Conduent Human Resource Services
Retirement Consulting

The State Police Retirement System of New Jersey

Information Required Under Governmental Accounting Standards Board Statement No. 68 as of June 30, 2017

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CONDUENT
200 Plaza Drive
Secaucus, New Jersey 07096-1533

May 24, 2018

Director of the Division of Pension and Benefits
Division of Pension and Benefits
50 West State Street
One State Street Square
CN 295
Trenton, New Jersey 08625-0295

Director:

This valuation provides information for the State Police Retirement System of New Jersey (SPRS) in accordance with the Governmental Accounting Standards Board (GASB) Statement No. 68. This Statement is an amendment of Statement No. 27, Accounting for Pensions by State and Local Government Employers effective for the fiscal year ending June 30, 2015, and thereafter.

This valuation reflects Chapter 26, P.L. 2016. This law amends the definition of “child” to include a child 18 years of age or older and enrolled in a secondary school, or under the age of 24 and enrolled in a degree program in an institution of higher education for at least 12 credit hours in each semester, provided that the member died in the line of duty while in active service. This law also increases the accidental death benefit payable to children if there is no surviving spouse to 70% of final compensation.

This valuation also reflects Chapter 83, P.L. 2016 which requires the State to make pension contributions on a quarterly basis: at least 25 percent by September 30, at least 50 percent by December 31, at least 75 percent by March 31, and at least 100 percent by June 30.

We 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 SPRS in accordance with the requirements of GASB Statement No. 68 as of June 30, 2017. Information necessary to comply with the reporting requirements of GASB Statement No. 67 was provided in a separate Actuarial Report, which is available on the Division of Pensions and Benefits website. Please refer to that separate Actuarial Report for supplementary information documentation and support for the actuarial analysis and information presented herein.

The Board of Trustees, staff of the Division of Pensions and Benefits and its auditors may use this report for the review of the operation of the Plan. The report may also be used in the preparation of the audited financial statements of the State of New Jersey.

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. Conduent HR Consulting should be asked to review any statement to be made on the basis of the results contained in this report. Conduent HR Consulting will accept no liability for any such statement made without prior review by Conduent HR Consulting.

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.

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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, 2011 – June 30, 2014 Experience Study and approved by the Board of Trustees at the January 26, 2016 Board meeting. The Treasurer has recommended a change in the economic assumptions to be used to determine the actuarially determined contribution from 7.65% per annum to:

- Effective with the July 1, 2017 valuation: 7.50% per annum,
- Effective with the July 1, 2019 valuation: 7.30% per annum,
- Effective with the July 1, 2021 valuation: 7.00% per annum.

In accordance with paragraph 40 of GASB Statement No. 67, this valuation is based on a long-term expected rate of return of 7.00% per annum. However, the actuarially determined contribution is based on the above stated Treasurer recommended rate of investment return assumptions.

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.

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.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA
Principal, Consulting Actuary
Conduent HR Consulting, LLC

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Section I – GASB 68 Information

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.

Measurement Date. The net pension liability for fiscal year ending June 30, 2018 is determined at a measurement date of June 30, 2017. The total pension liability as of June 30, 2017 was determined by rolling forward the Plan's total pension liability as of July 1, 2016 to June 30, 2017. The plan fiduciary net position is the market value of plan assets as of June 30, 2017.

Data for Valuation. In preparing the actuarial valuation as of June 30, 2016, the actuary has relied on data and assets provided by the Division of Pensions and Benefits. While not verifying the data at their source, the actuary has performed tests for consistency and reasonableness.

The following is a summary of Plan participants and the development of the average expected remaining service lives of active and inactive members as of June 30, 2016:

	Number	Expected Remaining Years of Service
Inactive Plan members or beneficiaries currently receiving	3,566	0.00
Inactive Plan members entitled to but not yet receiving	0	0.00
Active Plan members	2,725	35,641.99
Total	6,291	35,641.99

Average expected remaining service lives of active and inactive members as of June 30, 2016: 5.67 years

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, 2017, the State contributed $53,006,614 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.

