

**COMPREHENSIVE ANNUAL
FINANCIAL REPORT**
for the Fiscal Year Ended June 30, 2019



The Bayonne Bridge at Dusk

The Bayonne Bridge is the 5th longest steel arch bridge in the World and became a National Historic Civil Engineering Landmark in 1985.



Explore Your Benefits

State of New Jersey
Department of the Treasury
Division of Pensions & Benefits

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OUR MISSION . . .

To provide benefits and services that meet the needs of our clients and others we are committed to serve, through our efficient and responsive workforce

OUR VISION . . .

WE will achieve satisfaction through equitable, effective responsive service, and clear and accessible communications that meet the needs of our clients.

WE will encourage and support an accomplished workforce that is knowledgeable, flexible, technically proficient, and committed to excellence.

WE will be committed to working with executive and legislative agencies and governing boards to improve the design and implementation of the benefit programs.

WE will support technologies that simplify procedures and improve services, manage our resources in a responsible and creative manner, and hold contracted service providers to high standards.

WE will work with participating employers to enhance their role in the administration of benefits for their employees through integrated technology that allows them to access and process benefit information directly.

OUR VALUES . . .

WE are customer-focused, recognizing each client individually.

WE acknowledge as our greatest asset our knowledgeable, hardworking, dedicated, and caring staff.

WE are financially responsible in the administration, oversight, and delivery of our benefit programs.

WE are committed to providing quality, timely, accurate, efficient, and cost-effective services.

WE are committed to creating and developing a quality work environment using state-of-the-art technologies, and processes

that foster improvement of our organization through teamwork, motivation, and communication among staff.

OUR GOALS . . .

Customer Service —

TO create and maintain a customer-focused work environment that anticipates and meets client needs.

Staff —

TO have a full complement of staff that is well trained, undergoes continual development, and is motivated to provide benefit services effectively and efficiently in a customer friendly manner.

Technology —

TO have an integrated, easily maintained and modified, information processing system that supports the efficient and effective delivery of services.

Planning —

TO have an effective planning system that facilitates improvement, anticipates change, and properly focuses resources on priorities.

Benefits Processing —

TO provide benefits to clients in a timely and efficient manner.

Advocacy—

TO help structure a well-funded system of benefits that meets the needs of public employees and employers.

Oversight and Compliance—

TO administer programs with clear and consistent policies and procedures and provide oversight to safeguard fund assets and ensure benefit entitlement.

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**NEW JERSEY
DIVISION OF PENSIONS & BENEFITS**

**64th
COMPREHENSIVE
ANNUAL FINANCIAL REPORT
FOR THE FISCAL YEAR ENDED JUNE 30, 2019**



PHILIP D. MURPHY

Governor

ELIZABETH MAHER MUOIO

State Treasurer

JOHN MEGARIOTIS

Acting Director



**State of New Jersey • Department of the Treasury
Division of Pensions & Benefits
P.O. Box 295
Trenton, NJ 08625-0295
(609) 292- 7524**

PROGRAMS ADMINISTERED BY THE DIVISION OF PENSIONS & BENEFITS

PERS	Public Employees' Retirement System
TPAF	Teachers' Pension and Annuity Fund
PFRS	Police and Firemen's Retirement System
SPRS	State Police Retirement System
JRS	Judicial Retirement System
DCRP	Defined Contribution Retirement Program
ABP	Alternate Benefit Program
POPF	Police Officers' Pension Fund
CPFPF	Consolidated Police and Firemen's Pension Fund
NJSEDCP	New Jersey State Employees Deferred Compensation Plan
SACT	Supplemental Annuity Collective Trust
ACTS	Additional Contributions Tax-Sheltered Program
CPF	Central Pension Fund
PAF	Pension Adjustment Fund
UCTDSE	Unemployment Compensation and Temporary Disability for State Employees
SHBP	State Health Benefits Program
SEHBP	School Employees' Health Benefits Program
PDP	Prescription Drug Plans
EDP	Employee Dental Plans
Tax\$ave	New Jersey State Employees' Tax Savings Program: Premium Option Plan, Unreimbursed Medical Flexible Spending Account, and Dependent Care Flexible Spending Account
Commuter Tax\$ave	New Jersey State Employees' Commuter Tax Savings Program
LTC	Long Term Care Insurance Plan

INDEPENDENT AUDITOR **KPMG LLP — 51 John F. Kennedy Parkway, Short Hills, NJ 07078-2702**

ACTUARIAL REPORTS **Cheiron — 64 US Highway 46, Pine Brook, NJ 07058**
AON Hewitt — 400 Atrium Drive, Somerset, NJ 08873

Introductory Section

Letter of Transmittal 13

All in a Year’s Work (Accomplishments in 2019) 15

Organization 16

Organization – Board of Trustees 19

Significant Legislation 21

Scope of Operations 22

Membership 26

Financial Section

Index 35

Independent Auditors’ Report 37

Management’s Discussion and Analysis (Unaudited) 39

Basic Financial Statements:

 Statement of Fiduciary Net Position – Fiduciary Funds 46

 Combining Statement of Fiduciary Net Position – Fiduciary Funds – Pension Trust Funds
 and Other Postemployment Benefit Plan..... 47

 Statement of Changes in Fiduciary Net Position – Fiduciary Funds 48

 Combining Statement of Changes in Fiduciary Net Position – Fiduciary Funds – Pension Trust Funds and Other
 Postemployment Benefit Plan 49

 Notes to Financial Statements..... 50

Supplementary Schedules:

Required Supplementary Information (Unaudited)

 Defined Benefit Pension Plans:

 1 Schedule of Changes in Net Pension Liability and Related Ratios 84

 2 Schedule of Employer Contributions 92

 3 Schedule of Investment Returns – Annual Money-Weighted Rate of Return, Net of Investment Expense 97

 Defined Benefit Other Postemployment Benefit Plan:

 4 Schedule of Changes in Net OPEB Liability and Related Ratios 98

 5 Schedule of Investment Returns – Other Postemployment Benefit Plan – Annual Money-Weighted Rate of Return,
 Net of Investment Expense 99

Supplementary Information

 6 Schedule of Administrative Expenses 99

 7 Schedule of Investment Expenses 100

 8 Schedule of Expenses for Consultants 100

 9 Combining Schedule of Fiduciary Net Position Information – Fiduciary Funds – Select Pension Trust Funds 101

 10 Combining Schedule of Changes in Fiduciary Net Position Information – Fiduciary Funds – Select Pension Trust Funds 102

 11 Combining Schedule of Balance Sheet Information – Fiduciary Funds – Agency Funds 103

PROGRAMS ADMINISTERED BY THE DIVISION OF PENSIONS & BENEFITS

12	Combining Schedule of Changes in Fiduciary Net Position Information – Fiduciary Funds – Agency Funds	104
13	Combining Schedule of Balance Sheet Information – Agency Fund – Dental Expense Program Fund	105
14	Combining Schedule of Changes in Fiduciary Net Position Information – Agency Fund – Dental Expense Program Fund	106
15	Schedule of Changes in Assets and Liabilities Information – Agency Fund – Alternate Benefit Program Fund	107
16	Schedule of Changes in Assets and Liabilities Information – Agency Fund – Pension Adjustment Fund	107
17	Schedule of Changes in Assets and Liabilities Information – Agency Fund – Dental Expense Program Fund – Total	108
18	Schedule of Changes in Assets and Liabilities Information – Agency Fund – Dental Expense Program Fund – State	108
19	Schedule of Changes in Assets and Liabilities Information – Agency Fund – Dental Expense Program Fund – Local	109

Investment Section

Investment Director’s Letter	113
State Investment Council Policies Regarding the Investment of Pension Fund Assets	114
Pension Fund Rate of Return	115
Pension Fund Asset Allocation	116
Pension Fund Composite Asset Allocation History (Graphs)	117
U.S. Equities Market – Select Portfolio Sector Weightings (Graph)	118
International Equities Market – Select Portfolio Sector Weightings (Graph)	118
List of Largest Assets Held by the Pension Fund	119
Fiscal Year 2019 Commissions on Global Securities	121
Schedule of Fees	122

Actuarial Section

PUBLIC EMPLOYEES’ RETIREMENT SYSTEM (PERS)

Actuary’s Certification Letter	125
Membership Information	129
Actuarial Assumptions and Methods	135
Summary of Plan Provisions	143
Historical Data and Required CAFR Exhibits	151

TEACHERS’ PENSION AND ANNUITY FUND (TPAF)

Actuary’s Certification Letter	159
Membership Information	163
Actuarial Assumptions and Methods	167
Summary of Plan Provisions	177
Historical Data and Required CAFR Exhibits	181

TABLE OF CONTENTS

POLICE AND FIREMENS' RETIREMENT SYSTEM (PFRS)

Actuary's Certification Letter	184
Membership Information	188
Actuarial Assumption and Methods	194
Summary of Plan Provisions	203
Historical Data and Required CAFR Exhibits	206

STATE POLICE RETIREMENT SYSTEM (SPRS)

Actuary's Certification Letter	214
Membership Information	218
Actuarial Assumptions and Methods	222
Summary of Plan Provisions	227
Historical Data and Required CAFR Exhibits	231

JUDICIAL RETIREMENT SYSTEM (JRS)

Actuary's Certification Letter	234
Membership Information	238
Actuarial Assumptions and Methods	241
Summary of Plan Provisions	245
Historical Data and Required CAFR Exhibits	248

CONSOLIDATE POLICE AND FIREMENS' PENSION FUND (CPFPF)

Actuary's Certification Letter	251
Membership Information	254
Summary of Actuarial Assumptions and Methods	256
Summary of Plan Provisions	258
Historical Data and Required CAFR Exhibits	260

PRISON OFFICERS' PENSION FUND (POPF)

Actuary's Certification Letter	262
Membership Information	265
Summary of Actuarial Assumptions and Methods	267
Summary of Plan Provisions	268
Historical Data and Required CAFR Exhibits	270

PROGRAMS ADMINISTERED BY THE DIVISION OF PENSIONS & BENEFITS

SUPPLEMENTAL ANNUITY COLLECTIVE TRUST (SACT)

Actuary's Certification Letter	272
Membership Information	274
Summary of Actuarial Assumptions and Methods.....	279
Summary of Plan Provisions	280
Required CAFR Exhibits	282

Statistical Section

Schedule of Retired Members by Type of Benefit	287
Schedule of Revenues by Source	288
Schedule of Expense by Type	292
Schedule of Changes in Net Position	296
Participating County and Municipal Employers	301
Participating Education Employers	304
Participating Agencies and Authorities	308
Participating State Departments and Pension Funds	311

INTRODUCTORY SECTION

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Philip D. Murphy
Governor



Elizabeth Maher Muoio
State Treasurer



John Megariotis
Acting Director
Division of Pensions & Benefits



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Division of Pensions & Benefits
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Letter of Transmittal

June 2020

To the Honorable

Philip D. Murphy, Governor
Elizabeth Maher-Muoio, State Treasurer
Members of the Legislature
Members of the Boards of Trustees

On behalf of the New Jersey Division of Pensions & Benefits (NJDPB), I am pleased to submit the 64th Comprehensive Annual Financial Report (CAFR) of the New Jersey State-administered retirement systems and related benefit programs for the fiscal year ended June 30, 2019. The management of the NJDPB is responsible for the accuracy of the data and the completeness and fairness of the presentation. To the best of my knowledge and belief, the enclosed information is accurate in all material respects and is reported in a manner that fairly represents the financial position and results of the NJDPB's operations.

The Reporting Entity

The NJDPB was established in 1955 as the Division of Pensions to provide all administration of the State pension funds except investments. The NJDPB changed its name to the Division of Pensions & Benefits in 1992 to more accurately reflect its roles and responsibilities beyond the realm of pensions. Currently, the NJDPB administers one of the largest non-federal public benefits programs in the nation, consisting of 10 separate retirement systems, three supplemental retirement savings programs, three health benefits programs for employees, retirees, and family members, and several other employee benefits programs.

Major Initiatives

NJDPB's Website Redesign: Successfully deployed in February 2018, the goal of the project was to organize an overwhelming amount of pension and health benefits information. To begin the project, the new brand statement "Supportive, Trustworthy, Service" and new logo/seal and slogan "Explore Your Benefits" was created. This major undertaking was completed by the NJDPB's Office of Communications in one year and the results have significantly improved the overall website functionality.

Electronic Submission of Proof of Age: In an effort to reduce the amount of paper documents received by the NJDPB, a pilot program for members and employers to electronically submit Proof of Age documents was introduced. The pilot phase of this program allowed the NJDPB to correct or enhance any issues that are identified before making more documents available for submission.

Intrafund Transfer Application: This new web application is in the pilot phase and is available to a limited number of employers on the Employer Pension and Benefits Information Connection (EPIC).

