



Police and Firemen's Retirement System of New Jersey

**GASB 67 Report
as of June 30, 2020**

Produced by Cheiron

March 2021

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**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
GASB 67 REPORTING FOR JUNE 30, 2020 MEASUREMENT DATE**

SECTION I – BOARD SUMMARY

The purpose of this report is to provide accounting and financial disclosure information under Governmental Accounting Standards Board Statement 67 for the Police and Firemen's Retirement System of New Jersey (PFRS, Plan, or System). This information includes:

- Projection of the Total Pension Liability (TPL) from the valuation date to the measurement date,
- Calculation of the Net Pension Liability (NPL) at the discount rate as well as discount rates 1% higher and lower than the discount rate, and
- Changes in the Net Pension Liability.

Highlights

The reporting date for PFRS is June 30, 2020. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2020 and the Total Pension Liability as of the valuation date, July 1, 2019, updated to June 30, 2020. There were two changes in the assumptions. The discount rate used to measure the Total Pension Liability was changed as of the measurement date. In addition, the mortality assumption was updated upon direction from the Division of Pensions and Benefits (DPB). We are not aware of any other significant events that are measurable at this time 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 changes in assumptions.

The following table provides a summary of the key results during this reporting period broken out by State, Local employers and in total for the System.

Table I-1 Summary of Results		
Measurement Date	June 30, 2020	June 30, 2019
<u>State</u>		
Total Pension Liability	\$ 5,717,806,071	\$ 5,682,770,577
Plan Fiduciary Net Position	<u>1,418,796,120</u>	<u>1,481,082,814</u>
Net Pension Liability	\$ 4,299,009,951	\$ 4,201,687,763
<u>Local Employers</u>		
Total Pension Liability	\$ 40,919,980,447	\$ 40,481,531,749
Plan Fiduciary Net Position	<u>25,993,331,725</u>	<u>26,311,338,131</u>
Net Pension Liability	\$ 14,926,648,722	\$ 14,170,193,618
<u>Total</u>		
Total Pension Liability	\$ 46,637,786,518	\$ 46,164,302,326
Plan Fiduciary Net Position	<u>27,412,127,845</u>	<u>27,792,420,945</u>
Net Pension Liability	\$ 19,225,658,673	\$ 18,371,881,381

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SECTION II – CERTIFICATION

The purpose of this report is to provide accounting and financial reporting information under GASB 67 for the Police and Firemen's Retirement System of New Jersey (PFRS). This report is for the use of PFRS, the Division of Pensions and Benefits (DPB) 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 PFRS and estimating the price to settle PFRS'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 projection of the Plan's contributions and projected benefit payments as of June 30, 2020 was based on the recommended demographic assumptions of the July 1, 2013 – June 30, 2018 Experience Study, approved by the Board of Trustees on January 13, 2020. The calculation of the Total Pension Liability as of June 30, 2020 was based on the same demographic assumptions except for the mortality assumption, which was based on the SOA's MP-2020 mortality improvement scale upon direction from the DPB. While we do not find the use of the SOA's Scale MP-2020 unreasonable, it does not reflect the analysis of actual mortality experience from our Experience Study which was the basis for our recommended mortality assumptions, including the mortality improvement scale.

This report was prepared using census data as of the July 1, 2019 valuation date and financial information as of the June 30, 2020 measurement date. Given the uncertainty and lack of credible data regarding the impact that COVID-19 may have had on the System's demographic experience between the measurement date and reporting date, no specific adjustments have been made at this time. Chapter 54, P.L. 2020, amends eligibility for accidental disability and accidental death benefits for PFRS members when related to the contraction of COVID-19 during the Public Health Emergency declared by the Governor in Executive Order 103 of 2020, as extended. We will continue to monitor developments regarding the COVID-19 pandemic and the impact it may have on the System. Actual experience, both demographic and economic, will be reflected in subsequent years as experience emerges.

This report also reflects two other changes to the plan provisions. Chapter 157, P.L. 2019 expanded the definition of regular or assigned duties for purposes of accidental disability retirement to include the World Trade Center (WTC) rescue, recovery, or cleanup operations between September 11, 2001 and October 11, 2011 under certain conditions. For such members who participated in the WTC rescue, recovery, or cleanup operations, the total and permanent disability may occur after retirement on a service retirement or an ordinary disability retirement.

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After reviewing the members who have submitted eligibility registration forms and/or amended benefits requests forms with the DPB, we do not expect this legislation to have a material impact on the benefits payable by the System. Therefore, the impact of Chapter 157, P.L. 2019 will be recognized as part of the demographic experience as members are approved for such benefits.

Chapter 305, P.L. 2019 increased the benefit for a surviving child in the event of ordinary death while in active service. Previously, if there was no surviving spouse, or upon the surviving spouse's death or remarriage, a total of 20% (35%, 50%) of final compensation was payable to one (two, three or more) dependent child(ren). Under Chapter 305, P.L. 2019, if there is no surviving spouse, or upon the surviving spouse's death or remarriage, 50% of final compensation is payable to surviving children in equal shares. This legislation did not impact the Total Pension Liability for this report due to the current demographic assumptions and covered population.

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

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

In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum. The discount rate used to measure the Total Pension Liability is 7.00% as of June 30, 2020 and is described in Section III of the report.

This report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice set out by the Actuarial Standards Board as well as applicable laws and regulations. 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.

This report was prepared for PFRS 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 such other users.



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SECTION III – DETERMINATION OF DISCOUNT RATE

The discount rate used to measure the Total Pension Liability was 6.85% as of June 30, 2019 and 7.00% as of June 30, 2020. As discussed with the Division of Pensions and Benefits, the projection of cash flows used to determine the discount rate as of June 30, 2020 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 are based on the same assumptions used to determine the expected contributions for the System. The demographic assumptions are based on the recommendations of the July 1, 2013 – June 30, 2018 Experience Study as approved by the Board of Trustees on January 13, 2020.

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

- Effective with the July 1, 2019 valuation: 7.30% per annum,
- Effective with the July 1, 2021 valuation: 7.00% per annum.
- 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 78% of its actuarially determined contribution and 100% of its NCGIPF contribution for all years of the projection. The 78% contribution rate is the total State contribution rate expected to be paid in fiscal year ending June 30, 2021 with respect to the actuarially determined contribution for the fiscal year ending June 30, 2021 for all State administered retirement systems.
- Consistent with Chapter 83, P.L. 2016, it is assumed that the State will make pension contributions in equal amounts at the end of each quarter.
- Annual administrative expenses are assumed to be 0.58% and 0.47% of expected pension benefit payments for State and Local employers, respectively.
- In accordance with Chapter 98, P. L. 2017, PFRS receives 1.2% 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 are expected to be received on April 1st, 21 months after the associated valuation date.

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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, 2019, the FNP includes receivable contributions of \$1,105,874,849 (\$963,648,042 for appropriations, \$46,564,731 for NCGIPF, \$86,902,860 for Chapter 19 and \$8,759,216 for ERI).
- For FYE June 30, 2020, the FNP includes receivable contributions of \$1,194,176,430 (\$1,080,307,794 for appropriations, \$36,964,099 for NCGIPF, \$70,224,036 for Chapter 19 and \$6,680,501 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. Municipal bond rates of 3.50% as of June 30, 2019 and 2.21% as of June 30, 2020 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, when applicable. 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 3.50% as of June 30, 2019 and the long-term rate of return of 7.00% and the municipal bond rate of 2.21% as of June 30, 2020, the blended GASB discount rates are 6.85% as of June 30, 2019 and **7.00%** as of June 30, 2020. The assumed discount rates have been determined in accordance with the method prescribed by GASB Statement No. 67. See Appendix D for the determination of the discount rate.

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SECTION IV – PROJECTION OF TOTAL PENSION LIABILITY

The Total Pension Liability at the end of the measurement year, June 30, 2020, is measured as of a valuation date of July 1, 2019 and projected to June 30, 2020. The TPL and service cost were calculated using the Entry Age Normal Cost Method as prescribed by GASB 67. All TPL amounts shown in Tables IV-1A to IV-1C below include liabilities attributable to the NCGIPF. In addition, net employer transfer contributions and net member transfer contributions with accumulated interest have been added to the June 30, 2020 TPL.

During the measurement year there was a change in assumptions. There were no other significant events during the projection period of which we are aware. Because the TPL shown in the prior report was measured as of July 1, 2018 and projected to June 30, 2019, it will not match the amounts measured as of July 1, 2019 that are shown in these exhibits.

The following tables show the projection of the TPL, broken out by State, Local employers and in Total for the System, and at discount rates equal to the rate used for disclosure and plus and minus one percent from the rate used for disclosure.

