ACTUARIAL SECTION

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April 17, 2015

Board of Trustees
Public Employees' Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the Public Employees' Retirement System of New Jersey ("PERS") is performed annually to measure the ongoing costs of the System (with required contributions determined separately for the State and Local employers) and the progress towards the funding goals of the System over time. In general, the financial goals of the PERS are a pattern of contributions, which is sufficient to cover the normal cost of the System plus the contribution towards the unfunded accrued liability.

In accordance with the New Jersey statutes, employers are required to make two contributions to the System, a normal contribution and an accrued liability contribution. The normal contribution for basic allowances is defined under the Projected Unit Credit funding method as the present value of the benefits accruing during the current year. Prior to the July 1, 2010 valuation, the unfunded accrued liability contribution for basic allowances and cost of living adjustments (COLAs) was determined as a level percentage of pay required to amortize the unfunded accrued liability over 30 years in annual payments increasing by 4% per year. The funding reform provisions of Chapter 78, P.L. 2011 changed the methodology used to amortize the unfunded accrued liability. Beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation, the amortization period shall decrease by one year). Beginning with the July 1, 2029 actuarial valuation when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

Effective with the July 1, 2012 actuarial valuation, the determination of the State and Local employers' normal cost contributions have been revised to reflect the use of all member contributions as an offset to the gross normal cost. This was the methodology used to determine the State and Local employers' normal cost contribution prior to the enactment of Chapter 78, P.L. 2011 and is consistent with the methodology typically used by contributory public-sector retirement systems to calculate the employer's normal cost contribution. The valuation reflects the funding reform provisions of Chapter 1, P.L. 2010. Chapter 1, P.L. 2010 allows the State Treasurer to phase in to the full recommended pension contribution. The State would be in compliance with its funding requirement provided the State makes a payment of at least 1/7th of the full contribution, as computed by the actuaries, in the State fiscal year commencing July 1, 2011 and makes a payment in each subsequent fiscal year that increases by at least an additional 1/7th until payment of the full contribution is made in the seventh fiscal year and thereafter.

The valuation reflects the final State contribution under Chapter 1, P.L. 2010 for fiscal year 2013, which allowed the State Treasurer to reduce the State normal and accrued liability contributions for fiscal year 2013 of $924,432,941 to $264,123,697. This amount excludes the Workers Compensation Judges Part contribution of $685,799, which is payable by fund transfer from the Second Injury Fund and the Non-Contributory Group Insurance Premium of $36,930,227. Accordingly, a fiscal year 2013 employer contribution of $264,809,496 ($264,123,697 plus the Workers Compensation Judges Part transfer of $685,799) was recognized for purposes of this valuation.

The valuation reflects the change in the recommended 2014 State pension contribution of $1,050,074,677 to $993,064,820 and for the recommended 2014 Local pension contribution from $822,083,553 to $737,004,745 to reflect the use of the full member contributions as an offset to the gross normal cost of the System. Further, the fiscal year 2014 recommended State pension contribution of $993,064,820 has been reduced to $425,599,209 and has been recognized as a receivable contribution for purposes of this valuation. This amount excludes the Worker Compensation Judges Part contribution of $674,009, which is payable by fund transfer from the Second Injury Fund and the estimated Non-Contributory Group Insurance Premium of $33,431,000. Accordingly, a fiscal year 2014 employer contribution of $426,273,218 ($425,599,209 plus the Workers Compensation Judges Part transfer of $674,009) was recognized as a receivable contribution for purposes of this valuation. This amount may be subject to change per the requirements of the State's fiscal year 2014 spending plan.

A State contribution of $1,058,157,699 is recommended for the fiscal year beginning July 1, 2014. This amount is comprised of an unfunded accrued liability payment of $920,006,491 plus a normal contribution of $138,151,208. However, the provisions of Chapter 1, P.L. 2010 allow the State Treasurer to reduce the recommended pension contribution for fiscal year 2015 to no less than 3/7th of the recommended pension contribution. Accordingly, the Chapter 1, P.L. 2010 minimum required pension contribution is $604,661,543. This is comprised of an unfunded accrued liability payment of $525,717,995 and a normal contribution of $78,943,548. This amount excludes the Worker Compensation Judges Part contribution of $679,374, which is payable by fund transfer from the Second Injury Fund and the estimated Non-Contributory Group Insurance Premium of $34,399,000. This amount may be subject to change per the requirements of the State's fiscal year 2015 spending plan.

The valuation again reflects the provisions of Chapter 42, P.L. 2002, which allowed Local employers to issue refunding bonds to retire the unfunded accrued liability due to certain early retirement incentive programs.

The valuation reflects Chapter 19, P.L. 2009, which allowed the State Treasurer to reduce Local employers' normal and accrued liability contributions to 50% of the amount certified for the State fiscal year 2009. In addition, certain Local employers who were eligible under Chapter 19, P.L. 2009 to defer 50% of their State fiscal year 2009 pension contribution but did not were permitted to defer 50% of their State fiscal year 2010 recommended pension contribution. This unfunded liability will be paid by the 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. The legislation also provides that a Local employer may pay 100% of the recommended contributions for State fiscal years 2009 and 2010. Such an employer will be credited with the full payments and any such amounts will not be included in their unfunded liability.

The underlying demographic data is maintained and provided by the New Jersey Division of Pensions and Benefits. The data is analyzed by Buck Consultants, for internal completeness and consistency and compared with the prior valuation data to again ensure consistency.

As required under Chapter 84, P.L. 1954, an actuarial investigation of the demographic experience of the members and beneficiaries of PERS is made once in every three-year period. The contributions for the fiscal year beginning July 1, 2014 were based on the actuarial assumptions that were determined from the July 1, 2008 to June 30, 2011 Experience Study and approved by the Board of Trustees at the September 19, 2012 Board meeting.

The valuation reflects the economic assumptions recommended by the Treasurer, which include a rate of investment return of 7.90% per annum and assumed future salary increases reduced by 2.00% per annum for fiscal years through 2021, and 1.00% 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 economic assumptions.

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 future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the State House Commission or staff of the State of New Jersey's 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. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' prior written consent.

The valuation does not take into account any changes in U.S. equity prices and bond yields that have occurred after the valuation date. Taking these into account may significantly change the market and actuarial value of assets shown. The effect of these events on any funded ratios shown, and on Retirement System calculations, is not known. Retirement System funding and financial accounting rules generally prohibit reflection of changes in assets and underlying economic conditions that occur after the valuation date.

The assumptions used to prepare the information required by Statements No. 25, No. 27 and No. 50 of the Governmental Accounting Standards Board (GASB) were the same as those used for funding purposes.

In our opinion, the attached schedules of valuation results fairly represent the status of the PERS and present an accurate view of historical data. The underlying assumptions and methods are consistent with the statutory specifications and represent a best estimate of the aggregate future experience of the System.

The following supporting schedules in the Actuarial Section were prepared by Buck Consultants:

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience

  Reconciliation of Employer Contribution Rates
- Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck Consultants prepared the "Schedule of Funding Progress" and the "Schedule of Employer Contributions" in the Financial Section. The Schedule of Funding Progress and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 will be effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

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, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA

Principal, Consulting Actuary

Summary of Actuarial Assumptions and Methods

Chapter 84, P.L. 1954 provides that once in every three-year period the actuary shall examine in detail the demographic experience of the membersand beneficiaries of the PERS to assure that the tables used for determining expected liabilities are consistent with recent experience.

The demographic assumptions used for the July 1, 2013 actuarial valuation of the PERS were based on the results of the experience study, which covered the period from July 1, 2008 to June 30, 2011, which were approved by the Board of Trustees, and the revised economic assumptions, which were recommended by the Treasurer.

An outline of the actuarial assumptions and methods used for the July 1, 2013 valuation is as follows:

Valuation Interest Rate: 7.90% per annum, compounded annually.

Employee Contribution Interest Rate: 7.90% per annum.

COLA: No future COLA is assumed.

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[1]			
	1st Year		2nd Year		3rd Year		Prior to Eligibility For Benefit		After Eligibility For Benefit	
Age	State	Local	State	Local	State	Local	State	Local	State	Local
25	28.90%	32.15%	13.53%	15.12%	9.52%	12.19%	4.69%	6.31%	–	–
30	28.90	31.07	13.53	14.67	9.52	11.10	3.82	6.11	–	0.03%
35	20.91	26.81	10.83	11.74	7.99	8.28	2.86	3.80	0.05%	0.04
40	17.32	25.64	8.86	10.52	6.37	7.62	1.80	2.77	0.05	0.06
45	16.33	24.81	8.26	10.08	5.79	7.14	1.22	2.46	0.24	0.19
50	16.33	22.71	7.65	9.58	5.21	6.60	0.90	1.85	1.10	0.75
55	16.33	22.37	7.65	9.40	5.21	6.26	0.88	1.52	1.50	0.90

[1] *The rates of withdrawal prior to eligibility for a benefit assume a refund of contributions. The rates assumed for members withdrawing with a benefit are the sum of the rates of withdrawal after eligibility for a benefit and those prior to eligibility.*

Summary of Actuarial Assumptions and Methods, *continued*

Age	Annual Rates of									
	Ordinary Death[2]				Accidental Death		Ordinary Disability		Accidental Disability	
	State		Local							
	Male	Female	Male	Female	State	Local	State	Local	State	Local
25	0.04%	0.02%	0.04%	0.02%	0.001%	0.001%	0.01%	–	0.001%	0.002%
30	0.04	0.02	0.04	0.02	0.001	0.001	0.10	0.07%	0.003	0.004
35	0.06	0.03	0.06	0.02	0.001	0.001	0.24	0.22	0.009	0.004
40	0.09	0.05	0.10	0.04	0.001	0.001	0.34	0.30	0.017	0.009
45	0.12	0.07	0.13	0.06	0.001	0.001	0.51	0.36	0.019	0.013
50	0.17	0.11	0.19	0.09	0.001	0.001	0.58	0.51	0.029	0.016
55	0.25	0.17	0.26	0.14	0.001	0.001	0.70	0.69	0.039	0.022
60	0.36	0.25	0.40	0.21	0.001	0.001	1.23	0.89	0.041	0.025
65	0.59	0.39	0.65	0.33	0.001	0.001	1.49	1.10	0.061	0.027
69	0.81	0.54	0.86	0.47	0.001	0.001	1.77	1.31	0.062	0.029

[2] RP-2000 Employee Preretirement Mortality Table for male and female active participants. For State, mortality tables are set back 3 years for males and 5 years for females. For Employees of Local employers, mortality tables are set back 2 years for males and 7 years for females. In addition, the tables provide for future improvements in mortality from the base year of 2012 using a generational approach based on Projection Scale AA. Rates shown above are unadjusted for Projection Scale AA.

Age	Annual Rates of			
	Service Retirement		Salary Increases	
	State	Local	FY2012 to FY2021	FY2022 and thereafter
25			4.40%	5.40%
30			4.15	5.15
35			3.90	4.90
40			3.65	4.65
45			3.40	4.40
50			3.15	4.15
55	17.50%	11.70%	2.90	3.90
60	9.00	7.80	2.65	3.65
65	18.00	16.54	2.15	3.15
69	15.00	11.55	2.15	3.15

Summary of Actuarial Assumptions and Methods, *continued*

Prosecutors Part (Chapter 366, P.L. 2001)

This legislation introduced special retirement eligibility for certain benefits. The valuation used the following annual rates of service retirement:

Age	Annual Rates of Retirement					
	Less than 20 years		20 Years	21 to 24 Years	25 or More Years	
	State	Local			State	Local
40	0.00%	0.00%	2.50%	0.00%	23.10%	15.40%
45	0.00	0.00	2.50	0.00	23.10	15.40
50	0.00	0.00	3.75	0.00	23.10	15.40
55	2.59	3.06	5.00	0.00	26.22	17.48
60	2.63	3.06	5.00	0.00	34.17	22.78
65	2.63	3.06	37.50	0.00	100.00	100.00
69	2.63	3.06	37.50	0.00	100.00	100.00

Deaths after Retirement

The RP-2000 Combined Healthy Male and Female Mortality Tables (set back 1 year for males and females) for service retirement and beneficiaries of former members. The RP-2000 Disabled Mortality Tables (set back 3 years for males and set back 1 year for females) are used to value disabled retirees. In addition, the tables for service retirement and beneficiaries of former members provide for future improvements in mortality from the base year of 2012 using a generational approach based on Projection Scale AA. Illustrative rates of mortality unadjusted for Projection Scale AA are shown below:

Age	Service Retirements		Age	Disability Retirements	
	Men	Women		Men	Women
55	0.32%	0.24%	35	2.26%	0.75%
60	0.60	0.44	40	2.26	0.75
65	1.13	0.86	45	2.26	0.75
70	1.98	1.49	50	2.51	1.06
75	3.39	2.55	55	3.16	1.55
80	5.79	4.15	60	3.80	2.08
85	9.98	6.95	65	4.50	2.66

Summary of Actuarial Assumptions and Methods, *continued*

Marriage

Husbands are assumed to be 3 years older than wives. Among the active population, 100% of participants are assumed to be married.

Valuation Method

Projected Unit Credit Method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains or 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 actuarial valuation, the amortization period shall decrease by one year). Beginning with the July 1, 2029 actuarial valuation when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

Asset Valuation Method

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.

Schedule of Retired Members and beneficiaries — Added to and Removed From Rolls

State

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/13	2,864	$82,357,835	1,685	$29,723,562	50,227	$1,250,142,686	4.41%	$24,890
7/1/12	3,192	92,356,665	1,734	29,433,960	49,048	1,197,305,307	5.66	24,411
7/1/11	4,365	135,383,063	1,782	28,241,754	47,590	1,133,192,150	11.40	23,812
7/1/10	2,628	74,214,851	1,456	22,991,138	45,007	1,017,211,463	5.32	22,601
7/1/09	3,691	114,125,640	1,587	23,763,321	43,835	965,850,034	13.38	22,034
7/1/08	2,376	59,667,932	1,282	18,580,725	41,731	851,858,427	6.45	20,413

Local Employers

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/13	6,911	$123,953,479	4,169	$49,483,971	106,287	$1,706,902,310	4.60%	$16,059
7/1/12	7,334	137,596,316	4,284	49,626,477	103,545	1,631,782,901	5.83	15,759
7/1/11	9,296	195,153,024	4,529	48,064,677	100,495	1,541,951,837	11.54	15,344
7/1/10	6,182	115,153,073	3,805	42,585,361	95,728	1,382,400,685	5.56	14,441
7/1/09	5,826	101,661,331	3,761	39,550,280	93,351	1,309,554,538	7.86	14,028
7/1/08	6,077	101,843,543	3,247	33,727,154	91,286	1,214,076,086	7.35	13,300

Total System

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/13	9,775	$206,311,314	5,854	$79,207,533	156,514	$2,957,044,996	4.52%	$18,893
7/1/12	10,526	229,952,981	6,018	79,060,437	152,593	2,829,088,208	5.75	18,540
7/1/11	13,661	330,536,087	6,311	76,306,431	148,085	2,675,143,987	11.48	18,065
7/1/10	8,810	189,367,924	5,261	65,576,499	140,735	2,399,612,148	5.46	17,051
7/1/09	9,517	215,786,971	5,348	63,313,601	137,186	2,275,404,572	10.14	16,586
7/1/08	8,453	161,511,475	4,529	52,307,879	133,017	2,065,934,513	6.98	15,531

[1] *These values include beneficiaries in receipt but exclude deferred vested terminations.*

[2] *The benefit amounts shown are the annualized benefits as of the valuation date and are not the actual benefits paid during the fiscal year.*

Schedule of Active Members Valuation Data

State

Valuation Date	Number of Active Contributing Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/13	74,365	$4,556,719,103	$61,275	1.02%
7/1/12	75,355	4,570,958,470	60,659	1.48
7/1/11	77,109	4,608,926,826	59,772	6.44
7/1/10	81,288	4,564,850,886	56,157	0.86
7/1/09	83,102	4,627,092,235	55,680	2.91
7/1/08	85,182	4,609,019,779	54,108	4.17

Local Employers

Valuation Date	Number of Active Contributing Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/13	160,253	$6,891,812,162	$43,006	2.78%
7/1/12	164,005	6,862,133,165	41,841	2.74
7/1/11	171,881	7,000,115,900	40,727	2.98
7/1/10	187,526	7,416,503,897	39,549	3.37
7/1/09	192,582	7,368,354,906	38,261	2.23
7/1/08	192,566	7,206,781,046	37,425	3.33

Total System

Valuation Date	Number of Active Contributing Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/13	234,618	$11,448,531,265	$48,796	2.16%
7/1/12	239,360	11,433,091,635	47,765	2.45
7/1/11	248 ,990	11,609,042,726	46,625	4.61
7/1/10	268,814	11,981,354,783	44,571	2.43
7/1/09	275,684	11,995,447,141	43,512	2.28
7/1/08	277,748	11,815,800,825	42,541	3.65

ACTUARIAL INFORMATION

Solvency Test

State

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$4,885,643,785	$11,293,634,256	$3,814,679,391	$9,614,698,050	100.00%	41.87%	0.00%
7/1/12	4,562,712,648	10,849,987,028	3,970,884,963	9,774,698,097	100.00	48.04	0.00
7/1/11	4,295,868,689	10,055,639,293	3,939,321,039	10,062,648,618	100.00	57.35	0.00
7/1/10	4,218,496,038	8,891,761,902	4,318,920,081	10,253,254,901	100.00	67.87	0.00
7/1/09	3,917,520,867	9,576,933,235	5,452,740,477	10,713,340,747	100.00	70.96	0.00
7/1/08	3,772,347,015	8,123,305,516	5,177,050,149	11,252,321,606	100.00	92.08	0.00

Local Employers

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$7,060,416,742	$14,775,793,049	$5,169,572,726	$19,978,598,632	100.00%	87.43%	0.00%
7/1/12	6,614,992,298	14,150,003,241	5,244,042,802	19,376,646,934	100.00	90.19	0.00
7/1/11	6,244,282,760	13,077,334,135	5,357,478,680	18,997,383,783	100.00	97.52	0.00
7/1/10	6,130,352,551	11,541,556,714	6,246,748,779	18,481,952,370	100.00	100.00	12.97
7/1/09	5,692,517,632	12,298,679,145	7,532,011,799	18,165,835,669	100.00	100.00	2.32
7/1/08	5,242,130,640	11,030,079,191	6,900,974,142	18,251,200,411	100.00	100.00	28.68