Medicare Advantage Implementation: A Request for Proposal (RFP) was issued in 2018 requesting responses for the contract to administer the Medicare Advantage plans offered by the SHBP/SEHBP. Aetna was awarded the contract effective January 1, 2019. All eligible Medicare retirees in the SHBP/SEHBP enrolled in a Medicare Advantage plan were transitioned to the Aetna Medicare Advantage plans effective January 1. The SEHBP Plan Design Committee voted to approve Medicare Advantage plans to replace the supplemental Medicare PPO plans offered to SEHBP retirees. These retirees will also be transitioned to the Aetna Medicare Advantage plans effective January 1. Informational materials were mailed to members in advance of the coverage change.

Financial Information

The Financial reports of the Fiduciary Funds of the NJDPB have been prepared in conformity with generally accepted accounting principles as applied to governmental units. The Governmental Accounting Standards Board (GASB) is the accepted standard-setting body for governmental accounting and financial reporting. The specific accounting policies can be found in the Notes to the Financial Statements found in the Financial Section.

The Fiduciary Funds include 10 separate pension trust funds, one OPEB (Other Post-Employment Benefit) plan, and three agency funds. A summary of the condition of the funds administered by the Division of Pensions & Benefits is located in the “Management Discussion and Analysis” section that begins on page 39 of the CAFR. Management is responsible for establishing and maintaining the accounting systems complete with internal controls so that the data presented is complete and fairly presents the financial position of the NJDPB as of June 30, 2019. KPMG LLP independently audited the funds.

Investments

The Division of Investment has the responsibility for investing the assets of the programs administered by the Division. This is done under the jurisdiction of the State Investment Council. Investments are guided by the “prudent person rule.” During FY 2019, investment returns on pension funds were 6.27 percent. When combined with the returns for previous years, the annualized returns over the past three- and five-year periods were 9.43 percent and 6.21 percent, respectively.

Funding

Fully funding the State’s pension liabilities and offering sustainable public employee benefits are a major objective. With budgetary constraints and growing benefit liabilities, the NJDPB recognizes that further reform is necessary. The NJDPB has and will continue to devote its resources to support this important objective.

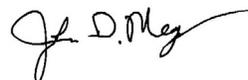
Professional Services

The NJDPB contracts with several professional organizations for advice and assistance in administering the programs for which it is responsible. The list of these organizations is found on page 100 of the CAFR. The Office of the Attorney General provides all legal services required by the NJDPB, the retirement systems Boards of Trustees, and the Health Benefits Commissions and Committees.

Acknowledgements

The preparation of the CAFR required the combined efforts of many employees from different operational units within the NJDPB. The CAFR is intended to provide extensive and reliable information to facilitate informed decisions, determine compliance with legal requirements, and demonstrate responsible stewardship for the assets contributed by the systems’ members, participating employers, and the taxpayers of the State. I would like to take this opportunity to express my gratitude to the Governor, the Legislature, the Treasurer, the Boards of Trustees, the individuals providing professional services, participating employer benefits administrators, and to the outstanding employees of the Division for all their efforts and support. Such concerted effort has resulted in making New Jersey’s public benefits system one of the largest and best administered in the nation.

Respectfully submitted,



John Megariotis, Acting Director

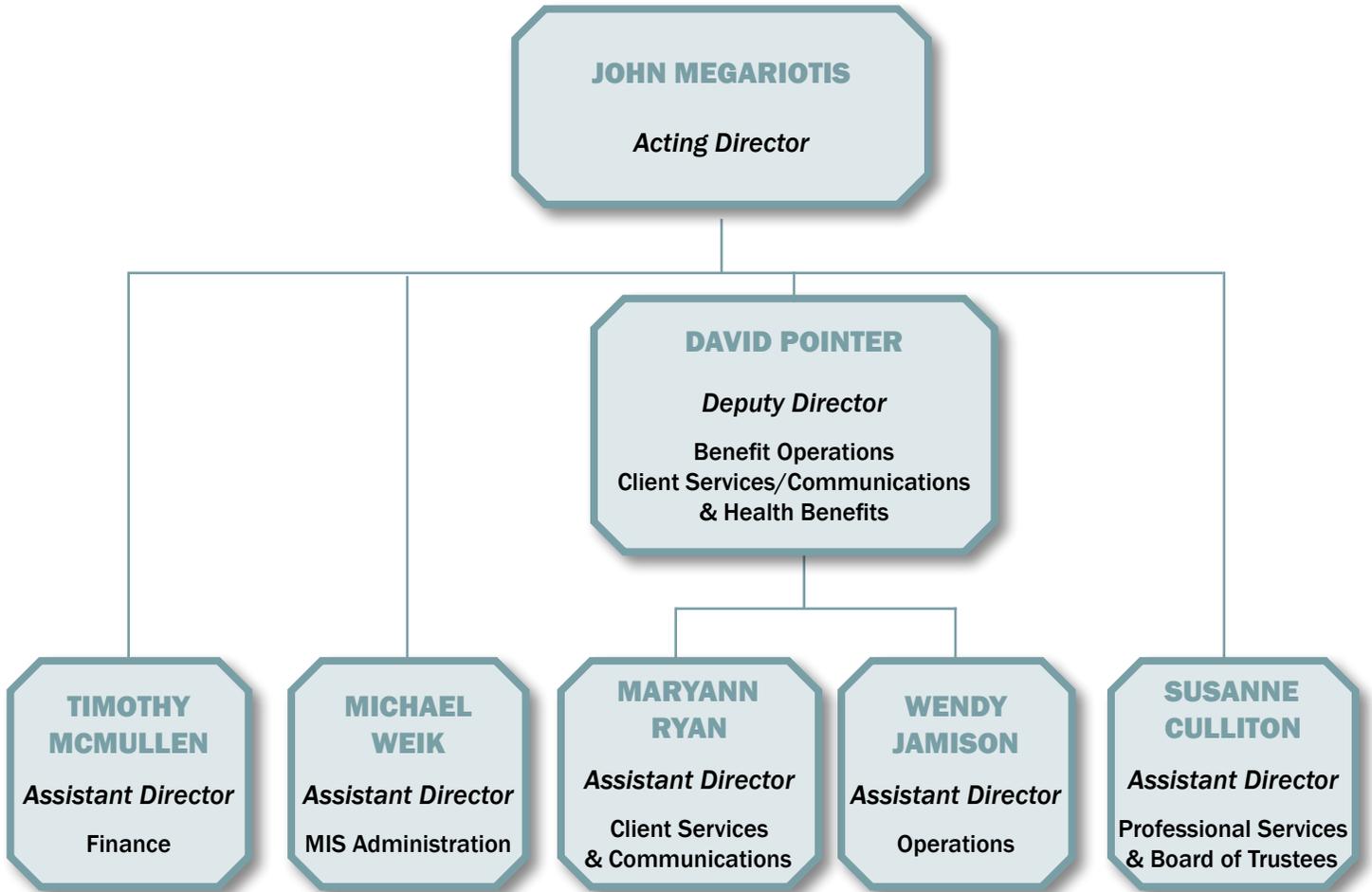
All in a Year's Work...

- There are **536,909 active members** in the defined benefit and defined contribution retirement systems.
- A total of **343,675 retirees and beneficiaries** received monthly pensions totaling in excess of **\$12 billion** annually.
- There are **1,856 participating employers** in the combined retirement systems.
- Over **19,077 beneficiary claims** were processed.
- Over **829,161 inbound calls** were received by the Division. Over **615,077** callers selected a phone representative and over **214,084** were handled by the Interactive Voice Response system (IVR) during business hours.
- **14,611 personal interviews** were conducted by pension counselors.
- **430 seminars and webinars** were conducted for over **14,448 members**.
- **13,430 service purchase requests** were processed.
- **35,840 new enrollments or transfers** were processed in our retirement systems.
- There were **9,331 paid withdrawals** from the retirement systems.
- **11,920** members retired.
- Over **75,459 pension loans** totaling **\$537,208,596.20** were processed.
- State and local membership in the State Health Benefits Program and School Employees' Health Benefits Program was **386,311 members** with **779,861 lives covered**.
- A total of over **\$6.2 billion in premiums** was collected from State and local State Health Benefits Program employers, School Employees' Health Benefits Program employers, and combined employees. **1,037 local employers** elected to participate in the SHBP or SEHBP this year.

ORGANIZATION

State of New Jersey • Department of the Treasury

Division of Pensions & Benefits



Director

The Director is responsible for the coordination of the functions of the NJDPB, the development of the NJDPB budget, and communication with other branches of State government, local government, and the public. The Director serves as the Secretary to the Supplemental Annuity Collective Trust Council, the State Health Benefits Commission and School Employees' Health Benefits Commission, and the State House Commission in its capacity as the Board of Trustees for the Judicial Retirement System. The Director also is responsible for legal and legislative matters and Board of Trustees administration. In addition, the Treasurer has delegated the responsibility of maintaining the Federal-State Agreement for Social Security to the Director of the NJDPB.

The Division of Pensions & Benefits falls under the jurisdiction of the New Jersey Department of the Treasury. The Director of the NJDPB reports directly to the State Treasurer.

Office of Health Benefits

This office, overseen by a Deputy Director, consists of two elements: the Health Benefits Bureau and the Office of Policy and Planning. The Health Benefits Bureau processes all enrollments, changes, and terminations for active and retired members of the State Health Benefits Program (SHBP) and School Employees' Health Benefits Program (SEHBP). In addition, this bureau is responsible for the administration of benefits under the federal COBRA law, and enrollments, changes, and terminations for members of the Prescription Drug Plans and Employee and Retiree Dental Plans. The Office of Policy and Planning analyzes and makes recommendations concerning current and proposed health benefits programs to provide the highest quality programs at the least possible cost. It manages contract renewals and requests for proposals. Policy and Planning is responsible for health benefit program review and development. This office also provides administrative support to the State Health Benefits Commission and School Employees' Health Benefits Commission as well as the SHBP and SEHBP Plan Design Committees.

Office of Financial Services

The work of this office, overseen by an Assistant Director, is divided among three bureaus: Financial Reporting, Payment, and Collections; Budget and Compliance; and Defined Benefit and Contribution Plans Reporting.

The Office of Financial Services is charged with the custodianship of pension and health benefits assets. These assets are in excess of \$87.3 billion. The office is responsible for the accounting and budget functions necessary for the successful operations of the various pension funds,

health benefits and agency funds, as well as the administration of the Pension Adjustment Program, the Supplemental Annuity Collective Trust, and Deferred Compensation Plan.

Office of Client Services & Communications

This office, overseen by an Assistant Director, consists of two elements: the Office of Client Services and the Office of Communications. Each office disseminates all plan and program information to employees, retirees, and employers covered by the various New Jersey State-administered retirement systems and benefit programs.

The Office of Client Services consists of the Call Center and Interview Units which provide counseling services to employees, retirees, and employers; the Education Unit which conducts seminars/webinars, employer training and various presentations concerning pension, life insurance, and health benefits; the Email and Correspondence Unit which responds to all written requests and emails; and the Support Unit which provides receptionist services for the entire Division. The Office of Communications consists of the Print and Internet Units, which are responsible for creating, editing, and updating the NJDPB's informational materials, including manuals, reports, forms, benefits statements, and guide booklets, and for the distribution of these items in printed form or online through the NJDPB's Internet site.

Office of Operations

This office, overseen by an Assistant Director, consists of two bureaus: the Enrollment, Purchase, Adjustment, Loan, and Withdrawal Bureau along with the Retirement Bureau, and Beneficiary Services.

The Office of Operations is responsible for the following: Retirement Processing Section (calculation and payment of retirement benefits); Disability Retirement Section (processing of Ordinary and Accidental Disability applications); Beneficiary Services Section (processing beneficiary designations, calculation and payment of active and retired death benefits); Quality Control Section (plan all activities related to the Judicial Retirement System, process Workers' Compensation offsets and Court Orders for Support and Qualified Domestic Relations Orders, audit and adjustments to retired member accounts); Enrollment Section (process new enrollment application into the Defined Benefits (DB) Plans including interfund and intrafund transfers); Purchase Section (quote and calculate the cost for members to purchase additional eligible service credit in the DB plans); Adjustment Section (analyze data and prepare adjustments of active member accounts); and Loans and Withdrawal Section (administer payments to members for pension loans and withdrawal from the DB Plans).

ORGANIZATION

Office of Management Information and Support Services

The work of this office, overseen by an Assistant Director, is responsible for the development and maintenance of all processing and management information systems for the NJDPB. This office also has responsibility for the training, usage, and maintenance of all automated office and telephone equipment.

This office consists of four sections: Image Processing and Records Management; Computer Scheduling and Production Control; Systems Development; and Support Services.