Net Pension Liability

a. The components of the net pension liability at June 30, 2016, were as follows:

	NCGIPF	Pension	Total
Total pension liability	$ 97,655,457	$ 5,576,050,864	$ 5,673,706,321
Plan fiduciary net position	0	1,694,962,112	1,694,962,112
Plan net pension liability	$ 97,655,457	$ 3,881,088,752	$ 3,978,744,209

b. The components of the net pension liability at June 30, 2017, were as follows:

	NCGIPF	Pension	Total
Total pension liability	$ 82,841,989	$ 5,041,432,125	$ 5,124,274,114
Plan fiduciary net position	0	1,761,497,335	1,761,497,335
Plan net pension liability	$ 82,841,989	$ 3,279,934,790	$ 3,362,776,779

c. Sensitivity to Discount Rate: The following presents the net pension liability calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate.

June 30, 2016

1% Decrease (2.55%)	Current (3.55%)	1% Increase (4.55%)
$ 4,948,165,769	$ 3,978,744,209	$ 3,213,322,784

June 30, 2017

1% Decrease (3.42%)	Current (4.42%)	1% Increase (5.42%)
$ 4,177,923,905	$ 3,362,776,779	$ 2,713,454,218

Pension Expense as of June 30, 2017

Service cost	$ 139,506,057
Interest cost	202,545,532
Expected return on assets	(122,385,606)
Current period effect of benefit changes	0
Current period difference between expected and actual experience	4,195,184
Current period effect of changes in assumptions	(123,098,849)
Current period difference between projected and actual investment earnings	(17,003,197)
Member contributions	(23,721,785)
Administrative expenses	294,745
Current period recognition of prior years' deferred outflows of resources	283,412,566
Current period recognition of prior years' deferred inflows of resources	(33,593,693)
Total	$ 310,150,954

The pension expense for the fiscal year ending June 30, 2017 is based on the June 30, 2016 valuation.

The effect of the change in assumptions, experience different than expected and changes in employers' proportion are recognized over the average expected remaining service lives of active and inactive members as of June 30, 2016 (5.67 years).

The difference between projected and actual investment earnings is recognized over 5 years.

Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2017, the State has a pension expense of $310,150,954. At June 30, 2017, the State has deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflow of Resources	Deferred Inflow of Resources
Changes in assumptions	$ 696,983,442	$ 574,871,622
Difference between expected and actual experience	35,036,188	11,411,829
Difference between projected and actual investment earnings	25,308,938	0
Total	$ 757,328,568	$ 586,283,451

Annual changes to the net pension liability (asset) resulting from differences between expected and actual experience with regard to economic and demographic factors and from changes of assumptions about future economic or demographic factors or other inputs are deferred and amortized over a closed period equal to the average of the expected service lives of all employees that are provided with pension benefits determined for the period during which the changes occurred. Differences between projected and actual earnings on pension plan investments are amortized over a closed 5-year period. The following presents a summary of changes in the collective outflows of resources and deferred inflows of resources for the year ended June 30, 2017:

Deferred (Inflows)/Outflows of Resources	Measurement Period: July 1- June 30	Amortization Period	Original balance	Accumulated amortization	Beginning balance on prior measurement period deferrals	Current measurement period additions	Amounts recognized in current year expense	End of year balance
Differences between expected and actual experience	2015	5.34	$ 35,245,543	$ 13,200,578	$ 22,044,965	$ 0	$ 6,600,289	$ 15,444,676
	2016	5.70	(17,580,385)	(3,084,278)	(14,496,107)	0	(3,084,278)	(11,411,829)
	2017	5.67	23,786,696	0	0	23,786,696	4,195,184	19,591,512
	Total		$ 41,451,854	$ 10,116,300	$ 7,548,858	$ 23,786,696	$ 7,711,195	$ 23,624,359
Difference Due to Changes in Assumptions	2014	5.14	$ 92,686,900	$ 54,097,413	$ 38,589,487	$ 0	$ 18,032,471	$ 20,557,016
	2015	5.34	435,691,094	163,180,186	272,510,908	0	81,590,093	190,920,815
	2016	5.70	747,941,075	131,217,732	616,723,343	0	131,217,732	485,505,611
	2017	5.67	(697,970,471)	0	0	(697,970,471)	(123,098,849)	(574,871,622)
	Total		$ 578,348,598	$ 348,495,331	$ 927,823,738	$ (697,970,471)	$ 107,741,447	$ 122,111,820
Net difference between projected and actual earnings on investments	2014	5.00	$ (152,547,077)	$ (91,528,245)	$ (61,018,832)	$ 0	$ (30,509,415)	$ (30,509,417)
	2015	5.00	70,424,004	28,169,602	42,254,402	0	14,084,801	28,169,601
	2016	5.00	159,435,901	31,887,180	127,548,721	0	31,887,180	95,661,541
	2017	5.00	(85,015,984)	0	0	(85,015,984)	(17,003,197)	(68,012,787)
	Total		$ (7,703,156)	$ (31,471,463)	$ 108,784,291	$ (85,015,984)	$ (1,540,631)	$ 25,308,938

