CONDUENT

The Police and Firemen's Retirement System of New Jersey

Information Required Under Governmental Accounting Standards Board Statement No. 68 as of June 30, 2016

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April 5, 2017

Director of the Division of Pension and Benefits
Division of Pension and Benefits
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Trenton, New Jersey 08625-0295

Director:

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

The valuation reflects the results required under Governmental Accounting Standards Board Statement No. 68 as of June 30, 2016 and reflects the effects of the demographic assumptions recommended on the basis of the July 1, 2010 to June 30, 2013 Experience Study approved by the Board of Trustees on February 9, 2015. The Treasurer has recommended a change in the economic assumptions to be used effective with the July 1, 2016 valuation. The rate of investment return has been revised from 7.90% per annum to 7.65% per annum. The assumed future salary increases have been reduced by 0.5% at all ages for both the select and ultimate periods. In addition, the select period was extended from the fiscal year 2021 to the fiscal year 2026. Detailed information with regard to the change in the salary increase assumption is outlined in Section II. These assumptions will remain in effect for valuation purposes until such time the Board or Treasurer recommends revised assumptions.

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 PFRS in accordance with the requirements of GASB Statement No. 68 as of June 30, 2016. 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 web site. 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 and staff of the Division of Pensions and Benefits, its auditors, and PFRS employers 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 and PFRS employers.

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 or employers or its auditors 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. You should ask Conduent to review any statement you wish to make on the results contained in this report. Conduent will accept no liability for any such statement made without prior review by Conduent.

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.

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.

Respectfully submitted,

Aaron Shapiro

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

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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 Police and Firemen’s Retirement System of New Jersey (Plan), a governmental cost sharing multiple-employer defined benefit pension plan that provides pensions for all individuals who become full-time policemen and firemen and who at the time of enrollment are no older than age 35.

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

The Board of Trustees consists of 11 members, two policeman and two firemen who are active members of the System, one retiree of the System, five members appointed by the Governor and the State Treasurer. The Director of the Division of Pensions and Benefits of the State Department of the Treasury shall appoint a qualified employee of the division who shall be the secretary of the Board.

In accordance with Chapter 78, P.L. 2011, a pension committee is to be established for the State portion of the System and the Local portion of the System when the "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 time it is to remain for all subsequent fiscal years. The Local portion of the System has attained the required "target funded ratio" in Fiscal Year 2012, thus a pension committee has been established for the Local Employer portion of the System. The State portion of the System has not attained the required “target funded ratio” and thus a pension committee has not yet been established for the State portion of the System.

The pension committees consist of ten members; five members appointed by the Governor as representatives of the public employer whose employees are enrolled in the retirement system, two members who shall be appointed by the head of the union representing the greatest number of police office members, one member who shall be appointed by the head of the union representing the second greatest number of police officer members, one member appointed by the head of the union representing the greatest number of firefighter members and one member who shall be appointed by the head of the union representing the second greatest number of firefighter members.

Chapter 78, P.L. 2011 grants the authority to amend the benefit terms of the Plan to the pension committees. The pension committees will have the discretionary authority to modify the member contribution rate, formula for calculation of final compensation, age at which a member may be eligible and the benefits for service and special retirement and benefits provided for disability benefit. The pension committees will have the authority to reactivate the cost of living adjustment and set the duration and extent of the activation. The pension committees must give priority consideration to the reactivation of the cost of living adjustment. No decision of the pension committees 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.

As required under Chapter 255, P.L. 1944, experience studies are performed once in every three year period. The valuation was prepared using the demographic assumptions recommended on the basis of the July 1, 2010 – June 30, 2013 Experience Study and approved by the Board of Trustees at the February 9, 2015 Board meeting. The Treasurer has recommended a change in the economic assumptions to be used effective with the July 1, 2016 valuation. The rate of investment return has been revised from 7.90% per annum to 7.65% per annum. The assumed future salary increases have been reduced by 0.5% at all ages for both the select and ultimate periods. In addition, the select period was extended from the fiscal year 2021 to the fiscal year 2026. Detailed information with regard to the change in the salary increase assumption is outlined in Section II. These assumptions will remain in effect for valuation purposes until such time the Board or Treasurer recommends revised assumptions.

Measurement Date

The net pension liability for fiscal year ending June 30, 2017 is determined at a measurement date of June 30, 2016. The total pension liability as of June 30, 2016 was determined by rolling forward the Plan's total pension liability as of July 1, 2015 to June 30, 2016. The plan fiduciary net position is the market value of plan assets as of June 30, 2016.

Data for Valuation

In preparing the actuarial valuation as of June 30, 2015, 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, 2015:

	Number	Expected Remaining Years of Service
Inactive Plan members or beneficiaries currently receiving	41,824	0.00
Inactive Plan members entitled to but not yet receiving	51	0.00
Active Plan members	40,359	459,123.96
Total	82,234	459,123.96

Average expected remaining service lives of active and inactive members as of June 30, 2015: 5.58 years

Benefits Provided

Please see Section III of the report for a summary of Plan provisions.