Table IV-1A			
Projection of Total Pension Liability from Valuation to Measurement Date			
State			
Discount Rate	6.00%	7.00%	8.00%
Total Pension Liability, 7/1/2019			
Actives	\$ 2,070,771,051	\$ 1,772,044,735	\$ 1,528,917,805
Deferred Vested	3,441,221	2,935,795	2,535,189
Retirees	<u>4,180,179,434</u>	<u>3,794,831,241</u>	<u>3,470,337,290</u>
Total	\$ 6,254,391,706	\$ 5,569,811,771	\$ 5,001,790,284
Service Cost	134,619,147	106,978,598	85,865,926
Benefit Payments	(345,035,730)	(345,035,730)	(345,035,730)
Transfer Contributions - Employer	(17,881)	(17,881)	(17,881)
Transfer Contributions - Member	547,759	547,759	547,759
Interest	<u>373,156,020</u>	<u>385,521,554</u>	<u>393,497,365</u>
Total Pension Liability, 6/30/2020	\$ 6,417,661,021	\$ 5,717,806,071	\$ 5,136,647,723

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SECTION IV – PROJECTION OF TOTAL PENSION LIABILITY

Table IV-1B			
Projection of Total Pension Liability from Valuation to Measurement Date			
Local Employers			
Discount Rate	6.00%	7.00%	8.00%
Total Pension Liability, 7/1/2019			
Actives	\$ 16,099,107,210	\$ 13,847,014,716	\$ 12,013,227,017
Deferred Vested	13,878,787	11,644,271	9,890,114
Retirees	<u>28,496,280,169</u>	<u>25,931,248,582</u>	<u>23,765,885,970</u>
Total	\$ 44,609,266,166	\$ 39,789,907,569	\$ 35,789,003,101
Service Cost	948,972,413	752,649,539	602,951,368
Benefit Payments	(2,380,529,988)	(2,380,529,988)	(2,380,529,988)
Transfer Contributions - Employer	80,266	80,266	80,266
Transfer Contributions - Member	1,740,784	1,740,784	1,740,784
Interest	<u>2,663,172,509</u>	<u>2,756,132,277</u>	<u>2,818,038,453</u>
Total Pension Liability, 6/30/2020	\$ 45,842,702,150	\$ 40,919,980,447	\$ 36,831,283,984

Table IV-1C			
Projection of Total Pension Liability from Valuation to Measurement Date			
Total			
Discount Rate	6.00%	7.00%	8.00%
Total Pension Liability, 7/1/2019			
Actives	\$ 18,169,878,261	\$ 15,619,059,451	\$ 13,542,144,822
Deferred Vested	17,320,008	14,580,066	12,425,303
Retirees	<u>32,676,459,603</u>	<u>29,726,079,823</u>	<u>27,236,223,260</u>
Subtotal	\$ 50,863,657,872	\$ 45,359,719,340	\$ 40,790,793,385
Service Cost	1,083,591,560	859,628,137	688,817,294
Benefit Payments	(2,725,565,718)	(2,725,565,718)	(2,725,565,718)
Transfer Contributions - Employer	62,385	62,385	62,385
Transfer Contributions - Member	2,288,543	2,288,543	2,288,543
Interest	<u>3,036,328,529</u>	<u>3,141,653,831</u>	<u>3,211,535,818</u>
Total Pension Liability, 6/30/2020	\$ 52,260,363,171	\$ 46,637,786,518	\$ 41,967,931,707

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SECTION V – NOTE DISCLOSURES

The following tables show the changes in the Total Pension Liability, the Plan Fiduciary Net Position (i.e., fair value of System assets), and the Net Pension Liability during the Measurement Year. There were changes in assumptions including the assumed rates of termination, retirement, mortality, disability, salary increases, and inflation as a result of the July 1, 2013 – June 30 2018 Experience Study. The mortality rates used for the TPL were based on the MP-2020 mortality improvement scale as directed by the DPB. In addition, the discount rate was increased from 6.85% as of June 30, 2019 to 7.00% as of June 30, 2020 in accordance with the method prescribed by GASB Statement No. 67. The impact of these changes is displayed below.

Consistent with prior practice, contributions in the amount of \$101,039 for two employers, Lower Camden County Regional High School District (Employer Number 76200) and the New Jersey Institute of Technology (Employer Number 62400), were shifted from Local employers to State. The Plan Fiduciary Net Position was also adjusted to account for this shift.

Table V-1A Change in Net Pension Liability State			
	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 6/30/2019	\$ 5,682,770,577	\$ 1,481,082,814	\$ 4,201,687,763
Changes for the year:			
Service cost	110,796,017		110,796,017
Interest	385,255,412		385,255,412
Changes of benefits	0		0
Differences between expected and actual experience	(6,336,996)		(6,336,996)
Changes of assumptions	(110,173,087)		(110,173,087)
Contributions - employer (appropriations)		223,147,251	(223,147,251)
Contributions - employer (lottery)		12,180,000	(12,180,000)
Contributions - member		54,985,258	(54,985,258)
Transfers between State and Local Employers	0		0
Transfers from other systems - employer	(17,881)	(17,881)	0
Transfers from other systems - member	547,759	547,759	0
Employer Contribution - delayed enrollments		52,058	(52,058)
Employer Contribution - delayed appropriations		(73,561)	73,561
Employer Contribution - retroactive		0	0
Employer Contribution - additional		0	0
Other - NCGIPF adjustment		0	0
Net investment income		(6,135,015)	6,135,015
Benefit payments	(345,035,730)	(345,035,730)	0
Administrative expense		(1,936,833)	1,936,833
Net changes	35,035,494	(62,286,694)	97,322,188
Balances at 6/30/2020	<u>\$ 5,717,806,071</u>	<u>\$ 1,418,796,120</u>	<u>\$ 4,299,009,951</u>

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Table V-1B Change in Net Pension Liability Local Employers			
	Increase (Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
Balances at 6/30/2019	\$ 40,481,531,749	\$ 26,311,338,131	\$ 14,170,193,618
Changes for the year:			
Service cost	779,629,640		779,629,640
Interest	2,746,268,128		2,746,268,128
Changes of benefits	0		0
Differences between expected and actual experience	73,846,139		73,846,139
Changes of assumptions	(782,586,271)		(782,586,271)
Contributions - employer (appropriations)		1,117,170,854	(1,117,170,854)
Contributions - employer (paid by State on behalf of locals)		154,309,000	(154,309,000)
Contributions - member		361,447,921	(361,447,921)
Transfers between State and Local Employers	0		0
Transfers from other systems - employer	80,266	80,266	0
Transfers from other systems - member	1,740,784	1,740,784	0
Employer Contribution - delayed enrollments		113,646	(113,646)
Employer Contribution - delayed appropriations		677,397	(677,397)
Employer Contribution - retroactive		5,230,213	(5,230,213)
Employer Contribution - additional		997,622	(997,622)
Other - NCGIPF adjustment		0	0
Net investment income		431,678,371	(431,678,371)
Benefit payments	(2,380,529,988)	(2,380,529,988)	0
Administrative expense		(10,922,492)	10,922,492
Net changes	438,448,698	(318,006,406)	756,455,104
Balances at 6/30/2020	<u>\$ 40,919,980,447</u>	<u>\$ 25,993,331,725</u>	<u>\$ 14,926,648,722</u>

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SECTION V – NOTE DISCLOSURES

Table V-1C				
Change in Net Pension Liability				
Total				
	Increase (Decrease)			
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)	
Balances at 6/30/2019	\$ 46,164,302,326	\$ 27,792,420,945	\$ 18,371,881,381	
Changes for the year:				
Service cost	890,425,657		890,425,657	
Interest	3,131,523,540		3,131,523,540	
Changes of benefits	0		0	
Differences between expected and actual experience	67,509,143		67,509,143	
Changes of assumptions	(892,759,358)		(892,759,358)	
Contributions - employer (appropriations)		1,340,318,105	(1,340,318,105)	
Contributions - employer (lottery)		12,180,000	(12,180,000)	
Contributions - employer (paid by State on behalf of locals)		154,309,000	(154,309,000)	
Contributions - member		416,433,179	(416,433,179)	
Transfers between State and Local Employers	0		0	
Transfers from other systems - employer	62,385	62,385	0	
Transfers from other systems - member	2,288,543	2,288,543	0	
Employer Contribution - delayed enrollments		165,704	(165,704)	
Employer Contribution - delayed appropriations		603,836	(603,836)	
Employer Contribution - retroactive		5,230,213	(5,230,213)	
Employer Contribution - additional		997,622	(997,622)	
Other - NCGIPF adjustment		0	0	
Net investment income		425,543,356	(425,543,356)	
Benefit payments	(2,725,565,718)	(2,725,565,718)	0	
Administrative expense		(12,859,325)	12,859,325	
Net changes	<u>473,484,192</u>	<u>(380,293,100)</u>	<u>853,777,292</u>	
Balances at 6/30/2020	<u>\$ 46,637,786,518</u>	<u>\$ 27,412,127,845</u>	<u>\$ 19,225,658,673</u>	

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Changes in the discount rate affect the measurement of the TPL. Lower discount rates produce a higher TPL and higher discount rates produce a lower TPL. Because the discount rate does not affect the measurement of assets, the percentage change in the NPL can be very significant for a relatively small change in the discount rate. The following table shows the sensitivity of the NPL to the discount rate.

Table V-2 Sensitivity of Net Pension Liability to Changes in Discount Rate			
	1% Decrease 6.00%	Discount Rate 7.00%	1% Increase 8.00%
<u>State</u>			
Total Pension Liability	\$ 6,417,661,021	\$ 5,717,806,071	\$ 5,136,647,723
Plan Fiduciary Net Position	<u>1,418,796,120</u>	<u>1,418,796,120</u>	<u>1,418,796,120</u>
Net Pension Liability	<u>\$ 4,998,864,901</u>	<u>\$ 4,299,009,951</u>	<u>\$ 3,717,851,603</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	22.1%	24.8%	27.6%
<u>Local Employers</u>			
Total Pension Liability	\$ 45,842,702,150	\$ 40,919,980,447	\$ 36,831,283,984
Plan Fiduciary Net Position	<u>25,993,331,725</u>	<u>25,993,331,725</u>	<u>25,993,331,725</u>
Net Pension Liability	<u>\$ 19,849,370,425</u>	<u>\$ 14,926,648,722</u>	<u>\$ 10,837,952,259</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	56.7%	63.5%	70.6%
<u>Total</u>			
Total Pension Liability	\$ 52,260,363,171	\$ 46,637,786,518	\$ 41,967,931,707
Plan Fiduciary Net Position	<u>27,412,127,845</u>	<u>27,412,127,845</u>	<u>27,412,127,845</u>
Net Pension Liability	<u>\$ 24,848,235,326</u>	<u>\$ 19,225,658,673</u>	<u>\$ 14,555,803,862</u>
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	52.5%	58.8%	65.3%

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SECTION VI – REQUIRED SUPPLEMENTARY INFORMATION

The schedules below show the changes in NPL and related ratios required by GASB for the current and prior year.

