



The Public Employees' Retirement System of New Jersey

**GASB 68 Report
as of June 30, 2018**

Produced by Cheiron

February 2019

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**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
GASB 68 REPORTING FOR JUNE 30, 2018 MEASUREMENT DATE**

SECTION I – BOARD SUMMARY

The purpose of this report is to provide accounting and financial disclosure information under Government Accounting Standards Board Statement 68 for the Public Employees' Retirement System of New Jersey (PERS). This information includes:

- Disclosure of Deferred Inflows and Outflows, and
- Calculation of the Collective Annual Pension Expense.

Highlights

The reporting date for the PERS is June 30, 2018. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2018 and the Total Pension Liability as of the valuation date, July 1, 2017, updated to June 30, 2018. There was a change in assumptions as the discount rate used to measure the Total Pension Liability was changed as of the measurement date. We are not aware of any other significant events between the valuation date and the measurement date so the update procedures only included the addition of service cost and interest cost offset by actual benefit payments and an adjustment to reflect the change in discount rate. Additional information about the TPL can be found in the GASB 67 report. This report contains the GASB 68 collective employer reporting amounts. The individual employer reporting amounts can be found in the GASB 67-68 Employer Schedules provided separately in excel format.

The June 30, 2017 values shown in this report are based on the prior actuary's GASB report.

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SECTION I – BOARD SUMMARY

The following table provides a summary of the key results during this reporting period.

Table I-1 Summary of Collective Results		
Measurement Date	6/30/2018	6/30/2017
<u>State</u>		
Net Pension Liability	\$ 23,704,298,093	\$ 25,645,622,797
Deferred Outflows	(2,795,835,407)	(4,105,058,150)
Deferred Inflows	<u>4,968,631,829</u>	<u>3,630,758,372</u>
Net Impact on Statement of Net Position	\$ 25,877,094,515	\$ 25,171,323,019
Total Pension Expense	\$ 1,391,975,469	\$ 1,824,576,703
Pension Expense (% of Payroll)	32.09%	41.76%
<u>Local Employers</u>		
Net Pension Liability	\$ 19,689,501,539	\$ 23,278,401,588
Deferred Outflows	(3,619,985,444)	(5,396,431,901)
Deferred Inflows	<u>6,581,869,368</u>	<u>4,672,602,040</u>
Net Impact on Statement of Net Position	\$ 22,651,385,463	\$ 22,554,571,727
Total Pension Expense	\$ 1,099,708,157	\$ 1,694,305,613
Pension Expense (% of Payroll)	15.66%	24.46%
<u>Total</u>		
Net Pension Liability	\$ 43,393,799,632	\$ 48,924,024,385
Deferred Outflows	(6,415,820,851)	(9,501,490,051)
Deferred Inflows	<u>11,550,501,197</u>	<u>8,303,360,412</u>
Net Impact on Statement of Net Position	\$ 48,528,479,978	\$ 47,725,894,746
Total Pension Expense	\$ 2,491,683,626	\$ 3,518,882,316
Pension Expense (% of Payroll)	21.93%	31.15%

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SECTION II – CERTIFICATION

The purpose of this report is to provide accounting and financial reporting information under GASB 68 for the Public Employees' Retirement System of New Jersey (PERS). This report is for the use of PERS, the Division of Pensions and Benefits and their auditors in preparing financial reports in accordance with applicable law and accounting requirements. This report is not appropriate for other purposes, including the measurement of funding requirements for PERS and estimating the price to settle PERS's obligations.

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

Future actuarial measurements may differ significantly from the current measurements due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; and changes in plan provisions or applicable law.

For purposes of this report, the calculation of the Total Pension Liability and the projection of the Plan's contributions and projected benefit payments were based on the recommended demographic assumptions of the July 1, 2011 – June 30, 2014 Experience Study prepared by the prior actuary, which was approved by the Board of Trustees on October 14, 2015. Cheiron has reviewed this experience study. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study.

Based on the State Treasurer's recommendation the following economic assumptions are used to determine the Total Pension Liability and the actuarially determined contributions:

- Effective with the July 1, 2017 valuation: 7.50% per annum,
- Effective with the July 1, 2019 valuation: 7.30% per annum,
- Effective with the July 1, 2021 valuation: 7.00% per annum,
- Annual salary increases that are 0.5% lower than the rates shown in the Experience Study at all ages for both the select and ultimate periods.

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

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

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SECTION II – CERTIFICATION

This report was prepared for PERS for the purposes described herein and for the use by the plan auditor in completing an audit related to the matters herein. Other users of this report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.



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



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary

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SECTION III – DETERMINATION OF DISCOUNT RATE

The discount rate used to measure the Total Pension Liability was 5.00% as of June 30, 2017 and 5.66% as of June 30, 2018. As discussed with the Division of Pensions and Benefits, the projection of cash flows used to determine the discount rate as of June 30, 2018 assumed:

- In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum.
- In accordance with Paragraph 37 of GASB Statement No. 67, the projection of the Plan's contributions and projected benefit payments were based on the recommended demographic assumptions of the July 1, 2011 – June 30, 2014 Experience Study prepared by the prior actuary, which was approved by the Board of Trustees on October 14, 2015.

Based on the State Treasurer's recommendation the following economic assumptions are used to determine the actuarially determined contributions:

- Effective with the July 1, 2017 valuation: 7.50% per annum,
 - Effective with the July 1, 2019 valuation: 7.30% per annum,
 - Effective with the July 1, 2021 valuation: 7.00% per annum,
 - Annual salary increases that are 0.5% lower than the rates shown in the Experience Study at all ages for both the select and ultimate periods.
- It is assumed that the Local employers will contribute 100% of their actuarially determined contribution and 100% of their Non-Contributory Group Insurance Premium Fund (NCGIPF) contribution while the State will contribute 50% of its actuarially determined contribution and 100% of its NCGIPF contribution. The 50% contribution rate is the actual total State contribution rate paid in fiscal year ending June 30, 2018 with respect to the actuarially determined contribution for the fiscal year ending June 30, 2018 for all State administered retirement systems.
 - Prior to FYE 2018, it is assumed the State would make pension contributions the June 30th following the valuation date. Effective with FYE 2018, Chapter 83, P.L. 2016 requires the State to make pension contributions on a quarterly basis: at least 25 percent by September 30, at least 50 percent by December 31, at least 75 percent by March 31, and at least 100 percent by June 30.
 - In accordance with Chapter 98, P. L. 2017, PERS receives 21.02% of the proceeds of the Lottery Enterprise for a period of 30 years. Revenues received from lottery proceeds are assumed to be contributed to the System on a monthly basis.
 - It is assumed that Local employers' contributions, including the NCGIPF contributions, are expected to be received on April 1st, 21 months after the associated valuation date.
 - The State NCGIPF contributions are assumed to be paid monthly.

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SECTION III – DETERMINATION OF DISCOUNT RATE

The Fiduciary Net Position (FNP) includes Local employers' contributions receivable as reported in the financial statements provided to us by the Division of Pensions and Benefits. In determining the discount rate in Appendix D, the FNP at the beginning of each year does not reflect receivable contributions as those amounts are not available at the beginning of the year to pay benefits. The receivable contributions for the current year and prior year are shown below:

- For FYE June 30, 2017, the FNP includes receivable contributions of \$1,017,878,064 (\$881,237,700 for appropriations, \$45,147,692 for NCGIPF, \$39,123,915 for Chapter 19 and \$52,368,757 for ERI).
- For FYE June 30, 2018, the FNP includes receivable contributions of \$1,073,054,740 (\$949,447,522 for appropriations, \$45,229,397 for NCGIPF, \$34,249,798 for Chapter 19 and \$44,128,023 for ERI).

Based on these assumptions, the pension Plan's fiduciary net position was projected to be available to make all projected future benefit payments of current Plan members through fiscal year 2046. Municipal bond rates of 3.58% as of June 30, 2017 and 3.87% as of June 30, 2018 were used in the development of the blended GASB discount rate after the Plan's fiduciary net position was no longer sufficient to make future benefit payments. As selected by the State Treasurer, the rates are based on the Bond Buyer GO 20-Bond Municipal Bond Index. Based on the long-term rate of return of 7.00% and the municipal bond rate of 3.58% as of June 30, 2017 and the long-term rate of return of 7.00% and the municipal bond rate of 3.87% as of June 30, 2018, the blended GASB discount rates are 5.00% as of June 30, 2017 and **5.66%** as of June 30, 2018. The assumed discount rates have been determined in accordance with the method prescribed by GASB Statement No. 67.

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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

We understand the State and Local employers have elected to use the 2018 measurement date for its 2019 reporting date. As a result, the schedules in this section will be used by the State and Local employers for their 2019 reporting.

The impact of experience gains or losses and assumption changes on the TPL are recognized in expense over the average expected remaining service life of all active and inactive members of the System. As of the measurement date, this recognition period was 5.63 years.

The following tables summarize the current balances of deferred outflows and deferred inflows of resources along with the net recognition over the next five years.

