assumptions

The total pension liability as of June 30, 2015 was determined by rolling forward the Plan's total pension liability as of July 1, 2014 to June 30, 2015 using the following actuarial assumptions, applied to all periods included in the measurement. In addition, an amount of $222,557 has been added to the liability as of June 30, 2015 equal to the amount in the June 30, 2015 Plan Fiduciary Net Position for transfers from other Systems. All other methods and assumptions used to determine the total pension liability are set forth in Section II and are consistent with the assumptions used for the July 1, 2014 actuarial valuation.

The actuarial cost method used to develop the total pension liability is the Entry Age Normal Cost-Level Percent of Pay method, as required by GASB Statements No. 67.

Long-Term Expected Rate of Return

The arithmetic mean return on the portfolio was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic rates of return for each major asset class included in the pension plan's target asset allocation as of June 30, 2015 are summarized in the following table. The capital market assumptions are per Buck's investment consulting practice for 2015.

Asset Class	Index	Target Allocation*	Long-Term Expected Real Rate of Return
Cash	Citigroup 90-Day T-Bills	5.00%	1.04%
U.S. Treasuries	Barclays Long U.S. Treasury	1.75%	1.64%
Investment Grade Credit	Aggregate Bonds	10.00%	1.79%
Mortgages	Barclays Mortgage	2.10%	1.62%
High Yield Bonds	Barclays High Yield	2.00%	4.03%
Inflation-Indexed Bonds	Barclays U.S. TIPS	1.50%	3.25%
Broad US Equities	Wilshire 5000/Russell 3000	27.25%	8.52%
Developed Foreign Equities	MSCI EAFE	12.00%	6.88%
Emerging Market Equities	MSCI Emerging Markets	6.40%	10.00%
Private Equity	Cambridge Associates	9.25%	12.41%
Hedge Funds/Absolute Return	HFRI Fund of Funds	12.00%	4.72%
Real Estate (Property)	NCREIF Property Index	2.00%	6.83%
Commodities	S&P GSCI	1.00%	5.32%
Global Debt ex US	Barclays Global Aggregate ex US	3.50%	-0.40%
REIT	FTSE NAREIT	4.25%	5.12%
Assumed Inflation – Mean			3.04%
Assumed Inflation – Standard Deviation			2.59%
Portfolio Arithmetic Mean Return			9.36%
Portfolio Standard Derivation			11.94%
Long-Term Expected Rate of Return selected by State Treasurer			**7.90%**

*Based on target asset allocation for 2015.

The Tables presented in pages 8 through 11 illustrate the projections and calculations used to determine the discount rate as required by paragraphs 40−45 of this Statement as of June 30, 2015. A similar analysis was performed in determining the discount rate as of June 30, 2014. The discount rate is the single rate that reflects (1) the long-term expected rate of return on Plan investments that are expected to be used to finance the payment of benefits, to the extent that the Plan's fiduciary net position is projected to be sufficient to make projected benefit payments and Plan assets are expected to be invested using a strategy to achieve that return, and (2) a yield or index rate for 20-year, tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another scale), to the extent that the conditions for use of the long-term expected rate of return are not met.

Discount rate. The discount rates used to measure the total pension liability were 5.12% as of June 30, 2014 and 4.59% as of June 30, 2015. As discussed with the Division of Pensions and Benefits, the projection of cash flows used to determine the discount rate as of June 30, 2015 assumed:

- In accordance with Paragraph 37 of GASB Statement No. 67, the projection of the Plan's fiduciary net position and projected benefit payments were based on the recommended demographic assumptions of the July 1, 2011 – June 30, 2014 Experience Study, which was approved by the Board of Trustees on January 26, 2016. Please see Section II of the report for a summary of the revised demographic assumptions.

- In accordance with Paragraph 42 of the GASB Statement No. 67, the State will contribute 22.02% of the actuarially determined contribution and 100% of its NCGIPF contribution. The 22.02% contribution rate is the average of the actual State contribution amounts paid in the last five years in comparison to the annual actuarially determined contributions.