Table VI-1A		
Schedule of Changes in Net Pension Liability and Related Ratios		
State		
	FYE 2020	FYE 2019
<u>Total Pension Liability</u>		
Service cost	\$ 110,796,017	\$ 117,814,841
Interest (includes interest on service cost)	385,255,412	377,062,504
Changes of benefit terms	0	0
Differences between expected and actual experience	(6,336,996)	(70,860,849)
Changes of assumptions	(110,173,087)	(246,980,568)
Transfers between State and Local Employers	0	0
Transfers from other systems - employer	(17,881)	137,176
Transfers from other systems - member	547,759	898,350
Benefit payments, including refunds of member contributions	(345,035,730)	(332,807,382)
Net change in total pension liability	\$ 35,035,494	\$ (154,735,928)
Total pension liability - beginning	5,682,770,577	5,837,506,505
Total pension liability - ending	\$ 5,717,806,071	\$ 5,682,770,577
<u>Plan fiduciary net position</u>		
Contributions - employer	\$ 223,147,251	\$ 183,164,948
Contributions - employer (lottery)	12,180,000	13,260,000
Contributions - member	54,985,258	52,202,489
Transfers from other systems - employer	(17,881)	137,176
Transfers from other systems - member	547,759	898,350
Employer Contribution - delayed enrollment	52,058	26,634
Employer Contribution - delayed appropriations	(73,561)	10,520
Employer Contribution - retroactive	0	(292,238)
Employer Contribution - additional	0	0
Other - NCGIPF adjustment	0	0
Net investment income	(6,135,015)	57,848,804
Benefit payments, including refunds of member contributions	(345,035,730)	(332,807,382)
Administrative expense	(1,936,833)	(1,568,716)
Net change in plan fiduciary net position	\$ (62,286,694)	\$ (27,119,415)
Plan fiduciary net position - beginning	1,481,082,814	1,508,202,229
Plan fiduciary net position - ending	\$ 1,418,796,120	\$ 1,481,082,814
Net pension liability - ending	\$ 4,299,009,951	\$ 4,201,687,763
Plan fiduciary net position as a percentage of the total pension liability	24.81%	26.06%
Covered payroll	\$ 487,025,462	\$ 479,941,514
Net pension liability as a percentage of covered payroll	882.71%	875.46%

**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
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SECTION VI – REQUIRED SUPPLEMENTARY INFORMATION

Table VI-1B		
Schedule of Changes in Net Pension Liability and Related Ratios		
Local Employers		
	FYE 2020	FYE 2019
<u>Total Pension Liability</u>		
Service cost	\$ 779,629,640	\$ 840,578,094
Interest (includes interest on service cost)	2,746,268,128	2,648,438,175
Changes of benefit terms	0	0
Differences between expected and actual experience	73,846,139	(67,495,455)
Changes of assumptions	(782,586,271)	(1,628,190,128)
Transfers between State and Local Employers	0	0
Transfers from other systems - employer	80,266	533,015
Transfers from other systems - member	1,740,784	1,671,228
Benefit payments, including refunds of member contributions	(2,380,529,988)	(2,274,056,329)
Net change in total pension liability	\$ 438,448,698	\$ (478,521,400)
Total pension liability - beginning	40,481,531,749	40,960,053,149
Total pension liability - ending	\$ 40,919,980,447	\$ 40,481,531,749
<u>Plan fiduciary net position</u>		
Contributions - employer	\$ 1,117,170,854	\$ 1,010,110,596
Contributions - employer (paid by State on behalf of locals)	154,309,000	130,202,000
Contributions - member	361,447,921	358,740,753
Transfers from other systems - employer	80,266	533,015
Transfers from other systems - member	1,740,784	1,671,228
Employer Contribution - delayed enrollment	113,646	69,969
Employer Contribution - delayed appropriations	677,397	412,370
Employer Contribution - retroactive	5,230,213	6,793,415
Employer Contribution - additional	997,622	847,716
Other - NCGIPF adjustment	0	0
Net investment income	431,678,371	1,491,290,029
Benefit payments, including refunds of member contributions	(2,380,529,988)	(2,274,056,329)
Administrative expense	(10,922,492)	(5,630,502)
Net change in plan fiduciary net position	\$ (318,006,406)	\$ 720,984,260
Plan fiduciary net position - beginning	26,311,338,131	25,590,353,871
Plan fiduciary net position - ending	\$ 25,993,331,725	\$ 26,311,338,131
Net pension liability - ending	\$ 14,926,648,722	\$ 14,170,193,618
Plan fiduciary net position as a percentage of the total pension liability	63.52%	65.00%
Covered payroll	\$ 3,450,951,747	\$ 3,390,777,193
Net pension liability as a percentage of covered payroll	432.54%	417.90%

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SECTION VI – REQUIRED SUPPLEMENTARY INFORMATION

Table VI-1C		
Schedule of Changes in Net Pension Liability and Related Ratios		
Total		
	FYE 2020	FYE 2019
<u>Total Pension Liability</u>		
Service cost	\$ 890,425,657	\$ 958,392,935
Interest (includes interest on service cost)	3,131,523,540	3,025,500,679
Changes of benefit terms	0	0
Differences between expected and actual experience	67,509,143	(138,356,304)
Changes of assumptions	(892,759,358)	(1,875,170,696)
Transfers between State and Local Employers	0	0
Transfers from other systems - employer	62,385	670,191
Transfers from other systems - member	2,288,543	2,569,578
Benefit payments, including refunds of member contributions	(2,725,565,718)	(2,606,863,711)
Net change in total pension liability	\$ 473,484,192	\$ (633,257,328)
Total pension liability - beginning	<u>46,164,302,326</u>	<u>46,797,559,654</u>
Total pension liability - ending	<u>\$ 46,637,786,518</u>	<u>\$ 46,164,302,326</u>
<u>Plan fiduciary net position</u>		
Contributions - employer	\$ 1,340,318,105	\$ 1,193,275,544
Contributions - employer (lottery)	12,180,000	13,260,000
Contributions - employer (paid by State on behalf of locals)	154,309,000	130,202,000
Contributions - member	416,433,179	410,943,242
Transfers from other systems - employer	62,385	670,191
Transfers from other systems - member	2,288,543	2,569,578
Employer Contribution - delayed enrollment	165,704	96,603
Employer Contribution - delayed appropriations	603,836	422,890
Employer Contribution - retroactive	5,230,213	6,501,177
Employer Contribution - additional	997,622	847,716
Other - NCGIPF adjustment	0	0
Net investment income	425,543,356	1,549,138,833
Benefit payments, including refunds of member contributions	(2,725,565,718)	(2,606,863,711)
Administrative expense	(12,859,325)	(7,199,218)
Net change in plan fiduciary net position	\$ (380,293,100)	\$ 693,864,845
Plan fiduciary net position - beginning	<u>27,792,420,945</u>	<u>27,098,556,100</u>
Plan fiduciary net position - ending	<u>\$ 27,412,127,845</u>	<u>\$ 27,792,420,945</u>
Net pension liability - ending	<u>\$ 19,225,658,673</u>	<u>\$ 18,371,881,381</u>
Plan fiduciary net position as a percentage of the total pension liability	58.78%	60.20%
Covered payroll	\$ 3,937,977,209	\$ 3,870,718,707
Net pension liability as a percentage of covered payroll	488.21%	474.64%

**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
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SECTION VI – REQUIRED SUPPLEMENTARY INFORMATION

Since an Actuarially Determined Contribution (ADC) is calculated, the following schedule is required. An ADC is a contribution amount determined in accordance with Actuarial Standards of Practice. Amounts shown for the ADC and actual contributions in the table below include the Non-Contributory Group Insurance Premium Fund costs. Per discussions with the Division of Pensions and Benefits, the Palisades Interstate Park Commission (Employer Number 91999) was transferred from Local employers to State. We have adjusted the FYE 2019 Actuarially Determined Contribution for State and Local employers to reflect the transfer. No adjustments were required for the FYE 2020 Actuarially Determined Contribution, as this employer was already included under State.

Table VI-2 Schedule of Employer Contributions		
	FYE 2020	FYE 2019
<u>State</u>		
Actuarially Determined Contribution	\$ 553,805,478	\$ 539,538,568
Contributions in Relation to the Actuarially Determined Contribution	389,535,212	326,524,771
Contribution Deficiency/(Excess)	<u>\$ 164,270,266</u>	<u>\$ 213,013,797</u>
Covered Payroll	\$ 487,025,462	\$ 479,941,514
Contributions as a Percentage of Covered Payroll	79.98%	68.03%
<u>Local Employers</u>		
Actuarially Determined Contribution	\$ 1,038,351,129	\$ 1,005,697,483
Contributions in Relation to the Actuarially Determined Contribution	1,038,351,129	1,005,697,483
Contribution Deficiency/(Excess)	<u>\$ 0</u>	<u>\$ 0</u>
Covered Payroll	\$ 3,450,951,747	\$ 3,390,777,193
Contributions as a Percentage of Covered Payroll	30.09%	29.66%
<u>System Total</u>		
Actuarially Determined Contribution	\$ 1,592,156,607	\$ 1,545,236,051
Contributions in Relation to the Actuarially Determined Contribution	1,427,886,341	1,332,222,254
Contribution Deficiency/(Excess)	<u>\$ 164,270,266</u>	<u>\$ 213,013,797</u>
Covered Payroll	\$ 3,937,977,209	\$ 3,870,718,707
Contributions as a Percentage of Covered Payroll	36.26%	34.42%

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SECTION VI – REQUIRED SUPPLEMENTARY INFORMATION

The following summarizes key methods and assumptions used to determine the Actuarially Determined Contribution for FYE 2020.