Contributions

Contributions are 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 by statute 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, 2016, the State and Local Employers contributed $961,499,567 to the Plan as provided by the June 30, 2016 Financial Report.

Net Pension Liability

The Net Pension Liability excludes separately financed liabilities to the pension plan which are attributable to Chapter 19, P.L. 2009 and various Local employers' early retirement incentive programs (see Section III).

a. The components of the net pension liability at June 30, 2015, were as follows:

	State	Local	Total
NCGIPF			
Total pension liability	$ 125,618,840	$ 836,597,248	$ 962,216,088
Plan fiduciary net position	0	20,840,242	20,840,242
Plan net pension liability	$ 125,618,840	$ 815,757,006	$ 941,375,846
Pension			
Total pension liability	$ 5,927,682,217	$ 40,627,867,600	$ 46,555,549,817
Plan fiduciary net position	1,759,628,691	23,326,389,988	25,086,018,679
Plan net pension liability	$ 4,168,053,526	$ 17,301,477,612	$ 21,469,531,138
Total			
Total pension liability	$ 6,053,301,057	$ 41,464,464,848	$ 47,517,765,905
Plan fiduciary net position	1,759,628,691	23,347,230,230	25,106,858,921
Plan net pension liability	$ 4,293,672,366	$ 18,117,234,618	$ 22,410,906,984

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

	State	Local	Total
NCGIPF			
Total pension liability	$ 129,350,706	$ 876,782,907	$ 1,006,133,613
Plan fiduciary net position	0	27,544,768	27,544,768
Plan net pension liability	$ 129,350,706	$ 849,238,139	$ 978,588,845
Pension			
Total pension liability	$ 6,126,268,976	$ 42,269,767,324	$ 48,396,036,300
Plan fiduciary net position	1,544,875,489	22,412,306,407	23,957,181,896
Plan net pension liability	$ 4,581,393,487	$ 19,857,460,917	$ 24,438,854,404
Total			
Total pension liability	$ 6,255,619,682	$ 43,146,550,231	$ 49,402,169,913
Plan fiduciary net position	1,544,875,489	22,439,851,175	23,984,726,664
Plan net pension liability	$ 4,710,744,193	$ 20,706,699,056	$ 25,417,443,249

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, 2015

	1% Decrease (4.79%)	Current (5.79%)	1% Increase (6.79%)
State	$ 5,169,538,395	$ 4,293,672,366	$ 3,581,810,627
Local	23,884,266,996	18,117,234,618	13,414,734,988
Total	$ 29,053,805,391	$ 22,410,906,984	$ 16,996,545,615

June 30, 2016

	1% Decrease (4.55%)	Current (5.55%)	1% Increase (6.55%)
State	$ 5,612,325,178	$ 4,710,744,193	$ 3,977,817,225
Local	26,699,770,118	20,706,699,056	15,819,710,095
Total	$ 32,312,095,296	$ 25,417,443,249	$ 19,797,527,320

Pension Expense as of June 30, 2016

	State	**Local**	**Total**
Service cost	$ 153,113,893	$ 995,499,819	$ 1,148,613,712
Interest cost	350,423,556	2,401,021,664	2,751,445,220
Expected return on assets	(128,843,519)	(1,730,947,121)	(1,859,790,640)
Current period effect of benefit changes	0	0	0
Current period difference between expected and actual experience	(3,360,719)	(2,896,743)	(6,257,462)
Current period effect of changes in assumptions	5,420,814	56,062,831	61,483,645
Current period difference between projected and actual investment earnings	33,179,631	368,917,128	402,096,759
Member contributions	(50,916,706)	(337,764,702)	(388,681,408)
Administrative expenses	585,636	3,707,255	4,292,891
Current period recognition of prior years' deferred outflows of resources	117,670,694	854,324,582	971,995,276
Current period recognition of prior years' deferred inflows of resources	(29,133,676)	(352,627,755)	(381,761,431)
Sub Total	$ 448,139,604	$ 2,255,296,958	$ 2,703,436,562
Pension expense related to specific liabilities of individual employers:			
Employer contribution - delayed enrollment	6,494	(148,528)	(142,034)
Employer contribution - delayed appropriations	1,958	(765,134)	(763,176)
Employer contribution - retroactive	0	(3,661,101)	(3,661,101)
Employer contribution - additional	0	(1,923,531)	(1,923,531)
Pension expense subject to allocation	$ 448,148,056	$ 2,248,798,664	$ 2,696,946,720

The pension expense for the fiscal year ending June 30, 2016 is based on the June 30, 2015 valuation.