Office of Professional Services

The Office of Professional Services is located within the Director's Office and operates under the direction of an Assistant Director. It is responsible for providing a structured and consistent planning function for the NJDPB, assists in analyzing proposed legislation, providing the regulatory function for the NJDPB, managing the development of contracts with external service providers, conducting research in support of NJDPB activities, reviewing all Court Orders including subpoenas and ensuring implementation, assuring compliance with the Open Public Records Act, and oversight of the Office of Board of Trustees Administration.

The Office of Board of Trustees Administration, provides administrative services for the various defined benefit plans' Boards and Commissions. The Boards and Commissions have the general responsibility for the proper operation of their respective employee benefits program. The Boards adopt rules in compliance with statute and advice of the Attorney General. The Boards may grant hearings in disputes concerning issues of law or fact. Hearings are held by the Office of Administrative Law.

The Boards maintain a record of all proceedings and hold regular meetings and special meetings when necessary.

Actuarial Advisors

The actuaries establish actuarial tables for the operation of the retirement systems, determine the annual appropriation required of participating employers, and conduct annual examinations of the systems' actuarial position.

Contracts for actuarial services for the retirement systems are awarded at specified intervals through the regulations governing the procurement of goods and services for the State of New Jersey and its constituent departments and agencies

Legal Advisor

The State Attorney General is the legal advisor for all pension funds and other employee benefit programs.

Medical Advisors

All retirement systems are served by a medical board consisting of three physicians who review claims for disability as submitted by the Disability Review Section of the Retirement Bureau for the Division of Pensions & Benefits.

ORGANIZATION — BOARDS OF TRUSTEES

(Reflects Board Members who served as of June 30, 2019)

Public Employees' Retirement System **Thomas Bruno**, *Chairperson*
William O'Brien, *State Representative*
Carey H. Brown, *State Representative*
Tracy Smith, *County Representative*
Brian Currie, *Municipal Representative*
Ronald Winthers, *Gubernatorial Appointee*
Benjamin Hurst, *Municipal Representative*
Susanne Culliton, *Treasurer's Representative*
Robert Kelly, *Deputy Attorney General*
Jeff Ignatowitz, *Board Secretary*
William Tedder, *Assistant Board Secretary*

Teachers' Pension and Annuity Fund **Howard Lipoff**, *Chairperson*
Irene Savicky, *Retired Teacher*
Vacancy, *Gubernatorial Appointee*
Edward Yurusinsky, *Retired Teacher*
Sarah Favinger, *Elected by the Board*
Edward G McCarthy, *Governor's Appointment*
Susanne Culliton, *Treasurer's Representative*
Angelina Scales, *Board Secretary*
Sharon Barnes, *Assistant Board Secretary*

Police and Firemen's Retirement System **Ed Donnelly**, *Chairperson*
James Kompany, *Vice-Chairperson*
Timothy Colacci, *PFANJ Appointment*
Marc Morgan, *FOP Appointment*
Raymond Heck, *Police Representative*
Matthew Lubin, *Fire Representative*
Bruce Polkowitz, *Retiree Representative*
Edward T. Oatman, *Governor's Appointment*
Nicola Trasente, *Governor's Appointment*
John C. Glidden, Jr., *Governor's Appointment*
Susan Jacobucci, *Governor's Appointment*
John Megariotis, *Governor's Appointment*
Ed Donnelly, *FMBA Appointment*
James Kompany, *PBA Appointment*

State Police Retirement System **Wayne Korte**, *Chairperson*
Sherrie Schuster, *Vice-Chairperson*
Vacancy, *Governor's Appointment*
Robert Garrison, *Deputy Attorney General*
Susanne Culliton, *Treasurer's Representative*
Mary Ellen Rathbun, *Board Secretary*
Sharon Barnes, *Assistant Board Secretary*

ORGANIZATION — BOARDS OF TRUSTEES

Supplemental Annuity Collective Trust	Tim McMullen , Chairperson, Representing John Megariotis, Acting Director, Division of Pensions & Benefits
	Leslie Notor , Representing David Ridolfino, Acting Director, Office of Management & Budget Don Henson , Representing Marlene Caride, Commissioner, Department of Banking & Insurance
Deferred Compensation Board	Steven Harris , Chairperson, Representing Elizabeth Maher-Muoio, Treasurer, State of New Jersey Leslie Notor , Representing Charlene Holzbaur, Director, Office of Management & Budget Don Henson , Representing Marlene Caride, Commissioner, Department of Banking & Insurance
Defined Contribution Retirement Program Board	Tim McMullen , Chairperson, Representing John Megariotis Acting Director, Division of Pensions & Benefits Sonia Rivera-Perez , Representing David Ridolfino, Acting Director, Office of Management & Budget Don Henson , Representing Marlene Caride, Commissioner, Department of Banking & Insurance Todd Rowahit , Representing Corey Amon, Director, Division of Investment
State Health Benefits Commission	Susanne Culliton , Chairperson, Representing State Treasurer Elizabeth Maher Muoio Gale Simon , Representing Acting Commissioner Deirdre Webster Cobb , Civil Service Commission Dudley Burge , Local Employees' Representative of the AFL-CIO Debra Davis , State Employees' Representative of the AFL-CIO Nicole Ludwig , Secretary
School Employees' Health Benefits Commission	(Vacancy) , Chairperson Sonia Rivera-Perez , Representing State Treasurer Elizabeth Maher Muoio Thomas Gallagher , Representing Acting Commissioner Marlene Caride, Dept. of Banking and Insurance Kevin Kelleher , Representing the NJEA Dan Goldman , Representing the NJEA Julie Giordano Plotkin , Associate Director, NJEA Cynthia Jahn , Representing the N.J. School Boards Association Michael Maillaro , Commissioner, AFL-CIO representative Vacancy , Governor's Appointee Nicole Ludwig , Secretary

Chapter 32, P.L. 2018

Effective Date: August 30, 2018

NJDPB Section(s) Affected by this Law: SHBP and SEHBP

Description: This law, the “Out-of-network Consumer Protection, Transparency, Cost Containment and Accountability Act”, reforms various aspects of the health care delivery system in New Jersey to increase transparency in pricing for health care services, enhance consumer protections, create an arbitration system to resolve certain health care billing disputes, contain rising costs associated with out-of-network health care services, and measure success with regard to these goals.

Chapter 55, P.L. 2018

Effective Date: July 4, 2018

NJDPB Section(s) Affected by this Law: PFRS

Description: This law transfers management of the Police and Firemen’s Retirement System (PFRS) from the Division of Pensions & Benefits in the Department of the Treasury to the Board of Trustees of the PFRS and vests with the Board all the functions, powers, and duties relating to the investment and reinvestment funds under the control of the Board.

Chapter 63, P.L. 2018

Effective Date: July 3, 2018

NJDPB Section(s) Affected by this Law: SHBP and SPRS

Description: This law provides that the State will pay the full cost of State Health Benefits Program (SHBP) coverage in retirement for State Police Retirement System (SPRS) members who retire at mandatory retirement age of 55 with more than 20, but fewer than 25, years of service.

Chapter 88, P.L. 2018

Effective Date: August 10, 2018

NJDPB Section(s) Affected by this Law: SHBP and SEHBP

Description: This law requires the State Health Benefits Program (SHBP) and School Employees’ Health Benefits Program (SEHBP) to establish and contract for a Medicare Primary Assignment and Audit Program ensuring that all Medicare-eligible persons in the SHBP and SEHBP have Medicare as the primary provider.

Chapter 96, P.L. 2018

Effective Date: July 21, 2018.

NJDPB Section(s) Affected by this Law: SHBP and SEHBP

Description: This law provides that a Public Employees’ Retirement System (PERS) or Police and Firemen’s Retirement System (PFRS) member who continues to be a volunteer firefighter or emergency services worker after retirement with the employer from whom member retires has bona fide severance for compliance with State and federal law.

Chapter 129, P.L. 2018

Effective Date: October 4, 2018

NJDPB Section(s) Affected by this Law: TPAF and PERS

Description: This law clarifies that employees of renaissance school projects are to be enrolled in the Teachers’ Pension and Annuity Fund (TPAF) or Public Employees’ Retirement System (PERS).

Chapter 51, P.L. 2019

Effective Date: September 1, 2019

NJDPB Section(s) Affected by this Law: PFRS and SPRS

Description: This law revises the law governing Class Three special law enforcement officers.

Chapter 87, P.L. 2019

Effective Date: September 1, 2019

NJDPB Section(s) Affected by this Law: SHBP and SEHBP

Description: This law prohibits health benefits coverage for certain non-medically indicated early elective deliveries under the Medicaid program, SHBP, and SEHBP

Chapter 143, P.L. 2019

Effective Date: June 30, 2019

NJDPB Section(s) Affected by this Law: SHBP and SEHBP

Description: This law creates sub-accounts for SHBP and SEHBP health care services and prescription drug claims; requires procurement by the State of a third-party administrator.

SCOPE OF OPERATIONS

Public Employees' Retirement System (PERS)

This system was established by Chapter 84, P.L. 1954, after the repeal of the law creating the former State Employees' Retirement System. The retirement benefits of this system are coordinated, but not integrated, with Social Security. This system is maintained on an actuarial reserve basis. Under the terms of Chapter 71, P.L. 1966, most public employees in New Jersey not required to become members of another contributory retirement program are required to enroll.

Statutes can be found in the New Jersey Statutes Annotated, Title 43, Chapter 15A. Rules governing the operation and administration of the fund may be found in Title 17, Chapter 2, of the New Jersey Administrative Code.

Teachers' Pension and Annuity Fund (TPAF)

This fund was reorganized by Chapter 37, P.L. 1955. The retirement benefits of this system are coordinated, but not integrated, with Social Security. This fund is maintained on an actuarial reserve basis. Membership is mandatory for substantially all teachers or members of the professional staff certified by the State Board of Examiners, and employees of the Department of Education who have titles that are unclassified, professional, and certified.

Statutes can be found in the New Jersey Statutes Annotated, Title 18A, Chapter 66. Rules governing the operation and administration of the system may be found in Title 17, Chapter 3, of the New Jersey Administrative Code.

Police and Firemen's Retirement System (PFRS)

This system was established by Chapter 255, P.L. 1944. All police officers and firefighters, appointed after June 1944, in municipalities where local police and fire pension funds existed or where this system was adopted by referendum or resolution are required to become members of this system. Certain State and county employees also are covered. Employer obligations are paid by the local employers and the State. This system is maintained on an actuarial reserve basis.

Statutes can be found in the New Jersey Statutes Annotated, Title 43, Chapter 16A. Rules governing the operation and administration of the system may be found in Title 17, Chapter 4, of the New Jersey Administrative Code.

State Police Retirement System (SPRS)

This system was created by Chapter 89, P.L. 1965, as a successor to the State Police Retirement and Benevolent Fund. All uniformed officers and troopers of the Division of State Police in the New Jersey Department of Law and Public Safety are required to enroll. This system is maintained on an actuarial reserve basis.

Statutes can be found in the New Jersey Statutes Annotated, Title 53, Chapter 5A. Rules governing the operation and administration of the system may be found in Title 17, Chapter 5, of the New Jersey Administrative Code.

Judicial Retirement System (JRS)

This system was established by Chapter 140, P.L. 1973, after the repeal of the laws providing pension benefits to members of the State judiciary and their eligible survivors. All members of the State judiciary are required to enroll. The system is maintained on an actuarial reserve basis. Statutes can be found in the New Jersey Statutes Annotated, Title 43, Chapter 6A. Rules governing the operation and administration of the system may be found in Title 17, Chapter 10, of the New Jersey Administrative Code.

Defined Contribution Retirement Program (DCRP)

This program was established July 1, 2007, under the provisions of Chapter 92, P.L. 2007, and Chapter 103, P.L. 2007, and expanded under the provisions of Chapter 89, P.L. 2008, and Chapter 1, P.L. 2010.

The program is a tax-qualified defined contribution money purchase pension plan under Internal Revenue Code (IRC) §401(a) et seq., and is a "governmental plan" within the meaning of IRC §414(d). Eligible members are provided with a tax-sheltered, defined contribution retirement benefit, along with life insurance and disability coverage. Individuals eligible for membership include State or local officials who are elected or appointed on or after July 1, 2007; employees enrolled in the PERS or TPAF on or after July 1, 2007, who earn salary in excess of established "maximum compensation" limits; employees enrolled in the PFRS or SPRS after May 21, 2010, who earn salary in excess of established "maximum compensation" limits; and employees otherwise eligible to enroll in the PERS or TPAF on or after November 2, 2008, who do not earn the minimum annual salary required for PERS or TPAF Tier 3 enrollment or do not work the minimum hours per week required for PERS or TPAF Tier 4 or Tier 5 enrollment.

Statutes can be found in the New Jersey Statutes Annotated, Title 43, Chapter 15C, Article 1 et seq.