Valuation Date:	July 1, 2018
Timing:	Actuarial determined contributions are calculated as of the July 1 preceding the fiscal year in which contributions are made.
Actuarial cost method:	Projected Unit Credit
Amortization method:	Level dollar
Remaining amortization period:	Open 30-year period
Asset valuation method:	5-year smoothing of difference between market value and expected actuarial value
Investment rate of return:	7.50%
Salary increases:	Age-based rates scaling from 8.98% for age 25 to 2.10% at age 64 through fiscal year ending 2025; Age-based rates scaling from 9.98% for age 25 to 3.10% at age 64 for fiscal years ending 2026 and thereafter
Mortality:	<i>Pre-Retirement, Healthy Female Retirees and Beneficiaries:</i> RP-2000 Combined Healthy Mortality Tables projected on a generational basis using Projection Scale BB from the base year of 2000 to 2013 and the Conduent Modified 2014 Projection Scale thereafter <i>Healthy Male Retirees:</i> RP-2000 Combined Healthy Mortality Table 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 <i>Disabled Retirees:</i> Custom mortality table. Sample rates below:

Age	Rates
35	0.598%
40	0.634
45	0.803
50	1.058
55	1.210
60	1.426
65	1.949

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APPENDIX A – MEMBERSHIP INFORMATION

	Plan Membership					
	July 1, 2019			July 1, 2018		
	State	Employers	Total	State	Employers	Total
Contributing Actives	6,875	34,164	41,039	6,807	34,013	40,820
Non-Contributing Actives	364	1,117	1,481	362	1,113	1,475
Terminated Vested	13	52	65	6	36	42
Inactive Receiving Benefits*	6,803	38,734	45,537	6,673	37,894	44,567
Total	14,055	74,067	88,122	13,848	73,056	86,904
Annual Compensation for Contributing Actives	\$ 487,025,462	\$ 3,450,951,747	\$ 3,937,977,209	\$ 479,941,514	\$ 3,390,777,193	\$ 3,870,718,707
Annual Retirement Allowances for Those Receiving Benefits	\$ 321,147,218	\$ 2,269,658,558	\$ 2,590,805,776	\$ 313,277,156	\$ 2,177,011,512	\$ 2,490,288,668

* QDRO recipients are excluded from the counts in both years

**POLICE AND FIREMEN'S 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, 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. GASB 67 Effective Discount Rate | <ul style="list-style-type: none"> • June 30, 2019: 6.85% per annum, compounded annually. • June 30, 2020: 7.00% per annum, compounded annually. |
| 4. Price Inflation | 2.75% per annum, compounded annually. |
| 5. Wage Inflation | 3.25% per annum, compounded annually. |
| 6. Cost-of-Living Adjustments (COLAs) | No future COLAs are assumed. Previously granted COLAs are included in the data. |
| 7. Salary Increases | Salaries increase rates are as follows: |

Service	Rates
0	15.25%
1	15.25
2	12.75
3	10.75
4	10.25
5	9.25
6	8.25
7	7.25
8	5.75
9	5.25
10	4.75
11	4.25
12	3.75
13+	3.25

Salary increases are assumed to occur on July 1.

- | | |
|-------------------------------------|--|
| 8. 401(a)(17) Pay Limit | \$280,000 in 2019 increasing 2.75% per annum, compounded annually. |
| 9. Social Security Wage Base | \$132,900 in 2019 increasing 3.25% per annum, compounded annually. |

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

10. Termination

Termination rates are as follows:

Service	Rates
0	2.00%
1	2.00
2	1.90
3	1.80
4	1.70
5	1.60
6	1.50
7	1.40
8	1.00
9	0.80
10	0.80
11	0.50
12	0.45
13	0.40
14	0.35
15	0.30
16	0.25
17	0.20
18	0.15
19	0.10
20	0.00

No termination is assumed after attainment of retirement eligibility.

All members are assumed to elect a refund of contributions.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

11. Disability

Representative disability rates are as follows:

Age	Ordinary Disability	Accidental Disability
20	0.030%	0.020%
21	0.030	0.020
22	0.030	0.025
23	0.045	0.025
24	0.045	0.030
25	0.045	0.030
26	0.045	0.035
27	0.045	0.035
28	0.065	0.040
29	0.085	0.070
30	0.105	0.100
31	0.125	0.130
32	0.145	0.160
33	0.165	0.190
34	0.185	0.220
35	0.205	0.250
36	0.225	0.280
37	0.255	0.310
38	0.285	0.340
39	0.315	0.370
40	0.345	0.400
41	0.375	0.400
42	0.375	0.400
43	0.380	0.400
44	0.360	0.400
45	0.340	0.380
46	0.320	0.360
47	0.300	0.340
48	0.280	0.320
49	0.260	0.300
50	0.240	0.280
51	0.220	0.260
52	0.200	0.240
53	0.200	0.220
54	0.200	0.200
55	0.200	0.180
56	0.200	0.160
57	0.300	0.160
58	0.400	0.160
59+	0.500	0.160

Both ordinary and accidental disability rates apply at all ages until the mandatory retirement age of 65.

APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

No ordinary disability is assumed prior to attainment of ordinary disability retirement eligibility at four years of service.

No members are assumed to receive the involuntary disability retirement benefit.

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

12. Mortality

Pre-Retirement: The Pub-2010 Safety Employee mortality table [*PubS-2010 Employee*] as published by the Society of Actuaries with a 105.6% adjustment for males and 102.5% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. For purposes of calculating projected cash flows used to determine the GASB discount rate, mortality improvement is based on SOA's Scale MP-2018. Upon direction from the DPB, for purposes of calculating the Total Pension Liability, mortality improvement is based on SOA's Scale MP-2020.

5% of the deaths are assumed to be accidental.

Healthy Retirees (Healthy Annuitants): The Pub-2010 Safety Retiree Below-Median Income Weighted mortality table [*PubS-2010(B) Healthy Retiree*] as published by the Society of Actuaries with a 96.7% adjustment for males and 96.0% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. For purposes of calculating projected cash flows used to determine the GASB discount rate, mortality improvement is based on SOA's Scale MP-2018. Upon direction from the DPB, for purposes of calculating the Total Pension Liability, mortality improvement is based on SOA's Scale MP-2020.

Beneficiaries (Contingent Annuitants): The Pub-2010 General Retiree Below-Median Income Weighted mortality table [*PubG-2010(B) Healthy Retiree*] as published by the Society of Actuaries unadjusted, and with future improvement from the base year of 2010 on a generational basis. For purposes of calculating projected cash flows used to determine the GASB discount rate, mortality improvement is based on SOA's Scale MP-2018. Upon direction from the DPB, for purposes of calculating the Total Pension Liability, mortality improvement is based on SOA's Scale MP-2020.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Disabled Mortality (Disabled Annuitants): The Pub-2010 Safety Disabled Retiree mortality table [*PubS-2010 Disabled Retiree*] as published by the Society of Actuaries with a 152.0% adjustment for males and 109.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. For purposes of calculating projected cash flows used to determine the GASB discount rate, mortality improvement is based on SOA's Scale MP-2018. Upon direction from the DPB, for purposes of calculating the Total Pension Liability, mortality improvement is based on SOA's Scale MP-2020.

13. Retirement

For those with less than 25 years of service:

Age	Rates
40-49	2.00%
50-57	3.00
58	3.50
59	4.25
60	5.00
61	8.00
62	10.00
63	12.00
64	14.00

For those with 25 years of service:

Age	Rates
48 or younger	45.00%
49-54	50.00
55-59	55.00
60	60.00
61	65.00
62	70.00
63	75.00
64	90.00

For those with 26 or more years of service:

Age	Rates
53 or younger	22.00%
54-59	24.00
60	26.00
61	28.00
62-63	30.00
64	40.00

Mandatory retirement at age 65.

POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

14. Family Composition Assumptions

For members not currently in receipt, 90% 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 post-retirement 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.

For current dependents receiving a pre-retirement accidental death benefit, those under age 24 are assumed to receive a benefit until age 24 while those over age 24 are assumed to receive a benefit for the remainder of their lifetime.

For current dependents receiving a benefit other than a pre-retirement accidental death benefit, those under age 19 are assumed to receive a benefit until age 19 while those over age 19 are assumed to receive a benefit for the remainder of their lifetime.

15. Non-Contributory Group Insurance Form of Payment

All benefits are assumed to be paid as lump sums.

16. Data

Information provided by the prior actuary was relied upon for the purposes of setting the status of and valuing non-contributing active records.

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

Inactive members receiving benefits according to the 2018 data but omitted from the 2019 data are assumed to have died without a beneficiary.

17. Rationale for Assumptions

The demographic assumptions used in this report reflect the results of the July 1, 2013 – June 30, 2018 Experience Study, approved by the Board of Trustees on January 13, 2020. The investment return assumption was recommended by the State Treasurer. The MP-2020 mortality improvement scale was used to calculate the Total Pension Liability upon direction from the DPB.

**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

18. Projection Basis

This report includes projections of future assets, benefit payments and contributions for the purpose of determining the GASB 67 discount rate.

The projections are based on the census data as of July 1, 2019 and the financial information as of June 30, 2020. The projections assume continuation of the plan provisions and actuarial assumptions in effect as of July 1, 2019 and do not reflect the impact of any changes in benefits or actuarial assumptions that may be adopted after July 1, 2020 unless otherwise indicated. While the assumptions individually are reasonable for the underlying valuation that supports the projections, specifically for projection purposes, they are also considered reasonable in the aggregate.