Based on these assumptions, the pension Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current Plan members until fiscal year 2033. Municipal bond rates of 4.29% as of June 30, 2014 and 3.80% as of June 30, 2015 were used in the development of the blended GASB discount rate after that point. As selected by the State Treasurer, the rates are based on the Bond Buyer Go 20-Bond Municipal Bond Index. Based on the long-term rate of return of 7.90% and the municipal bond rates of 4.29% as of June 30, 2014 and 3.80% as of June 30, 2015, the blended GASB discount rates are 5.12% as of June 30, 2014 and 4.59% as of June 30, 2015. The assumed discount rates have been determined in accordance with the method prescribed by GASB Statement No. 67. We believe this assumption is reasonable for the purposes of the measurements required by the Statement.

The projections of the Fiduciary Net Plan Position are based on contributions to the plan in accordance with the State's current funding policy. Should contributions to the Plan be different from those based on the State's current funding policy, the results shown in Tables 1 and 2 would reflect the new contribution policy and may result in the Fiduciary Net Plan Position not being sufficient to cover the Plan's benefit payments at some other future date and thus changing the discount rate used to determine the Plan's Total Pension Liability.

Sensitivity of the net pension liability to changes in the discount rate. The following presents the net pension liability, calculated using the discount rate of 4.59%, as well as what the State's net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower (3.59%) or 1-percentage-point higher (5.59%) than the current rate:

	1% Decrease (3.59%)	**Current Discount Rate (4.59%)**	**1% Increase (5.59%)**
Net Pension Liability	$ 3,714,159,123	$ 2,953,796,665	$ 2,347,389,106

Schedules of Required Supplementary Information

Schedule of Changes in The State's Net Pension Liability and Related Ratios

Changes in Net Pension Liability	Increase (Decrease) Total Pension Liability (a)	Plan Fiduciary Net Positon (b)	Net Pension Liability (a) - (b)
Balances as of June 30, 2014	$ 4,246,118,723	$ 1,937,956,394	$ 2,308,162,329
Changes for the year:			
Service cost	93,740,921		93,740,921
Interest on total pension liability	216,980,562		216,980,562
Effect of plan changes	0		0
Effect of economic/demographic (gains) or losses	35,245,543		35,245,543
Effect of assumptions changes or inputs	435,691,094		435,691,094
Benefit payments	(206,493,624)	(206,493,624)	0
Administrative expenses		(351,723)	351,723
Member contributions		22,315,430	(22,315,430)
Net investment income		75,532,780	(75,532,780)
Employer contributions		38,527,297	(38,527,297)
Transfers from other systems	222,557	222,557	0
Balances as of June 30, 2015	$ 4,821,505,776	$ 1,867,709,111	$ 2,953,796,665

Plan fiduciary net position as a percentage of the total pension liability 38.74%

Covered-employee payroll as of the July 1, 2014 actuarial valuation $ 262,496,289
Net pension liability as a percentage of covered-employee payroll 1,125.27%

Notes to Schedule:

Benefit changes. None.

Changes of assumptions. The discount rate changed from 5.12% as of June 30, 2014 to 4.59% as of June 30, 2015 in accordance with Paragraph 44 of the GASB Statement No. 67. In addition, an assumption with regard to future increases in the Social Security Wage Base and the 401(a)(17) compensation limit have been added as indicated in Section II. Finally, the Total Pension Liability as of June 30, 2015 was prepared using demographic assumptions recommended on the basis of the July 1, 2011 – June 30, 2014 Experience Study. Please see Section II of the report for a summary of the revised demographic assumptions.

Employer Contributions. Includes the State's actual contributions of $37,358,000 and contributions to the NCGIPF of $1,169,297.

Schedule of State Contributions

	2014	2015
Actuarially determined contribution	$ 105,093,378[1]	$ 110,904,703[2]
Contributions related to the actuarially determined contribution	$ 36,379,273	$ 38,527,297[3]
Contribution deficiency (excess)	$ 68,714,105	$ 72,377,406

1. The above actuarially determined contribution is based on the assumption and methods in effect as of July 1, 2012.
2. The above actuarially determined contribution is based on the assumption and methods in effect as of July 1, 2013.
3. The amount represents the actual employer contributions made during fiscal year ending June 30, 2015.

Notes to Schedule

Valuation date: Actuarially determined contributions are calculated as of the July 1 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the July 1, 2013 actuarial valuation will be made during the fiscal year ended June 30, 2015.