Total System

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$11,946,060,527	$26,069,427,305	$8,984,252,117	$29,593,296,682	100.00%	67.69%	0.00%
7/1/12	11,177,704,946	24,999,990,269	9,214,927,765	29,151,345,031	100.00	71.89	0.00
7/1/11	10,540,151,449	23,132,973,428	9,296,799,719	29,060,032,401	100.00	80.06	0.00
7/1/10	10,348,848,589	20,433,318,616	10,565,668,860	28,735,207,271	100.00	89.98	0.00
7/1/09	9,610,038,499	21,875,612,380	12,984,752,276	28,879,176,416	100.00	88.09	0.00
7/1/08	9,014,477,655	19,153,384,707	12,078,024,291	29,503,522,017	100.00	100.00	11.06

[1] *Actuarial Value including receivable amounts.*

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

State

Valuation Year	July 1, 2013	July 1, 2012	July 1, 2011	July 1, 2010	July 1, 2009	July 1, 2008
Prior Year Contribution Rate	22.97%[3]	20.06%[3]	19.15%[3]	16.28%[3]	12.59%[3]	11.42%[3]
Adjustment for Full Member Contributions to Offset Normal Cost	(1.45)	N/A	N/A	N/A	N/A	N/A
Revised Prior Year Contribution Rate	21.52%	N/A	N/A	N/A	N/A	N/A
Net Change Due to:						
Current New Entrants	(0.03)	0.02	0.00	0.04	0.09	0.07
Excess Salary Increases	(0.23)	(0.14)	0.24	(0.22)	(0.05)	0.07
Assumption/Method Changes	0.00	0.80	(1.28)	0.00	1.40	0.00
COLA Increases and Phase-In	0.00	0.02	(0.13)	(0.07)	0.17	0.01
Active Experience	(0.19)	0.07	0.27	0.15	0.02	0.02
Other Experience	0.35	0.19	(0.16)	0.23	0.14	0.08
Investment Loss/(Gain)	0.47	0.67	0.48	0.65	0.90	0.36
Chapter 133 Benefit Improvements[2]	0.00	0.00	0.00	0.00	0.00	0.00
Net Effect of Chapter 133[1]	0.00	0.00	0.00	0.00	0.00	0.00
Chapter 366 Benefit Improvement	0.00	(0.01)	0.00	0.01	0.00	(0.01)
Net Effect of Chapter 366	0.00	0.01	0.01	0.03	0.00	0.00
Appropriation Act[4]	1.10	1.28	1.48	1.03	0.78	0.60
Chapter 21, P.L. 2008	N/A	N/A	N/A	N/A	0.24	N/A
Chapter 103, P.L. 2007	N/A	N/A	N/A	N/A	N/A	(0.03)
Chapter 78, P.L. 2011	N/A	N/A	N/A	1.02	N/A	N/A
Recommended Contribution Rate:						
• Prior to reflecting Chapter 1, P.L. 2010	22.99%[3]	22.97%[3]	20.06%[3]	19.15%[3]	16.30%[3]	12.59%[3]
• After reflecting Chapter 1, P.L. 2010	13.14%[3]	9.85%[3]	5.73%[3]	2.74%[3]	N/A	N/A

[1] *The additional annual employer normal contribution for the increase in benefits is funded by assets accumulated in the Benefit Enhancement Fund.*

[2] *Includes the effect of additional cost due to Chapter 353, P.L. 2000.*

[3] *Excludes contribution rates payable to the Non-Contributing Group Insurance Premium Fund. The contribution rates are 0.75% for 2013, 0.73% for 2012, 0.74% for 2011, 0.71% for 2010, 0.64% for 2009, and 0.62% for 2008.*

[4] *Net change due to Appropriation Act for July 1, 2010 includes 0.03% change due to the Fiscal Year 2010 Appropriation Act and 1.00% change due to the Fiscal Year 2011 Appropriation Act. Net change for July 1, 2011, July 1, 2012, and July 1, 2013 are due to the provisions of Chapter 1, P.L. 2010.*

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

Local

Valuation Year	July 1, 2013	July 1, 2012	July 1, 2011	July 1, 2010	July 1, 2009	July 1, 2008
Prior Year Contribution Rate[4]	12.68%[3]	11.29%[3]	11.32%[3]	11.12%[3]	8.67%[3]	7.99%[3]
Adjustment for Full Member Contributions to Offset Normal Cost	(1.24)	N/A	N/A	N/A	N/A	N/A
Revised Prior Year Contribution Rate	11.44%	N/A	N/A	N/A	N/A	N/A
Net Change Due to:						
Current New Entrants	(0.02)	0.02	0.03	0.08	0.16	0.11
Excess Salary Increases	0.02	(0.02)	(0.12)	(0.08)	(0.10)	0.05
Assumption/Method Changes	0.00	0.38	(0.93)	0.00	1.21	0.00
COLA Increases and Phase-In	0.00	0.02	(0.11)	(0.05)	0.14	0.01
Active Experience	(0.36)	0.04	0.26	0.10	(0.05)	(0.01)
Other Experience	0.19	0.13	0.21	(0.04)	0.07	0.11
Investment Loss/(Gain)	0.59	0.83	0.77	0.77	0.98	0.45
Chapter 133 Benefit Improvements[2]	0.00	0.00	(0.13)	0.00	0.03	(0.01)
Net Effect of Chapter 133[1]	(0.67)	(0.68)	(0.69)	(0.81)	(0.81)	(0.78)
Chapter 366 Benefit Improvement	(0.01)	(0.01)	(0.01)	0.00	0.01	(0.01)
Net Effect of Chapter 366	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)	(0.03)
Chaper 108, P.L. 2003	0.00	0.00	0.00	0.00	0.00	0.00
Chapter 103, P.L. 2007	0.00	0.00	0.00	0.00	0.00	(0.02)
Chapter 78, P.L. 2011	N/A	N/A	N/A	(0.58)	N/A	N/A
Recommended Contribution Rate[5]	11.16%[3]	11.98%[3]	10.58%[3]	10.47%[3]	10.27%[3]	7.86%[3]

[1] *The additional annual employer normal contribution for the increase in benefits is funded by assets accumulated in the Benefit Enhancement Fund.*

[2] *Includes the effect of additional cost due to Chapter 353, P.L. 2000.*

[3] *Excludes contribution rates payable to the Non-Contributing Group Insurance Premium Fund. The contribution rates are 0.76% for 2013, 0.18% for 2012, 0.63% for 2011, 0.67% for 2010, 0.78% for 2009, and 1.09% for 2008.*

[4] *Prior to the reallocation of State paid Local obligations due to Chapter 133, P.L. 2011 and Chapter 366, P.L. 2001.*

[5] *After the reallocation of State paid Local obligations due to Chapter 133, P.L. 2001 and Chapter 366, P.L. 2001.*

Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

1. Definitions

Final Compensation (FC)

Average annual compensation for the three years of creditable service immediately preceding retirement or the highest three fiscal years of membership service. Effective June 30, 1996, Chapter 113, P.L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the program cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code. Chapter 103, P.L. 2007 provides that for Class D, Class E, Class F and Class G members, 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. Chapter 1, P.L. 2010 provides that for Class F and Class G members FC is the average annual compensation for the five years of creditable service immediately preceding retirement or the highest five fiscal years of membership service.

Accumulated Deductions

Sum of all required amounts deducted from the compensation of a member or contributed by him.

Class B Member

Any member who was hired prior to July 1, 2007.

Class D Member

Any member who was hired on or after July 1, 2007 but prior to November 2, 2008.

Class E Member

Any member who was hired after November 1, 2008 but prior to May 22, 2010.

Class F Member

Any member who was hired on or after May 22, 2010 but prior to June 28, 2011.

Class G Member

Any member who was hired on or after June 28, 2011.

2. Benefits[1]

Service Retirement

Eligible at age 60. Benefit equals a member annuity plus an employer pension, which together, equal 1/55th of FC for each year of service. Chapter 89, P.L. 2008 changed the eligibility age to age 62 for Class E members, Chapter 1, P.L. 2010 changed the eligibility age to age 62 for Class F members and changed the basic accrual rate from 1/55th to 1/60th of FC for each year of service for Class F and Class G members and Chapter 78, P.L. 2011 changed the eligibility age to age 65 for Class G members.

Ordinary Disability Retirement

Eligible after 10 years of service. Benefit equals a member annuity plus an employer pension which, together, equal 1.64% of FC for each year of service; minimum benefit of 43.6% of FC. Class F and Class G members are not eligible for an Ordinary Disability Retirement benefit in accordance with Chapter 3, P.L. 2010.

Accidental Disability

Eligible upon total and permanent disability prior to age 65 as a result of a duty injury. Benefit equals a member annuity plus an employer pension which, together, equal 72.7% of contributory compensation at the date of injury. Class F and Class G members are not eligible for an Accidental Disability Retirement benefit in accordance with Chapter 3, P.L. 2010.

Lump Sum Withdrawal

Eligible upon service termination prior to age 60 (age 62 for Class E and Class F members and age 65 for Class G members) and prior to 10 years of service. Benefit equals refund of accumulated deductions plus, if the member has completed three years of service, interest allowed thereon.

Vested Retirement

Eligible after 10 years of service. Benefit equals the lump sum benefit described above or a deferred retirement benefit, commencing at age 60 (age 62 for Class E and Class F members and age 65 for Class G members), equal to the service retirement benefit based on service and FC at date of termination.

Early Retirement

Eligible after 25 years of service (30 years of service for Class G members). Benefit equals the lump sum benefit described above or the vested benefit reduced by 1/4 percent for each month the retirement date precedes age 55. Chapter 103, P.L. 2007 provides that for Class D members, the reduction shall be 1/12 percent for each month (up to 60 months) the retirement date precedes age 60 plus 1/4 percent for each month the retirement date precedes age 55. Chapter 89, P.L. 2008 and Chapter 1, P.L. 2010 provides that for Class E and Class F members, the reduction shall be 1/12 percent for each month (up to 84 months) the retirement date precedes age 62 plus 1/4 percent for each month the retirement date precedes age 55. Chapter 78, P.L. 2011 provides that for Class G members, the reduction shall be 1/4 percent for each month the retirement date precedes age 65.

[1] Special benefits for veterans, law enforcement officers, legislators, prosecutors, and workers compensation judges are summarized at the end of this section.

Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes, *continued*

Ordinary Death (Insured)

Before Retirement

Eligible if active. Benefit equals accumulated deductions with interest plus an amount equal to 1-1/2 times contributory compensation at date of death.

After Retirement - Before Age 60

Eligible if disabled or vested terminated. Benefit equals 1 1/2 times last contributory compensation if disabled, accumulated deductions only if vested terminated.

After Retirement - After Age 60 or Early Retirement

Eligible after early retirement or after attainment of age 60 for other types of retirement (if not disabled, 10 years of service credit required on members enrolling after July 1, 1971). Benefit equals 3/16 of last contributory compensation.

Voluntary Death Benefit

An additional, employee-paid, death benefit is also available through the purchase of group insurance with an outside carrier.

Accidental Death

Eligible upon death resulting during performance of duty. Benefit varies as follows:

Widow(er)

50% of contributory compensation paid as pension.

Child(ren)

No spouse - 20% (1 child), 35% (2 children), 50% (3 or more children) of contributory compensation paid as pension to age 18 or life if disabled.

Surviving dependent parent

No spouse or child - 25% (1 parent) or 40% (2 parents) of contributory compensation paid as pension.

No relation above

Accumulated deductions paid to other beneficiary or estate.

In addition the employer-paid lump sum ordinary death benefit is paid.

Optional Benefits

Various forms of payment of equivalent actuarial value are available to retirees.

Special Benefits

Veterans

Service Retirement

Eligible if member on January 2, 1955, attains age 60, completes 20 years of service. Benefit equals 54.5% of final contributory compensation (veteran members after January 2, 1955 must attain age 55 with 25 years of service or age 60 with 20 years of service).

Chapter 220 Benefit

Eligible if age 55 and completes 35 years of service. Benefit equals 1/55th of the compensation for the 12-month period of membership that provides the largest possible benefit multiplied by the member's total years of service.

Law Enforcement

Service Retirement

Eligible at age 55 after 20 years of service. Benefit equals a member annuity plus an employer pension which, together, equal 2% of final contributory compensation for each of the first 25 years of service plus 1% of such compensation for non-contributory service or service over 25 years plus 1-2/3% for non-law enforcement service.

Chapter 4, P.L. 2001 Special Retirement

After completion of 25 years of service, an additional retirement benefit equal to 5% of final contributory pay is added to the above service related retirement benefit. There is a maximum total benefit of 70% of final contributory pay.

Ordinary Disability

Eligible after 5 years of service. Benefit is the same as for regular members.

Death After Retirement

Eligible upon death after an accidental disability retirement. Benefit is the same as for a regular member with a $5,000 minimum.

Legislators

Service Retirement

Eligible at age 60 and termination of all public service. Benefit is equal to a member annuity plus an employer pension which, together, equal 3% of final contributory compensation for each year of service to a maximum of 2/3 of final compensation.

Vested Retirement

Eligible after 8 years of legislative service. Benefit is a service retirement benefit deferred to age 60 or, alternatively, a lump sum equal to his accumulated deductions.

Prosecutors Part (Chapter 366, P.L. 2001)

Service Retirement

Eligibility means age 55 or 20 years of credited service. Mandatory retirement at age 70. 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 service; or

ii. 2% of FC multiplied by years of service up to 30 plus 1% of FC multiplied by years of service over 30; or

iii. 50% of final contributory compensation if the member has 20 or more years of service.

Brief Summary of the benefit and Contribution Provisions as Interpreted for Valuation Purposes, *continued*

Chapter 366 also requires that, in addition to the 50% of final contributory compensation benefit, any member as of January 7, 2002 who will have 20 or more years of service and is required to retire upon attaining age 70, shall receive an additional benefit equal to 3% of final contributory compensation for each year of service over 20 years but not over 25 years.

Special Retirement

After completion of 25 years of service. The annual retirement benefit is equal to a member annuity plus an employer pension which together equal 65% of final contributory compensation plus 1% of final contributory compensation for each year of service over 25. There is a maximum benefit of 70% of final contributory compensation.

Vested Termination

Eligible upon termination of service prior to age 55 and after 10 years of Service (but less than 20 years). 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 final contributory compensation multiplied by service up to 30 plus 1% of final contributory compensation multiplied by years of service in excess of 30.

Death Benefits

Ordinary Death Benefit – Lump Sum

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

i. For death while a Disabled Retiree the benefit is equal to 1 ½ 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 Service, the benefit is equal to ½ times final contributory compensation.

After retirement and after age 55, the benefit payable is equal to ½ times final contributory compensation.

Chapter 1, P.L. 2010 closes the Prosecutors Part of the System to new members enrolled on or after May 22, 2010.

Workers Compensation Judges Part (Chapter 259, P.L. 2001)

Service Retirement

A. Mandatory retirement at age 70. Voluntary retirement prior to age 70 as follows:

   i. Age 70 and 10 years of service as a judge of compensation;

   ii. Age 65 and 15 years of service as a judge of compensation; or

   iii. Age 60 and 20 years of as of judge of compensation service.

   Benefit is an annual retirement allowance equal to the greater of 75% of final salary or the regular service retirement benefit above.

B. Age 65 while serving as a judge of compensation, 5 consecutive years of service as a judge of compensation and 15 years in the aggregate of public service; or

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

   Benefit is an annual retirement allowance equal to the greater of 50% of final salary or the regular service retirement benefit above.

C. Age 60 while serving as a judge of compensation, 5 consecutive years of service as a judge of compensation and 15 years in the aggregate of public service. Benefit is an annual retirement allowance equal to the greater of 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year in excess of 25 years or the regular service retirement benefit above.

D. Age 60 while serving as a judge of compensation. Benefit is an annual retirement allowance equal to the greater of 2% of final salary for each year of service as a judge of compensation up to 25 years plus 1% for each year in excess of 25 years or the regular service retirement benefit above.

Early Retirement

Prior to age 60 while serving as a judge of compensation, 5 consecutive years of service as a judge of compensation and 25 or more years in the aggregate of public service. Benefit is an annual retirement allowance equal to 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year of public service in excess of 25 years, actuarially reduced for commencement prior to age 60.

Vested Termination

Termination of service prior to age 60, with 5 consecutive years of service as a judge of compensation and 10 years in the aggregate of public service. Benefit is a refund of accumulated deductions, or a deferred life annuity beginning at age 60 equal to 2% of final salary for each year of public service up to 25 years, plus 1% for service in excess of 25 years.

Death Benefits (Insured)

Before Retirement

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

i. Lump sum payment equal to 1-1/2 times final salary, plus

ii. Spousal life annuity of 25% of final salary plus 10% (15%) to one (two or more) surviving children payable until spouse's death or remarriage. If there is no surviving spouse, or upon death or remarriage, a total of 15% (20%, 30%) of final salary payable to

Brief Summary of the benefit and Contribution Provisions as Interpreted for Valuation Purposes, *continued*

one (two, three or more) dependent child (children). If there is no surviving spouse (or dependent children), 20% or 30% of final salary to one or two dependent parents.

After Retirement

Death of a retired member of the plan. Benefit is equal to a lump sum of 25% of final salary for a member retired under normal, early retirement or vested termination. If a member were receiving a disability benefit, a lump sum 1-1/2 times final salary if death occurred before the member attained age 60 and 1/4 times final salary if death occurred after age 60.

Chapter 92, P.L. 2007 closes the Workers Compensation Judges Part of the System to new members enrolled after June 8, 2007.

3. **Contributions**

By Members

Members enrolling in the retirement system on or after July 1, 1994 will contribute 5% of compensation. Members enrolled prior to July 1, 1994 will contribute 5% of compensation to the retirement system effective July 1, 1995 unless they previously had contributed less than 6% in which case they will contribute 4% of compensation beginning July 1, 1995 and 5% of compensation beginning July 1, 1996. Chapter 103, P.L. 2007 increases the contribution rate to 5.5% of compensation effective, generally, July 1, 2007 for State employees and July 1, 2008 for Local employees. Chapter 78, P.L. 2011 increases the contribution rate from 5.5% to 6.5% of compensation with the increase effective October 2011. Further, beginning July 2012, the member contribution rate will increase by 1/7th of 1% each July until a 7.5% member contribution rate is reached in July 2018.