Alternate Benefit Program (ABP)

This program was established by several pieces of legislation between 1965 and 1968 for full-time faculty members of public institutions of higher education. It was later expanded to include certain administrative and professional titles.

Chapter 385, P.L. 1993, increased the number of investment carriers to seven. The investment carriers underwriting annuities are as follows: AXA Financial (Equitable); Mass Mutual Retirement Services; MetLife (formerly Travelers/CitiStreet); Prudential; Teachers Insurance and Annuity Association (TIAA); VALIC; and VOYA Financial Services. The ABP is a “defined contribution” plan as distinguished from “defined benefits” payable by the other State retirement systems. Immediate vesting after the first year of participation offers the mobility of pension credit among the private and public institutions of higher education in the United States and Canada. Group life insurance and long-term disability insurance are underwritten by the Prudential Insurance Company of America, Inc. Statutes can be found in the New Jersey Statutes Annotated, Title 18A, Chapter 66. Rules governing the operation and administration of this program may be found in Title 17, Chapter 7, of the New Jersey Administrative Code.

Prison Officers’ Pension Fund (POPF)

This fund was established under Chapter 220, P.L. 1941. It was closed to new employees as of January 1960. New employees are enrolled in the Police and Firemen’s Retirement System. This system is not maintained on an actuarial reserve basis.

Statutes can be found in the New Jersey Statutes Annotated, Title 43, Chapter 7.

Consolidated Police and Firemen’s Pension Fund (CPFPPF)

This fund was established by Chapter 358, P.L. 1952, to place 212 local police and fire pension funds on an actuarial reserve basis. The membership consists of police and firefighters appointed prior to July 1, 1944. The liabilities of these local funds were shared: two-thirds by the participating municipalities and one-third by the State.

Statutes can be found in the New Jersey Statutes Annotated, Title 43, Chapter 16. Rules governing the operation and administration of this fund may be found in Title 17, Chapter 6, of the New Jersey Administrative Code.

New Jersey State Employees Deferred Compensation Plan (NJSEDCP)

This plan was established by Chapter 39, P.L. 1978, and is available to any State employee who is a member of a State-administered retirement system. This plan is a voluntary investment program that provides retirement income separate from and in addition to the basic pension benefit.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 18A.

Prudential Retirement was selected as the NJSEDCP’s third-party administrator on August 26, 2005. The Division of Pensions & Benefits maintains its administrative oversight functions.

Supplemental Annuity Collective Trust (SACT)

This trust was established by Chapter 123, P.L. 1963. This program includes active members of several State-administered retirement systems. Members make voluntary additional contributions through their pension funds to purchase variable retirement annuities in order to supplement the benefits provided by their basic system. Some employers agree to purchase tax-sheltered annuities for the same purpose for certain eligible employees.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 18A. Rules governing the operation and administration of the trust may be found in Title 17, Chapter 8 of the New Jersey Administrative Code.

Additional Contributions Tax-Sheltered Program (ACTS)

This program was established in 1996. ACTS is a tax-sheltered, supplemental, retirement program pursuant to Internal Revenue Code (IRC) §403(b) offered to employees of institutions of higher education, the Commission of Higher Education, the Department of Education, and the Office of Student Assistance. The eligible employees are able to obtain tax-deferred annuities with a variety of investment carriers through a salary reduction agreement. The annuities are available from the same investment carriers who service the ABP.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 18A, Section 113.

SCOPE OF OPERATIONS

Central Pension Fund (CPF)

This fund consists of the administration of a series of noncontributory pension acts. No reserves are established for the payment of retirement benefits. These benefits are administered by the NJDPB in accordance with the governing statute and the rules and regulations of the State House Commission.

Pension Adjustment Fund (PAF)

This fund was established pursuant to Chapter 143, P.L. 1958, and covers all eligible pensions of State-administered retirement systems. It was altered by Chapter 169, P.L. 1969, which provided a cost-of-living adjustment and by Chapter 139, P.L. 1971, which extended its provisions to eligible survivors.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 18A. Rules governing the operation and administration of the fund may be found in Title 17, Chapter 1, of the New Jersey Administrative Code.

Unemployment Compensation and Temporary Disability Insurance for State Employees (UC/TDI)

The Division of Pensions & Benefits coordinates work related to the payment of unemployment compensation and temporary disability insurance benefits for State employees eligible for coverage under federal law. It is responsible for contracting with a service agency to review all questionable claims for unemployment compensation.

State Health Benefits Program (SHBP)

The program provides medical coverage to employees, retirees, and their dependents. Chapter 125, P.L. 1964, extended the program to include employees of local government. The program includes preferred provider organizations, HMO plans and High Deductible Health Plans offered through Aetna and Horizon BCBSNJ.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 14, Article 17.25 et seq. Rules governing the operation and administration of the program can be found in Title 17, Chapter 9, of the New Jersey Administrative Code

School Employees' Health Benefits Program (SEHBP)

The program provides medical coverage to local education employees, retirees, and their dependents. Chapter 103, P.L. 2007, established the program which includes preferred provider organizations, HMO plans, and High Deductible Health Plans offered through Aetna and Horizon BCBSNJ.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 14, Article 17.46 et seq. Rules governing the operation and administration of the program can be found in Title 17, Chapter 9, of the New Jersey Administrative Code.

Prescription Drug Plans (PDP)

This plan was initiated by the State effective December 1, 1974. The passage of Chapter 41, P.L. 1976, extended coverage to all eligible State employees. The State Health Benefits Commission offered the plan to local employers on July 1, 1993. Employees and their eligible dependents are covered by the plan in the same manner as the State Health Benefits Program. The Division of Pensions & Benefits became responsible for plan administration in November 1976.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 14, Section 17.29(H). Rules governing the operation and administration of the program can be found in Title 17, Chapter 9, of the New Jersey Administrative Code.

Employee Dental Plans (EDP)

This program was initially established February 1, 1978, and further expanded in June 1984. Eligible State and certain local employees may enroll themselves and their eligible dependents by paying the premium calculated to meet half the cost of the plan. Plans offered include the Dental Expense Plan, which is a traditional indemnity plan, and a selection of Dental Plan Organizations. Retirees were permitted to enroll in the plans in 2005. Retirees are required to pay full cost of the plan.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 14, Section 17.29(H). Rules governing the operation and administration of the program may be found in Title 17, Chapter 9, of the New Jersey Administrative Code.

Tax\$ave

The State Employees Tax Savings Program (Tax\$ave) was initially established for State employees in July 1996 and authorized under Internal Revenue Code (IRC)§125. The benefit consists of three

components: the Premium Option Plan that allows employees to use pre-tax dollars deducted from their pay for health or dental benefit premiums they may be required to pay for coverage; the Flexible Spending Account for Unreimbursed Medical Expenses that allows employees to use up to \$2,500 pre-tax dollars annually deducted from their pay for medical expenses not reimbursed by their medical or dental insurance; and the Dependent Care Spending Account that allows employees to use up to \$5,000 pre-tax dollars annually deducted from their pay for dependent care expenses required to permit the employee and spouse to work.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 14, Article 15.1a. Rules governing Tax\$ave can be found in Title 17, Chapter 1, Subchapter 13, of the New Jersey Administrative Code.

Commuter Tax\$ave

This program, authorized by Chapter 162, P.L. 2001, and available under Internal Revenue Code (IRC) § 132(f), allows eligible State employees to use pre-tax dollars to pay for qualified commuter expenses. Under the program, eligible employees may execute salary reduction agreements to have up to \$255 per month (\$3,060 per year) deducted from salary to pay for mass transit commutation costs and \$255 per month (\$3,060 per year) to pay for parking at work or at park and ride sites. The program was implemented in February 2004.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 14, Article 17.33. Rules governing Commuter Tax\$ave can be found in Title 17, Chapter 1, Subchapter 14, of the New Jersey Administrative Code.

Long Term Care Insurance Plan

This plan is a participant-pay-all benefit available to State and certain local employees, retirees, and family members. The Prudential Insurance Company administers the insurance plan under contract with the State. The initial offering of the benefit was effective July 1, 2003, and benefits were offered to local employees effective February 1, 2006. The plan was closed to new enrollees as of June 30, 2013.

Statutes can be found in the New Jersey Statutes Annotated, Title 52, Chapter 14, Article 15.9a, and Chapter 18, Article 11.2, and Title 34, Chapter 11, Article 4.4b(10).

MEMBERSHIP

Active Membership

Retirement System	2019	2018
Public Employees' Retirement System	253,006	256,538
Teachers' Pension and Annuity Fund	157,813	157,213
Police and Firemen's Retirement System	43,701	43,613
State Police Retirement System	2,956	2,894
Judicial Retirement System	426	451
Alternate Benefit Program	24,939	25,646
Defined Contribution Retirement Program	54,068	47,795
Prison Officers' Pension Fund	0	0
Consolidated Police and Firemen's Pension Fun	0	0
Central Pension Fund	NA	NA
Total	536,909	534,150

* Both the 2018 and 2019 figures represent the total number of Active and Inactive accounts.

The 2019 Inactive (noncontributing) accounts are as follows: PERS Inactive – 50,010,

TPAF Inactive – 14,995, PFRS Inactive – 2,582, SPRS Inactive – 175.

Retired Membership & Beneficiaries

Retirement System	2019	2018
Public Employees' Retirement System	183,363	179,563
Teachers' Pension and Annuity Fund	107,438	105,662
Police and Firemen's Retirement System	48,391	47,319
State Police Retirement System	3,661	3,660
Judicial Retirement System	693	670
Alternate Benefit Program	NA	NA
Prison Officers' Pension Fund	61	70
Consolidated Police and Firemen's Pension Fund	52	61
Central Pension Fund	16	16
Total	343,675	337,021

* The number of retirees varies slightly from those reported in the Notes to the Financial Statements due to differences in the effective dates of said tabulations.

Participation in Health Benefits Program

Health Program	2019	2018
State Health Benefits Program and School Employees' Health Benefits Program	386,311	390,067
Prescription Drug Plans	352,905	345,099
Dental Expense Program	206,861	203,030

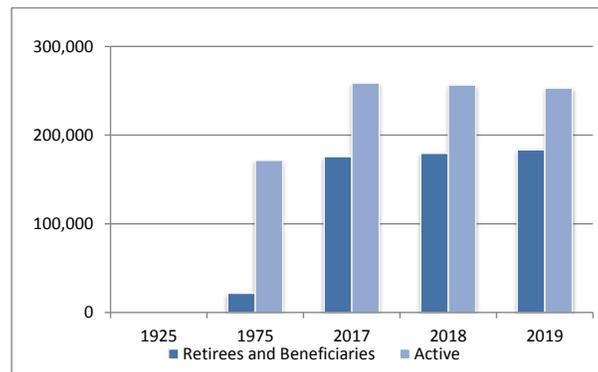
Public Employees' Retirement System

As of June 30, 2019, the active membership of the system totaled 253,006. There were 183,363 retirees and beneficiaries receiving annual pensions totaling \$3,896,686,814.

Beneficiaries of deceased active and retired members received lump sum death benefits in the amount of \$86,793,757.

The system's assets totaled \$30,701,773,500 at the close of fiscal year 2019.

* Includes cost-of-living adjustments paid under the provisions of the Pension Adjustment Act.



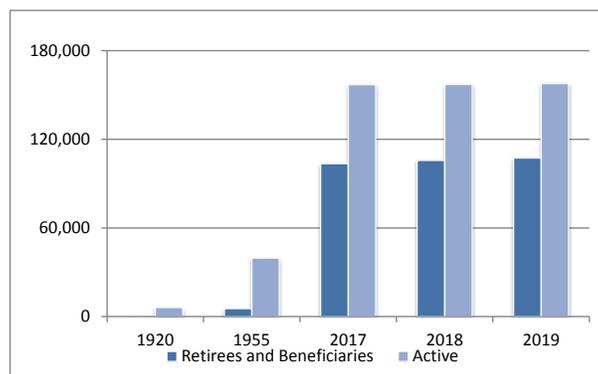
Teachers' Pension and Annuity Fund

As of June 30, 2019, the active membership of the fund totaled 157,813. There were 107,438 retirees and beneficiaries receiving annual pensions totaling \$4,408,262,599.

Beneficiaries of deceased active and retired members received lump sum death benefits in the amount of \$41,107,648.

The fund's assets totaled \$23,468,387,102 at the close of fiscal year 2019.

* Includes cost-of-living adjustments paid under the provisions of the Pension Adjustment Act.