Table IV-1A		
Schedule of Collective Deferred Inflows and Outflows of Resources		
State		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 412,622,951	\$ 197,745,433
Changes in assumptions	2,316,173,780	4,770,886,396
Net differences between projected and actual earnings on pension plan investments	67,038,676	0
Total	<u>\$ 2,795,835,407</u>	<u>\$ 4,968,631,829</u>
Amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:		
Measurement year ended June 30:		
2019	\$ 70,525,730	
2020	(165,875,932)	
2021	(920,720,911)	
2022	(864,406,591)	
2023	(292,318,718)	
Thereafter	\$ 0	

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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

Table IV-1B		
Schedule of Collective Deferred Inflows and Outflows of Resources		
Local Employers		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 375,481,735	\$ 101,525,444
Changes in assumptions	3,244,503,709	6,295,655,568
Net differences between projected and actual earnings on pension plan investments	0	184,688,356
Total	<u>\$ 3,619,985,444</u>	<u>\$ 6,581,869,368</u>
Amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:		
Measurement year ended June 30:		
2019	\$ 136,655,270	
2020	(189,201,153)	
2021	(1,356,725,928)	
2022	(1,176,031,246)	
2023	(376,580,867)	
Thereafter	\$ 0	

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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

Table IV-1C		
Schedule of Collective Deferred Inflows and Outflows of Resources		
Total		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 788,104,686	\$ 299,270,877
Changes in assumptions	5,560,677,489	11,066,541,964
Net differences between projected and actual earnings on pension plan investments	67,038,676	184,688,356
Total	<u>\$ 6,415,820,851</u>	<u>\$ 11,550,501,197</u>
Amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:		
Measurement year ended June 30:		
2019	\$ 207,181,000	
2020	(355,077,085)	
2021	(2,277,446,839)	
2022	(2,040,437,837)	
2023	(668,899,585)	
Thereafter	\$ 0	

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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

**Table IV-2A
Detailed Schedule of Collective Deferred Inflows and Outflows of Resources
State**

Recognition of differences between expected and actual experience

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year							
			2018	2019	2020	2021	2022	2023	Thereafter	
2018	5.63	\$ (240,455,030)	\$ (42,709,597)	\$ (42,709,597)	\$ (42,709,597)	\$ (42,709,597)	\$ (42,709,597)	\$ (26,907,045)	\$	0
2017	4.48	111,967,305	24,992,702	24,992,702	24,992,702	24,992,702	11,996,497	0	0	0
2016	3.57	284,524,643	79,698,780	79,698,780	79,698,780	45,428,303	0	0	0	0
2015	2.72	191,068,117	70,245,632	70,245,632	50,576,853	0	0	0	0	0
2014	2.44	0	0	0	0	0	0	0	0	0
Total		\$ 347,105,035	\$ 132,227,517	\$ 132,227,517	\$ 112,558,738	\$ 27,711,408	\$ (30,713,100)	\$ (26,907,045)	\$	0

Recognition of changes in assumptions

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year							
			2018	2019	2020	2021	2022	2023	Thereafter	
2018	5.63	\$ (2,371,853,533)	\$ (421,288,372)	\$ (421,288,372)	\$ (421,288,372)	\$ (421,288,372)	\$ (421,288,372)	\$ (265,411,673)	\$	0
2017	4.48	(3,630,758,372)	(810,437,137)	(810,437,137)	(810,437,137)	(810,437,137)	(389,009,824)	0	0	0
2016	3.57	2,322,213,094	650,479,859	650,479,859	650,479,859	370,773,517	0	0	0	0
2015	2.72	833,307,237	306,362,955	306,362,955	220,581,327	0	0	0	0	0
2014	2.44	199,090,889	81,594,626	81,594,626	35,901,637	0	0	0	0	0
Total		\$ (2,648,000,685)	\$ (193,288,069)	\$ (193,288,069)	\$ (324,762,686)	\$ (860,951,992)	\$ (810,298,196)	\$ (265,411,673)	\$	0

Recognition of net differences between projected and actual earnings on pension plan investments

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year								
			2018	2019	2020	2021	2022	2023	Thereafter		
2018	5.00	\$ (116,976,471)	\$ (23,395,294)	\$ (23,395,294)	\$ (23,395,294)	\$ (23,395,294)	\$ (23,395,295)	\$	0	\$	0
2017	4.00	(256,340,138)	(64,085,035)	(64,085,035)	(64,085,035)	(64,085,033)	0	0	0	0	0
2016	3.00	401,425,039	133,808,347	133,808,347	133,808,345	0	0	0	0	0	0
2015	2.00	170,516,529	85,258,265	85,258,264	0	0	0	0	0	0	0
2014	1.00	(152,714,565)	(152,714,565)	0	0	0	0	0	0	0	0
Total		\$ 45,910,394	\$ (21,128,282)	\$ 131,586,282	\$ 46,328,016	\$ (87,480,327)	\$ (23,395,295)	\$	0	\$	0

Grand Total		\$ (2,254,985,256)	\$ (82,188,834)	\$ 70,525,730	\$ (165,875,932)	\$ (920,720,911)	\$ (864,406,591)	\$ (292,318,718)	\$	0
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* As of the beginning of the measurement year

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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

**Table IV-2B
Detailed Schedule of Collective Deferred Inflows and Outflows of Resources
Local Employers**

Recognition of differences between expected and actual experience

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year							
			2018	2019	2020	2021	2022	2023	Thereafter	
2018	5.63	\$ (123,453,186)	\$ (21,927,742)	\$ (21,927,742)	\$ (21,927,742)	\$ (21,927,742)	\$ (21,927,742)	\$ (21,927,742)	\$ (13,814,476)	\$ 0
2017	4.48	138,962,882	31,018,501	31,018,501	31,018,501	31,018,501	14,888,878	0	0	0
2016	3.57	100,552,416	28,165,943	28,165,943	28,165,943	16,054,587	0	0	0	0
2015	2.72	308,610,697	113,459,816	113,459,816	81,691,065	0	0	0	0	0
2014	2.44	0	0	0	0	0	0	0	0	0
Total		\$ 424,672,809	\$ 150,716,518	\$ 150,716,518	\$ 118,947,767	\$ 25,145,346	\$ (7,038,864)	\$ (13,814,476)	\$ 0	\$ 0

Recognition of changes in assumptions

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year							
			2018	2019	2020	2021	2022	2023	Thereafter	
2018	5.63	\$ (3,241,864,721)	\$ (575,819,666)	\$ (575,819,666)	\$ (575,819,666)	\$ (575,819,666)	\$ (575,819,666)	\$ (575,819,666)	\$ (362,766,391)	\$ 0
2017	4.48	(4,672,602,040)	(1,042,991,527)	(1,042,991,527)	(1,042,991,527)	(1,042,991,527)	(500,635,932)	0	0	0
2016	3.57	3,313,398,561	928,122,846	928,122,846	928,122,846	529,030,023	0	0	0	0
2015	2.72	1,112,328,477	408,944,294	408,944,294	294,439,889	0	0	0	0	0
2014	2.44	264,068,681	108,224,870	108,224,870	47,618,941	0	0	0	0	0
Total		\$ (3,224,671,042)	\$ (173,519,183)	\$ (173,519,183)	\$ (348,629,517)	\$ (1,089,781,170)	\$ (1,076,455,598)	\$ (362,766,391)	\$ 0	\$ 0

Recognition of net differences between projected and actual earnings on pension plan investments

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year							
			2018	2019	2020	2021	2022	2023	Thereafter	
2018	5.00	\$ (462,683,928)	\$ (92,536,786)	\$ (92,536,786)	\$ (92,536,786)	\$ (92,536,786)	\$ (92,536,784)	\$ 0	\$ 0	\$ 0
2017	4.00	(798,213,278)	(199,553,320)	(199,553,320)	(199,553,320)	(199,553,318)	0	0	0	0
2016	3.00	997,712,105	332,570,701	332,570,701	332,570,703	0	0	0	0	0
2015	2.00	237,954,678	118,977,338	118,977,340	0	0	0	0	0	0
2014	1.00	(278,943,318)	(278,943,318)	0	0	0	0	0	0	0
Total		\$ (304,173,741)	\$ (119,485,385)	\$ 159,457,935	\$ 40,480,597	\$ (292,090,104)	\$ (92,536,784)	\$ 0	\$ 0	\$ 0

Grand Total		\$ (3,104,171,974)	\$ (142,288,050)	\$ 136,655,270	\$ (189,201,153)	\$ (1,356,725,928)	\$ (1,176,031,246)	\$ (376,580,867)	\$ 0	\$ 0
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* As of the beginning of the measurement year

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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

**Table IV-2C
Detailed Schedule of Collective Deferred Inflows and Outflows of Resources
Total**

Recognition of differences between expected and actual experience

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year							
			2018	2019	2020	2021	2022	2023	Thereafter	
2018	5.63	\$ (363,908,216) \$	(64,637,339) \$	(64,637,339) \$	(64,637,339) \$	(64,637,339) \$	(64,637,339) \$	(40,721,521) \$	0	
2017	4.48	250,930,187	56,011,203	56,011,203	56,011,203	56,011,203	26,885,375	0	0	
2016	3.57	385,077,059	107,864,723	107,864,723	107,864,723	61,482,890	0	0	0	
2015	2.72	499,678,814	183,705,448	183,705,448	132,267,918	0	0	0	0	
2014	2.44	0	0	0	0	0	0	0	0	
Total		\$ 771,777,844 \$	282,944,035 \$	282,944,035 \$	231,506,505 \$	52,856,754 \$	(37,751,964) \$	(40,721,521) \$	0	