The methods and assumptions used to determine the actuarially determined contributions to the plan are set forth in Appendix B in the July 1, 2013 valuation report.

Schedule of Investment Returns

	2014	2015
Annual money-weighted rate of return, net of investment expenses	**16.636%**	**4.05%**

Table 1

Projection of Fiduciary Net Position

(000's omitted)

Fiscal Year June 30	Beginning Fiduciary Net Plan Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Projected Investment Earnings	Ending Fiduciary Net Plan Position
2015	$ 1,937,956	$ 22,315	$ 38,750	$ 206,494	$ 352	$ 75,534	$ 1,867,709
2016	1,867,709	19,266	28,395	214,979	362	140,040	1,840,069
2017	1,840,069	19,113	31,591	220,200	371	137,653	1,807,855
2018	1,807,855	19,148	34,115	223,740	377	134,978	1,771,979
2019	1,771,979	19,026	36,859	228,325	385	131,966	1,731,120
2020	1,731,120	18,714	39,626	234,378	395	128,495	1,683,182
2021	1,683,182	18,140	42,369	242,338	407	124,378	1,625,324
2022	1,625,324	17,759	45,475	249,691	419	119,513	1,557,961
2023	1,557,961	17,451	48,763	256,183	430	113,931	1,481,493
2024	1,481,493	16,871	52,368	264,742	443	107,541	1,393,088
2025	1,393,088	16,350	56,111	272,262	455	100,251	1,293,083
2026	1,293,083	16,038	60,219	277,839	465	92,129	1,183,165
2027	1,183,165	14,972	64,629	289,099	479	82,966	1,056,154
2028	1,056,154	13,819	69,052	300,660	493	72,444	910,316
2029	910,316	12,912	73,787	309,885	508	60,534	747,156
2030	747,156	11,741	79,091	320,795	523	47,178	563,848
2031	563,848	9,993	84,630	335,922	539	32,041	354,051
2032	354,051	8,298	88,647	349,842	555	14,865	115,464
2033	115,464	7,058	92,899	359,390	570	0	0
2034	0	0	0	368,404	584	0	0
2035	0	0	0	377,233	598	0	0
2036	0	0	0	381,764	606	0	0
2037	0	0	0	382,500	607	0	0
2038	0	0	0	383,154	608	0	0
2039	0	0	0	386,648	613	0	0
2040	0	0	0	389,170	617	0	0
2041	0	0	0	387,363	614	0	0
2042	0	0	0	384,156	609	0	0
2043	0	0	0	379,760	602	0	0
2044	0	0	0	374,447	594	0	0
2045	0	0	0	368,518	585	0	0
2046	0	0	0	362,191	574	0	0
2047	0	0	0	355,508	564	0	0
2048	0	0	0	348,589	553	0	0
2049	0	0	0	341,429	542	0	0
2050	0	0	0	334,016	530	0	0
2051	0	0	0	326,340	518	0	0
2052	0	0	0	318,392	505	0	0
2053	0	0	0	310,170	492	0	0
2054	0	0	0	301,674	478	0	0
2055	0	0	0	292,910	465	0	0
2056	0	0	0	283,889	450	0	0
2057	0	0	0	274,628	436	0	0
2058	0	0	0	265,151	421	0	0
2059	0	0	0	255,487	405	0	0
2060	0	0	0	245,669	390	0	0

Table 1
(continued)
Projection of Fiduciary Net Position
(000's omitted)