The projections assume that all future assumptions are met except where indicated with respect to future investment returns and demographic assumptions.

**19. Changes in
Assumptions Since
Last Valuation**

The mortality improvement scale used to calculate the Total Pension Liability was updated from the MP-2019 scale to the MP-2020 scale upon direction from the DPB.

The GASB 67 effective discount rate has been updated in accordance with the method prescribed by GASB Statement No. 67.

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. Refunds are valued as the Aggregate Contributions as of the valuation date as 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, 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 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.

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.

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, benefit payments and administrative expenses, and 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

Chapter 83, P.L. 2016 requires the State to make the required pension contributions on a quarterly basis in each fiscal year according to the following schedule: at least 25% by September 30, at least 50% by December 31, at least 75% by March 31, and at least 100% 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.

Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, allows the PFRS to receive 1.20% of the proceeds of the Lottery Enterprise, based upon their members' past or present employment in schools and institutions in the State for a term of 30 years. Revenues from Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act are assumed to be contributed to the trust on a monthly basis. The State's pension contribution is reduced by the product of the allocable percentage for the PFRS, the adjustment percentage, and the special asset value.

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.

Legislation has provided for additional benefits and/or funding requirements which are included in this valuation and are described as follows.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Early Retirement Incentive Programs

The following legislation provides additional retirement benefits to certain employees of Local employers: Chapter 59, P.L. 1999, Chapter 126, P.L. 2000 and Chapter 130, P.L. 2003. The cost of the enhanced pension benefits will be funded by employer contributions to the retirement system and paid by the employer that elected to participate over amortization periods elected by the employer to the extent permitted by NJ Statute.

Chapter 59, P.L. 1999 authorizes municipalities, counties and other local units of government that enter into agreements to provide governmental services on a joint or consolidated basis, municipalities that join together to establish a new consolidated municipality, or school districts that have merged with one or more other school districts due solely to a municipal consolidation, to offer incentive programs for retirement or termination of employment for employees affected by the consolidation agreements. "County ERI Section 44" of Chapter 126, P.L. 2000 permitted local units to offer early retirement or termination incentives to certain employees of county governing bodies. Chapter 130, P.L. 2003 extended an Early Retirement Incentive Program similar to that offered by the State under Chapter 23, P.L. 2002 to members of Local employer locations. Appendix E lists all applicable locations and summarizes the contribution requirements under Chapter 59, Chapter 126 and Chapter 130.

Chapter 109, P.L.1979

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

Chapter 204, P.L. 1989

Chapter 204 allowed employees who were previously excluded on the basis of their titles from PFRS membership to enter the System. Employers of such employees are required to contribute any additional contribution necessary to fund any unfunded actuarial liability arising from Chapter 204. The valuation reflects the additional actuarial liability for three State locations and fifteen Municipality and Local Group locations with certain employees participating in the System under the provisions of this legislation. Section IV lists all applicable locations and the required contributions.

**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Chapter 511, P.L. 1991

Chapter 511 increased the benefit payable to the surviving spouse of a retiree from 35% to 50% of the retiree's average final compensation. This law also raised the minimum annual spouse's benefit from \$1,600 to \$4,500 for benefits granted prior to January 14, 1992. Chapter 511 required that the normal cost and actuarial liability contribution attributable to this chapter be separately determined. As a result of Chapter 115, P.L. 1997, the actuarial liability contribution attributable to Chapter 511 was eliminated at that time. However, because of the reductions (and anticipated reductions) in the required State contributions for fiscal years 2004 through 2019 due to the various Appropriation Acts and Chapter 1, P.L. 2010, the remaining required contributions that have not been made have been set up as an unfunded actuarial liability attributable to Chapter 511.

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

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

Chapter 201, P.L. 2001 made changes to Chapter 247, P.L. 1993 with respect to the benefits payable to members who transferred from PERS to PFRS as a result of the Chapter 247 legislation. The resulting increase in the unfunded actuarial liabilities due to the increased benefits was fully funded by the recognition of additional market value surplus in the determination of the actuarial value of assets in the July 1, 1999 valuation. However, because of the reductions (and anticipated reductions) in the required State contributions for fiscal years 2004 through 2019 due to the various Appropriation Acts and Chapter 1, P.L. 2010, the remaining required contributions which were not paid have been added to the Chapter 247 unfunded actuarial liability and will be included in future State contributions.

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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Chapter 428, P.L. 1999

Chapter 428, P.L. 1999 made the following changes to the benefit provisions:

- Changed the compensation basis for benefits from 3-year average compensation to final compensation.
- Added a service retirement benefit of 50% of final compensation for members as of the date of enactment who retire with 20 years of service and for all other members at age 55 with 20 years of service.
- Added an additional service retirement benefit of 3% of final compensation per year of service in excess of 20 years for those who retire with less than 25 years of service.
- Reduced the service requirement for ordinary disability retirement from 5 years to 4 years.
- Added the special involuntary disability benefit.
- Changed the preretirement death benefit from a refund of contributions to a spousal annuity equal to 50% of final compensation.

Chapter 8, P.L. 2000 required that, if valuation assets are insufficient to fund the normal cost and actuarial liability costs attributable to Chapter 428, P.L. 1999, the contribution required to fund these costs for the State and other employers shall be paid by the State. For the current valuation, valuation assets were not sufficient to fund the costs attributable to Chapter 428. In addition, because of the reductions (and anticipated reductions) in the required State contributions for fiscal years 2004 through 2019 due to the various Appropriation Acts and Chapter 1, P.L. 2010, the remaining required contributions which were not paid have been added to the Chapter 428 unfunded actuarial liability and will be included in future State contributions.

Chapter 86, P.L. 2001 amended the active death benefits provided to a beneficiary of a member who died in active duty on or after January 1, 1998 and before January 18, 2000. The law required an eligible beneficiary to apply for the increased benefits within 90 days of enactment and return the member's aggregate contributions to the System. The State is liable for all costs to the System attributable to this law, and these costs have been included in the Chapter 428 actuarial liability contributions.

Chapter 318, P.L. 2001 amended the active death benefits provided to a beneficiary of a member with 10 or more years of service who died in active service on or after June 1, 1995 and before January 1, 1998 and whose beneficiary had, on May 1, 2001, an appeal of a denial of a benefit related to death in the line of duty pending before the Board of Trustees. The law requires that the appeal be withdrawn or denied and that an eligible beneficiary apply for the increased benefits and return the member's aggregate contributions received. The State is liable for all costs to the System attributable to this law and these costs are also included in the Chapter 428 actuarial liability contributions.

**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
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APPENDIX B – ACTUARIAL ASSUMPTIONS AND METHODS

Chapter 19, P.L. 2009

Chapter 19 provided that the State Treasurer will reduce for Local employers the normal and actuarial liability contributions to 50% of the amount certified for fiscal year 2009. The remaining 50% of the contribution (unfunded actuarial 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 provided that a Local employer may pay 100% of the contribution for the fiscal year 2009. Such an employer will be credited with the full payment and any such amounts will not be included in their unfunded actuarial liability. In addition, certain Local employers who were eligible to defer 50% of their fiscal year 2009 pension contributions but instead paid 100% of the fiscal year 2009 pension contributions were permitted to defer 50% of their 2010 fiscal year pension contributions. The unfunded actuarial liability will be paid by these Local employers over a period of 15 years with the first payment due in the fiscal year ending June 30, 2012. The unfunded actuarial liability will be adjusted by the rate of return on the actuarial value of assets.

4. Valuation Software

Cheiron utilizes ProVal, an actuarial valuation software leased from Winklevoss Technologies (WinTech) to calculate liabilities and project benefit payments. We have relied on WinTech as the developer of ProVal. We have reviewed ProVal and have a basic understanding of it and have used ProVal in accordance with its original intended purpose. We have not identified any material inconsistencies in assumptions or output of ProVal that would affect this actuarial valuation.

5. Changes in Actuarial Methods Since the Last Valuation

None.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the PFRS used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 43, Chapter 16A, 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 of Membership

Eligibility is restricted to eligible police officers and firefighters in an eligible job title of classification who also meet the age, medical and training criteria for membership. The maximum enrollment age is 35.

- a) Tier 1 Member: Any member hired on or before May 21, 2010.
- b) Tier 2 Member: Any member hired after May 21, 2010 and on or before June 28, 2011.
- c) Tier 3 Member: Any member hired after June 28, 2011.

2. Plan Year

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

3. Creditable 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.

4. Compensation

Base salary upon which contributions by a Member to the Annuity Savings Fund were based in the last year of service. Chapter 113, P.L. 1997 provides that Compensation 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, Compensation cannot exceed the annual maximum wage contribution base for Social Security, pursuant to the Federal Insurance Contribution Act.

5. Final Compensation

Annual compensation received by the Member in the last 12 months of Creditable Service preceding his retirement. Chapter 1, P.L. 2010 provides that for members hired on or after May 22, 2010, Final Compensation means the average annual compensation for the three fiscal years of membership providing the largest benefit.

6. Aggregate Contributions

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

APPENDIX C – SUMMARY OF PLAN PROVISIONS

7. Member Contributions

Each Member contributes 10% of base salary.

8. Benefits

a) Service and Special Retirement

Mandatory retirement at age 65, except a Member hired prior to January 1, 1987 may remain a Member until attaining the earlier of age 68 or 25 years of Creditable Service. Voluntary retirement prior to age 65.

- (1) Service Retirement: For a Member enrolled as of January 18, 2000, age 55 or 20 years of Creditable Service. For a Member enrolled after January 18, 2000, age 55.