Recognition of changes in assumptions

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year							
			2018	2019	2020	2021	2022	2023	Thereafter	
2018	5.63	\$ (5,613,718,254) \$	(997,108,038) \$	(997,108,038) \$	(997,108,038) \$	(997,108,038) \$	(997,108,038) \$	(628,178,064) \$	0	
2017	4.48	(8,303,360,412)	(1,853,428,664)	(1,853,428,664)	(1,853,428,664)	(1,853,428,664)	(889,645,756)	0	0	
2016	3.57	5,635,611,655	1,578,602,705	1,578,602,705	1,578,602,705	899,803,540	0	0	0	
2015	2.72	1,945,635,714	715,307,249	715,307,249	515,021,216	0	0	0	0	
2014	2.44	463,159,570	189,819,496	189,819,496	83,520,578	0	0	0	0	
Total		\$ (5,872,671,727) \$	(366,807,252) \$	(366,807,252) \$	(673,392,203) \$	(1,950,733,162) \$	(1,886,753,794) \$	(628,178,064) \$	0	

Recognition of net differences between projected and actual earnings on pension plan investments

From Measurement Year Ending	Remaining Recognition Period	Remaining Deferred (Inflows) and Outflows*	Recognition Year							
			2018	2019	2020	2021	2022	2023	Thereafter	
2018	5.00	\$ (579,660,399) \$	(115,932,080) \$	(115,932,080) \$	(115,932,080) \$	(115,932,080) \$	(115,932,079) \$	0 \$	0	
2017	4.00	(1,054,553,416)	(263,638,355)	(263,638,355)	(263,638,355)	(263,638,351)	0	0	0	
2016	3.00	1,399,137,144	466,379,048	466,379,048	466,379,048	0	0	0	0	
2015	2.00	408,471,207	204,235,603	204,235,604	0	0	0	0	0	
2014	1.00	(431,657,883)	(431,657,883)	0	0	0	0	0	0	
Total		\$ (258,263,347) \$	(140,613,667) \$	291,044,217 \$	86,808,613 \$	(379,570,431) \$	(115,932,079) \$	0 \$	0	

Grand Total		\$ (5,359,157,230) \$	(224,476,884) \$	207,181,000 \$	(355,077,085) \$	(2,277,446,839) \$	(2,040,437,837) \$	(668,899,585) \$	0
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* As of the beginning of the measurement year

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
GASB 68 REPORTING FOR JUNE 30, 2018 MEASUREMENT DATE**

SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

The annual pension expense recognized by the State and Local employers can be calculated two different ways. First, it is the change in the amounts reported on the Statement of Net Position that relate to PERS and are not attributable to employer contributions. That is, it is the change in NPL plus the changes in deferred outflows and inflows plus employer contributions.

Alternatively, annual pension expense can be calculated by its individual components. While GASB does not require or suggest the organization of the individual components shown in the table below, we believe it helps to understand the level and volatility of pension expense.

First, there are components referred to as operating expenses. These are items directly attributable to the operation of the plan during the measurement year. Service cost less employee contributions represents the increase in employer-provided benefits attributable to the year, and administrative expenses are the cost of operating PERS for the year.

Second, there are the financing expenses: the interest on the Total Pension Liability less the expected return on assets.

The final category is changes. This category will drive most of the volatility in pension expense from year to year. It includes any changes in benefits made during the year and the recognized amounts due to assumption changes, gains or losses on the TPL, and investment gains or losses.

The following table shows the development of pension expense for the State and Local employers through both of these methodologies.

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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

Table IV-3A Calculation of Collective Pension Expense State		
Measurement Year Ending	2018	2017
Change in Net Pension Liability	\$ (1,941,324,704)	\$ (3,745,062,908)
Change in Deferred Outflows	1,309,222,743	1,399,106,734
Change in Deferred Inflows	1,337,873,457	3,630,758,372
Employer Contributions*	685,954,490	539,538,390
Other - NCGIPF adjustment	<u>0</u>	<u>0</u>
Subtotal	\$ 1,391,725,986	\$ 1,824,340,588
Employer Contribution - delayed enrollments**	205,300	140,761
Employer Contribution - delayed appropriations**	44,183	30,408
Employer Contribution - retroactive**	0	64,946
Employer Contribution - additional**	<u>0</u>	<u>0</u>
Total Pension Expense	\$ 1,391,975,469	\$ 1,824,576,703
Total Pension Expense as % of Payroll	32.09%	41.76%
Operating Expenses		
Service cost	\$ 626,034,754	\$ 779,633,287
Employee contributions	(320,487,632)	(331,469,748)
Administrative expenses	<u>6,584,293</u>	<u>6,134,333</u>
Total	\$ 312,131,415	\$ 454,297,872
Financing Expenses		
Interest cost	\$ 1,615,364,543	\$ 1,442,517,068
Expected return on assets	<u>(453,331,655)</u>	<u>(477,442,668)</u>
Total	\$ 1,162,032,888	\$ 965,074,400
Changes		
Benefit changes	\$ 0	\$ 0
Recognition of assumption changes	(193,288,069)	228,000,303
Recognition of liability gains and losses	132,227,517	174,937,114
Recognition of investment gains and losses	<u>(21,128,282)</u>	<u>2,267,014</u>
Total	\$ (82,188,834)	\$ 405,204,431
Total Pension Expense	\$ 1,391,975,469	\$ 1,824,576,703

* Includes appropriations and lottery revenue

** Pension expense related to specific liabilities of individual employers

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

Table IV-3B Calculation of Collective Pension Expense Local Employers		
Measurement Year Ending	2018	2017
Change in Net Pension Liability	\$ (3,588,900,049)	\$ (6,338,730,171)
Change in Deferred Outflows	1,776,446,457	2,418,772,884
Change in Deferred Inflows	1,909,267,328	4,672,602,040
Employer Contributions	994,676,919	926,393,189
Other - NCGIPF adjustment	<u>0</u>	<u>(7,797)</u>
Subtotal	\$ 1,091,490,655	\$ 1,679,030,145
Employer Contribution - delayed enrollments*	726,311	890,013
Employer Contribution - delayed appropriations*	2,643,784	3,194,204
Employer Contribution - retroactive*	4,818,841	11,165,575
Employer Contribution - additional*	<u>28,566</u>	<u>25,676</u>
Total Pension Expense	\$ 1,099,708,157	\$ 1,694,305,613
Total Pension Expense as % of Payroll	15.66%	24.46%
Operating Expenses		
Service cost	\$ 929,389,291	\$ 1,085,764,932
Employee contributions	(533,691,158)	(516,482,389)
Administrative expenses	<u>14,783,857</u>	<u>13,514,382</u>
Total	\$ 410,481,990	\$ 582,796,925
Financing Expenses		
Interest cost	\$ 2,234,285,722	\$ 1,970,271,944
Expected return on assets	<u>(1,402,771,505)</u>	<u>(1,406,759,398)</u>
Total	\$ 831,514,217	\$ 563,512,546
Changes		
Benefit changes	\$ 0	\$ 0
Recognition of assumption changes	(173,519,183)	402,300,483
Recognition of liability gains and losses	150,716,518	172,644,260
Recognition of investment gains and losses	<u>(119,485,385)</u>	<u>(26,948,601)</u>
Total	\$ (142,288,050)	\$ 547,996,142
Total Pension Expense	\$ 1,099,708,157	\$ 1,694,305,613

* Pension expense related to specific liabilities of individual employers

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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SECTION IV – COLLECTIVE EMPLOYER REPORTING AMOUNTS

Table IV-3C Calculation of Collective Pension Expense Total		
Measurement Year Ending	2018	2017
Change in Net Pension Liability	\$ (5,530,224,753)	\$ (10,083,793,079)
Change in Deferred Outflows	3,085,669,200	3,817,879,618
Change in Deferred Inflows	3,247,140,785	8,303,360,412
Employer Contributions*	1,680,631,409	1,465,931,579
Other - NCGIPF adjustment	0	(7,797)
Subtotal	\$ 2,483,216,641	\$ 3,503,370,733
Employer Contribution - delayed enrollments**	931,611	1,030,774
Employer Contribution - delayed appropriations**	2,687,967	3,224,612
Employer Contribution - retroactive**	4,818,841	11,230,521
Employer Contribution - additional**	28,566	25,676
Total Pension Expense	\$ 2,491,683,626	\$ 3,518,882,316
Total Pension Expense as % of Payroll	21.93%	31.15%
Operating Expenses		
Service cost	\$ 1,555,424,045	\$ 1,865,398,219
Employee contributions	(854,178,790)	(847,952,137)
Administrative expenses	21,368,150	19,648,715
Total	\$ 722,613,405	\$ 1,037,094,797
Financing Expenses		
Interest cost	\$ 3,849,650,265	\$ 3,412,789,012
Expected return on assets	(1,856,103,160)	(1,884,202,066)
Total	\$ 1,993,547,105	\$ 1,528,586,946
Changes		
Benefit changes	\$ 0	\$ 0
Recognition of assumption changes	(366,807,252)	630,300,786
Recognition of liability gains and losses	282,944,035	347,581,374
Recognition of investment gains and losses	(140,613,667)	(24,681,587)
Total	\$ (224,476,884)	\$ 953,200,573
Total Pension Expense	\$ 2,491,683,626	\$ 3,518,882,316

* Includes State and Local employer appropriations and lottery revenue

** Pension expense related to specific liabilities of individual employers

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX A – MEMBERSHIP INFORMATION

	Plan Membership			
	July 1, 2017			July 1, 2016
	State	Local Employers	Total	Total
Contributing Actives	68,578	148,757	217,335	217,579
Non-Contributing Actives	9,260	28,185	37,445	37,106
Terminated Vested	176	413	589	650
Inactive Receiving Benefits*	57,262	117,642	174,904	170,124
Total	135,276	294,997	430,273	425,459
Annual Compensation for Contributing Actives	\$ 4,338,076,575	\$ 7,022,568,096	\$ 11,360,644,671	\$ 11,296,345,312
Annual Retirement Allowances for Those Receiving Benefits	\$ 1,542,787,197	\$ 2,069,390,586	\$ 3,612,177,783	\$ 3,450,783,731

* QDRO recipients are excluded from the counts for both years.