Fiscal Year June 30	Beginning Fiduciary Net Plan Position	Member Contributions	Employer Contributions	Benefit Payments	Administrative Expenses	Projected Investment Earnings	Ending Fiduciary Net Plan Position
2061	$ 0	$ 0	0	235,732	$ 374	$ 0	$ 0
2062	0	0	0	225,711	358	0	0
2063	0	0	0	215,643	342	0	0
2064	0	0	0	205,556	326	0	0
2065	0	0	0	195,480	310	0	0
2066	0	0	0	185,436	294	0	0
2067	0	0	0	175,439	278	0	0
2068	0	0	0	165,503	263	0	0
2069	0	0	0	155,633	247	0	0
2070	0	0	0	145,842	231	0	0
2071	0	0	0	136,140	216	0	0
2072	0	0	0	126,543	201	0	0
2073	0	0	0	117,073	186	0	0
2074	0	0	0	107,756	171	0	0
2075	0	0	0	98,627	156	0	0
2076	0	0	0	89,720	142	0	0
2077	0	0	0	81,086	129	0	0
2078	0	0	0	72,767	115	0	0
2079	0	0	0	64,818	103	0	0
2080	0	0	0	57,283	91	0	0
2081	0	0	0	50,209	80	0	0
2082	0	0	0	43,631	69	0	0
2083	0	0	0	37,579	60	0	0
2084	0	0	0	32,068	51	0	0
2085	0	0	0	27,104	43	0	0
2086	0	0	0	22,680	36	0	0
2087	0	0	0	18,784	30	0	0
2088	0	0	0	15,392	24	0	0
2089	0	0	0	12,473	20	0	0
2090	0	0	0	9,994	16	0	0
2091	0	0	0	7,913	13	0	0
2092	0	0	0	6,191	10	0	0
2093	0	0	0	4,783	8	0	0
2094	0	0	0	3,648	6	0	0
2095	0	0	0	2,745	4	0	0
2096	0	0	0	2,036	3	0	0
2097	0	0	0	1,488	2	0	0
2098	0	0	0	1,071	2	0	0
2099	0	0	0	758	1	0	0
2100	0	0	0	528	1	0	0
2101	0	0	0	361	1	0	0
2102	0	0	0	242	0	0	0
2103	0	0	0	159	0	0	0
2104	0	0	0	102	0	0	0
2105	0	0	0	64	0	0	0
2106	0	0	0	39	0	0	0
2107	0	0	0	24	0	0	0
2108	0	0	0	14	0	0	0
2109	0	0	0	8	0	0	0
2110	0	0	0	4	0	0	0
2111	0	0	0	2	0	0	0
2112	0	0	0	1	0	0	0

Table 2

Actuarial Present Values of Projected Benefit Payments
(000's omitted)

Fiscal Year Ending June 30	Beginning Fiduciary Net Plan Position	Benefit Payments	Benefit Payments: Funded Portion	Benefit Payments: Unfunded Portion	Present Value of Benefit Payments: Funded Portion at 7.90%	Present Value of Benefit Payments: Unfunded Portion at 3.80%	Present Value of Benefit Payments: Using Single Discount Rate of 4.59%
2015	$ 1,937,956	$ 206,494	$ 206,494	$ 0	$ 198,791	$ 0	$ 201,916
2016	1,867,709	214,979	214,979	0	191,807	0	200,996
2017	1,840,069	220,200	220,200	0	182,081	0	196,849
2018	1,807,855	223,740	223,740	0	171,463	0	191,244
2019	1,771,979	228,325	228,325	0	162,165	0	186,605
2020	1,731,120	234,378	234,378	0	154,277	0	183,153
2021	1,683,182	242,338	242,338	0	147,837	0	181,068
2022	1,625,324	249,691	249,691	0	141,170	0	178,382
2023	1,557,961	256,183	256,183	0	134,235	0	174,994
2024	1,481,493	264,742	264,742	0	128,564	0	172,912
2025	1,393,088	272,262	272,262	0	122,536	0	170,026
2026	1,293,083	277,839	277,839	0	115,890	0	165,900
2027	1,183,165	289,099	289,099	0	111,758	0	165,054
2028	1,056,154	300,660	300,660	0	107,717	0	164,128
2029	910,316	309,885	309,885	0	102,894	0	161,746
2030	747,156	320,795	320,795	0	98,718	0	160,098
2031	563,848	335,922	335,922	0	95,804	0	160,297
2032	354,051	349,842	349,842	0	92,469	0	159,619
2033	115,464	359,390	115,464	243,926	28,284	122,352	156,785
2034	0	368,404	0	368,404	0	178,023	153,670
2035	0	377,233	0	377,233	0	175,616	150,453
2036	0	381,764	0	381,764	0	171,219	145,584
2037	0	382,500	0	382,500	0	165,269	139,468
2038	0	383,154	0	383,154	0	159,491	133,581
2039	0	386,648	0	386,648	0	155,053	128,888
2040	0	389,170	0	389,170	0	150,351	124,040
2041	0	387,363	0	387,363	0	144,174	118,051
2042	0	384,156	0	384,156	0	137,746	111,940
2043	0	379,760	0	379,760	0	131,185	105,806
2044	0	374,447	0	374,447	0	124,614	99,752
2045	0	368,518	0	368,518	0	118,152	93,867
2046	0	362,191	0	362,191	0	111,872	88,211
2047	0	355,508	0	355,508	0	105,788	82,786
2048	0	348,589	0	348,589	0	99,931	77,616
2049	0	341,429	0	341,429	0	94,296	72,688
2050	0	334,016	0	334,016	0	88,871	67,992
2051	0	326,340	0	326,340	0	83,650	63,516
2052	0	318,392	0	318,392	0	78,625	59,252
2053	0	310,170	0	310,170	0	73,791	55,191
2054	0	301,674	0	301,674	0	69,142	51,325
2055	0	292,910	0	292,910	0	64,676	47,649
2056	0	283,889	0	283,889	0	60,389	44,157
2057	0	274,628	0	274,628	0	56,280	40,843
2058	0	265,151	0	265,151	0	52,349	37,704
2059	0	255,487	0	255,487	0	48,595	34,737
2060	0	245,669	0	245,669	0	45,016	31,938
2061	0	235,732	0	235,732	0	41,614	29,302
2062	0	225,711	0	225,711	0	38,387	26,826