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

- a. 2% of Final Compensation for each year of Creditable Service up to 30 years plus 1% of Final Compensation for each year of Creditable Service over 30 years.
- b. 50% of Final Compensation for Members with 20 or more years of Creditable Service.
- c. 50% of Final Compensation plus 3% of Final Compensation for each year of Creditable Service in excess of 20 years for Members as of January 18, 2000 who would have 20 years of Creditable Service but not 25 years at age 65.

- (2) Special Retirement: 25 years of Creditable Service.

Benefit is in an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total allowance of:

- a. For Members enrolled on or before June 28, 2011, 65% of Final Compensation plus 1% of Final Compensation for each year of Creditable Service in excess of 25 years with a maximum of 70% of Final Compensation, except for those members with 30 or more years of Creditable Service on June 30, 1979.
- b. For Members hired after June 28, 2011, 60% of Final Compensation plus 1% of Final Compensation for each year of Creditable Service in excess of 25 years with a maximum of 65% of Final Compensation.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

b) Deferred Retirement

Termination of service prior to age 55 with 10 years of Creditable Service.

Benefit is either a refund of Aggregate Contributions, or a deferred life annuity commencing at age 55 comprised of a member annuity plus an employer pension which together will provide a total allowance of 2% of Final Compensation for each year of Creditable Service up to 30 plus 1% of Final Compensation for each year of Creditable Service over 30 years.

For Members who die during the deferral period, the benefit is a return of Aggregate Contributions.

c) Non-Vested Termination

Termination of service prior to age 55 and less than 10 years of service credit.

Benefit is a return of Aggregate Contributions.

d) Death Benefits

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

- a. Lump sum payment equal to 350% of Compensation, also known as the non-contributory group life insurance benefit, 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, 50% of final compensation payable to surviving children in equal shares. If there is no surviving spouse or dependent child(ren), 25% (40%) of final 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 contributions.

(2) Accidental Death Before Retirement: Death of an active Member resulting during performance of duties. Benefit is equal to:

- a. Lump sum payment equal to 350% of Compensation, also known as the non-contributory group life insurance benefit, plus
- b. Spousal life annuity of 70% of Compensation payable until spouse's death or remarriage. If there is no surviving spouse or upon death or remarriage, 70% of Compensation payable to dependent children in equal shares. If there is no surviving spouse or dependent child(ren), 25% (40%) of 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 Aggregate Contributions.

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 50% of Compensation for a Member retired under service, special or deferred retirement. For a Member receiving a disability benefit, lump sum payment of 350% of Compensation if death occurs prior to age 55 and 50% of final compensation if death occurs after age 55. This benefit is also known as the non-contributory group life insurance benefit, plus
- b. For Members who retired on or after January 1, 1968, spouse life annuity of 50% of Final Compensation plus 15% (25%) of Final Compensation for one (two or more) dependent child(ren). The minimum benefit is \$4,500 per year. If there is no surviving spouse or upon death or remarriage, a total of 20% (35%, 50%) of Final Compensation payable to one (two, three or more) dependent child(ren). Previously granted COLAs also apply.

e) Disability Retirement

(1) Ordinary Disability Retirement: Four years of Creditable Service and totally and permanently incapacitated from the performance of usual or available duties.

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

- a. 40% of Final Compensation, or
- b. 1.5% of Final Compensation for each year of Creditable Service.

(2) Involuntary Ordinary Disability Retirement: Ordinary Disability Retirement applied for by the employer.

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

- a. For Members with 20 years of Creditable Service but less than 25 years, 50% of Final Compensation plus 3% of Final Compensation for each year of Creditable Service in excess of 20 years, to a maximum of 65% of Final Compensation.
- b. For all other members, the Ordinary Disability benefit.

APPENDIX C – SUMMARY OF PLAN PROVISIONS

- (3) Accidental Disability Retirement: Totally and permanently disabled as a direct result of a traumatic event occurring during and as a result of regular or assigned duties and such member is mentally or physically incapacitated for the performance of his usual duties. Under certain conditions, regular or assigned duties may include the World Trade Center (WTC) rescue, recovery, or cleanup operations between September 11, 2001 and October 11, 2011. For such members who participated in the WTC rescue, recovery, or cleanup operations, the total and permanent disability may occur after retirement on a service retirement or an ordinary disability retirement.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total allowance of 2/3 of annual rate of compensation at the time of the traumatic event or retirement, whichever is greater.

- (4) Special Disability Retirement: Under age 55 with 5 years of Creditable Service and received a heart transplant.

Benefit is an annual retirement allowance comprised of a member annuity plus an employer pension which together will provide a total allowance of 50% of Final Compensation.

9. Forms of Payment

No optional forms of payment are available.

10. 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.

11. Changes in Plan Provisions Since Last Valuation

Chapter 157, P.L. 2019 expanded the definition of regular or assigned duties for purposes of accidental disability retirement to include World Trade Center (WTC) rescue, recovery, or cleanup operations between September 11, 2001 and October 11, 2011 under certain conditions. For such members who participated in the WTC rescue, recovery, or cleanup operations, the total and permanent disability may occur after retirement on a service retirement or an ordinary disability retirement.

Chapter 305, P.L. 2019 increased the benefit for a surviving child in the event of ordinary death while in active service. Previously, if there was no surviving spouse, or upon the surviving spouse's death or remarriage, a total of 20% (35%, 50%) of final compensation was payable to one (two, three or more) dependent child(ren). Under Chapter 305, if there is no surviving spouse, or upon the surviving spouse's death or remarriage, 50% of final compensation is payable to surviving children in equal shares.

**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
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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, 2020

Year	Projected Beginning Fiduciary Net Position	Projected Member Contributions	Projected State Contributions	Projected State-paid Local Contributions	Projected Local 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)	(i)	(j) = (a) + (b) + (c) + (d) + (e) + (f) - (g) - (h) + (i)
1	\$ 26,217,951	\$ 376,370	\$ 257,565	\$ 178,577	\$ 1,145,293	\$ 13,037	\$ 2,832,489	\$ 13,374	\$ 1,781,600	\$ 27,124,531
2	27,124,531	370,635	268,531	177,599	1,176,526	13,190	2,943,570	13,893	1,841,823	28,015,371
3	28,015,371	364,469	303,617	176,416	1,340,211	13,343	3,051,119	14,399	1,903,929	29,051,838
4	29,051,838	356,756	312,457	178,582	1,369,390	13,505	3,162,051	14,925	1,973,171	30,078,723
5	30,078,723	348,249	320,306	181,505	1,393,266	13,670	3,271,307	15,441	2,041,677	31,090,647
6	31,090,647	338,128	328,288	184,531	1,414,234	13,836	3,384,355	15,976	2,108,906	32,078,239
7	32,078,239	326,519	335,962	188,773	1,403,763	14,005	3,499,476	16,524	2,173,796	33,005,057
8	33,005,057	314,318	342,959	192,003	1,417,416	14,165	3,611,568	17,058	2,234,883	33,892,176
9	33,892,176	301,420	349,631	195,146	1,430,339	14,275	3,721,649	17,581	2,293,212	34,736,969
10	34,736,969	288,310	356,611	198,219	1,441,284	14,419	3,826,708	18,080	2,348,718	35,539,743
11	35,539,743	273,761	356,476	197,407	1,432,040	14,565	3,935,266	18,593	2,400,484	36,260,616
12	36,260,616	257,733	356,180	196,456	1,419,693	14,712	4,046,950	19,121	2,446,297	36,885,616
13	36,885,616	241,962	355,614	195,060	1,404,164	14,860	4,150,855	19,613	2,485,604	37,412,413
14	37,412,413	226,366	354,732	193,660	1,387,843	15,011	4,247,950	20,073	2,518,256	37,840,258
15	37,840,258	212,009	353,327	192,225	1,372,938	15,162	4,330,808	20,465	2,544,526	38,179,173
16	38,179,173	200,291	352,072	190,838	1,360,182	15,315	4,390,797	20,745	2,565,495	38,451,824
17	38,451,824	189,479	351,937	189,608	1,352,052	15,470	4,438,755	20,968	2,582,384	38,673,032
18	38,673,032	177,172	351,501	188,645	1,346,661	15,626	4,488,529	21,201	2,595,604	38,838,511
19	38,838,511	162,549	350,352	187,550	1,339,426	15,784	4,544,863	21,464	2,604,563	38,932,409
20	38,932,409	145,831	349,243	186,138	1,327,406	15,943	4,606,726	21,753	2,608,160	39,036,650
21	38,936,650	127,656	348,066	184,337	1,310,688	16,104	4,670,336	22,049	2,605,278	38,836,395
22	38,836,395	107,814	346,643	182,333	1,290,360	16,267	4,736,959	22,362	2,594,847	38,615,336
23	38,615,336	86,336	344,315	180,111	1,266,487	16,431	4,806,199	22,693	2,575,722	38,255,847
24	38,255,847	64,233	340,287	177,778	1,239,588	16,597	4,871,961	23,010	2,546,907	37,746,266
25	37,746,266	46,584	335,029	175,386	1,211,013	16,764	4,904,479	23,166	2,508,827	37,112,225
26	37,112,225	35,415	330,809	173,229	1,189,061	16,933	4,894,549	23,116	2,463,871	36,403,878
27	36,403,878	27,156	328,620	171,978	1,176,807	17,104	4,863,181	22,961	2,414,797	35,654,198
28	35,654,198	20,627	327,183	171,137	1,168,745	0	4,817,354	22,736	2,362,895	34,864,694
29	34,864,694	15,501	326,140	170,510	1,162,976	0	4,759,212	22,452	2,309,324	34,067,481
30	34,067,481	11,529	325,382	170,058	1,158,993	0	4,690,463	22,116	2,255,662	33,276,526
31	33,276,526	8,433	324,862	169,749	1,156,382	0	4,613,026	21,739	2,202,801	32,503,987
32	32,503,987	6,076	324,524	169,551	1,154,715	0	4,527,945	21,325	2,151,543	31,761,126
33	31,761,126	4,285	324,309	169,444	1,153,798	0	4,436,427	20,881	2,102,623	31,058,278
34	31,058,278	2,944	324,170	169,411	1,153,364	0	4,339,303	20,410	2,056,725	30,405,179
35	30,405,179	1,964	324,096	169,434	1,153,221	0	4,237,245	19,915	2,014,500	29,811,234
36	29,811,234	1,247	324,062	169,500	1,153,257	0	4,130,952	19,401	1,976,576	29,285,523
37	29,285,523	754	324,037	161,237	1,149,000	0	4,020,769	18,869	1,934,399	28,294,554
38	28,294,554	426	324,017	153,466	1,143,913	0	3,907,196	18,322	1,860,484	26,851,341
39	26,851,341	222	323,991	153,009	1,138,000	0	3,790,653	17,762	1,763,027	25,401,175
40	25,401,175	103	323,957	152,948	1,135,961	0	3,671,570	17,190	1,665,591	23,970,974
41	23,970,974	38	323,906	152,919	1,135,064	0	3,550,352	16,609	1,569,648	22,565,587
42	22,565,587	13	323,836	152,898	1,134,088	0	3,427,300	16,020	1,475,505	21,188,608
43	21,188,608	3	323,745	152,882	1,132,959	0	3,302,842	15,425	1,383,396	19,843,326
44	19,843,326	0	323,630	152,869	1,131,649	0	3,177,301	14,826	1,293,539	18,532,886
45	18,532,886	0	323,493	152,857	1,130,164	0	3,051,005	14,225	1,206,145	17,260,316
46	17,260,316	0	323,334	152,845	1,128,517	0	2,924,270	13,622	1,121,412	16,028,532
47	16,028,532	0	323,154	152,833	1,126,729	0	2,797,391	13,019	1,039,537	14,840,376
48	14,840,376	0	322,956	152,822	1,124,810	0	2,670,649	12,417	960,708	13,698,607
49	13,698,607	0	322,739	152,810	1,122,774	0	2,544,306	11,818	885,109	12,605,915
50	12,605,915	0	322,504	152,798	1,120,620	0	2,418,616	11,222	812,921	11,564,919
51	11,564,919	0	322,252	152,786	1,118,342	0	2,293,831	10,632	744,317	10,578,154
52	10,578,154	0	321,984	152,774	1,115,936	0	2,170,195	10,048	679,467	9,648,073
53	9,648,073	0	321,701	152,762	1,113,398	0	2,047,956	9,472	618,534	8,777,042
54	8,777,042	0	320,797	145,440	1,109,730	0	1,927,349	8,904	561,470	7,959,226
55	7,959,226	0	320,183	141,761	1,104,612	0	1,808,610	8,345	508,161	7,199,987
56	7,199,987	0	319,786	140,884	1,100,509	0	1,691,954	7,797	458,959	6,504,373
57	6,504,373	0	319,430	140,668	1,100,000	0	1,577,602	7,262	414,148	5,875,159
58	5,875,159	0	319,073	140,608	1,100,000	0	1,465,763	6,738	373,901	5,314,451
59	5,314,451	0	318,704	140,585	1,100,000	0	1,356,648	6,229	338,354	4,824,125
60	4,824,125	0	318,321	140,570	1,100,000	0	1,250,467	5,734	307,630	4,405,944