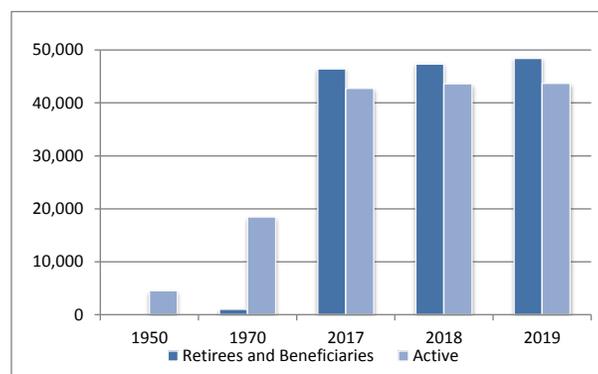
Police and Firemen's Retirement System

As of June 30, 2019, the active membership of the system totaled 43,701. There were 48,391 retirees and beneficiaries receiving annual pensions totaling \$2,563,694,176.

Beneficiaries of deceased active and retired members received lump sum death benefits in the amount of \$35,769,359.

The system's assets totaled \$28,352,342,003 at the close of fiscal year 2019.

* Includes cost-of-living adjustments paid under the provisions of the Pension Adjustment Act.



MEMBERSHIP

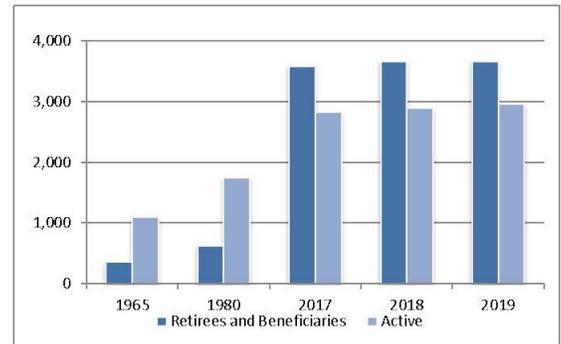
State Police Retirement System

As of June 30, 2019, the active membership of the system totaled 2,956. There were 3,661 retirees and beneficiaries receiving annual pensions totaling \$223,317,477.

Beneficiaries of deceased active and retired members received lump sum death benefits in the amount of \$2,182,956.

The system's assets totaled \$1,833,921,101 at the close of fiscal year 2019.

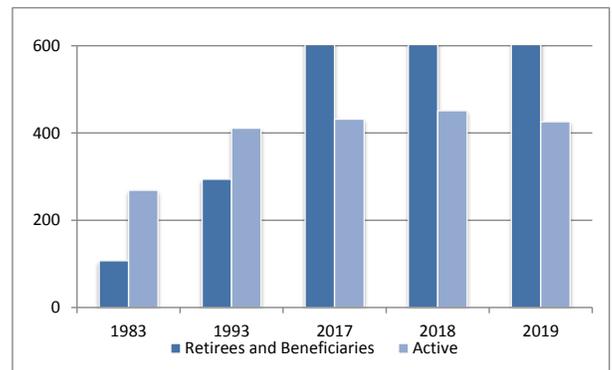
* Includes cost-of-living adjustments paid under the provisions of the Pension Adjustment Act.



Judicial Retirement System

As of June 30, 2019, the active membership of the system totaled 426. There were 693 retirees and beneficiaries receiving annual pensions totaling \$58,847,179.

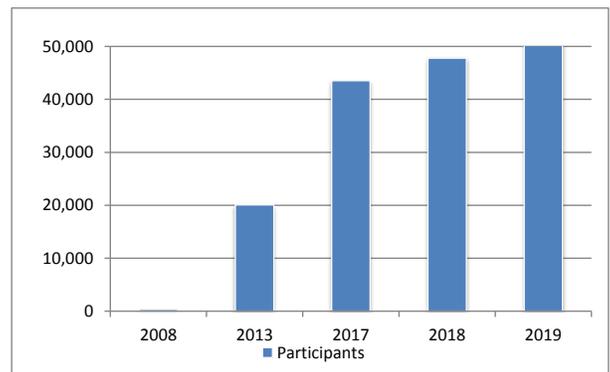
The system's assets totaled \$164,889,281 at the close of fiscal year 2019.



Defined Contribution Retirement Plan

As of June 30, 2019, the active membership of the Defined Contribution Retirement Plan totaled 54,068.

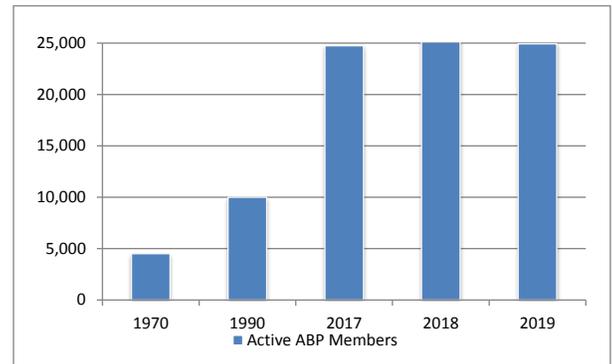
The plan's net assets (participants' balances) were \$16,913,908 at the close of fiscal year 2019.



Alternate Benefit Program

As of June 30, 2019, the State paid \$190,121,951 on behalf of 24,939 participants to the carries underwriting this program.

Beneficiaries of deceased active and retired members received \$20,186,035 in the lump sum death benefits.



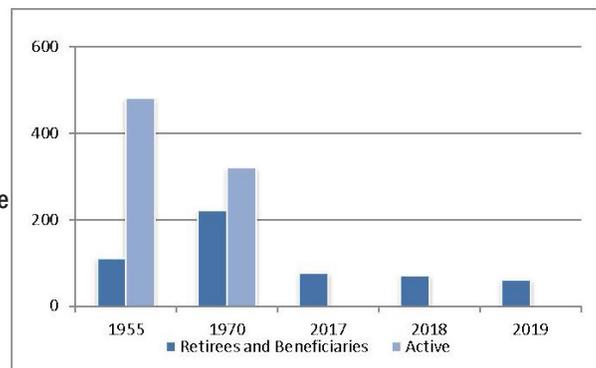
Prison Officers' Pension Fund

The activity shown to the right is consistent with a closed pension fund.

The fund was closed to new membership in January 1960.

As of June 30, 2019, the active membership of the fund totaled zero. There were 61 retirees and beneficiaries receiving annual pensions totaling \$816,972.

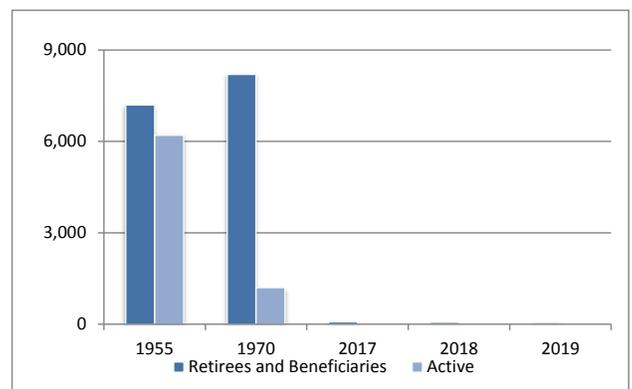
The fund's assets totaled \$4,998,037 at the close of fiscal year 2019.



Consolidated Police and Firemen's Pension Fund

The activity shown to the right is consistent with a closed pension fund. As of June 30, 2019, the active membership of the fund totaled zero. There were 52 retirees and beneficiaries receiving annual pensions totaling \$1,033,175.

The fund's assets totaled \$1,480,992 at the close of fiscal year 2019.



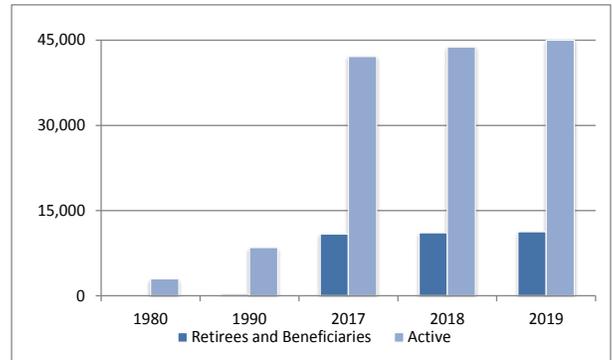
MEMBERSHIP

N.J. State Employees' Deferred Compensation Plan

Fiscal year 2019 continues to show a marked increase in active participation due to membership campaigns conducted by the Division of Pensions & Benefits.

As of June 30, 2019, the active membership of the New Jersey State Employees Deferred Compensation Plan totaled 45,014. There were 11,285 members receiving monthly installment payments.

The plan's net assets (participants' balances) were \$4,507,883,228 at the close of fiscal year 2019.

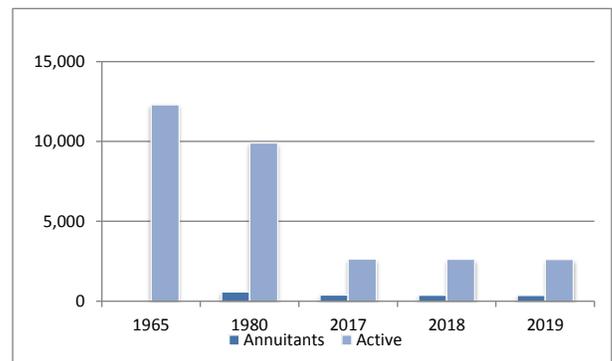


Supplemental Annuity Collective Trust

As of June 30, 2019, the active membership of the trust totaled 2,613. The unit value was \$109.6525, an increase of 1.7853 from the June 30, 2018, value of \$107.8672

There were 358 annuitants.

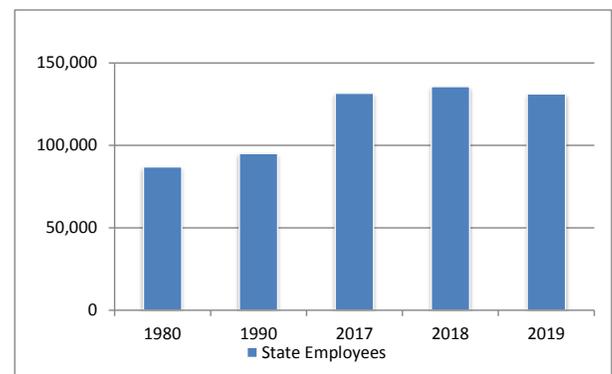
The trust's assets totaled \$231,437,137 at the close of fiscal year 2019.



Unemployment Compensation and Temporary Disability Insurance

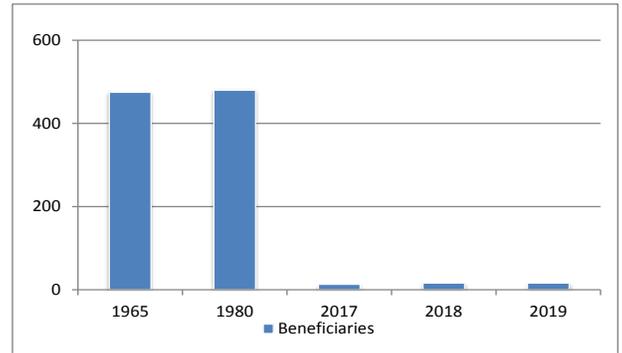
As of June 30, 2019, the Unemployment Compensation Program for State employees covered as many as 118,165 persons, and the Division remitted \$4,721,868.77 on behalf of the State. There were 3,990 requests for unemployment benefits filed, and \$16,198,761.08 was paid to the employees found eligible.

During the same time period, the Temporary Disability Insurance Program covered 131,254 employees, and the Division remitted \$37,030,084.39 on behalf of the State. Claims paid totaled \$25,581,744.



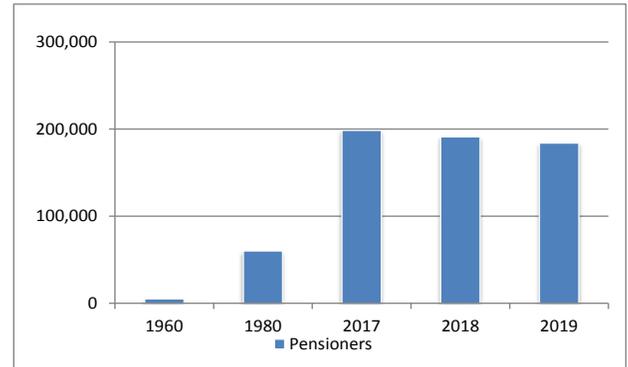
Central Pension Fund

As of June 30, 2019, there were 16 beneficiaries receiving annual pensions totaling \$301,704.



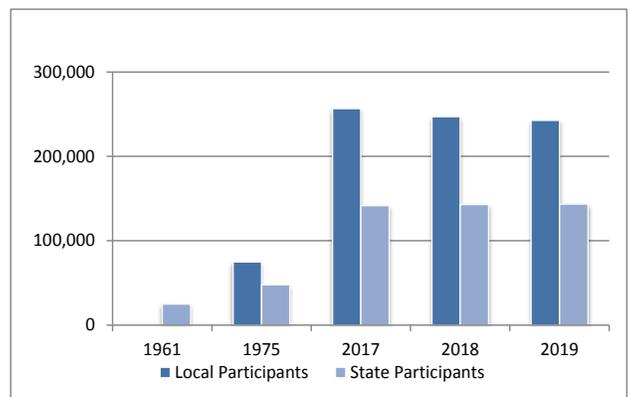
Pension Adjustment Expense

There were 183,829 pensioners who were paid \$695,653,815 during fiscal year 2019.