A 7.50% member contribution rate for members who are eligible to retire under the Prosecutors Part of the Retirement System as provided by Chapter 366, P.L. 2001 was used prior to July 1, 2008. Effective July 1, 2008 the member contribution rate was increased to 8.50%. Chapter 78, P.L. 2011 increases the contribution rate from 8.5% to 10.0% of compensation with the increase effective October 2011.

By Employers

Normal Contribution

The State and Local employers pay annually a normal contribution to the retirement System. This contribution is determined each year on the basis of the annual valuation and represents the value of the benefits to be earned in the year following the valuation date. The normal contributions for active members' COLA are being phased in. Chapter 78, P.L. 2011 suspended future COLAs for current and future retirees and beneficiaries until reactivated as permitted by law.

In accordance with the provisions of Chapter 79, P.L. 1960, the monies appropriated for payment of the non-contributory life insurance coverage shall be held separate from the retirement System monies.

In accordance with the provisions of Chapter 133, P.L. 2001, the Benefit Enhancement Fund (BEF) was established to fund the additional annual employer normal contribution due to the law's increased benefits. (Chapter 353, P.L. 2001 extended this coverage to this law's additional annual employer normal contribution.) If the assets in the BEF are insufficient to cover the normal contribution for the increased benefits for a valuation period, the State will pay such amount for both the State and local employers.

In accordance with the provisions of Chapter 259, P.L. 2001, the additional normal contributions for increased benefits to judges of compensation for a valuation period will be funded by transfers from the Second Injury Fund.

Chapter 19, P.L. 2009 provides that the State Treasurer will reduce for Local employers the normal contribution to 50% of the amount certified for fiscal year 2009. This unfunded liability will be paid by the 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. The legislation also provides that a Local employer may pay 100% of the recommended contribution for fiscal year 2009. Local employers who were eligible but did not elect to take advantage of Chapter 19, P.L. 2009 were permitted to elect to defer 50% of the 2010 fiscal year required contribution with the first payment due in the fiscal year ending June 30, 2012.

Accrued Liability Contributions

The State and Local employers pay contributions to cover any unfunded accrued liability. An unfunded accrued liability was established for active life COLAs. The amortization periods for funding these liabilities were set initially at 40 years. Experience gains or losses for the 10 valuation years following the March 31, 1992 valuation will increase or decrease the unfunded accrued liability. Thereafter, actuarial gains or losses will increase or decrease the amortization period unless an increase will cause it to exceed 30 years. Chapter 78, P.L. 2011 suspended future COLAs for current and future retirees and beneficiaries until reactivated as permitted by law and changed the methodology used to amortize the unfunded accrued liability. Beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation, the amortization period shall decrease by one year). Beginning with the July 1, 2029 actuarial valuation when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization pe-

Brief Summary of the benefit and Contribution Provisions as Interpreted for Valuation Purposes, *continued*

riod 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.

Chapter 366, P.L. 2001 requires the State be liable for any increase in pension costs to a county that results from the enrollment of prosecutors in the Prosecutors Part. Any increase in the unfunded accrued liability in the Retirement System arising from the benefits established for the Prosecutors Part are to be amortized over a period of 30 years in the manner provided for other such liability in the Retirement System.

In accordance with the provisions of Chapter 259, P.L. 2001, the additional accrued liability contribution for increased benefits to judges of compensation for a valuation period will be funded by transfers from the Second Injury Fund.

Chapter 19, P.L. 2009 provides that the State Treasurer will reduce for Local employers the accrued liability contribution to 50% of the amount certified for fiscal year 2009. This unfunded liability will be paid by the 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. The legislation also provides that a Local employer may pay 100% of the recommended contribution for fiscal year 2009. Local employers who were eligible but did not elect to defer 50% of the 2009 fiscal year contribution were permitted to elect to defer 50% of the 2010 fiscal year contribution with the first payment due in the fiscal year ending June 30, 2012.

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December 22, 2014

Board of Trustees
Teachers' Pension and Annuity Fund
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

This letter constitutes the actuary's certification letter for the Comprehensive Annual Financial Report (CAFR) of the Teachers' Pension and Annuity Fund of New Jersey (TPAF) for the fiscal year ending June 30, 2014. It reflects the results of the June 30, 2013 Annual Actuarial Valuation (dated February 27, 2014) of TPAF. Please refer to the entire Actuarial Valuation report for more information.

The information provided is based on Governmental Accounting Standards Board (GASB) Statement No. 25. GASB 25 is no longer effective and has been replaced by GASB Statement No. 67 effective for fiscal year 2014. Please refer to our report issued December 12, 2014 for disclosure information on GASB 67. This information is being provided as requested for consistency to information provided in prior years.

This valuation reflects changes to the actuarial assumptions based on the adoption of the June 30, 2012 Experience Study. Please note that the change to salary scale was applied retroactive to the 2012 valuation and this information contains modified results of the 2012 valuation incorporating this change.

The funding requirements of the plan, as modified by Chapter 1, P.L. 2010, and Chapter 78, P.L. 2011, is to have the State phase-in to paying 100% of the statutorily required contribution over a 7-year period beginning with fiscal year 2012. For the 2014 fiscal year, the phase-in percentage is 42.86% (3/7th). However, the State only contributed the normal contribution for 2014 and has only appropriated that amount for the 2015 fiscal year. These contribution amounts are much less than the expected phased-in contributions, representing no more than 18% of the full statutory contributions. ***Continued funding at these levels would put TPAF at significant risk of insolvency within a relatively short period of time.*** While the calculations required for GASB 67 may not be an exact measure of projected plan solvency, based on those requirements assets are not projected to be sufficient beginning in year 13 of the projection or by June 30, 2027.

The full statutory contribution is equal to the normal cost of the plan plus a 30-year level dollar amortization of the unfunded pension accrued liability. The maximum amortization period will be reduced by one each year beginning with the 2010 fiscal year, but not less than 20 years (the 2030 fiscal year). The State portion of the normal cost is reduced by expected employee contributions. Previously only expected contributions up to 5.5% of pay was used as an offset in determining the State portion of the normal cost. The change in the treatment of employee contributions in determining the State normal cost was applied retroactive to the 2012 valuation.

Since the 2004 fiscal year, the State has not met the full statutory contribution requirement. Actual contributions by the State for fiscal year 2014 also did not meet the full statutory contribution requirements. In accordance with Chapter 1, P.L. 2010, 100% of the statutorily required contribution is not expected to be contributed by the State until fiscal year 2018. The following describes the allocation of the State contributions appropriated for fiscal years 2014 and 2015.

The State appropriated $388,363,000 for the 2014 fiscal year which represents the normal contribution, plus an additional amount to cover the actual non-contributory group life insurance claims. For fiscal year 2015, it is our understanding that the State will appropriate the normal contribution based on the 2013 valuation of $379,891,000 plus an additional amount to cover the actual non-contributory group life insurance claims. Please note that ERI contributions are not included in the CAFR in accordance with GASB accounting, although no ERI contributions are expected to be appropriated for the 2014 and 2015 fiscal years.

The valuation was based on a set of demographic actuarial assumptions (described in detail in the section headed "Summary of Actuarial Assumptions and Methods") which was adopted by the Board of Trustees as a result of a study of actual experience under the Teachers' Pension and Annuity Fund during the 3-year period ending June 30, 2012.

The valuation is also based on a set of economic assumptions as prescribed by the State Treasurer, specifically an investment return assumption of 7.9%. Based on our most recent analysis, this assumption is outside our reasonable range. If the investment return was lowered, the actuarial accrued liability and statutory contributions would increase and the funded ratio would decrease. Determining results at an alternative investment return assumption is outside the scope of our assignment.

The demographic actuarial assumptions and methods used for funding purposes meet the parameters set forth in GASB Statement No. 25 except with respect to the funding of the contributory and non-contributory group life benefits. The Annual Required Contribution shown on the attached exhibit reflects an actuarial determination of the contributory and non-contributory group life benefits.

The following supporting schedules in the Actuarial Section were prepared by Milliman:

- Summary of Actuarial Assumptions and Methods
- Summary of Retired Member Valuation Data (including schedule of retirants and beneficiaries added to and removed from rolls)
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Financial Experience
- Summary of Principal Plan Provisions

In addition, Milliman prepared the "Schedule of Funding Progress", the "Schedule of Employer Contributions", and the Reconciliation of Net Pension Obligation" in the Financial Section.

Milliman's work is prepared soley for the internal business use of the State of New Jersey Division of Pensions and Benefits. To the extent that Milliman's work is not subject to disclosure under applicable public records laws, Milliman's work may not be provided to third parties without Milliman's prior written consent. Milliman does not intend to benefit or create a legal duty to any third party recipient of its work product. Milliman's consent to release its work product to any third party may be conditioned on the third party signing a Release, subject to the following exception:

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This report has been prepared exclusively for the State of New Jersey Division of Pensions and Benefits for a specific and limited purpose. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. It is a complex, technical analysis that assumes a high level of knowledge concerning the State of New Jersey Division of Pensions and Benefits' operations, and uses the State of New Jersey Division of Pensions and Benefits' data, which Milliman has not audited. No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

The consultants who worked on this assignment are pension actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

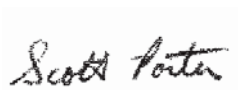
In performing this analysis, we relied, without audit, on census data, plan provisions, asset statements and other information (both written and oral) provided by the State of New Jersey Division of Pensions and Benefits. We have not audited or verified the census data, asset statements or other information. To the extent any of these are inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

We performed a limited review of the data used directly in our analysis for reasonableness and consistency and have not found material defects in the data. If there are material defects in the data, it is possible that they would be uncovered by a detailed, systematic review and comparison of the data to search for data values that are questionable or for relationships that are materially inconsistent. Such a review was beyond the scope of our assignment.

Future actuarial measurements may differ significantly from the current measurements presented in this analysis due to actual plan experience deviating from the actuarial assumptions, and changes in plan provisions, actuarial assumptions, and applicable law. An assessment of the potential range and cost effect of such differences is beyond the scope of this analysis.

I am a member of the American Academy of Actuaries and meet its Qualification Standard to render this actuarial opinion.

Respectfully submitted,



Scott F. Porter, FSA, MAAA

Summary of Actuarial Assumptions and Methods

A. Actuarial Assumptions

Interest: 7.90% per annum, compounded annually (as prescribed by the State Treasurer).

Salary Scale: Salary increases vary by years of employment and time period averaging 3.33% for periods prior to June 30, 2016, averaging 3.86% for a five year select period (June 30, 2016 – June 30, 2021) and averaging 4.67% thereafter. Average percentages based on 2012 Experience Study. Schedule of annual rates are shown below.

Years of Employment	Select Period Ending		
	June 30, 2016	June 30, 2021	Ultimate Period
0-8	3.80%	4.30%	5.40%
9-12	4.35	5.05	5.95
13	4.10	4.80	5.80
14	3.95	4.65	5.45
15	3.95	4.45	5.05
16	3.30	3.90	4.50
17	3.15	3.65	4.15
18	2.85	3.35	3.95
19	2.70	3.20	3.70
20	2.50	3.00	3.60
21	2.35	2.75	3.25
22	2.10	2.50	3.10
23-25	2.00	2.40	2.95
26-30	1.80	2.20	2.80
31+	1.75	2.05	2.50

Increases in Compensation Limits: The IRC Section 401(a)(17) limit is assumed to increase 2.75% per annum, compounded annually. The Social Security Taxable Wage Base is assumed to increase 3.75% per annum, compounded annually.

Summary of Actuarial Assumptions and Methods, *Continued*

A. Actuarial Assumptions (Continued)

Termination: Withdrawal rates vary by age, years of employment and gender. Illustrative rates are shown below:

Years of Employment	Less Than 10 years of Employment		
		Female	
	Male	<40	40+
0	9.65%	10.29%	10.29%
1	8.05	7.42	7.42
2	7.36	6.91	6.91
3	4.87	5.74	5.27
4	3.39	5.07	3.06
5	2.68	4.84	2.74
6	2.05	4.58	2.07
7	1.81	4.28	1.78
8	1.46	4.01	1.43
9	1.25	3.41	1.33

Actuarial Assumptions and Methods, *Continued*

Annual Rates for Those With Deferred Annuity Benefits*						
	10-14 Years of Employment		15-19 Years of Employment		20-24 Years of Employment	
Age	Male	Female	Male	Female	Male	Female
30	0.65%	3.06%	0.47%	2.50%	0.31%	1.66%
35	0.66	2.27	0.48	1.86	0.32	1.24
40	0.69	1.34	0.50	0.93	0.33	0.62
45	0.57	0.61	0.41	0.42	0.27	0.28
50	0.65	0.62	0.47	0.43	0.31	0.29
55	1.18	1.29	0.85	0.89	0.57	0.59

** Members must have attained 10 years of service or 60 years of age (62 years of age for Class E and F members, 65 years of age for Class G members) in order to receive an annuity benefit.*

Annual Rates for Those Receiving Return of Contributions						
	10-14 Years of Employment		15-19 Years of Employment		20-24 Years of Employment	
Age	Male	Female	Male	Female	Male	Female
30	0.44%	0.76%	0.31%	0.62%	0.21%	0.42%
35	0.43	0.57	0.30	0.47	0.20	0.31
40	0.36	0.33	0.26	0.23	0.17	0.16
45	0.23	0.15	0.17	0.11	0.11	0.07
50	0.21	0.15	0.15	0.11	0.10	0.07
55	0.28	0.14	0.20	0.10	0.13	0.07

Actuarial Assumption and Methods, *Continued*

A. Actuarial Assumptions (Continued)

Retirement: Rates of retirement vary by age, gender and eligibility for an unreduced pension and post-retirement medical benefits.

The rates listed below are for members hired prior to July 1, 2007 (Class A and B employees). Illustrative rates are shown below:

	Less Than Age 55 or Less Than 25 Years of Service		Attainment of Age 55 and 25 Years of Service			
			First Eligibility		After First Eligibility	
Age	Male	Female	Male	Female	Male	Female
<47	1.2%	1.2%	N/A	N/A	N/A	N/A
48	1.5	1.5	N/A	N/A	N/A	N/A
49	1.7	1.7	N/A	N/A	N/A	N/A
50	2.0	2.0	N/A	N/A	N/A	N/A
51	2.4	2.4	N/A	N/A	N/A	N/A
52	2.8	2.8	N/A	N/A	N/A	N/A
53	3.8	3.8	N/A	N/A	N/A	N/A
54	4.8	4.8	N/A	N/A	N/A	N/A
55	N/A	N/A	15.0%	16.0%	N/A	N/A
56	N/A	N/A	22.0	18.0	12.0%	13.0%
57	N/A	N/A	22.0	18.0	13.0	14.0
58	N/A	N/A	26.0	26.0	14.0	15.0
59	N/A	N/A	26.0	26.0	16.0	17.0
60	8.0	5.5	32.0	32.0	21.0	21.0
61	8.0	5.5	35.0	35.0	24.0	23.0
62	8.5	7.5	45.0	50.0	36.0	32.0
63	9.5	8.0	45.0	48.0	30.0	29.0
64	9.5	8.0	45.0	48.0	30.0	29.0
65	14.5	12.0	50.0	50.0	35.0	35.0
66-70	18.0	14.0	50.0	50.0	30.0	30.0
71+	18.0	16.0	50.0	50.0	30.0	30.0

Actuarial Assumption and Methods, *Continued*

A. Actuarial Assumptions (Continued)

The rates listed below are for members hired on or after July 1, 2007 and before November 2, 2008 (Class D employees). Illustrative rates are shown below:

	Less Than Age 60 or Less Than 25 Years of Service		Attainment of Age 60 and 25 Years of Service			
			First Eligibility		After First Eligibility	
Age	Male	Female	Male	Female	Male	Female
<47	0.6%	0.6%	N/A	N/A	N/A	N/A
48	0.8	0.8	N/A	N/A	N/A	N/A
49	0.9	0.9	N/A	N/A	N/A	N/A
50	1.0	1.0	N/A	N/A	N/A	N/A
51	1.2	1.2	N/A	N/A	N/A	N/A
52	1.4	1.4	N/A	N/A	N/A	N/A
53	1.9	1.9	N/A	N/A	N/A	N/A
54	2.4	2.4	N/A	N/A	N/A	N/A
55	11.5	11.5	N/A	N/A	N/A	N/A
56	12.0	12.0	N/A	N/A	N/A	N/A
57	12.5	12.5	N/A	N/A	N/A	N/A
58	13.5	13.5	N/A	N/A	N/A	N/A
59	14.0	14.0	N/A	N/A	N/A	N/A
60	8.0	5.5	34.0%	32.0%	N/A	N/A
61	8.0	5.5	35.0	35.0	24.0%	23.0%
62	8.5	7.5	45.0	50.0	36.0	32.0
63	9.5	8.0	45.0	48.0	30.0	29.0
64	9.5	8.0	45.0	48.0	30.0	29.0
65	14.5	12.0	50.0	50.0	35.0	35.0
66-70	18.0	14.0	50.0	50.0	30.0	30.0
71+	18.0	16.0	50.0	50.0	30.0	30.0

Actuarial Assumption and Methods, *Continued*

A. Actuarial Assumptions (Continued)

The rates listed below are for members hired after November 1, 2008 and before June 28, 2011 (Class E and Class F employees). Illustrative rates are shown below:

Age	Less Than Age 62 or Less Than 25 Years of Service		Attainment of Age 62 and 25 Years of Service			
			First Eligibility		After First Eligibility	
	Male	Female	Male	Female	Male	Female
<47	0.6%	0.6%	N/A	N/A	N/A	N/A
48	0.7	0.7	N/A	N/A	N/A	N/A
49	0.8	0.8	N/A	N/A	N/A	N/A
50	0.9	0.9	N/A	N/A	N/A	N/A
51	1.1	1.1	N/A	N/A	N/A	N/A
52	1.3	1.3	N/A	N/A	N/A	N/A
53	1.7	1.7	N/A	N/A	N/A	N/A
54	2.2	2.2	N/A	N/A	N/A	N/A
55	10.5	10.5	N/A	N/A	N/A	N/A
56	10.8	10.8	N/A	N/A	N/A	N/A
57	11.0	11.0	N/A	N/A	N/A	N/A
58	12.0	12.0	N/A	N/A	N/A	N/A
59	12.5	12.5	N/A	N/A	N/A	N/A
60	20.0	20.0	N/A	N/A	N/A	N/A
61	22.0	22.0	N/A	N/A	N/A	N/A
62	23.0	18.0	50.0%	50.0%	N/A	N/A
63	9.5	8.0	45.0	48.0	30.0%	29.0%
64	9.5	8.0	45.0	48.0	30.0	29.0
65	14.5	12.0	50.0	50.0	35.0	35.0
66-70	18.0	14.0	50.0	50.0	30.0	30.0
71+	18.0	16.0	50.0	50.0	30.0	30.0

Actuarial Assumption and Methods, *Continued*

A. Actuarial Assumptions (Continued)

The rates listed below are for members hired on or after June 28, 2011 (Class G employees). Illustrative rates are shown below:

Age	Less Than Age 65 or Less Than 30 Years of Service		Attainment of Age 65 and 30 Years of Service			
			First Eligibility		After First Eligibility	
	Male	Female	Male	Female	Male	Female
<47	0.3%	0.3%	N/A	N/A	N/A	N/A
48	0.4	0.4	N/A	N/A	N/A	N/A
49	0.4	0.4	N/A	N/A	N/A	N/A
50	0.5	0.5	N/A	N/A	N/A	N/A
51	0.6	0.6	N/A	N/A	N/A	N/A
52	0.7	0.7	N/A	N/A	N/A	N/A
53	0.9	0.9	N/A	N/A	N/A	N/A
54	1.1	1.1	N/A	N/A	N/A	N/A
55	5.0	5.0	N/A	N/A	N/A	N/A
56	6.0	6.0	N/A	N/A	N/A	N/A
57	7.0	7.0	N/A	N/A	N/A	N/A
58	8.0	8.0	N/A	N/A	N/A	N/A
59	9.0	9.0	N/A	N/A	N/A	N/A
60	15.0	15.0	N/A	N/A	N/A	N/A
61	16.0	16.0	N/A	N/A	N/A	N/A
62	36.0	32.0	N/A	N/A	N/A	N/A
63	28.0	28.0	N/A	N/A	N/A	N/A
64	28.0	28.0	N/A	N/A	N/A	N/A
65	34.0	32.0	50.0%	50.0%	N/A	N/A
66-70	18.0	14.0	50.0	50.0	30.0%	30.0%
71+	18.0	16.0	50.0	50.0	30.0	30.0

Actuarial Assumption and Methods, *Continued*

A. Actuarial Assumptions (Continued)

Disability: Incidence of ordinary disabilities among active members apply upon the attainment of 10 years of service until the attainment of first eligibility for retirement. For members eligible for early retirement, the greater of the early retirement and disability value is valued. The rates vary by age, gender and type of disability. Illustrative rates are shown below:

Age	Ordinary		Accidental	
	Male	Female	Male	Female
25	0.0301%	0.0379%	0.0060%	0.0060%
30	0.0473	0.0550	0.0060	0.0060
35	0.0609	0.0674	0.0060	0.0060
40	0.0701	0.0893	0.0060	0.0060
45	0.1023	0.1317	0.0060	0.0060
50	0.1421	0.1759	0.0060	0.0060
55	0.4686	0.3506	0.0060	0.0060

For Class F and G members assumed to receive a disability benefit under Chapter 3, P.L. 2010, it is assumed that Class F members will begin receiving their retirement benefit at the earlier of age of 70 or 36 years of service and Class G members will begin receiving their retirement benefit at age 70. The valuation excludes benefits paid from any disability income policy prior to retirement since these benefits are not paid from TPAF.

Pre-retirement Mortality: Illustrative rates of mortality of active members which vary by age and gender are shown below. Mortality improvements are projected using Scale AA from the base year of 2000 until the valuation date plus 15 years to account for future mortality improvement. Illustrative rates for base year are shown below. No accidental deaths are assumed.

Age	Ordinary	
	Male	Female
25	0.0345%	0.0170%
30	0.0376	0.0191
35	0.0353	0.0207
40	0.0591	0.0284
45	0.0890	0.0466
50	0.1342	0.0645
55	0.1978	0.1016
60	0.2747	0.1589
65	0.4263	0.2374
70	0.6725	0.3754

Actuarial Assumption and Methods, *Continued*

A. Actuarial Assumptions (Continued)

Post-retirement Mortality: Rates of mortality vary by age, gender and type of retirement. For non-disabled annuitants, mortality improvements are projected using Scale AA from the base year of 2000 for males and 2003 for females until the valuation date plus 7 years to account for future mortality improvement. Illustrative rates for the base year and Scale AA are shown below:

Age	Service Retirements and Beneficiaries		Scale AA		Disability Retirement	
	Male	Female	Male	Female	Male	Female
45	0.3573%	0.1375%	1.3%	1.6%	1.6928%	0.6705%
50	0.5265	0.2151	1.8	1.7	2.1731	1.0382
55	0.4781	0.3066	1.9	0.8	2.6581	1.4890
60	0.5813	0.4937	1.6	0.5	3.1531	1.9655
65	1.0238	0.6602	1.4	0.5	3.7630	2.5223
70	1.6962	1.0497	1.5	0.5	4.6937	3.3871
75	2.9598	1.7342	1.4	0.8	6.1550	4.7007
80	5.2282	3.0118	1.0	0.7	8.2029	6.5081
85	9.2106	6.4019	0.7	0.6	10.6202	9.0183

Actuarial Assumption and Methods, *Continued*

A. Actuarial Assumptions (Continued)

Non-contributory Members: 20% are assumed to return to contributory status.

Beneficiaries: 100% of active members are assumed to have a beneficiary for receipt of the lump sum death benefit or employee contribution refund upon death.

Form of Payment: Modified Cash Refund Annuity.

Special Data Adjustments: Determination of employee type is based on Class Code and was used as provided by the Division. Active members where no salary was provided, no date of birth was provided, or ASF was negative were excluded from the valuation. A liability equal to the ASF was held. For beneficiaries where no gender code or date of birth was provided, reasonable assumptions were made based on records provided in prior years or the deceased retiree's records. For retirees with a joint annuitant option code that was missing a spouse's date of birth, husbands are assumed to be 3 years older than wives. All such records were included in the valuation. Retiree members where no benefit and monthly allowance was provided, or no cause, class, or option was provided were excluded from the valuation.

B. Actuarial Valuation Method

The Projected Unit Credit Method was used as required by Chapter 62, P.L. 1994 as modified by Chapters 115, P.L. 1997 and 133, P.L. 2001. The minimum actuarial accrued liability was equal to the greater of formula benefit under the Projected Unit Credit Cost method, value of the estimated member annuity as of the valuation date and the contributions with interest as of the valuation date provided by the Division. The normal cost was determined using the same methodology but reflecting an additional year of service and contributions less the final amount determined for the actuarial accrued liability.

Non-contributory life insurance benefits are funded on a term cost basis.

C. Asset Valuation Method

A five year average of market value 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. Cash flows are based on an accrual accounting approach. This method is prescribed by statute.

The market value assets is used for the Contributory Group Insurance Premium Fund for GASB purposes.

D. Changes in Actuarial Assumptions

This valuation reflects the adoption of the June 30, 2012 Experience Study.

Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls

Valuation Date	Added to Rolls		Removed From Rolls		Rolls at End of Year		% Increase in Average Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance		
6/30/08	5,188	N/A	1,772	N/A	75,413	$2,627,478,324	3.33%	$34,841
6/30/09	4,684	N/A	1,883	N/A	78,214	2,842,667,672	4.32	36,345
6/30/10	4,147	N/A	2,124	N/A	80,237	2,957,518,144	1.42	36,860
6/30/11	7,744	N/A	2,069	N/A	85,912	3,285,419,699	3.75	38,242
6/30/12	5,496	N/A	2,100	N/A	89,308	3,462,975,740	1.40	38,776
6/30/13	4,614	N/A	2,193	N/A	91,729	3,591,007,462	0.96	39,148

Schedule of Active Member Valuation Data

Valuation Date	Number of Active Members (a)	Annual Compensation (b)	Average Compensation (b/a)	% Increase in Average Compensation
6/30/08	156,087	$10,040,685,465	$64,327	3.11%
6/30/09	157,109	10,353,262,361	65,899	2.44
6/30/10	157,023	10,659,241,596	67,883	3.01
6/30/11	151,115	10,416,454,800	68,931	1.54
6/30/12	150,200	10,488,890,840	69,833	1.31
6/30/13	151,318	10,710,424,746	70,781	1.36

Solvency Test

Valuation Date	Accrued Liabilities for			Net Assets Available for Benefits*	Percentage of Accrued Liabilities Covered by Net Assets		
	(1) Active Member Contributions	(2) Retirees & Deferred Vested	(3) Active Members (Employer Financed)		(1)	(2)	(3)
6/30/08	$7,914403,491	$28,072,978,525	$14,670,896,258	$36,541,083,946	100.00%	100.0%	4.00%
6/30/09	8,450,026,966	30,276,614,675	14,691,686,935	34,708,001,341	100.00	87.00	0.00
6/30/10	9,077,370,573	27,435,656,099	11,904,905,673	33,136,475,630	100.00	88.00	0.00
6/30/11	8,987,300,905	30,765,265,431	10,470,122,414	32,156,229,300	100.00	75.00	0.00
6/30/12	9,432,073,781	32,411,855,950	9,350,180,856	31,079,212,983	100.00	67.00	0.00
6/30/13	10,079,938,128	33,312,970,535	8,973,746,392	30,469,857,304	100.00	61.00	0.00

** The above table is based on Valuation Assets. As of June 30, 2013, the solvency percentages would be 1) 100%, 2) 50% and 3) 0%, respectively, if based on the market value assets of $26,859.6 million.*

Analysis of Financial Experience Gains and Losses in Unfunded Accrued Liabilities Resulting From Differences Between Assumed Experience and Actual Experience

Type of Activity	For Valuation Period Ending (Amounts in Millions)		
	June 30, 2013	June 30, 2012	June 30, 2011
Economic Factors			
Investment Return	$(902.6)	$(1,260.3)	$(1,125.6)
Salary Increases	76.1	119.5	330.0
Pension Adjustments (COLA)	N/A*	N/A*	251.3
Expenses	(12.8)	(11.8)	(12.7)
Demographic Factors:			
Active Members	(3.2)	(100.8)	(272.3)
New Entrants	(46.6)	(35.5)	(26.5)
Non-Contributing Members	(11.7)	(15.6)	(17.1)
Retirees and Beneficiaries	(36.7)	(40.1)	(52.9)
Total	(937.5)	(1,344.6)	(925.8)

** Some very small increases were provided during the year to offset negative adjustments from prior years. These increases are included in the demographic factors for retirees and beneficiaries.*

Summary of Principal Plan Provisions — As of June 30, 2013

This summary of plan provisions is intended only to describe the essential features of the plan. All eligibility requirements and benefit amounts shall be determined in strict accordance with the plan document itself.

1. Type of Plan

The Plan is a contributory, defined benefit plan. Effective October 1, 2011, contributions by Members are 6.5% and increase by 1/7 of 1% each July thereafter until an ultimate rate of 7.5% is attained on July 1, 2018. As of July 1, 2013, the contribution rate is 6.78%. For members hired on or after July 1, 2007, compensation for contributions is capped at the Social Security Taxable Wage Base ($113,700 for 2013). For compensation in excess of the Social Security Taxable Wage Base, contributions on the excess compensation are made to the Defined Contribution Retirement Program.

2. Effective Date

The Plan was established in 1919. It was reorganized and integrated with Social Security in 1955. Social Security integration was eliminated in 1966, i.e., reductions in retirement benefits based on Social Security benefits were eliminated.

3. Eligibility for Membership

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

4. Definitions

Fiscal Year: A Fiscal Year is a 12-month period beginning on July 1 and ending on June 30.

Credited Service: A year of Credited Service for each year an employee is a Member of the Retirement System plus service, if any, covered by a prior service liability. Class F members must be scheduled to work at least 32 hours per week, Class E members must have an annual salary of $7,500 (indexed for inflation) and other members must have an annual salary of $500.

Final Compensation: This is the average annual compensation upon which contributions by a member are based on the period consecutive years of Credible Service immediately preceding retirement or the period of highest fiscal years of Membership Service. The period equals three for members hired prior to May 22, 2010 and five for Class F and later members.

Final Year Compensation: This is the compensation upon which contributions by a member to the Annuity Savings Fund are based in the last year of Membership Service.

Aggregate Member Contributions: This is the sum of all amounts deducted from the compensation of a Member or contributed by him or on his behalf without interest.

Class A Member: Any member who contributes towards retirement allowance based on 1/64th benefit rate per year of creditable service.

Class B Member: Any member hired prior to July 1, 2007 who contributes towards a retirement allowance based on 1/55th benefit rate per year of creditable services.

Class D Member: Any member hired on or after July 1, 2007 and before November 2, 2008, who contributes up to the Social Security Taxable Wage Base towards a retirement allowance based on 1/55th benefit rate per year of creditable service payable at age 60.

Class E Member: Any member hired after November 1, 2008 and before May 22, 2010 who contributes up to the Social Security Taxable Wage Base towards a retirement allowance based on the 1/55th benefit rate per year of creditable service payable at age 62.

Class F Member: Any member hired after May 21, 2010 and before June 28, 2011 who contributes up to the Social Security Taxable Wage Base towards a retirement allowance based on 1/60th benefit rate per year of creditable service payable at age 62.

Class G Member: Any member hired on or after June 28, 2011 who contributes up to the Social Security Wage Base towards a retirement allowance based on 1/60th benefit rate per year of creditable service payable at age 65.

5. Cost-of-Living Adjustment

The Pension Adjustment Program provides a cost-of-living adjustment (COLA) to retirees and their survivors who receive a monthly retirement allowance from the TPAF. The first adjustment is received in the 25th month after the member's retirement. Subsequent cost-of-living adjustments are computed annually and are first reflected in February. The rate of increase is equal to 60 percent of the percentage change between the average CPI for the 12 month period ending December 31 in the year of retirement and the August 31 preceding the February adjustment. Pension adjustments to be paid on or after July 1, 2011 have been eliminated for all members unless the Target Fund Ratio is met as of the valuation date and for each of the next 30 years on a projected basis.

6. Retirement Benefits

SERVICE RETIREMENT

Service Retirement Eligibility: Eligibility means age 60 (Class A, B, and D), age 62 (Class E and F) or age 65 (Class G) with no minimum service requirement.

Service Retirement Benefit: An employee's annual service retirement allowance is equal to a member annuity plus an employer pension which together equals 1/64th of Final Compensation for each year of service for Class A members, 1/55th of Final Compensation for each year of service for Class B, D, and E members and 1/60th of

Summary of Principal Plan Provisions — As of June 30, 2013, *continued*

Final Compensation for each year of service for Class F and G members. The member annuity is based on the member contributions credited at the valuation interest rate.

Note: See Section 12 for special benefits for veteran members.

EARLY RETIREMENT

Early Retirement Eligibility: Class A, B, C, D, E, and F members may retire after completion of 25 years of Creditable Service and Class G members may retire after completion of 30 years of Creditable Service.

Early Retirement Benefit: The benefit may be either:

(i) the lump sum withdrawal benefit described in 7.a. below; or

(ii) the Service Retirement Benefit reduced by 1/4 of one percent for each month the retirement date precedes age 55 for Class B members; or

(iii) the Service Retirement Benefit reduced by 1/12 of one percent for each month the retirement month precedes age 60 but over age 55 and by 1/4 of one percent for each month the retirement date precedes age 55, for Class D members.

(iv) the Service Retirement Benefit reduced by 1/12 of one percent for each month the retirement precedes age 62 but over age 55 and by 1/4 of one percent for each month the retirement date precedes age 55, for Class E and F members.

(v) the Service Retirement Benefit reduced by 1/4 of one percent for each month the retirement date precedes age 65, for Class G members.

DEFERRED RETIREMENT

Eligibility: A member is eligible upon termination of service prior to age 60 (Class A, B, D), age 62 (Class E and F) or age 65 (Class G) and after 10 years of Creditable Service.

Deferred Retirement Benefit: The benefit may be either:

(i) the lump sum withdrawal benefit described in 7.a. above; or

(ii) a deferred retirement benefit, commencing at age 60 (Class A, B, D), age 62 (Class E and F) or age 65 (Class G), equal to a member annuity plus an employer pension which together provide a retirement allowance equal to the service retirement benefit based on Final Compensation and Creditable Service at date of termination. Member annuity based on member contributions credited at the valuation interest rate.

7. Termination Benefits

LUMP SUM WITHDRAWAL

Eligibility: A member is eligible upon termination of service.

Lump Sum Withdrawal Benefit: The benefit equals a refund of Aggregate Member Contributions plus, if the member has completed three years of service, interest accumulated at 2.0% per annum allowed thereon.

8. Death Benefits

Ordinary Death (Insured) Benefit — Lump Sum (Non-Contributory)

Pre-retirement Death Benefit Eligibility: Any current active member is eligible.

Pre-retirement Death Benefit: The benefit is a lump sum benefit equal to the Aggregate Contributions with interest allowed thereon plus an amount equal to 1-1/2 times Compensation at date of death.

Post-retirement Death Benefit Prior to Age 60 (Class A, B, D), Age 62 (Class E and F) or age 65 (Class G) Eligibility: Eligible if disabled or retired early.

Post-retirement Death Benefit Prior to Age 60 (Class A, B, D), Age 62 (Class E and F) or age 65 (Class G) Benefit: The benefit is as follows:

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

(ii) For death while an Early Retiree, the benefit is equal to 3/16 times Compensation.

(iii) For death while vested terminated, the benefit is equal to his Aggregate Contributions with interest allowed thereon.

Post-retirement Death Benefit After Age 60 (Class A, B, D), Age 62 (Class E and F) or age 65 (Class G) Eligibility: Eligible after attainment of service retirement, deferred and disabled retirements (if not disabled, 10 years of Creditable Service required for members enrolling on or after July 1, 1971).