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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, 2020

Year	Projected Beginning Fiduciary Net Position	Projected Member Contributions	Projected State Contributions	Projected State- paid Local Contributions	Projected Local Employer Contributions	Projected Lottery Contributions	Projected Benefit Payments	Projected Administrative Expenses	Projected Investment Earnings	Projected Ending Fiduciary Net Position (j) = (a) + (b) + (c) + (d) + (e) + (f) - (g) - (h) + (i)
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	
61	4,405,944	0	317,923	140,557	67,980	0	1,147,442	5,255	281,844	4,061,551
62	4,061,551	0	317,511	140,545	64,358	0	1,047,812	4,793	261,104	3,792,464
63	3,792,464	0	317,083	140,534	60,648	0	951,819	4,348	245,508	3,600,071
64	3,600,071	0	316,646	140,522	56,863	0	859,734	3,923	235,144	3,485,588
65	3,485,588	0	316,198	140,510	53,030	0	771,829	3,518	230,088	3,450,066
66	3,450,066	0	315,744	140,499	49,178	0	688,380	3,134	230,404	3,494,376
67	3,494,376	0	315,287	140,488	45,346	0	609,652	2,773	236,146	3,619,218
68	3,619,218	0	314,834	140,477	41,583	0	535,872	2,435	247,355	3,825,159
69	3,825,159	0	314,389	131,566	37,927	0	467,229	2,121	263,835	4,103,525
70	4,103,525	0	313,956	101,347	34,031	0	403,853	1,832	284,648	4,431,823
71	4,431,823	0	313,541	63,305	29,364	0	345,820	1,567	308,556	4,799,203
72	4,799,203	0	313,145	54,321	24,505	0	293,144	1,327	335,764	5,232,467
73	5,232,467	0	312,772	52,198	21,090	0	245,782	1,112	367,604	5,739,237
74	5,739,237	0	312,422	51,693	18,252	0	203,644	920	404,461	6,321,501
75	6,321,501	0	312,096	51,569	15,727	0	166,579	752	446,443	6,980,004
76	6,980,004	0	311,796	51,535	13,456	0	134,392	607	493,601	7,715,394
77	7,715,394	0	311,526	51,523	11,430	0	106,829	482	545,986	8,528,548
78	8,528,548	0	311,285	51,517	9,649	0	83,586	377	603,672	9,420,708
79	9,420,708	0	311,076	51,512	8,110	0	64,308	290	666,756	10,393,563
80	10,393,563	0	310,897	51,508	6,806	0	48,604	219	735,370	11,449,321
81	11,449,321	0	310,748	51,505	5,726	0	36,054	163	809,683	12,590,765
82	12,590,765	0	310,628	50,531	4,850	0	26,228	119	889,879	13,820,307
83	13,820,307	0	310,533	11,939	4,117	0	18,700	85	975,193	15,103,304
84	15,103,304	0	310,460	2,826	1,913	0	13,062	59	1,064,922	16,470,304
85	16,470,304	0	310,406	671	1,034	0	8,939	41	1,160,682	17,934,116
86	17,934,116	0	310,367	161	626	0	5,999	27	1,263,229	19,502,472
87	19,502,472	0	310,340	40	393	0	3,956	18	1,373,076	21,182,345
88	21,182,345	0	310,322	10	245	0	2,573	12	1,490,711	22,981,049
89	22,981,049	0	310,310	3	151	0	1,661	8	1,616,650	24,906,494
90	24,906,494	0	310,303	1	90	0	1,074	5	1,751,450	26,967,259
91	26,967,259	0	310,298	1	53	0	704	3	1,895,715	29,172,619
92	29,172,619	0	247,492	0	31	0	474	2	2,048,473	31,468,138
93	31,468,138	0	66,778	0	17	0	332	2	2,204,487	33,739,086
94	33,739,086	0	18,018	0	10	0	243	1	2,362,194	36,119,065
95	36,119,065	0	4,862	0	6	0	185	1	2,528,454	38,652,201
96	38,652,201	0	1,312	0	3	0	145	1	2,705,683	41,359,053
97	41,359,053	0	354	0	2	0	116	1	2,895,139	44,254,432
98	44,254,432	0	96	0	1	0	93	0	3,097,810	47,352,245
99	47,352,245	0	26	0	1	0	74	0	3,314,655	50,666,852
100	50,666,852	0	7	0	1	0	59	0	3,546,678	54,213,479
101	54,213,479	0	2	0	0	0	46	0	3,794,942	58,008,377
102	58,008,377	0	1	0	0	0	35	0	4,060,585	62,068,928
103	62,068,928	0	0	0	0	0	26	0	4,344,824	66,413,726
104	66,413,726	0	0	0	0	0	19	0	4,648,960	71,062,667
105	71,062,667	0	0	0	0	0	14	0	4,974,386	76,037,040
106	76,037,040	0	0	0	0	0	9	0	5,322,592	81,359,623
107	81,359,623	0	0	0	0	0	6	0	5,695,173	87,054,791
108	87,054,791	0	0	0	0	0	4	0	6,093,835	93,148,622
109	93,148,622	0	0	0	0	0	2	0	6,520,403	99,669,023
110	99,669,023	0	0	0	0	0	1	0	6,976,832	106,645,853
111	106,645,853	0	0	0	0	0	1	0	7,465,210	114,111,062
112	114,111,062	0	0	0	0	0	0	0	7,987,774	122,098,836
113	122,098,836	0	0	0	0	0	0	0	8,546,919	130,645,755
114	130,645,755	0	0	0	0	0	0	0	9,145,203	139,790,957
115	139,790,957	0	0	0	0	0	0	0	9,785,367	149,576,324

**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
GASB 67 REPORTING FOR JUNE 30, 2020 MEASUREMENT DATE**

APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 2 - Actuarial Present Values of Projected Benefit Payments

(In Thousands)

Projections Commence June 30, 2020

* 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 (g)