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in the State's pension expense as follows:

Fiscal Year ending June 30	
2018	$ 113,912,009
2019	128,913,499
2020	54,098,500
2021	(46,213,441)
2022	(79,665,450)
Thereafter	0

Actuarial Assumptions

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.

The total pension liability as of June 30, 2017 was determined by rolling forward the Plan's total pension liability as of July 1, 2016 to June 30, 2017 using the following actuarial assumptions, applied to all periods included in the measurement. In addition, an amount of $3,925 has been added to the liability as of June 30, 2017 equal to the amount in the June 30, 2017 Plan Fiduciary Net Position for transfers from other Systems.

The Treasurer has recommended a change in the economic assumptions to be used to determine the actuarially determined contribution from 7.65% per annum to:

- Effective with the July 1, 2017 valuation: 7.50% per annum,
- Effective with the July 1, 2019 valuation: 7.30% per annum,
- Effective with the July 1, 2021 valuation: 7.00% per annum.

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, 2016 actuarial valuation.

Long-Term Expected Rate of Return

The long-term expected rate of return used for this valuation is 7.00% per annum.

The long-term expected rate of return on pension System investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension System 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 System's target asset allocation as of June 30, 2017 are summarized in Appendix A, as provided by the Division of Pensions and Benefits.

Discount rate

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.

The discount rates used to measure the total pension liability were 3.55% as of June 30, 2016 and 4.42% as of June 30, 2017. As discussed with the Division of Pensions and Benefits, the projection of cash flows used to determine the discount rate as of June 30, 2017 assumed:

- In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum.

- In accordance with Paragraph 37 of GASB Statement No. 67, the projection of the Plan's fiduciary net position, contributions, 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 demographic assumptions.

The Treasurer has recommended a change in the economic assumptions to be used to determine the actuarially determined contribution from 7.65% per annum to:

- Effective with the July 1, 2017 valuation: 7.50% per annum,
- Effective with the July 1, 2019 valuation: 7.30% per annum,
- Effective with the July 1, 2021 valuation: 7.00% per annum.

Please see Section II of the report for a summary of the demographic and economic assumptions used to determine the actuarially determined contribution.

- It is assumed that the State will contribute 40.00% of the actuarially determined contribution and 100% of its NCGIPF contribution. The 40.00% contribution rate is the actual total State contribution rate paid in fiscal year ending June 30, 2017 with respect to the actuarially determined contribution for the fiscal year ending June 30, 2017 for all State administered retirement systems.

- Prior to the July 1, 2017 valuation, it is assumed the State will make pension contributions the June 30th following the valuation date. Effective with the July 1, 2017 valuation, Chapter 83, P.L. 2016 requires the State to make pension contributions on a quarterly basis: at least 25 percent by September 30, at least 50 percent by December 31, at least 75 percent by March 31, and at least 100 percent by June 30.

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 2037. Municipal bond rates of 2.85% as of June 30, 2016 and 3.58% as of June 30, 2017 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 7.65% and the municipal bond rate of 2.85% as of June 30, 2016 and the long-term rate of return of 7.00% and the municipal bond rate 3.58% as of June 30, 2017, the blended GASB discount rates are 3.55% as of June 30, 2016 and 4.42% as of June 30, 2017. 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 and a 7.00% per annum long-term expected rate of return. 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.