The July 1, 2017 membership information shown in the table above is based on Cheiron's processed data and may not match the prior actuary's report. The headcounts reflect all records for multiple members. Active records represent 253,092 distinct members, including 215,694 contributing members, and inactive records represent 174,457 distinct members.

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- | | |
|--|--|
| 1. Investment Rate of Return for determining Actuarially Determined Contributions | <ul style="list-style-type: none"> • July 1, 2017 valuation: 7.50% per annum, compounded annually. • July 1, 2018 valuation: 7.50% per annum, compounded annually. • July 1, 2019 valuation: 7.30% per annum, compounded annually. • July 1, 2020 valuation: 7.30% per annum, compounded annually. • July 1, 2021 and later valuations: 7.00% per annum, compounded annually. |
| 2. Long-Term Expected Rate of Return | 7.00% per annum, compounded annually. |
| 3. Interest Crediting Rate on Accumulated Deductions | 7.50% per annum, compounded annually. |
| 4. Member Annuity Conversion | Valuation mortality and interest crediting rate are assumed to be the basis for determining the member annuity in future years. |
| 5. GASB 67 Effective Discount Rate | <ul style="list-style-type: none"> • June 30, 2017: 5.00% per annum, compounded annually. • June 30, 2018: 5.66% per annum, compounded annually. |
| 6. Administrative Expenses | For State, 0.38% of the expected benefit payments for the year.
For Local employers, 0.67% of the expected benefit payments for the year. |
| 7. Cost-of-Living Adjustments (COLAs) | No future COLAs are assumed. Previously granted COLAs are included in the data. |
| 8. Salary Increases | Salary increases vary by age and time period. Representative salary increase rates are shown below. |

Age	Period Ending June 30, 2026	Ultimate Period
20	4.15%	5.15%
25	3.90	4.90
30	3.65	4.65
35	3.40	4.40
40	3.15	4.15
45	2.90	3.90
50	2.65	3.65
55	2.40	3.40
60	2.15	3.15
65	1.65	2.65
69	1.65	2.65

Salary increases are assumed to occur on July 1.

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

9. 401(a)(17) Pay Limit \$270,000 in 2017 increasing 3.00% per annum, compounded annually.

10. Social Security Wage Base \$127,200 in 2017 increasing 4.00% per annum, compounded annually.

11. Termination Representative termination rates are as follows:

Age	First Year of Service		Second Year of Service		Third Year of Service	
	State	Local	State	Local	State	Local
20	28.90%	40.19%	13.53%	15.12%	9.52%	12.19%
25	36.12	40.19	13.53	15.12	9.52	12.19
30	36.12	38.84	13.53	14.67	9.52	13.32
35	26.14	33.51	10.83	11.74	7.99	10.77
40	21.66	32.05	8.86	10.52	6.37	10.66
45	20.41	31.01	8.26	10.08	5.79	10.36
50	20.41	28.39	7.65	9.58	5.21	9.57
55	20.41	27.96	7.65	9.40	5.21	9.08
60	20.41	22.37	7.65	9.40	5.21	6.84

Age	Ultimate Rates			
	3+ Years of Service Refund		10+ Years of Service Deferred Annuity	
	State	Local	State	Local
20	4.48%	6.31%	0.00%	0.00%
25	4.69	6.31	0.00	0.00
30	3.82	6.11	0.00	0.03
35	2.86	3.99	0.05	0.03
40	1.80	2.91	0.05	0.05
45	1.22	2.46	0.24	0.16
50	0.90	1.94	1.10	0.64
55	0.88	1.60	1.43	0.77
60	0.88	1.52	0.90	0.77

Both the refund and the deferred annuity ultimate termination rates apply until the attainment of retirement eligibility, after which no termination is assumed.

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

12. Disability

Representative disability rates are as follows:

Age	Ordinary		Accidental	
	State	Local	State	Local
20	0.005%	0.000%	0.001%	0.001%
25	0.006	0.000	0.001	0.002
30	0.097	0.060	0.004	0.004
35	0.216	0.189	0.011	0.005
40	0.304	0.269	0.020	0.012
45	0.410	0.363	0.023	0.017
50	0.462	0.434	0.035	0.021
55	0.559	0.587	0.047	0.026
60	0.987	0.759	0.041	0.030
65	1.190	0.932	0.061	0.027
69	1.417	1.110	0.062	0.027

Accidental disability rates apply at all ages.

Ordinary disability rates apply upon attainment of 10 years of service and continue through the ultimate retirement age.

Members are assumed to receive the greater of the applicable disability benefit or the early or service retirement benefit, depending on eligibility.

Tier 4 and Tier 5 Members are not eligible for the Ordinary or Accidental Disability benefits but the disability rates still apply. Such members terminating under the disability decrement are assumed to separate from service and elect a Deferred Retirement benefit.

13. Mortality

Pre-Retirement Ordinary Mortality: RP-2000 Employee Mortality Tables. For State, the tables are set back four years for males and females. For Local employers, the tables are set back two years for males and seven years for females. The tables are projected on a generational basis from the base year of 2013 using the Conduent Modified 2014 Projection Scale.

Pre-Retirement Accidental Mortality: 0.001% at all ages. No mortality improvement is assumed.

Post-Retirement Healthy Mortality: RP-2000 Combined Healthy Mortality Tables, set back one year for males and females, projected on a generational basis using Projection Scale AA from the base year of 2012 to 2013 and the Conduent Modified 2014 Projection Scale thereafter.

Disabled Mortality: RP-2000 Disabled Mortality Tables, set back three years for males and set forward one year for females. No mortality improvement is assumed.

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

14. Retirement

Representative retirement rates are as follows:

Age	Not Eligible for Unreduced Retirement		Eligible for Unreduced Retirement Benefit	
	State	Local	State	Local
45	0.24%	0.16%	N/A	N/A
50	1.10	0.64	N/A	N/A
55	1.43	0.77	17.50%	11.70%
56	1.43	0.77	14.00	11.70
57	1.43	0.77	13.00	11.70
58	0.90	0.77	13.00	11.70
59	0.90	0.77	19.00	21.00
60	0.90	0.77	9.00	7.80
61	0.90	0.77	9.00	8.40
62	0.90	0.77	14.58	13.44
63	1.50	0.90	11.34	10.50
64	1.50	0.90	12.15	10.50
65	N/A	N/A	16.20	16.54
66	N/A	N/A	17.00	15.75
67	N/A	N/A	15.00	13.65
68	N/A	N/A	15.00	11.55
69	N/A	N/A	15.00	11.55
70	N/A	N/A	100.00	100.00

Representative retirement rates for Members of Prosecutors Part (Chapter 366, P.L. 2001) are as follows:

Age	Less than 20 Years of Service		20 Years of Service	21 to 24 Years of Service	25+ Years of Service	
	State	Local			State	Local
40	0.00%	0.00%	2.50%	0.00%	23.10%	19.25%
45	0.00	0.00	2.50	0.00	23.10	19.25
50	0.00	0.00	3.75	0.00	23.10	19.25
55	2.59	3.06	5.00	0.00	26.22	21.85
60	2.63	3.06	5.00	0.00	34.17	28.48
65	2.63	3.06	37.50	0.00	100.00	100.00
70	100.00	100.00	100.00	100.00	100.00	100.00

THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

15. Family Composition Assumptions

For members not currently in receipt, 100% of members are assumed married to spouses of the opposite sex. Males are assumed to be three years older than females.

For purposes of the optional form of payment death benefit for members currently in receipt, beneficiary status is based on the beneficiary allowance reported. If no beneficiary date of birth is provided, the beneficiary is assumed to be the member's spouse of the opposite sex with males assumed to be three years older than females.

No additional dependent children or parents are assumed.

16. Form of Payment

Current active members are assumed to elect the Maximum Option.

17. Data

The reported service and ASF were used for purposes of setting the status of certain non-contributing records.

For non-contributing members, the benefit is based on the reported ASF projected to Service Retirement eligibility with the interest crediting rate.

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

Inactive participants receiving benefits according to the 2016 data but omitted from the 2017 data are assumed to have died without a beneficiary.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

B. Actuarial Methods

The actuarial methods used for determining State and Local employer contributions are described below.

1. Actuarial Cost Method

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

The actuarial liability is calculated as the actuarial present value of the projected benefits linearly allocated to periods prior to the valuation year based on service, not less than the value of the estimated member annuity as of the valuation date and the Accumulated Deductions with interest as of the valuation date provided by the Division of Pensions and Benefits. The unfunded actuarial liability is the actuarial liability on the valuation date less the actuarial value of assets.

In accordance with Chapter 78, P.L. 2011:

- Beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period.
- Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation the amortization period shall decrease by one year).
- Beginning with the July 1, 2029 actuarial valuation, when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

Certain portions of the normal cost and unfunded actuarial liabilities attributable to Local employers are payable by the State and/or over different periods in accordance with the NJ State Statutes.

To the extent that the amortization period remains an open period in future years and depending upon the specific circumstances, it should be noted that in the absence of emerging actuarial gains or contributions made in excess of the actuarially determined contribution, any existing unfunded accrued liability may not be fully amortized in the future.

The non-contributory group life insurance benefit is funded separately through a term cost.