Post-retirement Death Benefit After Age 60 (Class A, B, D), Age 62 (Class E and F) or age 65 (Class G) Benefit: The benefit payable is equal to 3/16 times Compensation.

Contributory Death Benefit: An additional, employee-paid, death benefit is also available through group insurance purchased by the Board of Trustees. Contributions for this benefit are required by Members during the first year of enrollment. Participation may be terminated after the first year. The benefit prior to retirement is 2 times compensation. The benefit after retirement is 1/4 times final year compensation (coverage at retirement, and 10 years of participation for Members enrolling on or after july 1, 1970, is required).

Pre-retirement Accidental Death Benefit:

Eligibility: A death resulting from injuries received from an accident during performance of duty and not a result of willful negligence is eligible.

Pre-retirement Lump Sum Benefit: The benefit is a lump sum equal to 1-1/2 times Compensation.

Pre-retirement Accidental Death Benefit: The benefit payable is as follows:

(i) The annuity benefit to a widow or widower is equal to 50% of

Summary of Principal Plan Provisions — As of June 30, 2013, *continued*

Compensation, payable for life or until remarriage.

(ii) The annuity benefit, when there is no spouse, or the 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 children are under age 18 and it is payable for life if they are disabled.

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

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

9. Disability Benefits

ORDINARY DISABILITY RETIREMENT

Eligibility: A member is eligible for Ordinary Disability Retirement is he (she) has 10 years of Creditable Service and is totally and permanently incapacitated from the performance of usual or available duties.

Ordinary Disability Retirement Benefit for Class A, B, D and E members: The total retirement allowance is equal to the greater of:

(i) 1.64% of Final Compensation times the number of years of Creditable Service; or

(ii) 43.6% of Final Compensation.

Note: See Section 12 for special benefits for veteran members.

Ordinary and Accidental Disability Retirement Benefit for Class F and G members: A disability benefit equal to 60% of salary reduced by the initial Social Security benefit is paid until the earlier of age 70 or commencement of a retirement benefit from a disability income policy outside of TPAF. The policy also makes employee contributions during the period of disability.

ACCIDENTAL DISABILITY RETIREMENT FOR CLASS A, B, D AND E MEMBERS

Eligibility: A Member is eligible upon total and permanent incapacitation as a direct result of a traumatic event occurring during and as a result of the performance of regular or assigned duties.

Accidental Disability Retirement Benefit: The benefit payable is equal to a Member annuity plus an employer pension which together equals 72.7% of the Compensation at date of injury.

10. Additional Old-Plan Benefit

An additional pension is payable to any retiree who was a member of the old Teachers' Retirement Fund. This pension is the actuarial equivalent of his contributions to the old Teachers' Retirement Fund without interest.

11. Special Minimum Benefit

A member who retired prior to 1955 with 20 or more years of service may receive a minimum pension of $500 a month inclusive of any amounts payable under any pension adjustments.

12. Special Benefits for Veterans

Service Retirement: Eligible if member attains age 60 and completes 20 years of service or attains age 55 and completes 25 years of service. Benefit equals 54.5% of highest 12-month contributory compensation.

Chapter 97 Benefit: Eligible if age 55 and completes 35 years of service. Benefit equals 1/55th of final year compensation for each year of service.

13. Benefit and Compensation Limits

The provisions of IRC Section 415 and IRC 401(a)(17), which limits benefits paid and limit compensation used in determining benefits, has been reflected in this report. The IRC Section 415 limit is $205,000 and the 401(a)(17) compensation cap is $255,000 for 2013 and is applied on a calendar year basis.

14. Forms of Payment

Maximum Option — Single life annuity.

Option 1 — Single life annuity with return of reserve option.

Option 2 — 100% joint and survivor annuity.

Option 3 — 50% joint and survivor annuity.

Option 4 — Other percentage joint and survivor annuity.

Option A — 100% pop-up joint and survivor annuity.

Option B — 75% pop-up joint and survivor annuity.

Option C — 50% pop-up joint and survivor annuity.

Option D — 25% pop-up joint and survivor annuity.

15. Contributions

Member Contributions: Each member becoming a member on or after January 1, 1956 and prior to July 1, 2007 contributes at the rate of contribution applicable to Class B members. Any members hired after June 30, 2007 and prior to November 2, 2008 are Class D members. Members hired after November 1, 2008 and prior to May 22, 2010 are Class E members. Members hired after May 21, 2010 are Class F members and members hired after June 28, 2011 are Class G members.

(i) **Class D, E, F or G Membership:** Class D, E, F or G members contribute at their applicable contribution rate up to the Social Security Taxable Wage Base.

(ii) **Class B Membership:** Any member on December 31, 1955 may elect to be classified as a Class B member and contribute at the rate of contribution applicable to Class B members at his age at membership. Any such member may elect to increase his

Summary of Principal Plan Provisions — As of June 30, 2013, *continued*

accumulated deductions by the amount required by the Board to receive credit as a Class B member for all or part of his service prior to such election.

(iii) **Class A Membership:** Any member who is not a veteran and does not elect to be classified as a Class B member continues to contribute at the rate of contribution applicable to his age at membership which was payable prior to the establishment of the integrated system, except that if he became a member subsequent to June 30, 1946 he will pay after January 1, 1955 at the rate of contribution in effect on June 30, 1946 applicable to his age at membership.

Prior to July 1, 1979 different contribution rates were established for men and women. Effective on that date members contribute at rates intermediate between the rates previously applicable to male and female members, computed to provide the same present value of future employee contributions at each entry age on the basis of the membership as constituted on the effective date.

Local Employer Contributions

Early Retirement Incentive Contributions: The State and Local employers which elected to participate in the early retirement incentive programs authorized by Chapters 137, 229 and 231, P.L. 1991, Chapters 48, 138 and 163, P.L. 1993, Chapter 23, P.L. 2001 and Chapters 128 and 129, P.L. 2003 pay contributions to cover the additional liability for these programs over amortization periods chosen by the employer (15 years for Chapters 128 and 129) or the amortization period for the Unfunded Accrued Liability of the system (Chapter 23, P.L. 2002 and Chapter 21, P.L. 2008). The remaining present values are re-amortized upon changes to the interest rate assumption. Effective with the revised June 30, 2011 actuarial valuation, for any local employer with an increasing payment amortization schedule, the increase factor is 3.25%

Chapter 113 Contributions: Certain School Districts have elected to exempt a select group of employees from the compensation limit under IRC Section 401(a)(17) incorporated under Chapter 113. These school districts will pay the full cost of this exemption at a member's date of retirement.

16. Changes in Plan Provisions Since Prior Valuation

None.

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April 17, 2015

Board of Trustees
Police and Firemen's Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the Police and Firemen's Retirement System is performed annually to measure the ongoing costs of the System (with required contributions determined separately for the State and Local employers) and the progress towards the funding goals of the System over time. In general, the financial goal of the Police and Firemen's Retirement System is a pattern of contributions, which is sufficient to cover the normal cost of the System plus the contribution towards the unfunded accrued liability.

In accordance with the New Jersey statutes, employers are required to make two contributions to the System, a normal contribution and an accrued liability contribution. The normal contribution for basic allowances and cost of living adjustments (COLA's) is defined under the Projected Unit Credit funding method as the present value of the benefits accruing during the current year. Prior to the July 1, 2010 valuation, the unfunded accrued liability contribution for basic allowances and COLA's was determined as a level percentage of pay required to amortize the unfunded accrued liability over 30 years in annual payments increasing by 4% per year. The funding reform provisions of Chapter 78, P.L. 2011 changed the methodology used to amortize the unfunded accrued liability. 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 actuarial valuation, the amortization period will 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 that valuation year using a 20 year amortization period.

Chapter 78, P.L. 2011 also increased member contributions from 8.50% to 10.00% of salary. Effective with the July 1, 2012 actuarial valuation, the determination of the State and Local employers' normal cost contributions has been revised to reflect the use of all member contributions as an offset to the gross normal cost. This was the methodology used to determine the State's normal cost contribution prior to the enactment of Chapter 78, P.L. 2011 and is consistent with the methodology typically used by contributory public-sector retirement systems to calculate the employer's normal cost contribution.

The valuation reflects the funding reform provisions of Chapter 1, P.L. 2010. Chapter 1, P.L. 2010 allows the State Treasurer to phase in to the full recommended pension contribution. The State would be in compliance with its funding requirement provided the State makes a payment of at least 1/7th of the full contribution, as computed by the actuaries, in the State fiscal year commencing July 1, 2011 and makes a payment in each subsequent year that increases by at least an additional 1/7th until payment of the full contribution is made in the seventh fiscal year and thereafter.

The valuation reflects the final State contribution under Chapter 1, P.L. 2010 for fiscal year 2013, which allowed the State Treasurer to reduce the State normal and accrued liability contributions for fiscal year 2013 of $393,637,547 to

$112,468,000. This amount excludes the Non-Contributory Group Insurance Premium of $6,418,119. Accordingly, a fiscal year 2013 employer contribution of only $112,468,000 was recognized for purposes of this valuation.

The valuation reflects a change in the original 2014 recommended State pension contribution of $398,052,381 to $389,689,529 and for the Local pension contribution from $750,203,953 to $699,886,800 to reflect the use of the full member contributions as an offset to the gross normal cost for the System. In addition, the valuation reflects the provisions of Chapter 1, P .L. 2010 for fiscal year 2014. The fiscal year 2014 State pension contribution has been reduced to $167,009,800 and has been recognized as a receivable contribution for purposes of this valuation. This amount excludes the estimated Non-Contributory Group Insurance Premium of $7,276,000. Accordingly, a fiscal year 2014 employer contribution of $167,009,800 was recognized as a receivable contribution for purposes of this valuation. This amount may be subject to change per the requirements of the State's fiscal year 2014 spending plan.

A State contribution of $414,316,953 is recommended for the fiscal year beginning July 1, 2014. This amount is comprised of an unfunded accrued liability payment of $297,340,476 plus a normal contribution of $116,976,477. However, the provisions of Chapter 1, P.L. 2010 allow the State Treasurer to reduce the recommended pension contribution for fiscal year 2015 to no less than 4/7th of the recommended pension contribution. Accordingly, the Chapter 1, P.L. 2010 minimum required pension contribution is $236,752,546. This is comprised of an unfunded accrued liability payment of $169,908,844 and a normal contribution payment of $66,843,702. This amount excludes the estimated Non-Contributory Group Insurance Premium of $7,702,000. The $236,752,546 amount may be subject to change per the requirements of the State's fiscal year 2015 spending plan.

The valuation reflects Chapter 19, P.L. 2009, which allowed the State Treasurer to reduce Local employers' normal and accrued liability contributions to 50% of the amount certified for the State fiscal year 2009. In addition, certain Local employers who were eligible under Chapter 19, P.L. 2009 to defer 50% of their State fiscal year 2009 pension contribution but did not were permitted to defer 50% of their State fiscal year 2010 recommended pension contribution. This unfunded liability will be paid by the 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. The legislation also provides that a Local employer may pay 100% of the recommended contributions for State fiscal years 2009 and 2010. Such an employer will be credited with the full payments and any such amounts will not be included in their unfunded liability.

The valuation reflects the unauthorized early retirement incentive programs offered by certain Local employers. The additional liability incurred by the System due to these programs is included as a receivable contribution.

The underlying demographic data is maintained and provided by the New Jersey Division of Pensions and Benefits. The data is analyzed by Buck Consultants for internal completeness and consistency and compared with the prior valuation data to again ensure consistency.

As required under Chapter 255, P.L. 1944, an actuarial investigation of the demographic experience of the members and beneficiaries of the Police and Firemen's Retirement System is made once in every three-year period. The July 1, 2013 valuation was based on the actuarial assumptions that were determined from the July 1, 2007 – June 30, 2010 Experience Study (which was approved by the Board of Trustees at the November 14, 2011 Board meeting).

The valuation reflects the economic assumptions recommended by the Treasurer, which include a rate of investment return of 7.90% per annum and assumed future salary increases reduced by 2.00% per annum through fiscal year ending 2021 and 1.00% per annum for fiscal years ending 2022 and thereafter. These assumptions will remain in effect for valuation purposes until such time as the Board or the Treasurer recommends revised economic assumptions.

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 future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the State House Commission or staff of the State of New Jersey's 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. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' prior written consent.

The assumptions used to prepare the information required by Statements No. 25, No. 27 and No. 50 of the Governmental Accounting Standards Board (GASB) were the same as those used for funding purposes.

In our opinion, the attached schedules of valuation results fairly represent the status of the Police and Firemen's Retirement System and present an accurate view of historical data. The underlying assumptions and methods used are consistent with the statutory specifications and represent a best estimate of the aggregate future experience of the System.

The following supporting schedules in the Actuarial Section were prepared by Buck Consultants:

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience

  Reconciliation of Employer Contribution Rates
- Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck Consultants prepared the "Schedule of Funding Progress" and the "Schedule of Employer Contributions" in the Financial Section. The Schedule of Funding Progress and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 will be effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

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, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA

Principal, Consulting Actuary

ACTUARIAL INFORMATION

Summary of Actuarial Assumptions and Methods

Section 13, Subsection (13) of Chapter 255, P.L. 1944 as amended by Chapter 157, P.L. 1972 of the New Jersey Statutes provides that once in every three-year period the actuary shall examine in detail the demographic experience of the members and beneficiaries of the Police and Firemen's Retirement System to assure that the tables used for determining expected liabilities are consistent with recent experience.

The July 1, 2013 actuarial valuation of the Police and Firemen's Retirement System reflects the recognition of the actuarial assumptions determined from the July 1, 2007 – June 30, 2010 Experience Study which was approved by the Board of Trustees at the November 14, 2011 Board meeting and the revised economic assumptions, which were recommended by the Treasurer.

An outline of the actuarial assumptions and methods used for the July 1, 2013 valuation is as follows:

Valuation Interest Rate: 7.90% per annum, compounded annually.

COLA: No future COLA is assumed.

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	5.00%	1.62%	1.40%	0.90%	0.35%	0.00%
30	6.00	2.20	1.76	1.31	0.55	0.24
35	7.00	2.25	1.76	1.31	0.77	0.24
40	10.00	2.25	1.85	1.74	0.77	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

Summary of Actuarial Assumptions and Methods, *continued*

	Annual Rates of				
	Death			Disability	
	Ordinary				
Age	Male[1]	Female[1]	Accidental	Ordinary	Accidental
25	0.037%	0.019%	0.006%	0.050%	0.029%
30	0.038	0.022	0.006	0.147	0.139
35	0.056	0.035	0.008	0.333	0.238
40	0.090	0.055	0.008	0.400	0.318
45	0.121	0.085	0.009	0.448	0.291
50	0.173	0.133	0.009	0.510	0.179
55	0.245	0.197	0.014	0.720	0.161
60	0.363	0.301	0.013	1.280	0.161
64	0.538	0.428	0.008	2.400	0.161
65 and over	0.000	0.000	0.000	0.000	0.000

[1] *RP-2000 Combined Healthy Mortality Tables set back 3 years for both males and females and projected on a generational basis from the base year of 2011 using Projection Scale AA. Rates shown above are unadjusted for Projection Scale AA.*

	Annual Rates of					
	Service Retirements				Salary Increases	
	Length of Service					
Age	Less than 21 Years[1]	21 to 24 Years	25 Years	26 or More Years	FY2012 to FY2021	FY2022 and thereafter
25					8.62%	9.62%
30					6.16	7.16
35					4.67	5.67
40	2.50%	0.00%	45.57%	15.40%	4.01	5.01
45	2.50	0.00	52.98	15.40	3.95	4.95
50	3.75	0.00	56.77	15.40	3.95	4.95
55	3.20	0.00	59.04	17.48	3.95	4.95
60	3.20	0.00	77.49	22.78	3.95	4.95
64	37.50	0.00	77.49	37.80	3.95	4.95
65 and over	100.00	100.00	100.00	100.00		

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

Summary of Actuarial Assumptions and Methods, *continued*

Deaths After Retirement

RP-2000 Combined Healthy Mortality Tables for service retirements and beneficiaries projected on a generational basis from the base year of 2011 using Projection Scale AA. Special mortality tables are used for the period after disability retirement. Representative values of the assumed annual rates of mortality unadjusted for Projection Scale AA are as follows:

Age	Service Retirements and Beneficiaries		Age	Disability Retirements
	Men	Women		
55	0.362%	0.272%	35	0.598%
60	0.675	0.506	40	0.634
65	1.274	0.971	45	0.803
70	2.221	1.674	50	1.058
75	3.783	2.811	55	1.210
80	6.437	4.588	60	1.426
85	11.076	7.745	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.

Valuation Method

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

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.