Table 2
(continued)
Actuarial Present Values of Projected Benefit Payments
(000's omitted)

			Benefit Payments		Present Value of Benefit Payments		
Fiscal Year Ending June 30	Beginning Fiduciary Net Plan Position	Benefit Payments	Funded Portion	Unfunded Portion	Funded Portion at 7.90%	Unfunded Portion at 3.80%	Using Single Discount Rate of 4.59%
2063	$ 0	$ 215,643	$ 0	$ 215,643	$ 0	$ 35,332	$ 24,506
2064	0	205,556	0	205,556	0	32,446	22,335
2065	0	195,480	0	195,480	0	29,726	20,309
2066	0	185,436	0	185,436	0	27,166	18,421
2067	0	175,439	0	175,439	0	24,761	16,663
2068	0	165,503	0	165,503	0	22,503	15,030
2069	0	155,633	0	155,633	0	20,387	13,514
2070	0	145,842	0	145,842	0	18,405	12,109
2071	0	136,140	0	136,140	0	16,551	10,808
2072	0	126,543	0	126,543	0	14,821	9,605
2073	0	117,073	0	117,073	0	13,210	8,497
2074	0	107,756	0	107,756	0	11,714	7,478
2075	0	98,627	0	98,627	0	10,329	6,544
2076	0	89,720	0	89,720	0	9,052	5,692
2077	0	81,086	0	81,086	0	7,882	4,919
2078	0	72,767	0	72,767	0	6,814	4,220
2079	0	64,818	0	64,818	0	5,847	3,595
2080	0	57,283	0	57,283	0	4,978	3,037
2081	0	50,209	0	50,209	0	4,204	2,546
2082	0	43,631	0	43,631	0	3,519	2,115
2083	0	37,579	0	37,579	0	2,920	1,742
2084	0	32,068	0	32,068	0	2,401	1,421
2085	0	27,104	0	27,104	0	1,955	1,149
2086	0	22,680	0	22,680	0	1,576	919
2087	0	18,784	0	18,784	0	1,257	728
2088	0	15,392	0	15,392	0	993	570
2089	0	12,473	0	12,473	0	775	442
2090	0	9,994	0	9,994	0	598	338
2091	0	7,913	0	7,913	0	456	256
2092	0	6,191	0	6,191	0	344	192
2093	0	4,783	0	4,783	0	256	142
2094	0	3,648	0	3,648	0	188	103
2095	0	2,745	0	2,745	0	136	74
2096	0	2,036	0	2,036	0	97	53
2097	0	1,488	0	1,488	0	69	37
2098	0	1,071	0	1,071	0	48	25
2099	0	758	0	758	0	32	17
2100	0	528	0	528	0	22	11
2101	0	361	0	361	0	14	7
2102	0	242	0	242	0	9	5
2103	0	159	0	159	0	6	3
2104	0	102	0	102	0	4	2
2105	0	64	0	64	0	2	1
2106	0	39	0	39	0	1	1
2107	0	24	0	24	0	1	0
2108	0	14	0	14	0	0	0
2109	0	8	0	8	0	0	0
2110	0	4	0	4	0	0	0
2111	0	2	0	2	0	0	0
2112	0	1	0	1	0	0	0

Section II – Actuarial Assumptions and Methods

Investment Rate of Return: 7.90% per annum, compounded annually.