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

2. Asset Valuation Method

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

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

3. Contributions

Prior to FYE 2018, it was assumed the State would make pension contributions on June 30th, 24 months after the associated valuation date. Effective with FYE 2018, Chapter 83, P.L. 2016 requires the State to make pension contributions on a quarterly basis: at least 25 percent by September 30, at least 50 percent by December 31, at least 75 percent by March 31, and at least 100 percent by June 30. As such, contributions are assumed to be made on a quarterly basis with the first contribution 15 months after the associated valuation date.

Local employers' contributions are expected to be paid on April 1st, 21 months after the associated valuation date.

Revenues from the Chapter 98, P.L. 2017 – Lottery Enterprise Contribution Act are assumed to be contributed to the trust on a monthly basis.

Contributions payable in the fiscal year starting on the valuation date are included in the actuarial value of assets as receivable contributions, discounted by the applicable valuation interest rate.

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX C – SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the PERS used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 43, Chapter 15A, and if there is any difference between the description of the plan herein and the actual language in the NJ State Statutes, the NJ State Statutes will govern.

1. Eligibility for Membership

Employees of the State or any county, municipality, school district, or public agency employed on a regular basis in a position covered by Social Security and not required to be a member of any other State or local government retirement system. Certain exceptions apply.

- a) Class B (or Tier 1) Member: Any member hired prior to July 1, 2007.
- b) Class D (or Tier 2) Member: Any member hired on or after July 1, 2007 and before November 2, 2008.
- c) Class E (or Tier 3) Member: Any member hired after November 1, 2008 and before May 22, 2010.
- d) Class F (or Tier 4) Member: Any member hired after May 21, 2010 and before June 28, 2011.
- e) Class G (or Tier 5) Member: Any member hired on or after June 28, 2011.

2. Plan Year

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

3. Years of Service

A year of service for each year an employee is a Member of the Retirement System plus service, if any, covered by a prior service liability. Tier 4 and Tier 5 Members must be scheduled to work at least 35 hours per week for the State or 32 hours per week for a Local employer. Tier 3, 4 and 5 Members must have an annual salary of \$7,500 (indexed for inflation) and other members must have an annual salary of \$1,500.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

4. Compensation

Base salary upon which contributions by a Member to the Annuity Savings Fund were based. Chapter 113, P.L. 1997 provides that Compensation cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code. Chapter 103, P.L. 2007 provides that for a Tier 2, 3, 4 or 5 Member, Compensation cannot exceed the annual maximum wage contribution base for Social Security, pursuant to the Federal Insurance Contribution Act.

5. Final Compensation

The average annual compensation upon which contributions by a Member are made for the three consecutive years of service immediately preceding retirement, or the highest three fiscal years of service, if greater. Chapter 1, P. L. 2010 provides that for a Tier 4 or Tier 5 Member, Final Compensation is the average annual compensation upon which contributions by a Member are made for the five consecutive years of service immediately preceding retirement, or the highest five fiscal years of service, if greater.

6. Final Year Compensation

The compensation upon which contributions by a Member to the Annuity Savings Fund are based in the last year of service.

7. Accumulated Deductions

The sum of all amounts deducted from the compensation of a Member or contributed by the Member or on the Member's behalf without interest.

8. Member Contributions

Each Member contributes a percentage of Compensation. Effective October 1, 2011, Chapter 78, P.L. 2011 set the member contribution rate at 6.5% and causes it to increase by 1/7th of 1 % each July thereafter until it attains an ultimate rate of 7.5% on July 1, 2018.

For members who are eligible to retire under the Prosecutors Part as provided by Chapter 366, P.L. 2001, Chapter 78, P.L. 2011 set the member contribution rate at 10.0%, effective October 1, 2011.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

9. Benefits

- a) **Service Retirement:** For a Tier 1 or Tier 2 Member, age 60. For a Tier 3 or Tier 4 Member, age 62. For a Tier 5 Member, age 65.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal:

- (1) For a Tier 1, 2 or 3 Member, 1/55 of Final Compensation for each Year of Service.
- (2) For a Tier 4 or 5 Member, 1/60 of Final Compensation for each Year of Service.

- b) **Early Retirement:** Prior to eligibility for Service Retirement. For a Tier 1, 2, 3 or 4 Member, 25 Years of Service. For a Tier 5 Member, 30 Years of Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal:

- (1) For a Tier 1 Member, the Service Retirement benefit reduced by 1/4 of one percent for each month the retirement date precedes age 55.
- (2) For a Tier 2 Member, the Service Retirement benefit reduced by 1/12 of one percent for each month the retirement date precedes age 60 through age 55 and by 1/4 of one percent for each month the retirement date precedes age 55.
- (3) For a Tier 3 or 4 Member, the Service Retirement benefit reduced by 1/12 of one percent for each month the retirement date precedes age 62 through age 55 and by 1/4 of one percent for each month the retirement date precedes age 55.
- (4) For a Tier 5 Member, the Service Retirement benefit reduced by 1/4 of one percent for each month the retirement date precedes age 65.

- c) **Veteran Retirement:** Age 55 with 25 Years of Service or Age 60 with 20 Years of Service for a qualified military veteran who retires directly from active service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal the greater of:

- (1) 54.5% of highest 12-month Compensation, or
- (2) For a member who is at least age 55 with 35 Years of Service, 1/55 of highest 12-month Compensation for each Year of Service.

Veterans may receive a Service Retirement benefit if greater.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- d) **Deferred Retirement:** Termination of service prior to eligibility for Service Retirement with 10 Years of Service.

Benefit is either:

- (1) A refund of Accumulated Deductions plus, if the member has completed three years of service, interest accumulated at 2.0% per annum; or
- (2) A deferred life annuity, commencing at age 60 for a Tier 1 or Tier 2 Member, age 62 for a Tier 3 or Tier 4 Member or age 65 for a Tier 5 Member, comprised of a member annuity plus an employer pension which together equal the Service Retirement benefit based on Final Compensation and Years of Service at date of termination.

For Members who die during the deferral period, the benefit is a return of Accumulated Deductions with credited interest.

- e) **Non-Vested Termination:** Termination of service prior to eligibility for Service Retirement and less than 10 Years of Service.

Benefit is a refund of Accumulated Deductions plus, if the member has completed three years of service, interest accumulated at 2.0% per annum.

- f) **Death Benefits**

- (1) **Ordinary Death Before Retirement:** Death of an active contributing Member. Benefit is equal to:

- a. Lump sum payment equal to 150% of Final Year Compensation, also known as the non-contributory group life insurance benefit, plus
- b. Accumulated Deductions with credited interest.

- (2) **Accidental Death Before Retirement:** Death of an active Member resulting from injuries received from an accident during performance of duty and not a result of willful negligence. Benefit is equal to:

- a. Lump sum payment equal to 150% of Final Year Compensation, also known as the non-contributory group life insurance benefit, plus
- b. Spouse life annuity of 50% of Final Year Compensation payable until spouse's death or remarriage. If there is no surviving spouse or upon death or remarriage, a total of 20% (35%, 50%) of Final Year Compensation payable to one (two, three or more) dependent child(ren). If there is no surviving spouse or dependent child(ren), 25% (40%) of Final Year Compensation to one (two) dependent parent(s). If there is no surviving spouse, dependent child(ren) or parent(s), the benefit is a refund of Accumulated Deductions with credited interest.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- (3) Death After Retirement: Death of a retired Member. Benefit is equal to:
- a. Lump sum payment equal to 3/16 of Final Year Compensation for a Member retired under Service, Early, Veteran or Deferred Retirement with 10 Years of Service. For a Member receiving a Disability benefit, lump sum payment of 150% of Final Year Compensation if death occurs prior to age 60 and 3/16 of Final Compensation if death occurs after age 60. This benefit is also known as the non-contributory group life insurance benefit, plus
 - b. Any survivor benefit due under the Member's optional form of payment election. Previously granted COLAs also apply to life annuities.

Members are also eligible for a voluntary, employee-paid life insurance policy, known as the contributory group life insurance policy. This benefit is not paid through the System and is not considered for valuation purposes.

g) **Disability Retirement**

- (1) Ordinary Disability Retirement: 10 years of service and totally and permanently incapacitated from the performance of normal or assigned duties. Only available to Tier 1, 2 and 3 Members.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal:

- a. 1.64% of Final Compensation for each Year of Service; or
- b. 43.6% of Final Compensation.

- (2) Accidental Disability Retirement: 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. Only available to Tier 1, 2 and 3 Members.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal 72.7% of Compensation at the date of injury.

The pension portion of the benefit will be offset for any periodic Workers' Compensation benefits.

Tier 4 and Tier 5 Members are eligible for long-term disability coverage. This benefit is not paid through the System and is not considered for valuation purposes. Both Member and employer contributions to the System continue while on long-term disability, with the policy covering the Member portion. The long-term disability benefit equals 60% of Final Year Compensation and may be offset for other periodic benefits, such as Workers' Compensation, short-term disability or Social Security. The long-term disability benefit may continue through the earlier of age 70 or commencement of a retirement benefit under the System.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

10. **Benefits for Special Employee Groups**

Certain members qualify for enrollment into special employee groups. Such members receive the greater of the special benefits described below or the regular PERS benefit described above. For benefit types not explicitly mentioned, the regular PERS benefit applies.

a) **Law Enforcement Officers (LEOs):**

Members employed in eligible job titles as well as individuals who do not meet the age or medical requirements for entry into the Police and Firemen's Retirement System (PFRS).