Schedule of Retired Members and Beneficiaries — Added to and Removed From Rolls

State

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/13	562	$25,376,310	144	$3,961,938	5,841	$244,287,186	9.51%	$41,823
7/1/12	483	21,936,867	83	2,596,132	5,423	223,064,017	9.57	41,133
7/1/11	578	26,839,762	117	3,116,709	5,023	203,579,687	14.28	40,530
7/1/10	466	20,752,289	85	2,577,204	4,562	178,146,637	11.69	39,050
7/1/09	448	19,077,696	82	2,165,118	4,181	159,495,927	14.73	38,148
7/1/08	430	18,467,571	50	1,293,499	3,815	139,018,953	15.32	36,440

Local Employers

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/13	2,126	$123,863,237	1,062	$34,299,782	35,353	$1,735,172,993	5.50%	$49,081
7/1/12	2,131	119,315,514	855	29,526,388	34,289	1,644,739,476	5.88	47,967
7/1/11	2,613	157,395,175	954	29,687,515	33,013	1,553,435,879	9.94	47,055
7/1/10	2,088	117,656,689	856	26,753,568	31,354	1,413,047,858	6.85	45,068
7/1/09	1,703	90,251,963	859	25,570,826	30,122	1,322,470,071	8.20	43,904
7/1/08	1,635	81,814,446	700	21,185,974	29,278	1,222,284,655	6.69	41,748

Total System

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/13	2,688	$149,239,547	1,206	$38,261,720	41,194	$1,979,460,179	5.98%	$48,052
7/1/12	2,614	141,252,381	938	32,122,520	39,712	1,867,803,493	6.31	47,034
7/1/11	3,191	184,234,937	1,071	32,804,224	38,036	1,757,015,566	10.42	46,193
7/1/10	2,554	138,408,978	941	29,330,772	35,916	1,591,194,495	7.37	44,303
7/1/09	2,151	109,329,659	941	27,735,944	34,303	1,481,965,998	8.86	43,202
7/1/08	2,065	100,282,017	750	22,479,473	33,093	1,361,303,608	7.51	41,136

[1] *These values include Domestic Relations beneficiaries in receipt but exclude deferred vested terminations.*

[2] *The benefit amounts shown are the annualized benefits as of the valuation date and are not the actual benefits paid during the fiscal year.*

Schedule of Active Members Valuation Data[1]

State

Valuation Date	Number of Active Members	Annual Limited Compensation	Average Compensation	% Increase in Average Compensation
7/1/13	7,098	$532,147,062	$74,971	(0.65)%
7/1/12	7,187	542,344,707	75,462	(0.31)
7/1/11	7,237	547,809,629	75,696	4.07
7/1/10	7,572	550,731,084	72,733	5.81
7/1/09	7,915	544,071,811	68,739	0.18
7/1/08	7,936	544,555,658	68,618	0.37

Local Employers

Valuation Date	Number of Active Members	Annual Limited Compensation	Average Compensation	% Increase in Average Compensation
7/1/13	33,274	$3,233,153,473	$97,167	1.52%
7/1/12	33,632	3,218,932,891	95,710	3.85
7/1/11	34,762	3,203,676,618	92,160	3.96
7/1/10	36,632	3,274,452,128	88,651	3.04
7/1/09	37,235	3,203,508,603	86,035	2.43
7/1/08	37,530	3,152,174,629	83,991	4.54

Total System

Valuation Date	Number of Active Members	Annual Limited Compensation	Average Compensation	% Increase in Average Compensation
7/1/13	40,372	$3,765,282,535	$93,265	1.22%
7/1/12	40,819	3,761,277,598	92,145	3.16
7/1/11	41,999	3,751,486,247	89,323	3.96
7/1/10	44,204	3,798,183,212	85,924	3.52
7/1/09	45,150	3,747,580,414	83,003	2.08
7/1/08	45,466	3,696,730,287	81,308	3.94

[1] *Includes all contributing and non-contributing active members.*

Solvency Test

State

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$446,509,394	$2,645,278,934	$1,096,734,709	$2,127,491,585	100.00%	63.55%	0.00%
7/1/12	444,953,351	2,418,803,841	1,163,197,690	2,137,727,566	100.00	69.98	0.00
7/1/11	434,353,581	2,240,031,414	1,252,140,684	2,173,255,647	100.00	77.63	0.00
7/1/10	439,239,135	1,914,386,462	1,318,735,661	2,190,654,958	100.00	91.49	0.00
7/1/09	427,713,716	1,998,329,812	1,567,215,952	2,268,272,056	100.00	92.10	0.00
7/1/08	417,037,087	1,745,461,874	1,586,619,949	2,343,170,793	100.00	100.00	11.39

Local Employers

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$2,842,256,925	$17,710,792,805	$8,258,648,542	$22,170,221,173	100.00%	100.00%	19.58%
7/1/12	2,726,801,462	16,780,025,399	8,198,341,576	21,549,327,079	100.00	100.00	24.91
7/1/11	2,611,348,759	16,074,784,440	8,292,498,989	21,051,681,692	100.00	100.00	28.53
7/1/10	2,610,141,488	14,279,203,074	8,712,653,564	20,367,865,987	100.00	100.00	39.92
7/1/09	5,527,185,808	15,411,236,571	10,510,419,386	20,669,565,701	100.00	100.00	25.99
7/1/08	2,396,790,723	14,303,353,327	10,170,962,482	20,404,804,535	100.00	100.00	36.42

Total System

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$3,288,766,319	$20,356,071,739	$9,355,383,251	$24,297,712,758	100.00%	100.00%	6.98%
7/1/12	3,171,754,813	19,198,829,240	9,361,539,266	23,687,054,645	100.00	100.00	14.06
7/1/11	3,045,702,340	18,314,815,854	9,544,639,673	23,224,937,339	100.00	100.00	19.53
7/1/10	3,049,380,623	16,193,589,536	10,031,389,225	22,558,520,945	100.00	100.00	33.05
7/1/09	2,954,899,524	17,409,566,383	12,077,635,338	22,937,837,757	100.00	100.00	21.31
7/1/08	2,813,827,810	16,048,815,201	11,757,582,431	22,747,975,328	100.00	100.00	33.05

[1] *Actuarial Value including receivable amounts.*

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

State

Valuation Year	July 1, 2013	July 1, 2012	July 1, 2011	July 1, 2010	July 1, 2009	July 1, 2008
Prior Year Contribution Rate	76.94%[6]	74.83%[6]	70.70%[6]	71.02%[6]	64.36%[6]	56.70%[6]
Adjustment for Full Member Contributions to Offset Normal Cost	(1.61)	N/A	N/A	N/A	N/A	N/A
Revised Prior Year Contribution Rate	75.33%	74.83%	70.70%	71.02%	64.36%	56.70%
Net Change Due to:						
Current New Entrants	0.27	0.31	0.22	0.15	0.17	0.18
Exces Salary Increases	0.07	(0.36)	(0.43)	(0.39)	(0.64)	(0.96)
Assumption/Method Changes	0.00	(1.51)[5]	(2.44)[4]	(4.41)[7]	0.00	1.20
COLA Increases	0.02	0.04	(0.25)	(0.41)	0.31	(0.04)
Active and Other Experience	(0.71)	(1.43)	(0.01)	0.41	0.01	0.62
Retiree Experience	0.03	0.06	0.01	0.03	0.02	0.08
Investment Loss/(Gain)	1.00	1.32	0.99	1.30	1.64	0.66
Net Effect of Chapter 8[1]	1.27	(1.13)	0.48	0.68	1.03	1.06
Appropriation Act[2]	3.84	4.81	5.56	3.99	4.12	4.86
Chapter 78, P.L. 2011	N/A	N/A	N/A	(1.67)	N/A	N/A
Recommended Contribution Rate:						
• Prior to reflecting Chapter 1, P.L. 2010	81.12%[6]	76.94%[6]	74.83%[6]	70.70%[6]	71.02%[6]	64.36%[6]
• After reflecting Chapter 1, P.L. 2010	46.35%[6]	32.98%[6]	21.38%[6]	10.10%[6]	N/A	N/A

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

Local Employers

Valuation Year	July 1, 2013	July 1, 2012	July 1, 2011	July 1, 2010	July 1, 2009	July 1, 2008
Prior Year Contribution Rate	23.90%[6]	24.01%[6]	23.08%[6]	30.20%[6]	27.85%[6]	24.37%[6]
Adjustment for Full Member Contributions to Offset Normal Cost	(1.60)	N/A	N/A	N/A	N/A	N/A
Revised Prior Year Contribution Rate	22.30%	24.01%	23.08%	30.20%	27.85%	24.37%
Net Change Due to:						
Current New Entrants	0.14	0.08	0.07	0.21	0.15	0.12
Exces Salary Increases	0.08	(0.40)	(0.47)	(0.42)	(0.70)	0.30
Assumption/Method Changes	0.00	(0.90)[5]	(0.05)[4]	(0.66)[7]	0.00	2.73
COLA Increases	0.02	0.04	(0.30)	(0.50)	(0.40)	(0.06)
Active and Other Experience	1.50	1.18	2.47	1.83	1.97	1.13
Retiree Experience	0.04	0.07	0.01	0.04	0.03	0.12
Investment Loss/(Gain)	1.00	1.59	1.20	1.68	2.29	0.80
Net Effect of Chapter 8[1]	(1.94)	(1.77)	(2.00)	(1.89)	(1.79)	(1.66)
Chapter 78, P.L. 2011	N/A	N/A	N/A	(8.73)	N/A	N/A
Recommended Contribution Rate[3]	23.14%[6]	23.90%[6]	24.01%[6]	23.08%[6]	30.20%[6]	27.85%[6]

[1] *Net effect of the change in the calculation of the July 1, 1998 actuarial value of System assets and elimination of the Local Employers' accrued liability contribution for the period ending June 30, 1997.*

[2] *Net change for July 1, 2011, July 1, 2012 and July 1, 2013 are due to the provisions of Chapter 1, P.L. 2010. Net change due to Appropriation Act for July 1, 2010 includes 0.17% change due to the Fiscal Year 2010 Appropriation Act, 0.15% change due to the Fiscal Year 2011 Appropriation Act and 3.67% for the Fiscal Year 2012 Appropriation Act. Net change due to Appropriation Act for July 1, 2009 includes 0.26% change due to the Fiscal Year 2009 Appropriation Act, 0.08% change due to the Fiscal Year 2010 Appropriation Act and 3.78% for the Fiscal Year 2011 Appropriation Act. Net change due to Appropriation Act for July 1, 2008 includes 1.63% change due to the Fiscal Year 2009 Appropriation Act and 3.23% change due to the Fiscal Year 2010 Appropriation Act.*

[3] *Includes rates attributable to Chapter 204 requirement which is billed to specific locations.*

[4] *Net effect of the Board approved revised demographic assumptions based on the June 30, 2011 experience investigations and the Treasurer approved revised economic assumptions.*

[5] *Net effect of the Board approved revised demographic assumptions based on the Treasurer approved revised economic assumptions.*

[6] *Excludes contribution rates payable to the Non-Contributory Group Insurance Premium Fund. For State, the contribution rates are 1.51% for 2013, 1.41% for 2012, 1.64% for 2011, 1.53% for 2010, 1.46% for 2009, and 1.47% for 2008. For Local, the contribution rates are 1.09% for 2013, .86% for 2012, 1.00% for 2011, .85% for 2010, 1.20% for 2009, and 1.22% for 2008.*

[7] *Due to the State's decision to reduce the lag period between the valuation year and the contribution from three years to two years.*

Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

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

(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.

Brief Summary of the benefit and Contribution Provisions as Interpreted for Valuation Purposes, *continued*

(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 10.0% of Compensation.

ACTUARIAL INFORMATION

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April 17, 2015

Board of Trustees
State Police Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the State Police Retirement System is performed annually to measure the ongoing costs of the System and the progress towards the funding goals of the System over time. In general, the financial goals of the State Police Retirement System are a pattern of contributions, which is sufficient to cover the normal cost of the System plus the contribution towards the unfunded accrued liability.

In accordance with the New Jersey statutes, employers are required to make two contributions to the System, a normal contribution and an accrued liability contribution. The normal contribution is defined under the Projected Unit Credit funding method as the present value of the benefits accruing during the current year. Prior to the July 1, 2010 valuation, the unfunded accrued liability contribution for basic allowances and cost of living adjustments was determined as a level percentage of pay required to amortize the unfunded accrued liability over 30 years in annual payments increasing by 4.0% per year. The funding reform provisions of Chapter 78, P.L. 2011 changed the methodology used to amortize the unfunded accrued liability. Beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation, the amortization period shall decrease by one year). Beginning with the July 1, 2029 actuarial valuation when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

Chapter 78, P.L. 2011 also increased member contributions from 7.5% to 9.00% of salary, beginning October 2011. Effective with the July 1, 2012 actuarial valuation, the determination of the State's normal cost contributions has been revised to reflect the use of all member contributions as an offset to the gross normal cost. This was the methodology used to determine the State's normal cost contribution prior to the enactment of Chapter 78, P.L. 2011 and is consistent with the methodology typically used by contributory public-sector retirement systems to calculate the employer's normal cost contribution.

The valuation reflects the funding reform provisions of Chapter 1, P.L. 2010. Chapter 1, P.L. 2010 allows the State Treasurer to phase in to the full recommended pension contribution. The State would be in compliance with its funding requirement provided the State makes a payment of at least 1/7th of the full contribution, as computed by the actuaries, in the State fiscal year commencing July 1, 2011 and makes a payment in each subsequent fiscal year that increases by at least an additional 1/7th until payment of the full contribution is made in the seventh fiscal year and thereafter.

The valuation reflects the final State contribution under Chapter 1, P.L. 2010 for fiscal year 2013, which allowed the State Treasurer to reduce the State normal and accrued liability contributions for fiscal year 2013 of $89,535,903 to $25,582,000. In addition, the fiscal year 2014 recommended State pension contribution of $103,193,378 has been reduced to $44,225,734 and has been recognized as a receivable contribution for purposes of this valuation. This amount may be subject to change per the requirements of the State's fiscal year 2014 spending plan.

A contribution of $108,904,703 is recommended for the fiscal year beginning July 1, 2014. This amount is comprised of an unfunded accrued liability payment of $77,413,634 plus a normal contribution of $31,491,069. However, the provisions of Chapter 1, P.L. 2010 allow the State Treasurer to reduce the recommended pension contribution for fiscal year 2015 to no less than 4/7th of the recommended pension contribution. Accordingly, the Chapter 1, P.L. 2010 minimum required pension contribution is $62,231,259. This is comprised of an unfunded accrued liability payment of $44,236,362 and a normal contribution of $17,994,897. This amount may be subject to change per the requirements of the State's fiscal year 2015 spending plan.

The State of New Jersey's Division of Pensions and Benefits reported the individual data for members of the State Police Retirement System of New Jersey as of the valuation date for use in the preparation of this report. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the Division of Pensions and Benefits. The accuracy of the results presented in this report 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. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised demographic assumptions.

The valuation reflects economic assumptions which were recommended by the Treasurer, which include a rate of investment return of 7.90% per annum and the assumed future salary increases of 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.

The valuation cost method used is the 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. The asset valuation method used was 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.

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 future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the State House Commission or staff of the State of New Jersey's 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. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' prior written consent.

The assumptions used to prepare the information required by Statements No. 25, No. 27 and No. 50 of the Governmental Accounting Standards Board (GASB) were the same as those used for funding purposes.

In our opinion, the attached schedules of valuation results fairly represent the status of the State Police Retirement System and present an accurate view of historical data. The underlying assumptions and methods used are consistent with the statutory specifications and represent a best estimate of the aggregate future experience of the System.

The following supporting schedules in the Actuarial Section were prepared by Buck Consultants:

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls

- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience

  Reconciliation of Employer Contribution Rates
- Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck Consultants prepared the "Schedule of Funding Progress" and the "Schedule of Employer Contributions" in the Financial Section. The Schedule of Funding Progress and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 will be effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

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, and I am available to answer questions concerning it.

Respectfully submitted,

Buck Consultants

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA

Principal, Consulting Actuary

Summary of Actuarial Assumptions and Methods

Section 32 of Chapter 89, P.L. 1965 of the New Jersey Statutes provides that once in every three-year period the actuary shall examine in detail the demographic experience of the members and beneficiaries of the State Police Retirement System to assure that the tables used for determining expected liabilities are consistent with recent experience.

The demographic assumptions used for the July 1, 2013 actuarial valuation of the State Police Retirement System were based on the results of the experience study, which covered the period from July 1, 2008 to June 30, 2011, which were approved by the Board of Trustees, and the revised economic assumptions, which were recommended by the Treasurer.

An outline of the actuarial assumptions and methods used for the July 1, 2013 valuation is as follows:

Valuation Interest Rate: 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.

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

	Lives per Thousand	
Age	Less Than 5 Years of Service	5 to 19 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[1]				
	Ordinary Death[2]		Accidental Death	Ordinary Disability	Accidental Disability
Age	Male	Female			
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

1 *Per one thousand lives.*

2 *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.*

Summary of Actuarial Assumptions and Methods, *continued*

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 number of children assumption is individually explicit but they are considered as a single combined assumption.

Valuation Method

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

Summary of Actuarial Assumptions and Methods, *continued*

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

ACTUARIAL INFORMATION

Schedule of Retired Members and Beneficiaries — Added to and Removed From Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/13	291	$20,641,305	68	$2,192,736	3,253	$187,939,922	10.88%	$57,774
7/1/12	256	17,483,694	44	1,557,365	3,030	169,491,353	10.81	55,938
7/1/11	232	14,848,311	66	2,303,490	2,818	152,950,538	10.14	54,276
7/1/10	107	6,656,153	40	1,345,937	2,652	138,873,702	3.97	52,366
7/1/09	119	7,458,400	54	1,593,106	2,585	133,573,198	7.53	51,672
7/1/08	155	9,823,122	61	1,709,085	2,520	124,219,225	8.44	49,293

1 *These values include beneficiaries in receipt but exclude deferred vested terminations.*

2 *The benefit amounts shown are the annualized benefit as of the valuation date and are not the actual benefits paid during the fiscal year.*

Schedule of Active Members Valuation Data

Valuation Date	Number of Active Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/13	2,481	$262,063,829	$105,628	1.48%
7/1/12	2,721	283,219,927	104,086	7.56
7/1/11	2,844	275,219,752	96,772	1.12
7/1/10	3,030	289,980,657	95,703	0.48
7/1/09	3,016	287,267,502	95,248	-0.14
7/1/08	2,947	281,087,566	95,381	3.90

Solvency Test

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[3]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$171,462,709	$2,034,551,263	$664,576,728	$1,990,797,312	100.00%	89.42%	0.00%
7/1/12	180,407,372	1,822,707,659	764,653,782	1,995,388,133	100.00	99.58	0.00
7/1/11	182,626,003	1,634,856,377	764,468,466	2,015,624,130	100.00	100.00	25.92
7/1/10	185,587,970	1,466,806,024	844,700,143	2,019,350,048	100.00	100.00	43.44
7/1/09	175,349,297	1,647,110,535	1,002,995,736	2,067,242,877	100.00	100.00	24.41
7/1/08	166,360,000	1,492,340,059	950,464,810	2,136,006,509	100.00	100.00	50.22

3 *Actuarial value including receivable amounts.*

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

Valuation Year	July 1, 2013	July 1, 2012	July 1, 2011	July 1, 2010	July 1, 2009	July 1, 2008
Prior Year Contribution Rate[2]	37.78%	32.53%	30.92%	36.11%	29.34%	27.57%
Adjustment for Full Member Contributions to Offset Normal Cost	(1.34)	N/A	N/A	N/A	N/A	N/A
Revised Prior Year Contribution Rate[2]	36.44%	32.53%	30.92%	36.11%	29.34%	27.57%
Net Change Due to:						
Current New Entrants	0.00	0.11	0.00	0.43	0.60	0.26
Excess Salary Increases	(0.35)	1.58	(0.64)	(1.60)	(0.87)	(0.21)
Assumption/Method Changes	0.00	0.20	(1.75)	N/A	2.41	N/A
COLA Increases	0.00	0.00	(0.39)	(0.56)	0.43	(0.61)
Retiree Mortality	0.88	0.37	0.05	0.10	0.06	0.05
Active and Other Experience	1.28	(0.88)	0.19	0.59	(0.20)	(0.03)
Investment Loss/(Gain)	1.33	1.87	1.61	1.90	2.66	0.86
Appropriation Act[1]	1.98	2.00	2.54	2.17	1.68	1.45
Chapter 78, P.L. 2011	N/A	N/A	N/A	(8.22)	N/A	N/A
Recommended Contribution Rate:						
• Prior to reflecting Chapter 1, P.L. 2010[2]	41.56%	37.78%	32.53%	30.92%	36.11%	29.34%
• After reflecting Chapter 1, P.L. 2010[2]	23.75%	16.18%	9.30%	4.42%	N/A	N/A

[1] Changes in 2011, 2012, and 2013 are due to the provisions of Chapter 1, P.L. 2010.