COLA: No future COLA is assumed.

Salary Increases: Salaries are assumed to increase by 3.45% per year through fiscal year ending 2021 and 4.45% per year for fiscal years ending 2022 and thereafter.

401(a)(17) Pay Limit: $260,000 for 2014 increasing 3.00% per annum, compounded annually.

Social Security Wage Base: $117,000 for 2014 increasing 4.00% per annum, compounded annually.

Termination: Withdrawal rates vary by length of service. Illustrative rates are shown below:

	Lives per Thousand	
Age	Less Than 5 Years of Service	Five to Nineteen Years of Service
25	5.0	0.0
30	5.0	4.0
35	8.3	1.0
40	0.0	1.5
45	0.0	2.0
50	0.0	0.0

Separations From Service: Representative mortality, disability and retirement rates are as follows:

	Annual Rates of*				
	Ordinary Death**				
Age	Male	Female	Accidental Death	Ordinary Disability	Accidental Disability
25	0.4	0.2	0.4	0.6	0.3
30	0.4	0.3	0.5	0.9	0.5
35	0.6	0.5	0.5	2.4	1.9
40	0.9	0.7	0.5	2.5	2.1
45	1.2	1.1	0.6	3.1	2.1
50	1.7	1.7	0.9	5.4	2.2

* Per one thousand lives.

** RP-2000 Combined Healthy Male (set back 3 years) and RP-2000 Combined Healthy Female Mortality Tables projected on a generational basis from the base year of 2012 using Projection Scale AA. Rates shown above are unadjusted for Projection Scale AA.

Marriage: Husbands are assumed to be 3 years older than wives. Among the active population, 83.3% of participants are assumed married. No children are assumed. Neither the percentage married nor the number of children assumption is individually explicit but are considered reasonable as a single combined assumption.

Valuation Method:

Funding calculations: Projected Unit Credit Method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. 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 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.

Asset Valuation Method: A five-year average of market values with write-up. (This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis, over a five-year period).

Deaths After Retirement: For healthy inactive members and beneficiaries of deceased members the RP-2000 Combined Healthy Male (set back 3 years) and RP-2000 Combined Healthy Female Mortality tables projected on a generational basis from the base year of 2012 using Projection Scale AA. For disabled members the RP-2000 Combined Healthy Male (set forward 5 years) and RP-2000 Combined Healthy Female Mortality (set forward 5 years) tables are used. Illustrative rates of mortality unadjusted for Projection Scale AA are shown below:

	Lives per Thousand			
	Retired Members and Beneficiaries of Deceased Members		Disabled Members	
Age	Males	Females	Males	Females
55	2.7	2.7	6.8	5.1
60	4.7	5.1	12.7	9.7
65	8.8	9.7	22.2	16.7
70	16.1	16.7	37.8	28.1
75	27.3	28.1	64.4	45.9
80	46.9	45.9	110.8	77.5
85	80.5	77.5	183.4	131.7
90	136.0	131.7	267.5	194.5

Rates of Retirement: Rates of retirement vary by length of service and age (if more than 24 years of service) with 100% of those remaining at age 55 retiring at age 55. The rates are shown below:

Service	Lives Per 100
20	2.0
21	0.5
22	0.0
23	0.0
24	0.0
25	45.5
Greater than 25 :	
(a) through age 42	5.0
(b) ages 43-47	25.0
(c) ages 48-53	30.0
(d) age 54	55.0

Demographic assumptions used to determine the Discount Rate and Total Pension Liability as of June 30, 2015

Termination: Withdrawal rates vary by length of service. Illustrative rates are shown below:

	Lives per Thousand	
Age	Less Than 5 Years of Service	Five to Nineteen Years of Service
25	3.8	0.0
30	3.8	2.0
35	8.3	1.4
40	0.0	0.8
45	0.0	1.0
50	0.0	0.0

Separations From Service: Representative mortality, disability and retirement rates are as follows:

	Annual Rates of*				
	Ordinary Death**				
Age	Male	Female	Accidental Death	Ordinary Disability	Accidental Disability
25	0.4	0.2	0.3	0.4	0.2
30	0.4	0.3	0.5	0.6	0.5
35	0.5	0.5	0.5	1.5	1.9
40	0.9	0.7	0.5	1.7	2.1
45	1.2	1.1	0.7	2.2	2.1
50	1.7	1.6	0.9	3.8	2.3

* Per one thousand lives.