The effect of the change in assumptions, experience different than expected and change in employers' proportion are recognized over the average expected remaining service lives of active and inactive members as of June 30, 2015 (5.58 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, 2016, employers of the System have a collective pension expense of $2,696,946,720 ($448,148,056 for State and $2,248,798,664 for Local employers). At June 30, 2016, there are deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

State	Deferred Outflow of Resources	Deferred Inflow of Resources
Changes in assumptions	$ 366,848,833	$ 0
Difference between expected and actual experience	0	40,759,565
Difference between projected and actual investment earnings	146,891,242	0
Total	$ 513,740,075	$ 40,759,565

Local	Deferred Outflow of Resources	Deferred Inflow of Resources
Changes in assumptions	$ 2,645,861,252	$ 0
Difference between expected and actual experience	0	125,220,083
Difference between projected and actual investment earnings	1,338,477,784	0
Total	$ 3,984,339,036	$ 125,220,083

Total	Deferred Outflow of Resources	Deferred Inflow of Resources
Changes in assumptions	$ 3,012,710,085	$ 0
Difference between expected and actual experience	0	165,979,648
Difference between projected and actual investment earnings	1,485,369,026	0
Total	$ 4,498,079,111	$ 165,979,648

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, 2016:

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
State								
Differences between expected and actual experience	2015	5.53	$ (39,739,980)	$ (7,186,253)	$ (32,553,727)	$ -	$ (7,186,253)	$ (25,367,474)
	2016	5.58	(18,752,809)	-	-	(18,752,809)	(3,360,718)	(15,392,091)
	Total		$ (58,492,789)	$ (7,186,253)	$ (32,553,727)	$ (18,752,809)	$ (10,546,971)	$ (40,759,565)
Difference due to changes in assumptions	2014	6.17	$ 86,206,580	$ 27,943,786	$ 58,262,794	$ -	$ 13,971,893	$ 44,290,901
	2015	5.53	466,416,499	84,342,947	382,073,552	-	84,342,947	297,730,605
	2016	5.58	30,248,141	-	-	30,248,141	5,420,814	24,827,327
	Total		$ 582,871,220	$ 112,286,733	$ 440,336,346	$ 30,248,141	$ 103,735,654	$ 366,848,833
Net difference between projected and actual earnings on investments	2014	5	$ (109,737,117)	$ (43,894,846)	$ (65,842,271)	$ -	$ (21,947,423)	$ (43,894,848)
	2015	5	96,779,272	19,355,854	77,423,418	-	19,355,854	58,067,564
	2016	5	165,898,157	-	-	165,898,157	33,179,631	132,718,526
	Total		$ 152,940,312	$ (24,538,992)	$ 11,581,147	$ 165,898,157	$ 30,588,062	$ 146,891,242
Local Employers								
Differences between expected and actual experience	2015	5.53	$ (175,382,458)	$ (31,714,730)	$ (143,667,728)	$ -	$ (31,714,730)	$ (111,952,998)
	2016	5.58	(16,163,828)	-	-	(16,163,828)	(2,896,743)	(13,267,085)
	Total		$ (191,546,286)	$ (31,714,730)	$ (143,667,728)	$ (16,163,828)	$ (34,611,473)	$ (125,220,083)
Difference due to changes in assumptions	2014	6.17	$ 563,607,575	$ 182,692,893	$ 380,914,682	$ -	$ 91,346,447	$ 289,568,235
	2015	5.53	3,289,057,973	594,766,360	2,694,291,613	-	594,766,360	2,099,525,252
	2016	5.58	312,830,596	-	-	312,830,596	56,062,831	256,767,765
	Total		$ 4,165,496,144	$ 777,459,253	$ 3,075,206,295	$ 312,830,596	$ 742,175,638	$ 2,645,861,252
Net difference between projected and actual earnings on investments	2014	5	$ (1,604,565,128)	$ (641,826,049)	$ (962,739,079)	$ -	$ (320,913,025)	$ (641,826,054)
	2015	5	841,058,873	168,211,775	672,847,099	-	168,211,775	504,635,324
	2016	5	1,844,585,642	-	-	1,844,585,642	368,917,128	1,475,668,514
	Total		$ 1,081,079,387	$ (473,614,275)	$ (289,891,980)	$ 1,844,585,642	$ 216,215,878	$ 1,338,477,784
Total								
Differences between expected and actual experience	2015	5.53	$ (215,122,438)	$ (38,900,983)	$ (176,221,455)	$ -	$ (38,900,983)	$ (137,320,472)
	2016	5.58	(34,916,637)	-	-	(34,916,637)	(6,257,461)	(28,659,176)
	Total		$ (250,039,075)	$ (38,900,983)	$ (176,221,455)	$ (34,916,637)	$ (45,158,444)	$ (165,979,648)
Difference due to changes in assumptions	2014	6.17	$ 649,814,155	$ 210,636,679	$ 439,177,476	$ -	$ 105,318,340	$ 333,859,136
	2015	5.53	3,755,474,472	679,109,307	3,076,365,165	-	679,109,307	2,397,255,857
	2016	5.58	343,078,737	-	-	343,078,737	61,483,645	281,595,092
	Total		$ 4,748,367,364	$ 889,745,986	$ 3,515,542,641	$ 343,078,737	$ 845,911,292	$ 3,012,710,085
Net difference between projected and actual earnings on investments	2014	5	$ (1,714,302,245)	$ (685,720,895)	$ (1,028,581,350)	$ -	$ (342,860,448)	$ (685,720,902)
	2015	5	937,838,145	187,567,629	750,270,516	-	187,567,629	562,702,888
	2016	5	2,010,483,799	-	-	2,010,483,799	402,096,759	1,608,387,040
	Total		$ 1,234,019,699	$ (498,153,267)	$ (278,310,833)	$ 2,010,483,799	$ 246,803,940	$ 1,485,369,026