State Health Benefits and School Employees' Health Benefits Program

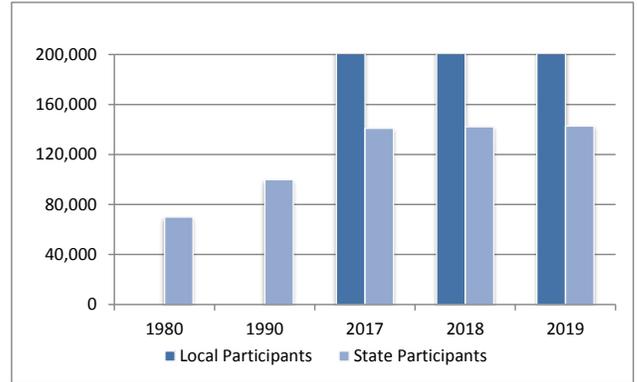
As of June 30, 2019, there were 386,311 participants (active and retired) consisting of 143,591 State participants and 242,720 participants of 1,037 local participating employers.



MEMBERSHIP

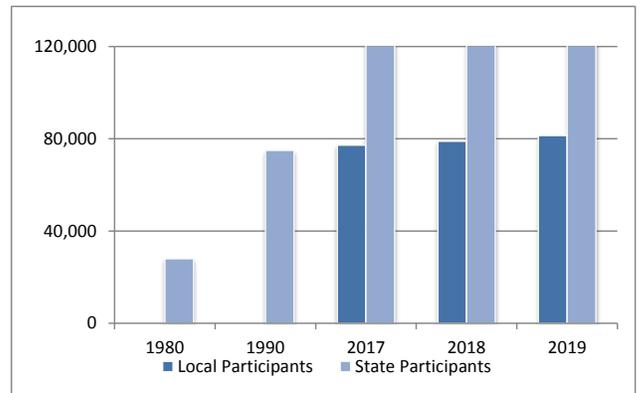
Prescription Drug Plans

The Prescription Drug plan covered as many as 142,809 State participants and 210,096 local participants during the fiscal year 2019.



Dental Expense Program

The Dental Expense Program covered as many as 125,479 eligible State participants and 81,382 local participants during fiscal year 2019. The State of New Jersey as the employer expended \$34,894,729 for active participants while payment made by local (including education) employers was \$4,825,013.



FINANCIAL SECTION

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Index

Independent Auditors' Report	37
Management's Discussion and Analysis (Unaudited)	39
Basic Financial Statements:	
Statement of Fiduciary Net Position – Fiduciary Funds.....	46
Combining Statement of Fiduciary Net Position – Fiduciary Funds – Pension Trust Funds and Other Postemployment Benefit (OPEB) Plan	47
Statement of Changes in Fiduciary Net Position – Fiduciary Funds.....	48
Combining Statement of Changes in Fiduciary Net Position – Fiduciary Funds – Pension Trust Funds and Other Postemployment Benefit Plan	49
Notes to Financial Statements	50
Supplementary Schedules:	
<i>Required Supplementary Information (Unaudited)</i>	
Defined Benefit Pension Plans:	
1 Schedule of Changes in Net Pension Liability and Related Ratios	84
2 Schedule of Employer Contributions	92
3 Schedule of Investment Returns – Annual Money-Weighted Rate of Return, Net of Investment Expense	97
Defined Benefit Other Postemployment Benefit Plan:	
4 Schedule of Changes in Net OPEB Liability & Related Ratios	98
5 Schedule of Investment Returns – OPEB Plan – Annual Money-Weighted Rate of Return, Net of Investment Expense.....	99
<i>Supplementary Information</i>	
6 Schedule of Administrative Expenses	99
7 Schedule of Investment Expenses	100
8 Schedule of Expenses for Consultants.....	100
9 Combining Schedule of Fiduciary Net Position Information – Fiduciary Funds –Select Pension Trust Funds	101
10 Combining Schedule of Changes in Fiduciary Net Position Information – Fiduciary Funds –Select Pension Trust Funds	102
11 Combining Schedule of Balance Sheet Information – Fiduciary Funds – Agency Funds	103
12 Combining Schedule of Changes in Fiduciary Net Position Information – Fiduciary Funds – Agency Funds.....	104
13 Combining Schedule of Balance Sheet Information – Agency Fund – Dental Expense Program Fund.....	105
14 Combining Schedule of Changes in Fiduciary Net Position Information – Agency Fund – Dental Expense Program Fund.....	106
15 Schedule of Changes in Assets and Liabilities Information – Agency Fund – Alternate Benefit Program Fund	107
16 Schedule of Changes in Assets and Liabilities Information – Agency Fund – Pension Adjustment Fund	107
17 Schedule of Changes in Assets and Liabilities Information – Agency Fund – Dental Expense Program Fund – Total.....	108
18 Schedule of Changes in Assets and Liabilities Information – Agency Fund – Dental Expense Program Fund – State.....	108
19 Schedule of Changes in Assets and Liabilities Information – Agency Fund – Dental Expense Program Fund – Local.....	109

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KPMG LLP
New Jersey Headquarters
51 John F. Kennedy Parkway
Short Hills, NJ 07078-2702

Independent Auditors' Report

The Treasurer
State of New Jersey:

We have audited the accompanying financial statements of the fiduciary activities of the State of New Jersey, Division of Pensions and Benefits (the Division), as of and for the year ended June 30, 2019, and the related notes to the financial statements, which collectively comprise the Division's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the fiduciary activities of the State of New Jersey, Division of Pensions and Benefits, as of June 30, 2019, and the respective changes in financial position for the year then ended in accordance with U.S. generally accepted accounting principles.

Emphasis of Matter

Reporting Entity

As discussed in note 2(a) to the financial statements, the financial statements referred to above are intended to present the financial position and the changes in financial position of the fiduciary funds administered by the Division. As a result, these financial statements do not purport to, and do not, present fairly the financial position of the State of New Jersey as of June 30, 2019 and the changes in its financial position, or, where applicable, its cash flows thereof for the year then ended in conformity with U.S. generally accepted accounting principles. Our opinion is not modified with respect to this matter.



Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the management's discussion and analysis and the schedules included under Required Supplementary Information in the accompanying table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Division's basic financial statements. The schedules included under Supplementary Information in the accompanying table of contents (the Schedules) are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The Schedules are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Schedules are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

KPMG LLP

Short Hills, New Jersey
March 27, 2020

Management's Discussion and Analysis (Unaudited) June 30, 2019

Our discussion and analysis of the financial performance of the fiduciary funds (the Funds) administered by the Division of Pensions & Benefits (the Division) provides an overview of the Funds' financial activities for the State fiscal year ended June 30, 2019. Please read it in conjunction with the basic financial statements which follow this discussion.

Financial Highlights

Fiduciary Funds – Pension Trust Funds and Other Postemployment Benefit (OPEB) Plan

- Fiduciary net position increased by \$0.9 billion as a result of this year's operations from \$86.4 billion to \$87.3 billion.
- Additions for the year are \$13.2 billion, which are comprised of member, employer, nonemployer, and employer specific and other pension contributions of \$8.2 billion and net investment income of \$5.0 billion.
- Deductions for the year are \$12.3 billion, which are comprised of benefits, refund payments, and transfers of \$12.3 billion and administrative expenses of \$53.1 million.

Overview of the Financial Statements

This discussion and analysis is intended to serve as an introduction to the basic financial statements. The basic financial statements are comprised of two components: 1) fiduciary fund financial statements and 2) notes to the financial statements. This report also contains required and other supplementary information in addition to the basic financial statements.

Fund Financial Statements

A fund is a grouping of related accounts that is used to maintain control over resources that have been segregated for specific activities or objectives. The Division uses fund accounting to ensure and demonstrate compliance with finance-related legal requirements.

Fiduciary Funds

Fiduciary funds are used to account for the assets that the Division holds on behalf of others as their agent. Agency funds are custodial in nature and do not involve measurement of results of operations.

The Division administers fourteen fiduciary funds: ten pension trust funds, one OPEB plan, and three agency funds.

The statement of fiduciary net position presents the Division's assets and liabilities by major categories and may serve over time as a useful indicator of the Division's financial position. The difference between assets and liabilities represents the net position restricted for pension and other postemployment benefits.

The statement of changes in fiduciary net position provides information on the change in the Division's net position during the current year. Additions are comprised of investment income and member, employer, nonemployer, and employer specific and other contributions. Deductions include retirement and health benefit payments, refunds of contributions, and administrative expenses.

Notes to the Financial Statements

The notes to the financial statements provide additional information that is essential to a full understanding of the data provided in the basic financial statements and includes a description of the fiduciary funds.

Management’s Discussion and Analysis (Unaudited) — June 30, 2019, continued

Other Information

In addition to the basic financial statements and accompanying notes, this report also presents certain required supplementary information, which includes the schedules of changes in net pension liability and related ratios, the schedules of employer contributions, and schedule of investment returns for the pension trust funds as well as the schedule of changes in net OPEB liability and related ratios and the schedule of investment returns for the OPEB plan.

Financial Analysis

**Summary of Fiduciary Net Position
Pension Trust Funds and Other Postemployment Benefit Plan**

	<u>2019</u>	<u>2018</u>	<u>Increase/ (Decrease)</u>
Assets:			
Cash and cash equivalents	\$ 24,558,213	923,522,162	(898,963,949)
Receivables	2,601,722,359	2,592,511,428	9,210,931
Investments	83,617,350,788	81,792,443,010	1,824,907,778
Securities lending collateral	1,009,702,674	839,926,356	169,776,318
Members’ loans and mortgages	2,339,329,814	2,308,198,797	31,131,017
Total assets	89,592,663,848	88,456,601,753	1,136,062,095
Liabilities:			
Accounts payable and accrued expenses	293,069,149	269,894,272	23,174,877
Retirement benefits payable	963,572,944	930,488,730	33,084,214
Noncontributory group life insurance premiums payable	15,712,054	20,186,135	(4,474,081)
Administrative expense payable	6,773,517	3,922,068	2,851,449
Securities lending collateral and rebates payable	1,008,482,091	839,902,523	168,579,568
Total liabilities	2,287,609,755	2,064,393,728	223,216,027
Net position	\$ 87,305,054,093	86,392,208,025	912,846,068

Assets of the pension trust funds and OPEB plan consist of cash and cash equivalents, investments, contributions due from members and participating employers, accrued interest and dividends on investments, other receivables, securities lending collateral, and members’ loans and mortgages. Between State fiscal years 2018 and 2019, total assets increased by \$1.1 billion or 1.3%. This is primarily attributable to an increase of \$1.8 billion in investments due to larger State pension contributions and strong returns from public equities, real estate, and private equity as explained more thoroughly below and an increase of \$0.2 billion in various receivables, securities lending collateral, and members’ loans and mortgages, offset by a decrease of \$0.9 billion in cash and cash equivalents, which is related to the timing of the funding of the July 1, 2019 standard payroll.

Management’s Discussion and Analysis (Unaudited) – June 30, 2019, continued

Liabilities of the pension trust funds and OPEB plan consist of retirement benefits payable to retirees and beneficiaries, noncontributory group life insurance (NCGI) premiums payable to the Funds’ insurance provider, securities lending collateral and rebates payable, administrative expense payable, and, classified under accounts payable and accrued expenses, outstanding medical claims payable to the medical providers under the OPEB plan. Also included within accounts payable and accrued expenses are liabilities of the pension trust funds for unclaimed member accounts and checks issued to members that have not been negotiated by the members, but remain due and payable. Total liabilities increased by \$223.2 million or 10.8%. This is due to an increase in securities lending collateral and rebates payable of \$168.6 million and a net increase of \$54.6 million in retirement benefits and other payables.

Net position restricted for pension and other postemployment benefits increased by \$0.9 billion or 1.1%.

Financial Analysis

Summary of Fiduciary Net Position

Agency Funds

		2019	2018	Increase
Assets	\$	100,501,527	92,435,481	8,066,046
Liabilities		100,501,527	92,435,481	8,066,046
Net position	\$	–	–	–

Assets of the agency funds consist of cash and cash equivalents, investments, contributions due from the State and local employers and other receivables. Between State fiscal years 2018 and 2019, total assets increased by \$8.1 million or 8.7%. This is attributable to the increased amount invested in the Cash Management Fund (CMF) of \$2.4 million, an increase in receivables of \$4.0 million, and an increase of cash and cash equivalents of \$1.7 million.