** RP-2000 Combined Healthy Male (set back 3 years) and RP-2000 Combined Healthy Female Mortality Tables projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB as the base table. The base tables will be further projected using the Buck Modified MP-2014 Projection Scale. Rates shown above are unadjusted for the Buck Modified MP-2014 Projection Scale.

Deaths After Retirement: For healthy inactive members and beneficiaries of deceased members the RP-2000 Combined Healthy Male (set back 3 years) and RP-2000 Combined Healthy Female Mortality tables projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB. These base tables will be further projected beyond the valuation date using the Buck Modified MP-2014 mortality improvement scale. For disabled members the RP-2000 Combined Healthy Male (set forward 5 years) and RP-2000 Combined Healthy Female Mortality (set forward 5 years) tables are used. Illustrative rates of mortality unadjusted for the Buck Modified MP-2014 Projection Scale are shown below:

	Lives per Thousand			
	Retired Members and Beneficiaries of Deceased Members		Disabled Members	
Age	Males	Females	Males	Females
55	2.6	2.5	6.7	5.1
60	4.3	4.4	12.7	9.7
65	7.5	8.3	22.2	16.7
70	13.2	14.3	37.8	28.1
75	22.4	24.0	64.4	45.9
80	38.5	39.2	110.8	77.4
85	66.1	66.2	183.4	131.7
90	117.8	114.0	267.5	194.5

Rates of Retirement: Rates of retirement vary by length of service and age (if more than 24 years of service) with 100% of those remaining at age 55 retiring at age 55. The rates are shown below:

Service	Lives Per 100
20	2.0
21	0.5
22	0.0
23	0.0
24	0.0
25	50.0
Greater than 25 :	
(a) through age 42	5.0
(b) ages 43-47	28.0
(c) ages 48-53	33.0
(d) age 54	61.0

Section III – Summary of Plan Provisions

New Jersey Statutes, Title 53, Chapter 5A.

Eligibility for Membership

All members of the former State Police and Benevolent Fund: full-time commissioned officers, non-commissioned officers or troopers of the Division of State Police. Membership is a condition of employment.

1. Definitions

Plan Year	The 12-month period beginning on July 1 and ending on June 30.
Service	Service rendered while a member as described above.
Credited Service	A year is credited for each year of service as an officer or trooper in the State Police. Service with other State Retirement Systems is included in the calculation of the retirement benefit at the rate of 1% of final compensation for each year of service credit.
Compensation	Based on contractual salary, including maintenance allowance, received by the member in the last 12 months of credited service preceding retirement, termination or death. Compensation does not include individual salary adjustments granted primarily in anticipation of the retirement or for temporary or extracurricular duties beyond the ordinary work day. (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; Chapter 1, P.L. 2010 provides that for members hired on or after May 22, 2010, the amount of compensation used for employer and member contributions and benefits under the System cannot exceed the annual maximum wage contribution base for Social Security, pursuant to the Federal Insurance Contributions Act.)
Final Compensation	Average compensation received by member in last 12 months of credited service preceding retirement or death. Such term includes the value of the member's maintenance allowance for the same period. (Chapter 1, P.L. 2010 provides that for members hired on or after May 22, 2010, Final Compensation means the average annual salary for service for which contributions are made during any three fiscal years of membership providing the largest possible benefit to the member or the member's beneficiary. Such term shall include the value of the member's maintenance allowance.)
Aggregate Contributions	The sum of all amounts deducted from the compensation of a member or contributed by him or on his behalf. For contribution purposes, compensation does not include overtime, bonuses, maintenance or any adjustments before retirement.
Adjusted Final Compensation	The amount of compensation or compensation as adjusted, as the case may be, increased by the same percentage increase which is applied in any adjustments of the compensation schedule of active members after the member's death and before the date on which the deceased

member of the retirement system would have accrued 25 years of service under an assumption of continuous service, at which time that amount will become fixed. Adjustments to compensation or adjusted compensation shall take effect at the same time as any adjustments in the compensation schedule of active members.