Actuarial Cost Method

Entry Age Normal – Level Percentage of Pay

Asset Valuation Method

Invested assets are reported at fair value.

Section II – Actuarial Assumptions and Methods

Investment Rate of Return to Determine the Actuarially Determined Contribution:

- July 1, 2016 valuation: 7.65% per annum, compounded annually.
- July 1, 2017 valuation: 7.50% per annum, compounded annually.
- July 1, 2018 valuation: 7.50% per annum, compounded annually.
- 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.

Long-Term Expected Rate of Return to Project the
Plan Fiduciary Net Position and GASB 67 Discount Rate: 7.00% per annum, compounded annually.

GASB 67 Effective Discount Rate:

- June 30, 2016: 3.55% per annum, compounded annually.
- June 30, 2017: 4.42% per annum, compounded annually.

COLA: No future COLA is assumed.

Salary Increases: Salaries are assumed to increase by 2.95% per year through fiscal year 2025 and 3.95% per year for fiscal years 2026 and thereafter.

401(a)(17) Pay Limit: $265,000 for 2016 increasing 3.00% per annum, compounded annually.

Social Security Wage Base: $118,500 for 2016 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	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 Conduent Modified 2014 Projection Scale. Rates shown above are unadjusted for the Conduent Modified 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 Conduent Modified 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 Conduent Modified 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

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

GASB actuarial cost method: Entry Age Normal – Level Percentage of Pay

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.

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.

State Contribution Payable Dates:

Prior to the July 1, 2017 valuation, it is assumed the State will make pension contributions the June 30th following the valuation date. Effective with the July 1, 2017 valuation, Chapter 83, P.L. 2016 requires the State to make pension contributions on a quarterly basis: at least 25 percent by September 30, at least 50 percent by December 31, at least 75 percent by March 31, and at least 100 percent by June 30.

Receivable Contributions:

For the July 1, 2016 valuation, State contributions are expected to be paid the June 30th following the valuation date and are discounted by the valuation interest rate of 7.65% to the valuation date. Effective with the July 1, 2017 valuation, State contributions are expected to be paid in equal quarterly amounts as of September 30th, December 31st, March 31st, and June 30th following the valuation date and are discounted by the interest rate used at the valuation date.

Asset Valuation Method:

GASB method used to value investments: Investments are reported at fair value.

Funding calculations: 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.

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, 70% of adjusted final compensation payable to surviving children in equal shares. 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.

Appendix A – Information on Projected Returns by Asset Class Provided by the Division of Pensions and Benefits

FY18 Long-Term Expected Rate of Return

The best estimate long-term expected rate of return for the Pension Fund is based on the targeted asset allocation, long-term capital market assumptions (including compound expected returns, volatility of returns, and correlation of returns), and the application of modern portfolio theory. Long-term capital market assumptions are determined by a survey of a wide universe of third party investment professionals and reflect nominal return expectations, as well as the analysis of the Division of Investment and its team of outside investment consultants.

Asset Class	Targeted Asset Allocation	Expected Returns (Arithmetic)
Risk Mitigation Strategies	5.00%	5.51%
Cash Equivalents	5.50%	1.00%
US Treasuries	3.00%	1.87%
Investment Grade Credit	10.00%	3.78%
High Yield	2.50%	6.82%
Global Diversified Credit	5.00%	7.10%
Credit-Oriented HFs	1.00%	6.60%
Debt-Related PE	2.00%	10.63%
Debt Related Real Estate	1.00%	6.61%
Private Real Assets	2.50%	11.83%
Equity Related Real Estate	6.25%	9.23%
US Equity	30.00%	8.19%
Non-US Dev Market Eq	11.50%	9.00%
Emerging Market Eq	6.50%	11.64%
Buyouts/Venture Cap	8.25%	13.08%
Portfolio One-Year Arithmetic Return		7.83%
Portfolio Standard Deviation		12.27%
Portfolio Long-Term Expected Return		7.14%
Long-Term Expected Rate of Return selected by State Treasurer		7.00%