[2] Excludes contribution rates of 0.76% for 2013, 0.67% for 2012, 0.73% for 2011, 0.62% for 2010, 0.56% for 2009 and 0.55% for 2008 for premiums payable to the Non-Contributory Group Insuance Premium Fund.

Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

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 System 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.

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 final 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), an amount equal to 25% or 40% of final compensation to one or two dependent parents.

Minimum ordinary death benefit

Aggregate contributions

Summary of the benefit and Contribution Provisions as Interpreted for Valuation Purposes, *continued*

After Retirement

Death of a retired member of the plan. The benefit is equal to:

(a) Lump sum of 50% of final 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 final 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 final compensation if death occurs prior to age 55 or 1/2 of final 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 age 55 and 1/2 times final compensation if death occurs after age 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 at a rate set by the State Treasurer, which is based on a commercially reasonable rate as required by the Internal Revenue Service. An administrative fee may be charged by for the loan.

Member Contributions

Each member contributes 9.0% of Compensation.

ACTUARIAL INFORMATION

xerox®

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April 17, 2015

State House Commission
Judicial Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Commission:

An actuarial valuation of the Judicial Retirement System is performed annually to measure the ongoing costs of the System and the progress towards the funding goals of the System over time. In general, the financial goals of the Judicial Retirement System are a pattern of contributions, which is sufficient to cover the normal cost of the System plus the contribution towards the unfunded accrued liability.

In accordance with the New Jersey statutes, employers are required to make two contributions to the System, a normal contribution and an accrued liability contribution. The normal contribution is defined under the Projected Unit Credit funding method as the present value of the benefits accruing during the current year. Prior to the July 1, 2010 valuation, the unfunded accrued liability contribution for basic allowances and cost of living adjustments was determined as a level percentage of pay required to amortize the unfunded accrued liability over 30 years in annual payments increasing by 4.0% per year. The funding reform provisions of Chapter 78, P.L. 2011 changed the methodology used to amortize the unfunded accrued liability. Beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation, the amortization period shall decrease by one year). Beginning with the July 1, 2029 actuarial valuation when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

Chapter 78, P.L. 2011 also increased member contributions by 9% of salary phased-in over a period of seven years, beginning October 2011. The increase in member contributions will be fully phased-in by July 2017. Effective with the July 1, 2012 actuarial valuation, the determination of the State's normal cost contributions has been revised to reflect the use of all member contributions as an offset to the gross normal cost. This was the methodology used to determine the State's normal cost contribution prior to the enactment of Chapter 78, P.L. 2011 and is consistent with the methodology typically used by contributory public-sector retirement systems to calculate the employer's normal cost contribution.

The valuation reflects the funding reform provisions of Chapter 1, P.L. 2010. Chapter 1, P.L. 2010 allows the State Treasurer to phase in to the full recommended pension contribution. The State would be in compliance with its funding requirement provided the State makes a payment of at least 1/7th of the full contribution, as computed by the actuaries, in the State fiscal year commencing July 1, 2011 and makes a payment in each subsequent fiscal year that increases by at least an additional 1/7th until payment of the full contribution is made in the seventh fiscal year and thereafter.

The valuation as of July 1, 2013 reflects the final State contribution under Chapter 1, P.L. 2010 for fiscal year 2013, which allowed the State Treasurer to reduce the State normal and accrued liability contributions for fiscal year 2013 of $40,751,804 to $11,643,000. In addition, the fiscal year 2014 recommended State pension contribution of $43,050,167 has been reduced to $18,450,072 and has been recognized as a receivable contribution for purposes of this valuation. This amount may be subject to change per the requirements of the State's fiscal year 2014 spending plan.

A contribution of $44,334,504 is recommended for the fiscal year beginning July 1, 2014. This is comprised of an unfunded accrued liability payment of $30,216,882 and a normal contribution of $14,117,622. However, the provisions of Chapter 1, P.L. 2010 allows the State Treasurer to reduce the recommended pension contribution for fiscal year 2015 to no less than 4/7th of the recommended pension contribution. Accordingly, the Chapter 1, P.L. 2010 minimum required pension contribution is $25,334,003. This is comprised of an unfunded accrued liability payment of $17,266,790 and a normal contribution of $8,067,213. This amount may be subject to change per the requirements of the State's fiscal year 2015 spending plan.

The State of New Jersey's Division of Pensions and Benefits reported the individual data for members of the State Police Retirement System of New Jersey as of the valuation date for use in the preparation of this report. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the Division of Pensions and Benefits. The accuracy of the results presented in this report is dependent on the accuracy of the data.

As required under Chapter 140, P.L. 1973, experience studies are performed once in every three year period. The valuation was prepared on the basis of the demographic assumptions that were determined from the July 1, 2008 – June 30, 2011 Experience Study and approved by the State House Commission. These assumptions will remain in effect for valuation purposes until such time as the State House Commission adopts revised demographic assumptions.

The valuation reflects economic assumptions which were recommended by the Treasurer, which include a rate of investment return of 7.90% per annum and the assumed future salary increases of 2.50% per annum through fiscal year ending 2021 and 3.50% 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.

The valuation cost method used is the 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. The asset valuation method used was 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.

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 future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the State House Commission or staff of the State of New Jersey's 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. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' prior written consent.

The assumptions used to prepare the information required by Statements No. 25, No. 27 and No. 50 of the Governmental Accounting Standards Board (GASB) were the same as those used for funding purposes.

In our opinion, the attached schedules of valuation results fairly represent the status of the Judicial Retirement System and present an accurate view of historical data. The underlying assumptions and methods used are consistent with the statutory specifications and represent a best estimate of the aggregate future experience of the System.

The following supporting schedules in the Actuarial Section were prepared by Buck Consultants:

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls

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In addition, Buck Consultants prepared the "Schedule of Funding Progress" and the "Schedule of Employer Contributions" in the Financial Section. The Schedule of Funding Progress and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 will be effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

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, and I am available to answer questions concerning it.

Respectfully submitted,

Buck Consultants

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA

Principal, Consulting Actuary

Summary of Actuarial Assumptions and Methods

Section 31 of Chapter 140, P.L. 1973 of the New Jersey Statutes provides that once in every three-year period the actuary shall examine in detail the demographic experience of the members and beneficiaries of the Judicial Retirement System to assure that the tables used for determining expected liabilities are consistent with recent experience.

The demographic assumptions used for the July 1, 2013 actuarial valuation of the Judicial Retirement System were based on the results of the experience study, which covered the period from July 1, 2008 to June 30, 2011, which were approved by the State House Commission, and the revised economic assumptions, which were recommended by the Treasurer.

An outline of the actuarial assumptions and methods used for the July 1, 2013 valuation is as follows:

Valuation Interest Rate: 7.90% per annum, compounded annually.

COLA: No future COLA is assumed.

Salary Increases: Salaries are assumed to increase by 2.50% per year through fiscal year ending 2021 and 3.50% per year for fiscal years ending 2022 and thereafter.

Separations from Service: Representative mortality and disability rates are as follows:

	Lives per Thousand		
	Death[1]		
Age	Male	Female	Disability
30	0.38	0.22	0.22
35	0.44	0.35	0.26
40	0.77	0.55	0.33
45	1.08	0.85	0.64
50	1.51	1.33	1.14
55	2.14	2.02	1.97
60	3.62	3.48	3.26
65	6.75	6.66	4.73

[1] *RP-2000 Combined Healthy Male and RP-2000 Combined Healthy Female Mortality Tables (set back 5 years for males and 3 years for females) projected on a generational basis from the base year of 2012 using Projection Scale AA. The above rates are unadjusted for Projection Scale AA.*

Summary of Actuarial Assumptions and Methods, *continued*

Deaths after Retirement

RP-2000 Combined Healthy Mortality Tables (set back 5 years for males and 3 years for females) for service retirement and beneficiaries of former members projected on a generational basis from the base year of 2012 using Projection Scale AA. The RP-2000 Disability Mortality Tables (set forward 2 years for males and females) are used to value disabled retirees. Representative values of the annual rates of mortality unadjusted for Projection Scale AA are as follows:

	Lives per Thousand			
	Retired Members and Beneficiaries of Deceased Members		Disabled Members	
Age	Males	Females	Males	Females
55	2.14	2.02	38.03	18.65
60	3.62	3.48	44.98	24.08
65	6.75	6.66	54.45	31.32
70	12.74	12.16	69.41	42.85
75	22.21	20.66	92.15	59.54
80	37.83	34.11	121.88	82.30
85	64.37	56.29	155.23	114.51
90	110.76	96.34	216.61	159.92

Retirement

It was assumed that the probability of retirement at age 65 for those judges who have 12 or more years of judicial service at age 65 is at 25% per year. In addition, retirement for members who have attained age 60 with 20 years of judicial service or attained age 65 with 15 years judicial service is at 30% at age 60, 25% at age 65 and 20% for all other ages between ages 60 and 70. At age 70, all remaining active members are assumed to retire.

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 are considered reasonable as a single combined assumption.

Valuation Method

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 actuarial valuation the amortization period shall decrease by one year.) Beginning with the July 1, 2029 actuarial valuation, when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

Chapter 78, P.L. 2011 increased the member contributions by 9% of salary, phased-in over a seven year period.

Asset Valuation Method

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.

Schedule of Retired Members and Beneficiaries — Added to and Removed From Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/13	48	$4,091,470	34	$2,021,915	549	$48,237,168	4.48%	$87,864
7/1/12	34	3,723,186	21	1,423,636	535	46,167,613	5.24	86,295
7/1/11	41	3,699,618	24	1,442,965	522	43,868,063	6.35	84,038
7/1/10	47	4,424,782	24	1,659,228	505	41,250,479	7.22	81,684
7/1/09	38	3,502,225	21	1,605,240	482	38,472,184	7.91	79,818
7/1/08	38	3,186,664	24	1,700,472	465	35,650,855	5.20	76,669

[1] *These values include beneficiaries in receipt but exclude deferred vested terminations.*

[2] *The benefit amounts shown are the annualized benefit as of the valuation date and are not the actual benefits paid during the fiscal year.*

Schedule of Active Members Valuation Data

Valuation Date	Number of Active Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/13	409	$67,810,110	$165,795	-0.03%
7/1/12	407	67,497,660	165,842	-0.16
7/1/11	406	67,437,125	166,101	0.01
7/1/10	432	71,746,413	166,080	-0.07
7/1/09	422	70,133,372	166,193	5.17
7/1/08	425	67,159,516	158,022	5.36

Solvency Test

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[3]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$20,588,967	$435,970,958	$163,816,367	$276,966,331	100.00%	58.81%	0.00%
7/1/12	19,799,227	417,423,315	167,958,092	290,191,842	100.00	64.78	0.00
7/1/11	18,353,365	394,760,527	172,586,895	310,724,782	100.00	74.06	0.00
7/1/10	17,967,938	354,390,110	182,182,355	329,030,387	100.00	87.77	0.00
7/1/09	17,288,107	364,446,307	212,308,961	355,522,646	100.00	92.81	0.00
7/1/08	16,312,046	336,317,176	200,655,425	383,958,713	100.00	100.00	15.61

[3] *Actuarial value including receivable amounts.*

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

Valuation Year	July 1, 2013	July 1, 2012	July 1, 2011	July 1, 2010	July 1, 2009	July 1, 2008
Prior Year Contribution Rate[2]	66.20%	60.43%	53.45%	49.41%	42.97%	41.32%
Adjustment for Full Member Contributions to Offset Normal Cost	(2.42)	N/A	N/A	N/A	N/A	N/A
Revised Prior Year Contribution Rate[2]	63.78%	60.43%	53.45%	49.41%	42.97%	41.32%
Net Change Due to:						
Current New Entrants	1.93	1.73	0.20	2.61	1.52	1.47
Exces Salary Increases	(0.91)	(0.97)	(1.37)	(1.38)	(0.15)	(0.02)
Assumption/Method Changes	0.00	0.61	(3.87)	0.00	0.32	0.00
COLA Increases	N/A	N/A	(0.19)	(0.46)	0.29	(0.24)
Retiree Mortality	0.19	0.12	0.04	(0.04)	0.01	0.05
Active and Other Experience	(3.86)	(1.05)	6.37	(1.46)	0.02	(2.40)
Investment Loss/(Gain)	1.06	1.52	1.37	1.43	2.03	0.70
Appropriation Act[1]	3.19	3.81	4.43	2.94	2.40	2.09
Chapter 78, P.L. 2011	N/A	N/A	N/A	0.40	N/A	N/A
Recommended Contribution Rate						
• Prior to reflecting Chapter 1, P.L. 2010[2]	65.38%	66.20%	60.43%	53.45%	49.41%	42.97%
• After Reflecting Chapter 1, P.L. 2010[2]	37.36%	28.37%	17.27%	7.63%	N/A	N/A

[1] *Changes in 2011, 2012, and 2013 are due to the provisions of Chapter 1, P.L. 2010.*

[2] *Excludes contribution rates of 1.18% for 2013, 1.29% for 2012, 1.34% for 2011, 1.34% for 2010, 1.23% for 2009 and 1.65% for 2008 for premiums payable to the Non-Contributory Group Insuance Premium Fund.*

Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

Eligibility for Membership

Chief Justice and associate justices of the Supreme Court, judges of the Superior Court and tax courts of the State of New Jersey.

1. Definitions

Plan Year

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

Service

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

Final Salary

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

Accumulated Deductions

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

Retirement Allowance

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

2. Benefits

Service Retirement

(A) Mandatory retirement at age 70. Voluntary retirement prior to age 70 as follows:

- (a) Age 70 and 10 years of judicial service;
- (b) Age 65 and 15 years of judicial service; or
- (c) Age 60 and 20 years of judicial service.

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

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

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

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

(C) Age 60 while serving as a judge, 5 consecutive years of judicial service and 15 years in the aggregate of public service. Benefit is an annual retirement allowance equal to 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year in excess of 25 years.

(D) Age 60 while serving as a judge. Benefit is an annual retirement allowance equal to 2% of final salary for each year of judicial service up to 25 years plus 1% for each year in excess of 25 years.

Early Retirement

Prior to age 60 while serving as a judge, 5 consecutive years of judicial service and 25 or more years in the aggregate of public service. Benefit is an annual retirement allowance equal to 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year of public service in excess of 25 years, actuarially reduced for commencement prior to age 60.

Vested Termination

Termination of service prior to age 60, with 5 consecutive years of judicial service and 10 years in the aggregate of public service. Benefit is a refund of accumulated deductions, or a deferred life annuity beginning at age 60 equal to 2% of final salary for each year of public service up to 25 years, plus 1% for service in excess of 25 years.

Death Benefits

Before Retirement

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

- (a) Lump sum payment equal to 1-1/2 times final salary, plus
- (b) Spousal life annuity of 25% of final salary payable until spouse's remarriage plus 10% (15%) to one (two or more) dependent child (children). If there is no surviving spouse, or upon death or remarriage, a total of 15% (20%, 30%) of final salary payable to one (two, three or more) dependent child (children). If there is no surviving spouse (or dependent children), 20% or 30% of final salary to one or two dependent parents.

After Retirement

Death of a retired member of the plan. Benefit is equal to:

- (a) Lump sum of 25% of final salary for a member retired under normal or early retirement. If a member were receiving a disability benefit, a lump sum 1-1/2 times final salary if death occurred before the member attained age 60 and ¼ times final salary if death occurred after age 60, plus
- (b) Spousal life annuity of 25% of final salary payable until spouse's remarriage plus 10% (15%) to one (two or more) dependent child (children). If there is no surviving spouse, or upon death or remarriage, a total of 15% (20%, 30%) of final salary payable to one (two, three or more) dependent child (children).

Disability Retirement

Physically or otherwise incapacitated for a full and efficient service to State in his judicial capacity and such incapacity is likely to be permanent. Benefit is an annual retirement allowance of 75% of final salary.

Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes, *continued*

Member Contributions

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

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

(a) For members enrolled prior to January 1, 1996:

- i. Member Contributions of 9% (phased-in over a period of seven years beginning October 2011) of the salary for that position on January 18, 1982.
- i. Member Contributions increase from 3% to 12% (phased-in over a period of seven years beginning October 2011) of the difference between current salary and salary for that position on January 18, 1982.

b) For members enrolled on or after January 1, 1996, Member Contributions increase from 3% to 12% of full salary phased-in over a period of seven years beginning October 2011.

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April 17, 2015

Board of Trustees
Consolidated Police and Firemen's Pension Fund
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the Consolidated Police and Firemen's Pension Fund is performed annually to measure the on-going costs of the Fund and the progress towards the funding goals of the Fund over time. Since the Pension Fund is closed to new entrants and there are no active participants, the financial goals of the Consolidated Police and Firemen's Pension Fund are to ensure that the combination of future State appropriations and current Trust assets, both projected forward with expected investment earnings, are sufficient to provide for all future benefit payments.

The unfunded accrued liability for basic allowances was initially determined as of June 30, 1990 and was to be amortized over a nine-year period. However, the provisions of Chapter 115, P.L. 1997 of the Pension Security Legislation permitted the State to pay off the unfunded accrued liabilities from the proceeds of pension obligation bonds.