Liabilities in the agency funds vary according to each plan. In the Alternate Benefit Program (ABP), they include reimbursements to state and county colleges, reimbursement to the State of New Jersey general fund of any unused appropriations, and NCGI benefits payable. In the Dental Expense Program (DEP), they include claims payable, and in the Pension Adjustment Fund (PAF), they include liabilities for payroll and amounts due to the State of New Jersey general fund and other pension trust funds. Between State fiscal years 2018 and 2019, total liabilities increased by \$8.1 million or 8.7%. This was comprised of a \$6.7 million increase in accounts payable and a \$1.4 million increase in amounts due to the State of New Jersey.

Management’s Discussion and Analysis (Unaudited) — June 30, 2019, continued

**Summary of Changes in Fiduciary Net Position
Pension Trust Funds and Other Postemployment Benefit Plan**

	2019	2018	Increase/ (Decrease)
Additions:			
Member contributions	\$ 2,449,311,731	2,342,536,213	106,775,518
Employer contributions	3,545,865,979	3,330,118,429	215,747,550
Nonemployer contributions	2,194,331,868	1,677,137,908	517,193,960
Employer specific and other contributions	16,398,082	13,948,732	2,449,350
Net investment income	5,009,303,471	7,129,937,947	(2,120,634,476)
Transfers	28,924,693	26,977,641	1,947,052
Total additions	13,244,135,824	14,520,656,870	(1,276,521,046)
Deductions:			
Benefits	12,044,481,718	11,602,782,838	441,698,880
Refunds of contributions	204,000,194	189,053,148	14,947,046
Transfers	29,714,557	28,034,716	1,679,841
Administrative expenses	53,093,287	48,274,736	4,818,551
Total deductions	12,331,289,756	11,868,145,438	463,144,318
Change in net position	\$ 912,846,068	2,652,511,432	(1,739,665,364)

Additions to the pension trust funds and OPEB plan consist of member, employer, nonemployer, employer specific and other contributions, transfers, and earnings from investment activities. There was a decrease of \$1.3 billion or 8.7% in total additions mainly attributable to a decrease in net investment income of \$2.1 billion.

Member contributions increased by \$106.8 million mainly due to the annual rate increases for the Teachers’ Pension and Annuity Fund (TPAF), Public Employees’ Retirement System (PERS), and the Judicial Retirement System (JRS) as required in P.L. 2011, C. 78.

The State contributed \$3,280.9 million to the pension trust funds in State fiscal year 2019. It was composed of \$388.8 million of normal cost and \$2,892.1 million of accrued liability. The contributions were as follows: \$1,974.4 million to TPAF, \$860.3 million to PERS, \$321.2 million to the Police & Firemen’s Retirement System (PFRS), \$29.0 million to JRS, and \$96.0 million to the State Police Retirement System (SPRS).

State NCGI contributions for the State fiscal year totaling \$85.9 million were as follows: \$41.1 million for TPAF, \$36.6 million for PERS, \$5.3 million for PFRS, \$0.7 million for JRS, and \$2.2 million for SPRS. Between State fiscal years 2018 and 2019, the State’s contribution toward NCGI increased by \$10.8 million due to higher claims activity. State NCGI benefits are funded on a pay-as-you-go basis. The local contributions for PERS and PFRS are included in the annual billings to local employers.

Management's Discussion and Analysis (Unaudited) — June 30, 2019, continued

The annual local employer pension appropriation billings increased per the actuarial valuation as of July 1, 2017. For PERS, the amount accrued in State fiscal year 2018 for normal contribution, accrued liability, and NCGI was \$994.7 million and was due on April 1, 2019. For State fiscal year 2019, the total amount accrued was \$972.7 million and is due April 1, 2020. For PFRS, the total amount accrued in State fiscal year 2018 for normal contributions, accrued liability, and NCGI was \$977.7 million and was due April 1, 2019. For State fiscal year 2019, the total amount accrued was \$1,010.2 million and is due April 1, 2020.

For the OPEB plan, employer contributions decreased by \$84.5 million, which is primarily attributable to changes in the Medicare Advantage contract and favorable prescription drug experience. The pension trust funds and the OPEB plan earned net investment income of \$5.0 billion in fiscal year 2019, which is a decrease of \$2.1 billion from the prior year.

During fiscal year 2019, the Pension Funds returned 6.27%, with all asset classes realizing positive returns. The year was characterized by heightened volatility, as weakness during the first half was offset by strong returns during the last six months of the fiscal year.

Bond yields declined sharply in fiscal year 2019, following two consecutive years of negative returns for U.S. Treasuries. The Bloomberg Barclays U.S. Aggregate Bond Index had its strongest performance year since fiscal year 2010. In this environment, fixed income outperformed global equities.

Investment grade credit was the best performing asset class for the Pension Funds as credit spreads narrowed modestly. Private markets broadly outperformed, with strong returns in private equity and real estate. U.S. stocks led global equities as performance was bolstered by accommodative monetary policy, lower U.S. corporate tax rates, and capital inflows due to increased economic uncertainty abroad.

Notwithstanding favorable absolute returns in the domestic equity portfolio, relative performance was adversely impacted by a more value-oriented and small cap emphasis as growth-oriented and large cap equities outperformed.

Style diversification within the emerging market portfolio proved beneficial as value-oriented equities outperformed during the first half of the fiscal year and growth-oriented equities outperformed during the second half of the year.

Private equity continued to realize strong returns. Investment in non-core and opportunistic strategies and public real estate investment trusts (REITs) drove performance in the real estate portfolio.

In reference to Schedule of Investment Returns – Annual Money-Weighted Rate of Return, Net of Investment Expense (see Required Supplementary Information Schedule 3), the State fiscal year 2019 rate was 6.17% compared to 9.11% in the prior year for JRS, SPRS, TPAF, PFRS, and PERS. It was based on Governmental Accounting Standards Board (GASB) Statement No. 67, Financial Reporting for Pension Plans – an Amendment of GASB Statement No. 25 (GASB 67).

Deductions to the pension trust funds and OPEB plan are mainly comprised of pension benefit payments to retirees and beneficiaries, refunds of contributions to former members, transfers, and administrative costs incurred by the Funds to operate the pension trust funds and the OPEB plan. Also included are claim charges for the self-insured health and prescription drug benefit programs and premiums paid to the health insurance carriers for the insured plans. Between State fiscal years 2018 and 2019, benefit payments increased by \$441.7 million or 3.8% due to an increase in the number of retirees receiving retirement and other benefits.

The change in net position of \$1.7 billion was mainly attributable to the decrease in net investment income of \$2.1 billion and the increase in benefit expense of \$0.4 billion offset by the increase of \$0.8 billion in member, employer, and nonemployer contributions.

Management’s Discussion and Analysis (Unaudited) – June 30, 2019, continued

Investment Performance

The rates of return (i.e. investment performance, which includes income and changes in the fair value of investments) for JRS, Prison Officers’ Pension Fund (POPF), SPRS, Consolidated Police and Firemen’s Pension Fund (CPFPPF), TPAF, PFRS, and PERS, collectively the Pension Funds, and various market indices are as follows:

	Year ended June 30	
	2019	2018
Risk Mitigation	5.04	5.04
<i>T-Bill + 300 BP</i>	5.39	4.44
Total Short Term and Cash ¹	3.11	1.81
<i>91 Day Treasury Bill (Daily)</i>	2.31	1.36
Governments	6.72	(0.77)
<i>Custom Government Benchmark</i>	7.24	(0.65)
Total Liquidity	4.35	0.26
<i>Liquidity Benchmark</i>	4.04	0.66
Investment Grade Credit	10.07	(0.68)
<i>Custom Investment Grade Credit Benchmark</i>	9.42	(0.73)
Public High Yield	6.75	2.78
<i>Bloomberg Barclays Corp High Yield</i>	7.48	2.62
Global Diversified Credit	5.79	9.46
<i>Bloomberg Barclays Corp High Yield</i>	7.48	2.62
Credit-Oriented Hedge Funds	(1.56)	6.88
<i>50% HFRI DR 50% HFRI CA (1 month lag)</i>	3.01	5.29
Debt Related Private Equity	2.61	14.97
<i>Bloomberg Barclays Corp HY (Qtr lag) + 300 bps</i>	9.12	6.93
Debt Related Real Estate	6.83	8.29
<i>Bloomberg Barclays CMBS 2.0 Baa (Quarter lag) + 100 bps</i>	11.63	9.16
Total Income	7.35	4.07
<i>Income Benchmark</i>	8.41	2.01
Real Return Real Assets and Commodities	0.48	12.70
<i>Custom Cambridge Real Asset Index</i>	0.43	5.82
Equity Related Real Estate	8.69	12.59
<i>Real Estate Index</i>	6.55	7.11
Total Real Return	5.84	12.64
<i>Real Return Benchmark</i>	4.85	6.75
US Equity	7.85	12.78
<i>S&P 1500 Super Composite (Daily)</i>	9.32	14.50
Non-US Equity Developed Markets Equity	1.16	8.19
<i>Custom International Developed Markets Benchmark²</i>	1.40	6.86
Emerging Markets Equity	2.38	5.40
<i>Custom International Emerging Markets Benchmark²</i>	1.30	7.99
Equity Oriented Hedge Funds	(2.63)	1.34
<i>50% HFRI EH 50% HFRI ED Activist (1 month lag)</i>	(3.73)	5.93
Buyouts-Venture Capital	10.03	17.94
<i>Custom Cambridge Blend</i>	12.29	20.42
Total Global Growth	6.27	11.56
<i>Global Growth Benchmark</i>	7.28	13.14
Opportunistic Investments	(3.90)	11.83
Total Pension Funds	6.27	9.06
<i>Pension Fund Policy Index</i>	7.07	8.65

¹The cash aggregate comprises the Common Pension Funds D and E cash accounts, in addition to JRS, POPF, SPRS, CPFPPF, TPAF, PFRS and PERS cash accounts

²Source: MSCI. The MSCI data is comprised of a custom index calculated by MSCI for, and as requested by the Division of Investment. These benchmarks exclude those securities deemed ineligible for investment under the State statutes governing investments in Iran, Sudan and companies that boycott Israel.

Management's Discussion and Analysis (Unaudited) – June 30, 2019, *continued*

Overall Financial Condition of the Funds

Based on GASB 67 and actuaries' GASB 67 disclosures for State fiscal year 2019, for the defined benefit pension trust funds, the combined state and local ratios of plan fiduciary net position as a percentage of the total pension liability was 39.73% and the net pension liability as a percentage of covered payroll was 471.27%. For the prior year, the combined state and local ratios of plan fiduciary net position as a percentage of the total pension liability was 38.41% and the net pension liability as a percentage of covered payroll was 499.78%.

For the OPEB plan, total expenses incurred exceeded total revenues recognized by \$41.3 million, decreasing the surplus at the beginning of the year from \$314.5 million to \$273.2 million at year-end.

For the New Jersey State Employees Deferred Compensation Plan and the Supplemental Annuity Collective Trust, members are 100% vested in the present value of their contributions and the funds have sufficient assets to meet future benefit obligations.

Contacting System Financial Management

This financial report is designed to provide our members, beneficiaries, investors, and other interested parties with a general overview of the Funds' finances and to show the Funds' accountability for the money it receives. This report is available on the Division of Pensions and Benefits website at www.state.nj.us/treasury/pensions. If you have any questions about this report or need additional financial information, contact the Division of Pensions and Benefits, P.O. Box 295, Trenton, NJ 08625-0295.

**Statement of Fiduciary Net Position – Fiduciary Funds
June 30, 2019**

	Pension Trust Funds and Other Postemployment Benefit Plan	Agency Funds
Assets:		
Cash and cash equivalents	\$ 24,558,213	2,795,921
Receivables:		
Contributions:		
Members	226,790,649	–
Employers	2,335,248,718	102,629
Accrued interest and dividends	4,574,827	–
Other	35,108,165	44,812,231
Total receivables	2,601,722,359	44,914,860
Investments, at fair value:		
Cash Management Fund	1,638,049,338	52,790,746
Common Pension Fund D	52,293,222,131	–
Common Pension Fund E	24,952,938,876	–
Domestic equities	796,970,015	–
Fixed income mutual funds	484,041,502	–
Equity mutual funds	3,452,128,926	–
Total investments	83,617,350,788	52,790,746
Securities lending collateral	1,009,702,674	–
Members' loans and mortgages	2,339,329,814	–
Total assets	89,592,663,848	100,501,527
Liabilities:		
Accounts payable and accrued expenses	293,069,149	95,587,022
Retirement benefits payable	963,572,944	–
Noncontributory group life insurance premiums payable	15,712,054	–
Administrative expense payable	6,773,517	–
Assets held for local contributing employers	–	1,990,368
Pension adjustment payroll payable	–	83,960
Due to State of New Jersey	–	2,715,502
Due to other funds	–	124,675
Securities lending collateral and rebates payable	1,008,482,091	–
Total liabilities	2,287,609,755	100,501,527
Net position		
Restricted for pensions and other postemployment benefits	\$ 87,305,054,093	–

See accompanying notes to financial statements.