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

Fiscal Year ending June 30	**State**	**Local**	**Total**
2017	$ 123,776,745	$ 923,780,043	$ 1,047,556,788
2018	123,776,743	923,780,038	1,047,556,781
2019	145,724,170	1,244,693,067	1,390,417,237
2020	78,508,000	736,029,477	814,537,477
2021	1,194,852	30,836,328	32,031,180
Thereafter	0	0	0

Actuarial Assumptions

The total pension liability as of June 30, 2016 was determined by rolling forward the Plan's total pension liability as of July 1, 2015 to June 30, 2016 using the following actuarial assumptions, applied to all periods included in the measurement. 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, 2015 actuarial valuation. The demographic assumptions were selected on the basis of the experience study that was performed for the three-year period ending June 30, 2013 and were adopted by the Board at its February 9, 2015 Board meeting. The Treasurer has recommended a change in the economic assumptions to be used effective with the July 1, 2016 valuation. The rate of investment return has been revised from 7.90% per annum to 7.65% per annum. The assumed future salary increases have been reduced by 0.5% at all ages for both the select and ultimate periods. In addition, the select period was extended from the fiscal year 2021 to the fiscal year 2026.

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, 2016 are summarized in the following table. The capital market assumptions are per Conduent's investment consulting practice for 2016.

Asset Class	Index	Target Allocation*	Long-Term Expected Real Rate of Return
Cash	Citigroup 90-Day T-Bills	5.00%	0.87%
U.S. Treasuries	Barclays Long U.S. Treasury	1.50%	1.74%
Investment Grade Credit	Aggregate Bonds	8.00%	1.79%
Mortgages	Barclays Mortgage	2.00%	1.67%
High Yield Bonds	Barclays High Yield	2.00%	4.65%
Inflation-Indexed Bonds	Barclays U.S. TIPS	1.50%	3.44%
Broad US Equities	Wilshire 5000/Russell 3000	26.00%	8.53%
Developed Foreign Equities	MSCI EAFE	13.25%	6.83%
Emerging Market Equities	MSCI Emerging Markets	6.50%	9.95%
Private Equity	Cambridge Associates	9.00%	12.40%
Hedge Funds/Absolute Return	HFRI Fund of Funds	12.50%	4.68%
Real Estate (Property)	NCREIF Property Index	2.00%	6.91%
Commodities	S&P GSCI	0.50%	5.45%
Global Debt ex US	Barclays Global Aggregate ex US	5.00%	-0.25%
REIT	FTSE NAREIT	5.25%	5.63%
Assumed Inflation – Mean			3.08%
Assumed Inflation – Standard Deviation			2.59%
Portfolio Arithmetic Mean Return**			9.39%
Portfolio Standard Deviation			12.13%
Long-Term Expected Rate of Return selected by State Treasurer			**7.65%**

*Based on target asset allocation for 2016.
**Includes assumed inflation

Discount rate

The discount rates used to measure the total pension liability were 5.79% as of June 30, 2015 and 5.55% as of June 30, 2016. As discussed with the Division of Pensions and Benefits, the projection of cash flows used to determine the discount rate as of June 30, 2016 assumed:

- As required under Chapter 255, P.L. 1944, experience studies are performed once in every three year period. The valuation was prepared using the demographic assumptions recommended on the basis of the July 1, 2010 – June 30, 2013 Experience Study and approved by the Board of Trustees at the February 9, 2015 Board meeting. Please see Section II of the report for a summary of the revised demographic assumptions.

- The Treasurer has recommended a change in the economic assumptions to be used effective with the July 1, 2016 valuation. The rate of investment return has been revised from 7.90% per annum to 7.65% per annum. The assumed future salary increases have been reduced by 0.5% at all ages for both the select and ultimate periods. In addition, the select period was extended from the fiscal year 2021 to the fiscal year 2026. Detailed information with regard to the change in the salary increase assumption is outlined in Section II.