The July 1, 2013 valuation assumes a receivable contribution of $864,041 will be paid to the fund by June 30, 2014. A contribution of $0 is recommended for the fiscal year beginning July 1, 2014. There were no unfunded accrued liability payments due since a net surplus existed as of July 1, 2013.

The recommended contribution for the fiscal year beginning July 1, 2014 was based on the method described above using an interest rate of 2.00% per annum and the mortality assumption for service retirements and beneficiaries reflects the RP-2000 Combined Healthy Mortality Tables projected on a generational basis using Projection Scale AA from the base year of 2012. The asset valuation method used was 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.

The State of New Jersey's Division of Pensions and Benefits reported the individual data for members of the Consolidated Police and Firemen's Pension Fund of New Jersey as of the valuation date to the actuaries. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the Division of Pensions and Benefits. The accuracy of the results presented in this report is dependent on the accuracy of the data.

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 future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the State House Commission or staff of the State of New Jersey's 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. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' prior written consent.

The assumptions used to prepare the information required by Statements No. 25, No. 27 and No. 50 of the Governmental Accounting Standards Board (GASB) were the same as those used for funding purposes.

In our opinion, the attached schedules of valuation results fairly represent the status of the Consolidated Police and Firemen's Pension Fund and present an accurate view of historical data. The underlying assumptions and methods used are consistent with the statutory specifications and represent a best estimate of the aggregate future experience of the Fund.

The following supporting schedules in the Actuarial Section were prepared by Buck Consultants:

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience

  Reconciliation of Unfunded Accrued Liability/(Surplus)
- Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck Consultants prepared the "Schedule of Funding Progress" and the "Schedule of Employer Contributions" in the Financial Section. The Schedule of Funding Progress and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 will be effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

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, and I am available to answer questions concerning it.

Respectfully submitted,

Buck Consultants

Aaron Shapiro

Aaron Shapiro, F.S.A., E.A., M.A.A.A.

Principal, Consulting Actuary

Summary of Actuarial Assumptions and Methods

An outline of the actuarial assumptions and methods used for the July 1, 2013 valuation is as follows:

Valuation Interest Rate: 2.00% per annum, compounded annually for development of costs.

Deaths after Retirement: RP-2000 Combined Healthy Mortality Tables for service retirements and beneficiaries projected on a generational basis from the base year of 2012 using Projection Scale AA. Special mortality tables are used for the period after disability retirement with no provisions made for mortality improvement after the valuation date. Representative values of the assumed annual rates of mortality unadjusted for Projection Scale AA for current retirees are as follows:

	Service Pensioners and Beneficiaries		
Age	**Men**	**Women**	**Disability Pensioners**
60	0.675%	0.506%	2.45%
65	1.274	0.971	3.57
70	2.221	1.674	5.32
75	3.783	2.811	8.02
80	6.437	4.588	12.11
85	11.076	7.745	18.20
90	18.341	13.168	26.88

Marriage

Males are assumed to be 4 years older than females, no assumption was made as to children.

For those participants with listed beneficiaries, the beneficiary allowance was assumed to be the greater of twice the amount contained in the record or the minimum benefit of $4,500/yr. (The information contained in the record has not been updated for the change from 25% to 50% payment to the survivor.)

For those participants without listed beneficiaries, 65% were assumed to be married and the beneficiary amount was assumed to be the minimum benefit payable ($4,500/yr.).

Actuarial Method

The unfunded accrued liability was measured as of June 30, 1990 and the accrued liability contribution rate was then determined such that the unfunded accrued liability was to be amortized over a period of nine years with contributions expected to remain constant.

In determining the unfunded accrued liability and the contribution rate, the actuarial value of assets as of June 30, 1990 was based upon 100% of the market value of fund assets. For subsequent actuarial valuations, the actuarial value of assets is adjusted to reflect actual contributions and benefit payments, an assumed rate of return on the previous year's assets and current year's cash flow at an annual rate of 2.00% with an adjustment to reflect 20% of the difference between the resulting value and the actual market value of Fund assets.

In developing the unfunded accrued liability contribution rate as of June 30, 1991 and subsequent years, the contribution rate is adjusted to amortize any gains or losses over the remainder of the nine-year period. (Without additional guidance, we have assumed that the unfunded accrued liability determined as of June 30, 2012 will be amortized over one year.)

Schedule of Retired Members and Beneficiaries — Added to and Removed From Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance[1]		
7/1/13	0	$0	56	$414,903	185	$1,302,249	(24.16)%	$7,039
7/1/12	3	46,595	72	478,997	241	1,717,152	(20.12)	7,125
7/1/11	1	6,861	87	572,894	310	2,149,554	(20.84)	6,934
7/1/10	0	0	50	356,230	396	2,715,587	(11.60)	6,858
7/1/09	8	60,806	94	653,683	446	3,071,817	(16.18)	6,887
7/1/08	5	42,453	93	695,563	532	3,664,694	(15.13)	6,889

[1] *The benefit amounts shown are the annualized benefit as of the valuation date and are not the actual benefits paid during the fiscal year.*

Schedule of Active Member Valuation Data

There have been no active participants in the Fund since July 1, 1992.

Solvency Test

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$0	$6,102,292	$0	$6,445,847	N/A	100.00%	N/A
7/1/12	0	8,026,421	0	7,179,322	N/A	89.45	N/A
7/1/11	0	9,179,981	0	8,300,684	N/A	90.42	N/A
7/1/10	0	11,824,904	0	10,632,228	N/A	89.91	N/A
7/1/09	0	14,024,132	0	13,879,949	N/A	98.97	N/A
7/1/08	0	17,319,488	0	16,962,382	N/A	97.94	N/A

[1] *Actuarial value including receivable amounts.*

Analysis of Past Financial Experience — Reconciliation of Unfunded Accrued Liability/(Surplus)

Valuation Year	July 1, 2013	July 1, 2012	July 1, 2011	July 1, 2010	July 1, 2009	July 1, 2008
Prior Year Unfunded/(Surplus)	$847,099	$879,297	$1,192,676	$144,183	$357,106	$1,231,763
Net Change Due to:						
Interest on Prior Year Unfunded/(Surplus)	16,942	17,586	23,854	2,884	7,142	24,635
Investment Loss/(Gain)	306,998	355,895	408,804	467,873	532,716	630,900
Retiree Experience	(650,553)	(515,459)	(572,247)	206,204	(388,781)	(273,794)
State Appropriations	(864,041)	(896,883)	(173,790)	0	(364,000)	(1,256,398)
Appropriations Act	N/A	N/A	N/A	371,532	N/A	N/A
Assumption, benefit or Method Changes	N/A	1,006,663	N/A	N/A	N/A	N/A
Actual Unfunded/(Surplus)	$(343,555)	$847,099	$879,297	$1,192,676	$144,183	$357,106

Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

Eligibility for Membership

Member of a municipal police department, municipal paid or part-paid fire department or county police department, or a paid or part-paid fire department of a fire district located in a township who has contributed to this pension fund; and who is not covered by the Police and Firemen's Retirement System which became effective on July 1, 1944.

Active Member: Any member who is a policeman, fireman, detective, lineman, driver of police van, fire alarm operator, or inspector of combustibles and who is subject to call for active service as such.

Employee Member: Any member who is not subject to active service or duty.

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.

Compensation

Base salary; not including individual salary adjustments which are granted primarily in anticipation of retirement or additional remuneration for performing temporary duties beyond the regular 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.)

Final Compensation

Compensation received during the last 12 months of service preceding retirement or termination of service.

Average Salary

Salary averaged over the last three years prior to retirement or other termination of service.

2. **Benefits:**

Service Retirement

Mandatory retirement at age 65 with 25 years of service (a municipality may retain the Chief of Police until age 70). Voluntary retirement after 25 years of service for an active member and after age 60 with 25 years of service for an employee member. Benefit is life annuity equal to 60% of final compensation, plus 1% of final compensation for years of service in excess of 25.

Death Benefit while on duty

Immediate life annuity equal to 70% of average salary payable to the spouse. If there is no spouse or if the spouse dies or remarries, 20% of final compensation will be payable to one surviving child and 35% (50%) of final compensation will be payable, to two (three) surviving children. If there is no surviving spouse or child, 25% (40%) of final compensation will be payable to one (two) surviving dependent parent(s). The minimum spousal annuity is $4,500 per annum.

Death Benefit while not on duty after retirement

Life annuity equal to 50% of the member's average salary payable to the spouse, plus 15% (25%) to one (two or more) surviving child (children). If there is no surviving spouse or if the surviving spouse dies or remarries, 20% (35%, 50%) of the member's average salary to one (two, three or more) surviving child (children). In the event that there is no surviving spouse or child, 25% (40%) of the member's average salary will be payable to one (two) dependent parent(s). The minimum spousal annuity is $4,500 per annum.

Ordinary Disability Retirement

Totally and permanently incapacitated from service for any cause other than as a direct result of a traumatic event occurring during the performance of duty. Benefit is an immediate life annuity equal to 1/2 of average salary.

Accidental Disability Retirement

Totally and permanently incapacitated as a direct result of a traumatic event occurring while performing regular or assigned duties. Benefit is an immediate life annuity equal to 2/3 of average salary.

3. **Contributions**

Each member contributes 7% of his salary to the pension fund.

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April 17, 2015

Board of Trustees
Prison Officers' Pension Fund
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the Prison Officers' Pension Fund is performed annually to measure the ongoing costs of the Fund and the progress towards the funding goals of the Fund over time. Since the pension fund is closed to new entrants and there are no active participants, the financial goals of the Prison Officers' Pension Fund are to ensure that the combination of future State appropriations and current Trust assets, both projected forward with expected investment earnings, are sufficient to provide for all future benefit payments.

The unfunded accrued liability for basic allowances was initially determined as of July 1, 1989 and was to be amortized over the 14-year period beginning July 1, 1989 and ending on July 1, 2002. However, the provisions of Chapter 115, P.L. 1997 of the Pension Security Legislation permitted the State to pay off the unfunded accrued liability from the proceeds of pension obligation bonds. The net effect of this legislation and plan experience was that no contributions were required for the fiscal year beginning July 1, 2014. (There were no required unfunded accrued liability payments due to the fact that a net surplus existed as of July 1, 2013.)

The underlying demographic data is maintained and provided by the New Jersey Division of Pensions and Benefits. The data is analyzed by Buck Consultants for internal completeness and consistency and compared with the prior valuation data to again ensure consistency.

The recommended contribution for the fiscal year beginning July 1, 2014 was based on the method described above using an interest rate of 5.00%. In accordance with actuarial standards of practice, the mortality assumption for service retirements and beneficiaries reflects the RP-2000 Combined Healthy Mortality Tables projected on a generational basis using Projection Scale AA from the base year of 2012. Assets are valued at book value, which is equivalent to market value.

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 future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the State House Commission or staff of the State of New Jersey's 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. No one may make any representations or warranties based on any statements or conclusions contained in this report without Buck Consultants' prior written consent.

The assumptions used to prepare the information required by Statements No. 25, No. 27 and No. 50 of the Governmental Accounting Standards Board (GASB) were the same as those used for funding purposes.

In our opinion, the attached schedules of valuation results fairly represent the status of the Prison Officers' Pension Fund and present an accurate view of historical data. The underlying assumptions and methods used are consistent with the statutory specifications and represent a best estimate of the aggregate future experience of the Fund.

ACTUARIAL INFORMATION

The following supporting schedules in the Actuarial Section were prepared by Buck Consultants:

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience

  Reconciliation of Unfunded Accrued Liability/(Surplus)
- Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck Consultants prepared the "Schedule of Funding Progress" and the "Schedule of Employer Contributions" in the Financial Section. The Schedule of Funding Progress and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 will be effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

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, and I am available to answer questions concerning it.

Respectfully submitted,

Buck Consultants

Aaron Shapiro, F.S.A., E.A., M.A.A.A.

Principal, Consulting Actuary

Summary of Actuarial Assumptions and Methods

An outline of the actuarial assumptions and methods used for the July 1, 2013 valuation is as follows:

Valuation Interest Rate: 5.00% per annum, compounded annually.

Deaths After Retirement: RP-2000 Combined Healthy Mortality Tables for service retirements and beneficiaries projected on a generational basis from the base year of 2012 using Projection Scale AA. Special mortality tables are used for the period after disability retirement with no provisions made for mortality improvement after the valuation date for disability retirements. Representative values of the assumed annual rates of mortality unadjusted for Projection Scale AA for current retirees are as follows:

Age	Service Retirement and Beneficiaries		Disability Retirement
	Men	Women	
60	0.675%	0.506%	2.722%
65	1.274	0.971	3.969
70	2.221	1.674	5.909
75	3.783	2.811	8.906
80	6.437	4.588	13.458
85	11.076	7.745	20.220
90	18.341	13.168	29.873

Marriage: Husbands are assumed to be 3 years older than wives.

Valuation Method

The unfunded accrued liability (the difference between the present value of benefits and the valuation assets) was determined as of July 1, 1988. This liability was amortized over the 14-year period beginning July 1, 1989, and ending on July 1, 2002. Each year the amortization payments were adjusted to reflect any experience gains or losses that occurred during the previous plan year. All gains and losses were amortized over the remaining original amortization period. (Without any guidance, we have assumed that any unfunded accrued liability that develops after the July 1, 2001 valuation will be amortized over 1 year.)

Asset Valuation Method

Assets are valued at book value, which is equivalent to market value.

Schedule of Retired Members and Beneficiaries — Added To and Removed From Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance[1]		
7/1/13	1	$2,856	15	$82,854	121	$857,048	-8.54%	$7,083
7/1/12	3	20,252	10	76,496	135	937,046	-5.66	6,941
7/1/11	2	11,391	9	66,709	142	993,290	-5.28	6,995
7/1/10	3	10,962	9	52,842	149	1,048,608	3.84	7,038
7/1/09	4	19,345	16	90,358	155	1,090,488	-6.11	7,035
7/1/08	5	20,466	14	74,921	167	1,161,501	-4.48	6,955

[1] *The benefit amounts shown are the annualized benefit as of the valuation date and are not the actual benefits paid during the fiscal year.*

Schedule of Active Member Valuation Data

There have been no active participants in the Fund since July 1, 1994.

Solvency Test

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active and inactive Members		(1)	(2)	(3)
7/1/13	$0	$4,748,938	$0	$8,171,920	N/A	100.00%	N/A
7/1/12	0	5,395,505	0	9,044,236	N/A	100.00	N/A
7/1/11	0	5,096,792	0	9,997,650	N/A	100.00	N/A
7/1/10	0	5,635,024	0	11,018,367	N/A	100.00	N/A
7/1/09	0	6,136,441	0	11,986,919	N/A	100.00	N/A
7/1/08	0	6,789,017	0	12,890,441	N/A	100.00	N/A

[1] *Market value including receivable amounts.*

Analysis of Past Financial Experience — Reconciliation of Unfunded Accrued Liability/(Surplus)

Valuation Year	July 1, 2013	July 1, 2012	July 1, 2011	July 1, 2010	July 1, 2009	July 1, 2008
Prior Year Unfunded/(Surplus)	$(3,648,731)	$(4,900,858)	$(5,383,343)	$(5,850,478)	$(6,101,424)	$(6,120,975)
Net Change Due to:						
Interest on Prior Year Unfunded/(Surplus)	(182,437)	(245,043)	(269,167)	(292,524)	(305,071)	(306,049)
Investment Loss/(Gain)	421,375	473,239	492,481	520,553	419,571	97,600
Retiree Experience	(13,189)	210,511	259,171	239,106	136,446	228,000
Assumption/Method Changes	N/A	813,420	N/A	N/A	N/A	N/A
Actual Unfunded/(Surplus)	$(3,422,982)	$(3,648,731)	$(4,900,858)	$(5,383,343)	$(5,850,478)	$(6,101,424)

Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

Eligibility for Membership

Employees of State penal institutions, employed prior to January 1, 1960 who did not transfer to the Police & Firemen's Retirement System in accordance with Chapter 205 of Public Law 1989. The System no longer accepts new members.

1. Definitions

Plan Year

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

Service

A year is credited for each year an employee is a member of the retirement system.

Average Final Compensation (AFC)

Average annual compensation (or base salary) for 3 years of Service immediately preceding retirement. (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.)

Accumulated Deductions

The sum (without interest) of all required amounts deducted from the compensation of a member or contributed by him or on his behalf.

2. Benefits

Service Retirements

25 years of service, or age 55 and 20 years of service. The benefit is a life annuity equal to the greater of (A), (B), and (C) below:

(A) 2% of AFC up to 30 years of service plus 1% for each year in excess of 30 and prior to age 65;

(B) 50% of final pay; and

(C) For member with 25 years of service, 2% of AFC up to 30 years of service plus 1% for each year in excess of 30.

Vested Retirements

Eligible upon termination of employment. Benefits are summarized as follows:

Termination with 10 or more years of service: Benefit is a deferred life annuity equal to 2% of AFC for service up to 30 years plus 1% for service over 30 years.

Termination with less than 10 years of service: Refund of accumulated deductions.

Ordinary Disability Retirement

Permanent and total disability for causes other than as a direct result of a traumatic event occurring during the performance of regular or assigned duties. Benefit is an immediate life annuity equal to 1/2 of AFC.

Accidental Disability Retirement

Permanent and total disability as a direct result of a traumatic event occurring while performing regular or assigned duties. Benefit is an immediate life annuity equal to 2/3 of AFC.

Death Benefits

Death of member of system. Spouse must be married to member prior to retirement, or at least five years before member's death. Benefit is an annuity equal to 25% of member's AFC plus an additional 15% (25%) for one (two or more) surviving dependent child (children). If there is no spouse or if the spouse dies or remarries, 20% (35%, 50%) of AFC to one (two, three or more) surviving child (children). If there is no surviving spouse or children, 25% (40%) of AFC to one (two) dependent parent(s). The provision for a survivor annuity payable to dependent parents does not apply in the death of a retired member of the system.

Minimum benefits: Minimum spousal annuity is $1,600 per annum. If no other benefit is payable prior to retirement, the member's beneficiary shall receive the accumulated deductibles.

3. Employee Contributions

Each member contributes 6% of compensation.

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