(1) **Service and Special Retirement**

Mandatory retirement at age 65. Veterans with less than 20 Years of Service at age 65 must retire upon attainment of 20 Years of Service or age 70, whichever is earlier. Voluntary retirement prior to those ages.

a. **Service Retirement:** Age 55 after 20 Years of LEO Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal 2% of Final Compensation for each Year of LEO Service up to 25 years plus 1% of Final Compensation for each Year of LEO Service over 25 years.

The Member is also eligible for a regular PERS benefit based on any non-LEO service.

b. **Special Retirement:** 25 Years of LEO Service.

Benefit is the Service Retirement benefit plus 5% of Final Compensation with a maximum of 70% of Final Compensation.

(2) **Ordinary Disability Retirement:** 5 Years of LEO Service.

Benefit is the regular PERS Ordinary Disability benefit.

(3) **Death Benefits:**

Benefit is the regular PERS Death benefit except, upon Accidental Disability Retirement, the minimum lump sum payment is \$5,000.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

b) **Legislative Retirement System (LRS):**

Members of the State Legislature. Chapter 92, P.L. 2007 closed LRS to new members enrolled on or after July 1, 2007.

(1) **Special Legislative Retirement:** Age 60.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal 3% of Final Compensation for each Year of Legislative Service with a maximum of two-thirds of Final Compensation.

The Member is also eligible for a regular PERS benefit based on any non-legislative service.

(2) **Deferred Retirement:** Termination of service prior to eligibility for Service or Special Legislative Retirement with 8 Years of Legislative Service.

Benefit is either:

- a. A refund of Accumulated Deductions plus, if the Member has completed three years of service, interest accumulated at 2.0% per annum; or
- b. A deferred life annuity, commencing at age 60, comprised of a member annuity plus an employer pension which together equal the Service or Special Legislative Retirement benefit based on Final Compensation and Years of Service at date of termination.

c) **Prosecutors Part (Chapter 366, P.L. 2001):**

Covers prosecutors as well as members employed in certain other related job titles. Chapter 1, P.L. 2010 closed the Prosecutors Part to new members enrolled on or after May 22, 2010.

(1) **Service and Special Retirement**

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

In addition to the benefits described below, the member is eligible for a regular PERS benefit based on any non-Prosecutors Part service.

- a. **Service Retirement:** For a Prosecutors Part Member enrolled as of January 7, 2002, age 55 or 20 Years of Prosecutors Part Service. For a Prosecutors Part Member enrolled after January 7, 2002, age 55.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal the greater of:

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- i. 2% of Final Year Compensation for each Year of Prosecutors Part Service up to 30 years plus 1% of Final Year Compensation for each Year of Prosecutors Part Service over 30 years.
- ii. 50% of Final Year Compensation for Prosecutors Part Members with 20 or more Years of Prosecutors Part Service.
- iii. 1/60 of Final Year Compensation for each Year of Prosecutors Part Service.

- b. Special Retirement: 25 Years of Prosecutors Part Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together equal 65% of Final Year Compensation plus 1% of Final Year Compensation for each Year of Prosecutors Part Service in excess of 25 years with a maximum of 70% of Final Compensation.

- (2) Deferred Retirement: Termination of service prior to eligibility for Service or Special Retirement with 10 Years of Prosecutors Part Service.

Benefit is either:

- a. A refund of Accumulated Deductions plus, if the Member has completed three years of service, interest accumulated at 2.0% per annum; or
- b. A deferred life annuity, commencing at age 55, comprised of a member annuity plus an employer pension which together equal 2% of Final Year Compensation for each Year of Prosecutors Part Service.

- (3) Death Benefits:

Benefit is the regular PERS Death benefit except, upon Service, Special or Deferred Prosecutors Part Retirement with 10 Years of Prosecutors Part Service, the lump sum payment equals 50% of Final Year Compensation.

- d) Workers Compensation Judges Part (WCJ) (Chapter 259, P.L. 2001):

Member employed in an eligible job title by the Division of Workers' Compensation. Chapter 92, P.L. 2007 closed the Workers Compensation Judges Part to new members enrolled on or after July 1, 2007.

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(1) Service Retirement:

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

- a. Age 70 and 10 Years of WCJ Service; or
Age 65 and 15 Years of WCJ Service; or
Age 60 and 20 Years of WCJ Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension equal to 75% of contractual Compensation at the date of retirement.

- b. Age 65, 5 consecutive Years of WCJ Service and 15 Years of Aggregate PERS Service; or

Age 60, 5 consecutive Years of WCJ Service and 20 Years of Aggregate PERS Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension equal to 50% of contractual Compensation at the date of retirement.

- c. Age 60, 5 consecutive Years of WCJ Service and 15 Years of Aggregate PERS Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension equal to 2% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service up to 25 years plus 1% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service over 25 years.

- d. Age 60.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension equal to 2% of contractual Compensation at the date of retirement for each Year of WCJ Service up to 25 years plus 1% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service over 25 years.

(2) Early Retirement: Prior to eligibility for Service Retirement and 5 consecutive Years of WCJ Service and 25 Years of Aggregate PERS Service.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension equal to 2% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service up to 25 years plus 1% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service over 25 years, actuarially reduced for commencement prior to age 60.

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- (3) Deferred Retirement: Termination of service prior to eligibility for Service Retirement with 5 consecutive Years of WCJ Service and 10 Years of Aggregate PERS Service.

Benefit is either:

- a. A refund of Accumulated Deductions plus, if the Member has completed three years of service, interest accumulated at 2.0% per annum; or
- b. A deferred life annuity, commencing at age 60, comprised of a member annuity plus an employer pension which together equal 2% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service up to 25 years plus 1% of contractual Compensation at the date of retirement for each Year of Aggregate PERS Service over 25 years.

- (4) Death Benefits

- a. Before Retirement: Death of an active WCJ Member. Benefit is equal to:

- i. Lump sum equal to 150% of contractual Compensation at the date of death, plus
- ii. Spousal life annuity of 25% of contractual Compensation at the date of death payable until spouse's remarriage plus 10% (15%) to one (two or more) dependent child(ren). If there is no surviving spouse, or upon death or remarriage, a total of 15% (20%, 30%) of contractual Compensation at the date of death payable to one (two, three or more) dependent child(ren). If there is no surviving spouse or dependent child(ren), 20% (30%) of contractual Compensation at the date of death to one (two) dependent parent(s). If there is no surviving spouse, dependent child(ren) or parent(s), the benefit is a refund of Accumulated Deductions with interest.

- b. After Retirement: Death of a retired WCJ Member. Benefit is equal to:

- i. Lump sum equal to 25% of contractual Compensation at the date of death for a Member retired under Service or Early WCJ Retirement with 10 Years of Aggregate PERS Service. For a Member receiving a Disability benefit, lump sum payment of 150% of contractual Compensation at the date of death if death occurs prior to age 60 and 25% of contractual Compensation at the date of death if death occurs after age 60, plus
- ii. Any survivor benefit due under the Member's optional form of payment election. Previously granted COLAs also apply to life annuities.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

11. Optional Forms of Payment

The member may elect the following forms of payment.

- a) Maximum Option: Single life annuity with a return of the balance of the Accumulated Deductions with credited interest.
- b) Option 1: Single life annuity with a return of the balance of the initial reserve.
- c) Option 2: 100% joint and survivor annuity.
- d) Option 3: 50% joint and survivor annuity.
- e) Option 4: Other percentage joint and survivor annuity.
- f) Option A: 100% pop-up joint and survivor annuity.
- g) Option B: 75% pop-up joint and survivor annuity.
- h) Option C: 50% pop-up joint and survivor annuity.
- i) Option D: 25% pop-up joint and survivor annuity.

12. Cost-of-Living Adjustments

Also known as Pension Adjustments. Provided annually to retirees and survivors after 24 months of retirement prior to July 1, 2011. Chapter 78, P.L. 2011 eliminated future adjustments effective July 1, 2011. Adjustments may be reinstated in the future subject to certain conditions outlined in Chapter 78, P.L. 2011.

13. Changes in Plan Provisions Since Last Valuation

None.

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APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 1 - Projection of the Pension Plan's Fiduciary Net Position
(In Thousands)
Projections Commence June 30, 2018