- It is assumed that the Locals will contribute 100.0% of their actuarially determined contribution and the NCGIPF contribution while the State will contribute 30.00% of the actuarially determined contribution and 100% of its NCGIPF contribution. The 30.00% contribution rate is the actual State contribution rate paid in fiscal year ending June 30, 2016 with respect to the actuarially determined contribution for the fiscal year ending June 30, 2016.

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 2050. Municipal bond rates of 3.80% as of June 30, 2015 and 2.85% as of June 30, 2016 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 rate of 3.80% as of June 30, 2015 and the long-term rate of return of 7.65% and the municipal bond rate of 2.85% as of June 30, 2016, the blended GASB discount rates are 5.79% as of June 30, 2015 and 5.55% as of June 30, 2016. The assumed discount rate has 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 and the Local Employers' current funding policy. Should contributions to the Plan be different from those outlined above, the results would be different 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

- July 1, 2015 valuation: 7.90% per annum, compounded annually.
- July 1, 2016 valuation: 7.65% per annum, compounded annually.

GASB Discount Rate

- June 30, 2015: 5.79% per annum, compounded annually.
- June 30, 2016: 5.55% per annum, compounded annually.

COLA

No future COLA is assumed.

Compensation Limit Increase

401(a)(17) Limit – 3.00% per annum, Social Security Wage Base – 4.00% per annum.

Separations from Service and Salary Increases

Representative values of the assumed annual rates of separation and annual rates of salary increases are as follows:

Annual Rates of

	Select Withdrawal					Ultimate Withdrawal
Age	Up to the 1st Year	2nd Year	3rd Year	4th Year	5 to 9 Years	After 9 Years
25	6.90%	2.03%	1.18%	0.60%	0.35%	0.00%
30	9.30	2.75	1.76	1.31	0.60	0.24
35	9.80	3.17	1.76	1.57	0.77	0.24
40	13.70	2.25	1.85	1.74	0.67	0.27
45	3.50	2.25	1.85	2.32	1.35	0.28
50	0.00	2.25	1.85	2.00	1.60	0.30
55	0.00	0.00	0.00	0.00	0.00	0.00

Annual Rates of

	Death			Disability	
	Ordinary				
Age	Male*	Female*	Accidental	Ordinary	Accidental
25	.035%	.019%	.006%	.045%	.029%
30	.042	.025	.006	.147	.278
35	.073	.045	.008	.265	.393
40	.101	.066	.008	.362	.423
45	.140	.105	.009	.394	.396
50	.198	.158	.009	.449	.179
55	.285	.234	.014	.554	.161
60	.439	.338	.013	1.024	.161
64	.598	.450	.008	1.680	.161
65 and over	0.000	0.000	0.000	0.000	0.000

* RP2000 Employee Pre-Retirement mortality tables projected thirteen-years using Projection Scale BB and then projected on a generational basis using the Conduent Modified 2014 Projection Scales. The above tables are representative for the 2015 valuation.

Age	Service Retirements Length of Service				Salary Increases Effective July 1, 2016		Salary Increases Effective July 1, 2015	
	Less Than 21 Years*	21 to 24 Years	25 Years	26 or More Years	FY2016 to FY2026	FY2026 and thereafter	FY2012 to FY2022	FY2022 and thereafter
25					8.98%	9.98%	9.48%	10.48%
30					5.97	6.97	6.47	7.47
35					4.17	5.17	4.67	5.67
40	4.00%	0.60%	45.57%	15.40%	3.33	4.33	3.83	4.83
45	4.00	0.60	54.83	15.40	2.90	3.90	3.40	4.40
50	4.30	0.60	57.62	18.48	2.75	3.75	3.25	4.25
55	6.00	0.00	64.94	24.47	2.60	3.60	3.10	4.10
60	3.20	0.00	77.49	27.34	2.35	3.35	2.85	3.85
64	37.50	0.00	85.24	51.03	2.10	3.10	2.60	3.60
65 and over	100.00	100.00	100.00	100.00				

* Retirement assumption prior to age 55 is for any member as of January 18, 2000 upon completion of 20 years of service.

Deaths after Retirement: RP-2000 Combined Healthy Mortality Tables projected one year using Projection Scale AA and two years using the Conduent Modified 2014 Projection Scales is the base table as of the 2015 measurement date for male service retirements and will be further projected on a generational basis using the Conduent Modified 2014 Projection Scales. RP-2000 Combined Healthy Mortality Tables projected thirteen-years using Projection Scale BB and then two years projected using the Conduent Modified 2014 Projection Scales is the base table as of the 2015 measurement date for female service retirements and beneficiaries and will be further projected on a generational basis using the Conduent Modified 2014 Projection Scales. Special mortality tables are used for the period after disability retirement. The following representative values of the assumed annual rates of mortality are effective 2015:

Age	Service Retirements		Beneficiaries		Age	Disability Retirements
	Men	Women	Men	Women		
55	0.348%	0.252%	0.341%	0.252%	35	0.598%
60	0.655	0.435	0.607	0.435	40	0.634
65	1.232	0.804	1.068	0.804	45	0.803
70	2.123	1.382	1.771	1.382	50	1.058
75	3.602	2.323	3.002	2.323	55	1.210
80	6.146	3.794	5.101	3.794	60	1.426
85	10.618	6.397	8.785	6.397	65	1.949

Marriage:

Husbands are assumed to be 3 years older than wives. Among the active population, 90% of participants are assumed married. No children are assumed. Neither the percentage married nor the number of children assumption is individually explicit, but they are considered reasonable as a single combined assumption.

Actuarial Cost Method for Pension Funding:

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, 2018 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, 2028 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 for Pension Funding:

A five year average of market values with write-up was used. 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 43, Chapter 16A.

Eligibility for Membership

Enrollment is restricted to eligible policemen and firemen who are permanent and full-time and who pass the physical and mental fitness requirements. The maximum enrollment age is 35.

1. Definitions

Plan Year	The 12-month period beginning on July 1 and ending on June 30.
Credited Service	A year of service is credited for each year an employee is a Member of the Retirement System plus service, if any, covered by a prior service liability.
Average Final Compensation (AFC)	The average annual compensation for the three consecutive years of Service immediately preceding retirement or the highest three consecutive fiscal years of Membership Service.
Compensation	Base salary upon which contributions by a Member to the Annuity Savings Fund were based in the last year of Service. For Accidental Death, benefits are computed at the annual rate of salary. In accordance with Chapter 1, P.L. 2010, for members hired on or after May 22, 2010 Compensation cannot exceed the annual maximum wage contribution base for Social Security pursuant to the Federal Insurance Contribution Act.
Final Compensation (FC)	Annual compensation received by the member in the last 12 months of Credited Service preceding his retirement. In accordance with Chapter 1, P.L. 2010, for members hired on or after May 22, 2010, FC means the average annual compensation for the three fiscal years of membership providing the largest benefit.
Accumulated Deductions	The sum of all amounts deducted from the compensation of a Member or contributed by him or on his behalf without interest.

2. Benefits

Service Retirement	Eligibility means age 55 or 20 years of credited service for an employee who was a member of the Retirement System as of January 18, 2000 and age 55 for an employee who became a member of the Retirement System after January 18, 2000; mandatory at age 65 (except that a member hired prior to January 1, 1987 may remain a member of the Retirement System until the member attains the earlier of age 68 or 25 years of creditable service). Benefit is an annual retirement allowance equal to a member annuity plus an employer pension which together equals the greater of:

(i) 1/60th of FC for each year of Credited Service; or

(ii) 2% of FC multiplied by years of Credited Service up to 30 plus 1% of FC multiplied by years of Service over 30. (Prior to January 18, 2000, this benefit was based on AFC rather than FC. However, Policy Memorandum 4-2000, which interpreted the provisions of Chapter 428, P.L. 1999, authorized the change in the salary basis).

(iii) 50% of FC if the member has 20 or more years of Credited Service.

Chapter 428 also requires that, in addition to the 50% of FC benefit, any member as of January 18, 2000 who will have 20 or more years of Credited Service and is required to retire upon attaining age 65 (except that a member hired prior to January 1, 1987 may remain a member of the System until the member attains the earlier of age 68 or 25 years of creditable service), shall receive an additional benefit equal to 3% of FC for each year of Credited Service over 20 years but not over 25 years.

Special Retirement

After completion of 25 years of Credited Service. The annual retirement benefit is equal to a member annuity plus an employer pension which together equal 65% of FC plus 1% of FC for each year of Credited Service over 25. Effective for members hired after June 28, 2011, the annual retirement benefit is equal to a member annuity plus an employer pension which together equal 60% of FC plus 1% of FC for each year of Credited Service over 25. There is a maximum benefit of 70% of FC (65% of FC for members hired after June 28, 2011) except for those members with 30 or more years of Credited Service on June 30, 1979.

Vested Termination

(A) Eligible upon termination of service prior to age 55 and prior to 10 years of Credited Service. The benefit equals a refund of Accumulated Deductions less any outstanding loans.

(B) Eligible upon termination of service prior to age 55 and after 10 years of Credited Service (but less than 20 years if a member on or prior to January 18, 2000 or less than 25 years of service if a member after January 18, 2000). The benefit is a deferred retirement benefit, commencing at age 55, equal to a member annuity plus an employer pension which together provide a retirement allowance equal to 2% of FC multiplied by years of Credited Service up to 30 plus 1% of FC multiplied by years of Credited Service over 30.