2. Benefits

Service Retirement

Mandatory retirement at age 55. Voluntary retirement prior to age 55 with 20 years of credited service. Benefit is an annual retirement allowance equal to the greater of (a), (b), or (c), as follows:

(a) 50% of final compensation;

(b) For members retiring with 25 or more years of service, 65% of final compensation, plus 1% for each year of service in excess of 25 years, to a maximum of 70% of final compensation.

(c) For members as of August 29, 1985 who would not have 20 years of service by age 55, benefit as defined in (a) above. For members as of August 29, 1985 who would have 20 years of service but would not have 25 years of service at age 55, benefit as defined in (a) above plus 3% for each year of service in excess of 20 years.

Vested Termination

Termination of service prior to age 55. Benefit for 10 to 20 years of service - Refund of aggregate contributions, or a deferred life annuity beginning at age 55 equal to 2% of final compensation for each year of service up to 20 years.

Non-Vested Termination

Termination of service prior to age 55 and less than 10 years of service – Return of aggregate contributions.

Ordinary Death

Before Retirement

Death of an active member of the plan. Benefit is equal to:

(a) Lump sum payment equal to 3-1/2 times compensation, plus

(b) Spousal life annuity of 50% of final compensation payable until spouse's death or remarriage. If there is no surviving spouse, or upon death or remarriage, a total of 20%, 35% or 50% of final compensation payable to one, two or three dependent children. If there is no surviving spouse (or dependent children), 25% or 40% of final compensation to one or two dependent parents.

Minimum benefit: Aggregate contributions.

After Retirement	Death of a retired member of the plan. The benefit is equal to: (a) Lump sum of 50% of compensation, plus (b) Spousal life annuity of 50% of final compensation payable until spouse's death or remarriage. If there is no surviving spouse, or upon death or remarriage, a total of 20%, 35% or 50% of final compensation payable to one, two or three dependent children, respectively.
Accidental Death	Death of an active member of the plan resulting during performance of duties. Benefit is equal to: (a) Lump sum payment equal to 3-1/2 times compensation, plus (b) Spousal life annuity of 70% of adjusted final compensation payable until spouse's death. If there is no surviving spouse, or upon death of the surviving spouse, a total of 20%, 35% or 50% of adjusted final compensation payable to one, two or three dependent children. If there is no surviving spouse or dependent children, 25% or 40% of adjusted final compensation to one or two dependent parents.
Ordinary Disability	
Retirement	Mentally or physically incapacitated for the performance of his usual duty and of any other available duty in the Division of State Police and such incapacity is likely to be permanent. (a) The benefit for members with less than four years of service is a refund of the member's aggregate contributions. (b) For members with at least four years of service, the benefit is an immediate life annuity equal to 40% of final compensation plus 1-1/2% of final compensation for years of creditable service in excess of 26-2/3. (c) For members who are forced to retire with 20 but less than 25 years of service, the benefit is 50% of the member's final compensation plus 3% of final compensation for each year of service in excess of 20 years, to a maximum of 65% of final compensation. For death following disability retirement, a lump sum equal to 3-1/2 times compensation if death occurs prior to age 55 or 1/2 of compensation after age 55.
Accidental Disability	
Retirement	Totally and permanently disabled as a direct result of a traumatic event occurring during and as a result of his regular or assigned duties. Benefit is an immediate life annuity equal to 2/3 of final compensation. Upon death after disability retirement, lump sum benefit of 3-1/2 times final compensation if death occurs before 55 and 1/2 times final compensation if death occurs after 55.

Loan Provision	Eligible if an active member of the State Police Retirement System with at least 3 years of contributory service. If eligible, a member may borrow an amount which is greater than $50, but not more than 50% of aggregate contributions. The loan accrues interest at a rate set by the State Treasurer, which is based on a commercially reasonable rate as required by the Internal Revenue Code. An administrative fee may be charged for the loan.
Member Contributions	Each member contributes 7.5% of Compensation. Chapter 78, P.L. 2011 increased Member Contributions from 7.5% to 9.0% of Compensation effective October 2011.