Year	Projected Beginning Fiduciary Net Position	Projected Member Contributions	Projected Employer Contributions	Projected Lottery Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h) = (a) + (b) + (c) + (d) - (e) - (f) + (g)
1	\$ 28,399,320	\$ 762,802	\$ 1,528,819	\$ 218,105	\$ 4,305,788	\$ 23,660	\$ 1,903,578	\$ 28,483,175
2	28,483,175	729,143	1,605,992	225,245	4,430,275	24,343	1,905,892	28,494,829
3	28,494,829	696,640	1,715,436	228,362	4,560,292	25,060	1,903,447	28,453,362
4	28,453,362	664,197	1,769,952	231,038	4,689,688	25,776	1,896,374	28,299,459
5	28,299,459	631,510	2,139,483	233,729	4,818,511	26,492	1,888,785	28,347,962
6	28,347,962	598,932	2,193,176	236,565	4,942,653	27,184	1,888,168	28,294,967
7	28,294,967	566,543	2,247,137	239,449	5,061,702	27,848	1,880,645	28,139,191
8	28,139,191	534,277	2,300,834	242,366	5,175,075	28,483	1,866,137	27,879,247
9	27,879,247	502,092	2,336,995	245,329	5,282,295	29,084	1,844,190	27,496,474
10	27,496,474	475,281	2,378,958	248,120	5,379,520	29,628	1,814,262	27,003,948
11	27,003,948	449,416	2,420,892	250,046	5,461,012	30,082	1,777,213	26,410,421
12	26,410,421	424,212	2,465,845	252,573	5,530,968	30,470	1,733,613	25,725,226
13	25,725,226	399,302	2,513,730	255,125	5,592,813	30,811	1,683,965	24,953,723
14	24,953,723	375,218	2,524,570	257,702	5,641,879	31,077	1,627,897	24,066,154
15	24,066,154	351,934	2,537,753	260,305	5,679,185	31,273	1,564,201	23,069,890
16	23,069,890	329,377	2,557,964	262,935	5,705,327	31,403	1,493,498	21,976,933
17	21,976,933	307,748	2,545,999	265,590	5,719,072	31,461	1,415,649	20,761,385
18	20,761,385	287,010	2,544,004	268,272	5,719,328	31,443	1,329,964	19,439,864
19	19,439,864	267,497	2,546,801	270,981	5,704,629	31,338	1,237,542	18,026,720
20	18,026,720	248,995	2,552,745	273,717	5,574,562	30,577	1,142,809	16,639,849
21	16,639,849	231,646	2,560,504	276,481	5,529,912	30,306	1,047,043	15,195,304
22	15,195,304	215,399	2,569,746	279,272	5,470,662	29,957	947,816	13,706,917
23	13,706,917	200,066	2,580,293	282,091	5,399,138	29,542	846,006	12,186,693
24	12,186,693	186,348	2,591,788	284,938	5,308,612	29,023	742,702	10,654,834
25	10,654,834	173,795	2,604,882	287,814	5,204,404	28,425	639,132	9,127,628
26	9,127,628	162,336	2,619,226	290,718	5,089,854	27,771	536,310	7,618,593
27	7,618,593	151,673	2,634,694	293,652	4,969,245	27,082	435,023	6,137,308
28	6,137,308	141,351	2,650,935	296,614	4,848,046	26,388	335,728	4,687,503
29	4,687,503	131,651	2,667,783	299,607	4,723,674	25,676	238,782	3,275,975
30	0	0	0	0	4,608,123	25,015	0	0
31	0	0	0	0	4,494,570	24,363	0	0
32	0	0	0	0	4,380,946	23,712	0	0
33	0	0	0	0	4,269,653	23,076	0	0
34	0	0	0	0	4,159,176	22,449	0	0
35	0	0	0	0	4,053,067	21,847	0	0
36	0	0	0	0	3,946,722	21,246	0	0
37	0	0	0	0	3,840,321	20,649	0	0
38	0	0	0	0	3,736,777	20,069	0	0
39	0	0	0	0	3,631,840	19,488	0	0
40	0	0	0	0	3,523,923	18,893	0	0
41	0	0	0	0	3,409,357	18,267	0	0
42	0	0	0	0	3,289,124	17,614	0	0
43	0	0	0	0	3,159,656	16,913	0	0
44	0	0	0	0	3,024,296	16,185	0	0
45	0	0	0	0	2,877,844	15,402	0	0
46	0	0	0	0	2,724,616	14,585	0	0
47	0	0	0	0	2,564,756	13,730	0	0
48	0	0	0	0	2,403,156	12,863	0	0
49	0	0	0	0	2,244,247	12,010	0	0
50	0	0	0	0	2,089,079	11,177	0	0
51	0	0	0	0	1,938,906	10,370	0	0
52	0	0	0	0	1,794,595	9,596	0	0
53	0	0	0	0	1,656,538	8,856	0	0
54	0	0	0	0	1,524,662	8,150	0	0
55	0	0	0	0	1,398,748	7,477	0	0
56	0	0	0	0	1,278,644	6,836	0	0
57	0	0	0	0	1,164,198	6,226	0	0
58	0	0	0	0	1,055,366	5,647	0	0
59	0	0	0	0	952,164	5,097	0	0
60	0	0	0	0	854,655	4,578	0	0

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APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 1 - Projection of the Pension Plan's Fiduciary Net Position
(In Thousands)
Projections Commence June 30, 2018

Year	Projected Beginning Fiduciary Net Position (a)	Projected Member Contributions (b)	Projected Employer Contributions (c)	Projected Lottery Contributions (d)	Projected Benefit Payments (e)	Projected Administrative Expenses (f)	Projected Investment Earnings (g)	Projected Ending Fiduciary Net Position (h) = (a) + (b) + (c) + (d) - (e) - (f) + (g)
61	0	0	0	0	762,919	4,090	0	0
62	0	0	0	0	677,043	3,632	0	0
63	0	0	0	0	597,106	3,206	0	0
64	0	0	0	0	523,153	2,812	0	0
65	0	0	0	0	455,191	2,449	0	0
66	0	0	0	0	393,182	2,117	0	0
67	0	0	0	0	337,035	1,817	0	0
68	0	0	0	0	286,609	1,547	0	0
69	0	0	0	0	241,708	1,306	0	0
70	0	0	0	0	202,085	1,093	0	0
71	0	0	0	0	167,445	907	0	0
72	0	0	0	0	137,458	745	0	0
73	0	0	0	0	111,759	607	0	0
74	0	0	0	0	89,966	489	0	0
75	0	0	0	0	71,681	390	0	0
76	0	0	0	0	56,506	308	0	0
77	0	0	0	0	44,050	240	0	0
78	0	0	0	0	33,938	185	0	0
79	0	0	0	0	25,824	141	0	0
80	0	0	0	0	19,392	106	0	0
81	0	0	0	0	14,359	79	0	0
82	0	0	0	0	10,475	58	0	0
83	0	0	0	0	7,523	41	0	0
84	0	0	0	0	5,316	29	0	0
85	0	0	0	0	3,693	20	0	0
86	0	0	0	0	2,523	14	0	0
87	0	0	0	0	1,695	9	0	0
88	0	0	0	0	1,121	6	0	0
89	0	0	0	0	730	4	0	0
90	0	0	0	0	469	3	0	0
91	0	0	0	0	298	2	0	0
92	0	0	0	0	188	1	0	0
93	0	0	0	0	118	1	0	0
94	0	0	0	0	74	0	0	0
95	0	0	0	0	47	0	0	0
96	0	0	0	0	30	0	0	0
97	0	0	0	0	19	0	0	0
98	0	0	0	0	13	0	0	0
99	0	0	0	0	9	0	0	0
100	0	0	0	0	7	0	0	0
101	0	0	0	0	5	0	0	0
102	0	0	0	0	4	0	0	0
103	0	0	0	0	3	0	0	0
104	0	0	0	0	2	0	0	0
105	0	0	0	0	1	0	0	0
106	0	0	0	0	1	0	0	0
107	0	0	0	0	1	0	0	0
108	0	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0	0

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APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 2 - Actuarial Present Values of Projected Benefit Payments
(In Thousands)

Projections Commence June 30, 2018

* From Table 1 - Projection of the Pension Plan's Fiduciary Net Position, column (a)