Death Benefits

Ordinary Death Benefit - Lump Sum (NCGIPF)

(1) If a member dies prior to retirement, the benefit payable is as follows:

A lump sum amount equal to 3-1/2 times FC payable to the member’s beneficiary.

(2) After retirement but prior to age 55, the benefit is as follows:

(i) For death while a Disabled Retiree the benefit is equal to 3-1/2 times Compensation.

(ii) For death while a Deferred Retiree the benefit is equal to his Accumulated Deductions.

(iii) For death while a Retiree who has completed 20 years of Credited Service, the benefit is equal to 1/2 times FC.

(3) After retirement and after age 55, the benefit payable is equal to 1/2 times Compensation. (Note: If a Member is not disabled, 10 years of Credited Service is required for Members enrolling after July 1, 1971.)

Ordinary Death Benefit - Survivor Annuity

(1) If a member dies prior to retirement, the benefit payable to a widow (widower) is equal to 50% of FC (20% of FC payable to one child, 35% of FC payable to two children or 50% of FC payable to three or more children if there is no surviving widow or widower or if the widow or widower dies or remarries or 25% of FC payable to one parent or 40% of FC payable to two parents if no surviving widow, widower or child. If no widow, widower, child or parent, the benefit payable to a beneficiary is the aggregate Accumulated Contributions at the time of death).

(2) For any member who retired after December 18, 1967, the benefit payable to a widow (widower) is equal to 50% of FC plus 15% of FC for one child and 25% of FC for two or more children.

If no spouse, or spouse remarries, the benefit is equal to 20% of FC for one child, 35% for two children, and 50% for three or more children.

There is also a minimum benefit payable to widows (widowers) of $4,500 a year.

(3) For any member who retired with an Accidental Disability Benefit, the benefit payable is equal to $4,500 a year to the widow (widower). If there is no widow (widower) the benefit payable is $600 a year for 1 child, $960 a year for 2 children, and $1,500 a year for 3 or more children. The benefit for children is payable until age 18.

Accidental Death Benefit

A death while active resulting from injuries received from an accident during performance of duty is eligible for a lump sum equal to the Accumulated Deductions plus 3-1/2 times Compensation plus an annuity benefit payable is as follows:

(i) The benefit to a widow or widower is equal to 70% of Compensation.

(ii) The benefit, when there is no spouse, or spouse is remarried, is equal to 20% of Compensation for one child, 35% for two children, 50% for three or more children. The benefit is payable while the children are under age 18, or until age 24 if they are full-time students, or it is payable for life if they are disabled.

(iii) The benefit, when there is no spouse or children, is equal to 25% of Compensation for one parent and 40% for two parents.

(iv) The benefit, when there is no relation as stated above, is equal to the Accumulated Deductions and is payable to a beneficiary or to the Member's estate. This is also the minimum benefit payable under (i), (ii) and (iii).

Disability Benefits

Ordinary Disability Retirement

A Member is eligible for Ordinary Disability Retirement if he (she) has 4 years of Service and is totally and permanently incapacitated from the performance of usual or available duties. The benefit is equal to the greater of:

(i) 1-1/2% of FC times the number of years of Credited Service; or

(ii) 40% of FC.

In addition, a member who has at least 20 years but less than 25 years of Credited Service and who is required to retire upon application by the employer on and after January 18, 2000 shall receive a benefit equal to a member annuity plus an employer pension which together provide a total retirement allowance equal to 50% of FC plus 3% of FC multiplied by the number of years of Credited Service over 20 but not over 25.

Accidental Disability Retirement

A Member is eligible upon total and permanent incapacitation from the performance of usual or available duties as a result of injury during the performance of regular duties. The benefit payable is equal to a Member annuity plus an employer pension which together equals 2/3 of the Compensation at date of injury.

Special Disability Retirement

A member is eligible for Special Disability Retirement if he (she) has 5 years of Credited Service, is under age 55, and has received a heart transplant. The benefit payable is equal to a Member annuity plus an employer pension which together equals 50% of FC.

3. Member Contributions

Each member contributes 8.5% of Compensation. Chapter 78, P.L. 2011 increased the Member Contributions from 8.5% to 10.0% of Compensation effective October 2011.

4. Chapter 19, P.L. 2009

Chapter 19, P.L. 2009 provides that the State Treasurer will reduce for Local employers the normal and accrued liability contributions to 50 percent of the amount certified for fiscal years 2009. The additional unfunded liability will be paid by Local employers in level annual payments over a period of 15 years, with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted annually by the rate of return on the actuarial value of assets. The legislation also provides that a Local employer may opt to pay 100 percent of the recommended contribution for fiscal year 2009. Employers making this election will be credited with the full payment. In addition, certain employers who were eligible to defer 50% of their fiscal year 2009 recommended contributions but instead paid 100% of the 2009 recommended contributions are permitted to elect to defer 50% of their recommended 2010 fiscal year contributions. The additional unfunded liability will be paid by Local employers in level annual payments over a period of 15 years, with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets.