Year	Projected Beginning Fiduciary Net Position*	Projected Benefit Payments for current Plan participants**	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments	Present Value of "Unfunded" Benefit Payments	Present Value of Benefit Payments Using the Single Discount Rate
(a)	(b)	(c)	(d) = (c) if (b) >= (c)	(e) = (c) - (d)	(f) = (d) / (1+7.00%)^(a) - .5]	(g) = (e) / (1+2.21%)^(a) - .5]	(h) = (c) / (1+7.00%)^(a) - .5]
1	\$ 26,217,951	\$ 2,832,489	\$ 2,832,489	\$ 0	\$ 2,738,271	\$ 0	\$ 2,738,271
2	27,124,531	2,943,570	2,943,570	0	2,659,492	0	2,659,492
3	28,015,371	3,051,119	3,051,119	0	2,576,320	0	2,576,320
4	29,051,838	3,162,051	3,162,051	0	2,495,317	0	2,495,317
5	30,078,723	3,271,307	3,271,307	0	2,412,650	0	2,412,650
6	31,090,647	3,384,355	3,384,355	0	2,332,734	0	2,332,734
7	32,078,239	3,499,476	3,499,476	0	2,254,283	0	2,254,283
8	33,005,057	3,611,568	3,611,568	0	2,174,290	0	2,174,290
9	33,892,176	3,721,649	3,721,649	0	2,093,984	0	2,093,984
10	34,736,969	3,826,708	3,826,708	0	2,012,238	0	2,012,238
11	35,539,743	3,935,266	3,935,266	0	1,933,947	0	1,933,947
12	36,260,616	4,046,950	4,046,950	0	1,858,722	0	1,858,722
13	36,885,616	4,150,855	4,150,855	0	1,781,723	0	1,781,723
14	37,412,413	4,247,950	4,247,950	0	1,704,113	0	1,704,113
15	37,840,258	4,330,808	4,330,808	0	1,623,694	0	1,623,694
16	38,179,173	4,390,797	4,390,797	0	1,538,490	0	1,538,490
17	38,451,824	4,438,755	4,438,755	0	1,453,546	0	1,453,546
18	38,673,032	4,488,529	4,488,529	0	1,373,687	0	1,373,687
19	38,838,511	4,544,863	4,544,863	0	1,299,933	0	1,299,933
20	38,932,409	4,606,726	4,606,726	0	1,231,427	0	1,231,427
21	38,936,650	4,670,336	4,670,336	0	1,166,758	0	1,166,758
22	38,836,395	4,736,959	4,736,959	0	1,105,983	0	1,105,983
23	38,615,336	4,806,199	4,806,199	0	1,048,737	0	1,048,737
24	38,255,847	4,871,961	4,871,961	0	993,539	0	993,539
25	37,746,266	4,904,479	4,904,479	0	934,739	0	934,739
26	37,112,225	4,894,549	4,894,549	0	871,819	0	871,819
27	36,403,878	4,863,181	4,863,181	0	809,562	0	809,562
28	35,654,198	4,817,354	4,817,354	0	749,471	0	749,471
29	34,864,694	4,759,212	4,759,212	0	691,986	0	691,986
30	34,067,481	4,690,463	4,690,463	0	637,374	0	637,374
31	33,276,526	4,613,026	4,613,026	0	585,842	0	585,842
32	32,503,987	4,527,945	4,527,945	0	537,418	0	537,418
33	31,761,126	4,436,427	4,436,427	0	492,108	0	492,108
34	31,058,278	4,339,303	4,339,303	0	449,846	0	449,846
35	30,405,179	4,237,245	4,237,245	0	410,528	0	410,528
36	29,811,234	4,130,952	4,130,952	0	374,047	0	374,047
37	29,285,523	4,020,769	4,020,769	0	340,252	0	340,252
38	28,294,554	3,907,196	3,907,196	0	309,011	0	309,011
39	26,851,341	3,790,653	3,790,653	0	280,181	0	280,181
40	25,401,175	3,671,570	3,671,570	0	253,625	0	253,625
41	23,970,974	3,550,352	3,550,352	0	229,207	0	229,207
42	22,565,587	3,427,300	3,427,300	0	206,788	0	206,788
43	21,188,608	3,302,842	3,302,842	0	186,242	0	186,242
44	19,843,326	3,177,301	3,177,301	0	167,442	0	167,442
45	18,532,886	3,051,005	3,051,005	0	150,267	0	150,267
46	17,260,316	2,924,270	2,924,270	0	134,603	0	134,603
47	16,028,532	2,797,391	2,797,391	0	120,339	0	120,339
48	14,840,376	2,670,649	2,670,649	0	107,371	0	107,371
49	13,698,607	2,544,306	2,544,306	0	95,600	0	95,600
50	12,605,915	2,418,616	2,418,616	0	84,932	0	84,932
51	11,564,919	2,293,831	2,293,831	0	75,280	0	75,280
52	10,578,154	2,170,195	2,170,195	0	66,563	0	66,563
53	9,648,073	2,047,956	2,047,956	0	58,705	0	58,705
54	8,777,042	1,927,349	1,927,349	0	51,633	0	51,633
55	7,959,226	1,808,610	1,808,610	0	45,282	0	45,282
56	7,199,987	1,691,954	1,691,954	0	39,590	0	39,590
57	6,504,373	1,577,602	1,577,602	0	34,500	0	34,500
58	5,875,159	1,465,763	1,465,763	0	29,957	0	29,957
59	5,314,451	1,356,648	1,356,648	0	25,913	0	25,913
60	4,824,125	1,250,467	1,250,467	0	22,322	0	22,322

**POLICE AND FIREMEN'S RETIREMENT SYSTEM OF NEW JERSEY
GASB 67 REPORTING FOR JUNE 30, 2020 MEASUREMENT DATE**

APPENDIX D – DETERMINATION OF DISCOUNT RATE

Table 2 - Actuarial Present Values of Projected Benefit Payments

(In Thousands)

Projections Commence June 30, 2020

* 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 (g)

Year	Projected Beginning Fiduciary Net Position*	Projected Benefit Payments for current Plan participants**	"Funded" Portion of Benefit Payments	"Unfunded" Portion of Benefit Payments	Present Value of "Funded" Benefit Payments	Present Value of "Unfunded" Benefit Payments	Present Value of Benefit Payments Using the Single Discount Rate
(a)	(b)	(c)	(d) = (c) if (b) >= (c)	(e) = (c) - (d)	(f) = (d) / (1+7.00%)^[a] - .5]	(g) = (e) / (1+2.21%)^[a] - .5]	(h) = (c) / (1+7.00%)^[a] - .5]
61	4,405,944	1,147,442	1,147,442	0	19,143	0	19,143
62	4,061,551	1,047,812	1,047,812	0	16,337	0	16,337
63	3,792,464	951,819	951,819	0	13,870	0	13,870
64	3,600,071	859,734	859,734	0	11,708	0	11,708
65	3,485,588	771,829	771,829	0	9,824	0	9,824
66	3,450,066	688,380	688,380	0	8,188	0	8,188
67	3,494,376	609,652	609,652	0	6,777	0	6,777
68	3,619,218	535,872	535,872	0	5,567	0	5,567
69	3,825,159	467,229	467,229	0	4,537	0	4,537
70	4,103,525	403,853	403,853	0	3,665	0	3,665
71	4,431,823	345,820	345,820	0	2,933	0	2,933
72	4,799,203	293,144	293,144	0	2,323	0	2,323
73	5,232,467	245,782	245,782	0	1,821	0	1,821
74	5,739,237	203,644	203,644	0	1,410	0	1,410
75	6,321,501	166,579	166,579	0	1,078	0	1,078
76	6,980,004	134,392	134,392	0	813	0	813
77	7,715,394	106,829	106,829	0	604	0	604
78	8,528,548	83,586	83,586	0	441	0	441
79	9,420,708	64,308	64,308	0	317	0	317
80	10,393,563	48,604	48,604	0	224	0	224
81	11,449,321	36,054	36,054	0	155	0	155
82	12,590,765	26,228	26,228	0	106	0	106
83	13,820,307	18,700	18,700	0	70	0	70
84	15,103,304	13,062	13,062	0	46	0	46
85	16,470,304	8,939	8,939	0	29	0	29
86	17,934,116	5,999	5,999	0	18	0	18
87	19,502,472	3,956	3,956	0	11	0	11
88	21,182,345	2,573	2,573	0	7	0	7
89	22,981,049	1,661	1,661	0	4	0	4
90	24,906,494	1,074	1,074	0	3	0	3
91	26,967,259	704	704	0	2	0	2
92	29,172,619	474	474	0	1	0	1
93	31,468,138	332	332	0	1	0	1
94	33,739,086	243	243	0	0	0	0
95	36,119,065	185	185	0	0	0	0
96	38,652,201	145	145	0	0	0	0
97	41,359,053	116	116	0	0	0	0
98	44,254,432	93	93	0	0	0	0
99	47,352,245	74	74	0	0	0	0
100	50,666,852	59	59	0	0	0	0
101	54,213,479	46	46	0	0	0	0
102	58,008,377	35	35	0	0	0	0
103	62,068,928	26	26	0	0	0	0
104	66,413,726	19	19	0	0	0	0
105	71,062,667	14	14	0	0	0	0
106	76,037,040	9	9	0	0	0	0
107	81,359,623	6	6	0	0	0	0
108	87,054,791	4	4	0	0	0	0
109	93,148,622	2	2	0	0	0	0
110	99,669,023	1	1	0	0	0	0
111	106,645,853	1	1	0	0	0	0
112	114,111,062	0	0	0	0	0	0
113	122,098,836	0	0	0	0	0	0
114	130,645,755	0	0	0	0	0	0
115	139,790,957	0	0	0	0	0	0
					\$ 54,636,259	\$ 0	\$ 54,636,259

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. Entry Age Actuarial Cost Method

The actuarial cost method required for GASB 67 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.

4. 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.

5. 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.

6. Plan Fiduciary Net Position

The fair or market value of assets.

7. Reporting Date

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

APPENDIX E – GLOSSARY OF TERMS

8. 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 67. The Service Cost is the normal cost calculated under the entry age actuarial cost method.

9. 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 67. 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.