** From Table 1 - Projection of the Pension Plan's Fiduciary Net Position, column (e)

Year	Projected Beginning Fiduciary Net Position*	Projected Benefit Payments for current Plan participants**	"Funded" Portion of Benefit Payments (d) = (c) if (b) >= (c)	"Unfunded" Portion of Benefit Payments (e) = (c) - (d)	Present Value of "Funded" Benefit Payments (f) = (d) / (1+7.00%) ^[(a) - .5]	Present Value of "Unfunded" Benefit Payments (g) = (e) / (1+3.87%) ^[(a) - .5]	Present Value of Benefit Payments Using the Single Discount Rate (h) = (c) / (1+5.66%) ^[(a) - .5]
(a)	(b)	(c)	(d) = (c) if (b) >= (c)	(e) = (c) - (d)	(f) = (d) / (1+7.00%) ^[(a) - .5]	(g) = (e) / (1+3.87%) ^[(a) - .5]	(h) = (c) / (1+5.66%) ^[(a) - .5]
1	\$ 28,399,320	\$ 4,305,788	\$ 4,305,788	\$ 0	\$ 4,162,563	\$ 0	\$ 4,188,797
2	28,483,175	4,430,275	4,430,275	0	4,002,718	0	4,078,877
3	28,494,829	4,560,292	4,560,292	0	3,850,643	0	3,973,524
4	28,453,362	4,689,688	4,689,688	0	3,700,844	0	3,867,234
5	28,299,459	4,818,511	4,818,511	0	3,553,741	0	3,760,474
6	28,347,962	4,942,653	4,942,653	0	3,406,821	0	3,650,592
7	28,294,967	5,061,702	5,061,702	0	3,260,634	0	3,538,124
8	28,139,191	5,175,075	5,175,075	0	3,115,576	0	3,423,468
9	27,879,247	5,282,295	5,282,295	0	2,972,080	0	3,307,087
10	27,496,474	5,379,520	5,379,520	0	2,828,770	0	3,187,424
11	27,003,948	5,461,012	5,461,012	0	2,683,759	0	3,062,265
12	26,410,421	5,530,968	5,530,968	0	2,540,316	0	2,935,243
13	25,725,226	5,592,813	5,592,813	0	2,400,673	0	2,808,966
14	24,953,723	5,641,879	5,641,879	0	2,263,303	0	2,681,719
15	24,066,154	5,679,185	5,679,185	0	2,129,223	0	2,554,752
16	23,069,890	5,705,327	5,705,327	0	1,999,088	0	2,428,939
17	21,976,933	5,719,072	5,719,072	0	1,872,808	0	2,304,278
18	20,761,385	5,719,328	5,719,328	0	1,750,366	0	2,180,859
19	19,439,864	5,704,629	5,704,629	0	1,631,652	0	2,058,654
20	18,026,720	5,574,562	5,574,562	0	1,490,140	0	1,903,882
21	16,639,849	5,529,912	5,529,912	0	1,381,500	0	1,787,396
22	15,195,304	5,470,662	5,470,662	0	1,277,287	0	1,673,461
23	13,706,917	5,399,138	5,399,138	0	1,178,120	0	1,563,052
24	12,186,693	5,308,612	5,308,612	0	1,082,586	0	1,454,465
25	10,654,834	5,204,404	5,204,404	0	991,901	0	1,349,481
26	9,127,628	5,089,854	5,089,854	0	906,607	0	1,249,034
27	7,618,593	4,969,245	4,969,245	0	827,219	0	1,154,071
28	6,137,308	4,848,046	4,848,046	0	754,246	0	1,065,571
29	4,687,503	4,723,674	4,687,503	36,171	681,560	12,257	982,582
30	0	4,608,123	0	4,608,123	0	1,503,368	907,165
31	0	4,494,570	0	4,494,570	0	1,411,689	837,382
32	0	4,380,946	0	4,380,946	0	1,324,734	772,461
33	0	4,269,653	0	4,269,653	0	1,242,977	712,483
34	0	4,159,176	0	4,159,176	0	1,165,703	656,845
35	0	4,053,067	0	4,053,067	0	1,093,640	605,776
36	0	3,946,722	0	3,946,722	0	1,025,267	558,262
37	0	3,840,321	0	3,840,321	0	960,456	514,094
38	0	3,736,777	0	3,736,777	0	899,740	473,419
39	0	3,631,840	0	3,631,840	0	841,892	435,460
40	0	3,523,923	0	3,523,923	0	786,441	399,872
41	0	3,409,357	0	3,409,357	0	732,524	366,135
42	0	3,289,124	0	3,289,124	0	680,362	334,289
43	0	3,159,656	0	3,159,656	0	629,230	303,917
44	0	3,024,296	0	3,024,296	0	579,834	275,304
45	0	2,877,844	0	2,877,844	0	531,198	247,930
46	0	2,724,616	0	2,724,616	0	484,177	222,147
47	0	2,564,756	0	2,564,756	0	438,788	197,904
48	0	2,403,156	0	2,403,156	0	395,823	175,494
49	0	2,244,247	0	2,244,247	0	355,876	155,105
50	0	2,089,079	0	2,089,079	0	318,929	136,642
51	0	1,938,906	0	1,938,906	0	284,974	120,021
52	0	1,794,595	0	1,794,595	0	253,936	105,133
53	0	1,656,538	0	1,656,538	0	225,668	91,844
54	0	1,524,662	0	1,524,662	0	199,964	80,001
55	0	1,398,748	0	1,398,748	0	176,615	69,460
56	0	1,278,644	0	1,278,644	0	155,434	60,092
57	0	1,164,198	0	1,164,198	0	136,249	51,781
58	0	1,055,366	0	1,055,366	0	118,911	44,424
59	0	952,164	0	952,164	0	103,285	37,931
60	0	854,655	0	854,655	0	89,254	32,222

**THE PUBLIC EMPLOYEES' RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 2 - Actuarial Present Values of Projected Benefit Payments
(In Thousands)

Projections Commence June 30, 2018

* From Table 1 - Projection of the Pension Plan's Fiduciary Net Position, column (a)

** From Table 1 - Projection of the Pension Plan's Fiduciary Net Position, column (e)

Year	Projected Beginning Fiduciary Net Position*	Projected Benefit Payments for current Plan participants**	"Funded" Portion of Benefit Payments (d) = (c) if (b) >= (c)	"Unfunded" Portion of Benefit Payments (e) = (c) - (d)	Present Value of "Funded" Benefit Payments (f) = (d) / (1+7.00%) ^[(a) - .5]	Present Value of "Unfunded" Benefit Payments (g) = (e) / (1+3.87%) ^[(a) - .5]	Present Value of Benefit Payments Using the Single Discount Rate (h) = (c) / (1+5.66%) ^[(a) - .5]
(a)	(b)	(c)	(d) = (c) if (b) >= (c)	(e) = (c) - (d)	(f) = (d) / (1+7.00%) ^[(a) - .5]	(g) = (e) / (1+3.87%) ^[(a) - .5]	(h) = (c) / (1+5.66%) ^[(a) - .5]
61	0	762,919	0	762,919	0	76,705	27,222
62	0	677,043	0	677,043	0	65,535	22,862
63	0	597,106	0	597,106	0	55,644	19,082
64	0	523,153	0	523,153	0	46,936	15,823
65	0	455,191	0	455,191	0	39,317	13,029
66	0	393,182	0	393,182	0	32,696	10,651
67	0	337,035	0	337,035	0	26,982	8,641
68	0	286,609	0	286,609	0	22,090	6,954
69	0	241,708	0	241,708	0	17,936	5,550
70	0	202,085	0	202,085	0	14,437	4,392
71	0	167,445	0	167,445	0	11,516	3,444
72	0	137,458	0	137,458	0	9,102	2,676
73	0	111,759	0	111,759	0	7,124	2,059
74	0	89,966	0	89,966	0	5,521	1,568
75	0	71,681	0	71,681	0	4,235	1,183
76	0	56,506	0	56,506	0	3,214	882
77	0	44,050	0	44,050	0	2,412	651
78	0	33,938	0	33,938	0	1,789	475
79	0	25,824	0	25,824	0	1,311	342
80	0	19,392	0	19,392	0	948	243
81	0	14,359	0	14,359	0	676	170
82	0	10,475	0	10,475	0	474	118
83	0	7,523	0	7,523	0	328	80
84	0	5,316	0	5,316	0	223	53
85	0	3,693	0	3,693	0	149	35
86	0	2,523	0	2,523	0	98	23
87	0	1,695	0	1,695	0	64	14
88	0	1,121	0	1,121	0	40	9
89	0	730	0	730	0	25	6
90	0	469	0	469	0	16	3
91	0	298	0	298	0	10	2
92	0	188	0	188	0	6	1
93	0	118	0	118	0	4	1
94	0	74	0	74	0	2	0
95	0	47	0	47	0	1	0
96	0	30	0	30	0	1	0
97	0	19	0	19	0	0	0
98	0	13	0	13	0	0	0
99	0	9	0	9	0	0	0
100	0	7	0	7	0	0	0
101	0	5	0	5	0	0	0
102	0	4	0	4	0	0	0
103	0	3	0	3	0	0	0
104	0	2	0	2	0	0	0
105	0	1	0	1	0	0	0
106	0	1	0	1	0	0	0
107	0	1	0	1	0	0	0
108	0	0	0	0	0	0	0
109	0	0	0	0	0	0	0
110	0	0	0	0	0	0	0
111	0	0	0	0	0	0	0
112	0	0	0	0	0	0	0
113	0	0	0	0	0	0	0
114	0	0	0	0	0	0	0
115	0	0	0	0	0	0	0
					\$ 64,696,743	\$ 19,606,767	\$ 84,303,511

APPENDIX E – GLOSSARY OF TERMS

1. Actuarially Determined Contribution

A target or recommended contribution for the reporting period, determined in conformity with Actuarial Standards of Practice based on the most recent measurement available when the contribution for the reporting period was adopted.

2. Actuarial Valuation Date

The date as of which an actuarial valuation is performed. This date may be up to 24 months prior to the measurement date and up to 30 months prior to the employer's reporting date.

3. Deferred Inflow of Resources

An acquisition of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience gains on the Total Pension Liability, assumption changes reducing the Total Pension Liability, or investment gains that are recognized in future reporting periods.

4. Deferred Outflow of Resources

A consumption of net assets by a government employer that is applicable to a future reporting period. In the context of GASB 68, these are experience losses on the Total Pension Liability, assumption changes increasing the Total Pension Liability, or investment losses that are recognized in future reporting periods.

5. Entry Age Actuarial Cost Method

The actuarial cost method required for GASB 68 calculations. Under this method, the actuarial present value of the projected benefits of each individual included in an actuarial valuation is allocated on a level basis over the earnings of the individual between entry age and assumed exit ages. The portion of this actuarial present value allocated to a valuation year is called the Service Cost. The portion of this actuarial present value not provided for at a valuation date by the actuarial present value of future service costs is called the Total Pension Liability.

6. Measurement Date

The date as of which the Total Pension Liability and Plan Fiduciary Net Position are measured. The Total Pension Liability may be projected from the Actuarial Valuation Date to the Measurement Date. The Measurement Date must be the same as the Reporting Date for the plan.

APPENDIX E – GLOSSARY OF TERMS

7. Net Pension Liability

The liability of employers and nonemployer contributing entities for employees for benefits provided through a defined benefit pension plan. It is calculated as the Total Pension Liability less the Plan Fiduciary Net Position.

8. Plan Fiduciary Net Position

The fair or market value of assets.

9. Reporting Date

The last day of the plan or employer's fiscal year.

10. Service Cost

The portion of the actuarial present value of projected benefit payments that is attributed to the current period of employee service in conformity with the requirements of GASB 68. The Service Cost is the normal cost calculated under the entry age actuarial cost method.

11. Total Pension Liability

The portion of the actuarial present value of projected benefit payments that is attributed to past periods of employee service in conformity with the requirements of GASB 68. The Total Pension Liability is the actuarial liability calculated under the entry age actuarial cost method. This measurement generally is not appropriate for estimating the cost to settle the Plan's liabilities.