5. Early Retirement Incentive Contribution

The following legislation provides additional retirement benefits to certain employees of Local employers: Ch. 99, P.L. 1993, Ch. 59, P.L. 1999, Ch. 126, P.L. 2000 and Ch. 130, P.L. 2003. The cost of the enhanced pension benefits will be funded by employer contributions to the retirement system and paid by the employer that elected to participate. The additional pension liability shall be paid by each electing employer entity over a period of years provided by the legislation.

6. Chapter 204, P.L. 1989

The provisions of Chapter 204 allowed employees who were previously excluded on the basis of their titles from PFRS membership to enter the Plan. Employers of such employees are required to contribute any additional contribution necessary to fund any unfunded liability arising from Chapter 204.

7. Special Funding Situation

The State is considered to be a non-employer contributing entity that is legally responsible for making contributions directly to the Plan to provide pensions to employees of Local employers due to the following legislation:

i. Chapter 511, P.L. 1991

The provisions of Chapter 511 increased the benefit payable to the surviving spouse of a retiree from 35% to 50% of the retiree's average final compensation. This law also raised the minimum annual spouse's benefit from $1,600 to $4,500 for benefits granted prior to January 14, 1992.

Chapter 511 required that the normal cost and accrued liability contribution attributable to this chapter be separately determined. The contribution required to fund these costs for the State and other employers shall be paid by the State.

As a result of Chapter 115, P.L. 1997, the accrued liability contribution attributable to Chapter 511 was eliminated at that time. However, because of the reductions (and anticipated reductions) in the required State contributions for fiscal years 2004 through 2014 due to the various Appropriation Acts and Chapter 1, P.L. 2010, the remaining required contributions that have not been made have been set up as an unfunded accrued liability attributable to Chapter 511.

ii. Chapter 247, P.L. 1993 and Chapter 201 P.L. 2001

Chapter 247 requires the State to pay the difference between the PFRS normal cost rate and the PERS normal cost rate for certain members who transferred into PFRS as of January 1, 1992 or later. In addition, the law requires the State to pay the "System" unfunded accrued liability contribution for Municipalities and Local Groups that transferred into PFRS on and after January 1, 1992 without past service.

Chapter 201, P.L. 2001 made changes to Chapter 247, P.L. 1993 with respect to the benefits payable to members who transferred from PERS to PFRS as a result of the Chapter 247 legislation. The resulting increase in the unfunded accrued liabilities due to the increased benefits was fully funded by the recognition of additional market value surplus in the determination of the actuarial value of assets in the July 1, 1999 valuation. However, because of the reductions (and anticipated reductions) in the required State contributions for fiscal years 2004 through 2014 due to the various Appropriation Acts and Chapter 1, P.L. 2010, the remaining required contributions which were not paid have been added to the Chapter 247 unfunded accrued liability and will be included in future State contributions.

iii. Chapter 8, P.L. 2000

Chapter 8, P.L. 2000 required that, if valuation assets are insufficient to fund the normal cost and accrued liability costs attributable to Chapter 428, P.L. 1999, the contribution required to fund these costs for the State and other employers shall be paid by the State. For both the July 1, 2013 and July 1, 2014 valuations, valuation assets were not sufficient to fund the costs attributable to Chapter 428. In addition, because of the reductions (and anticipated reductions) in the required State contributions for fiscal years 2004 through 2014 due to the various Appropriation Acts and Chapter 1, P.L. 2010, the remaining required contributions which were not paid have been added to the Chapter 428 unfunded accrued liability and will be included in future State contributions.

iv. Chapter 86, P.L. 2001

Chapter 86, P.L. 2001 amended the active death benefits provided to a beneficiary of a member who died in active duty on or after January 1, 1998 and before January 18, 2000. The law required an eligible beneficiary to apply for the increased benefits within 90 days of enactment and return the member's aggregate contributions to the System. The State is liable for all costs to the System attributable to this law.

v. Chapter 318, P.L. 2001

Chapter 318, P.L. 2001 amended the active death benefits provided to a beneficiary of a member with 10 or more years of service who died in active service on or after June 1, 1995 and before January 1, 1998 and whose beneficiary had, on May 1, 2001, an appeal of a denial of a benefit related to death in the line of duty pending before the Board of Trustees. The law requires that the appeal be withdrawn or denied and that an eligible beneficiary apply for the increased benefits and return the member's aggregate contributions received. The State is liable for all costs to the System attributable to this law.

vi. Chapter 109, P.L. 1979

Chapter 109, P.L.1979 increased special retirement benefits for members who retire with 25 years of service from 50% to 60% of average final compensation. Under the provisions of this chapter, the State is liable for the increase in the normal contribution to fund the benefits provided by this act. Extra State contributions of 1.1 percent of covered salary are required to provide for the extra benefits offered under the act.