Pull out Page

**Statement of Changes in Fiduciary Net Position – Fiduciary Funds
Year ended June 30, 2019**

	Pension Trust Funds and Other Postemployment Benefit Plan
Additions:	
Contributions:	
Members	\$ 2,449,311,731
Employers	3,545,865,979
Nonemployer	2,194,331,868
Employer specific and other	16,398,082
Total contributions	8,205,907,660
Investment income:	
Net increase in fair value of investments	3,125,248,189
Interest and Dividends	1,904,884,461
	5,030,132,650
Less investment expense	20,829,179
Net investment income	5,009,303,471
Transfers	28,924,693
Total additions	13,244,135,824
Deductions:	
Benefits	12,044,481,718
Refunds of contributions	204,000,194
Transfer	29,714,557
Administrative and miscellaneous expenses	53,093,287
Total deductions	12,331,289,756
Change in net position	912,846,068
Net position restricted for pension and other postemployment benefits:	
Beginning of year	86,392,208,025
End of year	\$ 87,305,054,093

See accompanying notes to financial statements.

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**Notes to Financial Statements
June 30, 2019**

(1) Description of the Plans

(a) Organization

The State of New Jersey, Division of Pensions and Benefits (the Division) was created and exists pursuant to N.J.S.A. 52:18A to oversee and administer the pension trust funds and the other postemployment benefit (OPEB) plan sponsored by the State of New Jersey (the State). The following is a list of the benefit plans, which have been included in the basic financial statements of the Division, collectively referred to as the Plans:

Plan Name	Type of Plan
Defined benefit pension plans:	
Judicial Retirement System (JRS)	Single-employer
Prison Officers' Pension Fund (POPF)	Single-employer
State Police Retirement System (SPRS)	Single-employer
Consolidated Police and Firemen's Pension Fund (CPFPPF)	Cost-sharing multiple-employer with special funding situation
Teachers' Pension and Annuity Fund (TPAF)	Cost-sharing multiple-employer with special funding situation
Police and Firemen's Retirement System (PFRS)	Cost-sharing multiple-employer with special funding situation
Public Employees' Retirement System (PERS)	Cost-sharing multiple-employer
Central Pension Fund (CPF)	Single-employer
Defined contribution pension plans:	
New Jersey State Employees Deferred Compensation Plan (NJSEDCP)	Single-employer
Supplemental Annuity Collective Trust (SACT)	Multiple-employer
Defined benefit other postemployment benefit plan:	
State Health Benefits Local Government Retired Employees Plan	Cost-sharing multiple-employer with special funding situation

The Division oversees the following agency funds:

Agency Fund

- Pension Adjustment Fund (PAF)
- Alternate Benefit Program (ABP)
- Dental Expense Program Fund (DEP)

Notes to Financial Statements – June 30, 2019, *continued*

(b) *Defined Benefit Pension Plans*

Each defined benefit pension plan’s designated purpose is to provide retirement, death, and disability benefits to its members. Below is a summary description of each defined benefit pension plan administered by the Division:

Plan	Established as of	Legislation	Membership
JRS	June 1, 1973	N.J.S.A. 43:6A	All members of the State Judiciary.
POPF*	January 1, 1941	N.J.S.A. 43:7	Various employees in the state penal institutions appointed prior to January 1, 1960.
SPRS	July 1, 1965	N.J.S.A. 53:5A	All uniformed officers and troopers of the Division of State Police.
CPFPF*	January 1, 1952	N.J.S.A. 43:16	County and municipal police and firemen appointed prior to July 1, 1944.
TPAF	January 1, 1955	N.J.S.A. 18A:66	Substantially all teachers or members of the professional staff certified by the State Board of Examiners and employees of the Department of Education, who have titles that are unclassified, professional and certified.
PFRS	July 1, 1944	N.J.S.A. 43:16A	Substantially all full-time county and municipal police or firemen and state firemen or officer employees with police powers appointed after June 30, 1944.
PERS	January 1, 1955	N.J.S.A. 43:15A	Substantially all full-time employees of the State of New Jersey or any county, municipality, school district or public agency, provided the employee is not required to be a member of another state-administered retirement system or other state pension fund or local jurisdiction’s pension fund.
CPF*	Various	Various	The CPF is a “pay-as-you-go” benefit plan. The CPF’s designated purpose is to provide retirement allowances under the following series of noncontributory pension acts: Veterans Act Pensioners (N.J.S.A. 43:4-1 to 4-6); Health Pension Act (N.J.S.A. 43:5-1 to 5-4); Pension to Widows of Governors (N.J.S.A. 43:8-2); Disabled Veterans Pension; Surviving Spouse of Veterans (N.J.S.A. 38:18-1 to 18-2 and N.J.S.A. 38:18A-1); and Special Act (N.J.S.A. 43:5A to 5A-1).

*Represents a closed plan.

Notes to Financial Statements – June 30, 2019, *continued*

The authority to amend the provisions of the above plans rests with new legislation passed by the State of New Jersey. Pension reforms enacted pursuant to P.L. 2011, C. 78 included provisions creating special Pension Plan Design Committees for JRS, SPRS, TPAF, PFRS, and PERS, once a Target Funded Ratio (TFR) is met. The Pension Plan Design Committees will have the discretionary authority to modify certain plan design features, including member contribution rate; formula for calculation of final compensation or final salary; fraction used to calculate a retirement allowance; age at which a member may be eligible and the benefits for service or early retirement; and benefits provided for disability retirement. The committees will also have the authority to reactivate the cost of living adjustment (COLA) on pensions. However, modifications can only be made to the extent that the resulting impact does not cause the funded ratio to drop below the TFR in any one year of a 30-year projection period.

Plan Membership and Contributing Employers

Membership and contributing employers of the defined benefit pension plans consisted of the following at June 30, 2019:

	JRS	POPF	SPRS	CPFPPF	TPAF*	PFRS	PERS	CPF
Inactive plan members or beneficiaries currently receiving benefits	614	71	3,404	62	104,703	44,567	178,748	16
Inactive plan members entitled to but not yet receiving benefits	4	—	—	—	219	42	609	—
Active plan members	453	—	2,713	—	155,496	42,295	252,598	—
Total	1,071	71	6,117	62	260,418	86,904	431,955	16
Contributing employers	1	1	1	28	24	584	1,697	1
Contributing nonemployers	—	—	—	1	1	1	1	—

** In addition to the State, who is the sole payer of regular employer contributions to the fund, TPAF's contributing employers include boards of education, who elected to participate in the Early Retirement Incentive Program and continue to pay towards their incurred liability.*

Notes to Financial Statements – June 30, 2019, *continued*

Pension Plans' Boards and Composition

The table below represents the composition and source of selection for the Plan's boards:

	SPRS	TPAF	PFRS	PERS
Appointments by:				
Governor	2	2	5	2
Treasurer	1	1	1	1
Superintendent of the State Police	2	—	—	—
Elected by Board or Members	—	4	5	6
Total	5	7	11	9

POPF, CPFPF, and CPF are managed by the Division. General responsibility for JRS is vested with the State House Commission.

Contribution Requirements and Benefit Provisions

Significant Legislation

The State Legislature adopted L. 2018, c. 55 in July 2018, which transferred management of PFRS from the New Jersey Department of the Treasury, Division of Pensions and Benefits to a newly constituted twelve-member PFRS Board of Trustees. The new PFRS Board, which was established in February 2019 per the legislation, has more powers and authority as compared to the former PFRS Board of Trustees. In addition to overseeing the management of PFRS, the new PFRS Board will also have the authority to direct investment decisions, to adjust current benefit levels and to change member and employer contribution rates. With regard to changes to current benefit provisions, such changes can only be made with the approval of a supermajority of eight (8) of the twelve (12) members of the new PFRS Board. Also, benefit enhancement can only be made if an independent actuary certifies that the benefit enhancements will not jeopardize the long-term viability of PFRS. Under prior law, benefit enhancements, including the reinstatement of COLA for retirees, could only be considered when the funded level of the pension fund reaches 80%. An actuarial certification was also required that the funded levels would remain at or above 80% over a 30-year period following the benefit enhancement.

In accordance with L. 2018, c. 55, the new PFRS Board will also have the authority to formulate investment policies and direct the investment activities of the assets of the PFRS. The PFRS Board has proposed regulations for adoption governing the methods, practices, and procedures for investment or reinvestments of money of PFRS.

P.L. 2009, C. 19, effective March 17, 2009, provided an option for local employers of PFRS and PERS to contribute 50% of the normal and accrued liability contribution amounts certified for payments due in State fiscal year 2009. Such an employer will be credited with the full payment and any such amounts will not be included in their unfunded liability. The actuaries will determine the unfunded liability of those retirement systems, by employer, for the reduced normal and accrued liability contributions provided under this law. This unfunded liability is paid by the employer in level annual payments over a period of 15 years beginning with fiscal year ended June 30, 2012 and will be adjusted by the rate of return on the actuarial value of assets.

Pursuant to the provisions of P.L. 2011, C. 78, COLA increases were suspended for all current and future retirees of all retirement systems.

In accordance with the Lottery Enterprise Contribution Act, L. 2018, c. 98 (LECA), the net proceeds from the New Jersey State Lottery are contributed to the TPAF, PFRS, and PERS beginning in State fiscal year 2018. For the purpose of depositing the lottery contribution made to the eligible pension plans, LECA established Common Pension Fund L within the Division of Investment. The net lottery proceeds are contributed to the respective pension plans based upon percentages detailed in LECA on a periodic basis through Common Pension Fund L. The Common Pension Fund L investment account is managed and invested by the Director of the Division of Investment, subject to the oversight of the State Investment Council.

Notes to Financial Statements — June 30, 2019, *continued*

The Director of the Division of Investment has full discretion to distribute proceeds and all investments thereof and investment earnings thereon from the investment account into investment vehicles managed by the Division of Investment on behalf of the retirement systems. During fiscal year 2019, \$1.105 billion was contributed to Common Pension Fund L and has been included as employer contributions in TPAF, PFRS, and PERS in the accompanying financial statements.

The following are specific contribution requirements and benefit provisions related to each defined benefit plan:

JRS

The contribution policy is set by N.J.S.A. 43:6A and requires contributions by active members and the State of New Jersey. Members enrolled on January 1, 1996 or after, contribute on their entire base salary. Contributions by active members enrolled prior to January 1, 1996 are based on the difference between their current salary and the salary of the position on January 18, 1982. Pursuant to the provisions of P.L. 2011, C. 78, the member contribution rate was 12% in State fiscal year 2019. The State's contribution is based on an actuarially determined amount, which includes the normal cost and unfunded accrued liability.

The vesting and benefit provisions are set by N.J.S.A. 43:6A. JRS provides retirement benefits as well as death and disability benefits. Retirement is mandatory at age 70. Service retirement benefits are available to members who have reached certain ages and various years of service. Benefits of 75% of final salary are available to members at age 70 with 10 years or more of judicial service; members between ages 65-69 with 15 years or more of judicial service or between ages 60-64 with 20 years or more of judicial service. Benefits of 50% of final salary are available to those with both judicial service and non-judicial service for which five or more consecutive years of judicial service. These benefits are available at age 65 or older with 15 years or more of aggregate service or age 60 or older with 20 years or more of aggregate service. Benefits of 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year in excess of 25 years are available at age 60 with five consecutive years of judicial service plus 15 years in the aggregate of public service or at age 60 while serving as a judge.

Early retirement benefits of 2% of final salary for each year of service up to 25 years and 1% of final salary for each year over 25 years is available to members who retire before age 60, have 5 or more consecutive years of judicial service, and 25 years or more in aggregate public service. The amount of benefits is actuarially reduced for the number of months remaining until the member reaches age 60.

POPF

There are no active members in POPF. Additionally, based on the recent actuarial valuation, there was no normal cost or unfunded accrued liability contribution required by the State for the fiscal year ended June 30, 2019. The vesting and benefit provisions were set by N.J.S.A. 43:7.

SPRS

The contribution policy is set by N.J.S.A. 53:5A and requires contributions by active members and the State of New Jersey. Pursuant to the provisions of P.L. 2011, C. 78, the active member contribution rate was 9% in State fiscal year 2019. The State's contribution is based on an actuarially determined amount, which includes the normal cost and unfunded accrued liability.

The vesting and benefit provisions are set by N.J.S.A. 53:5A. SPRS provides retirement benefits as well as death and disability benefits. All benefits vest after ten years of service, and members are always fully vested in their contributions. Mandatory retirement is at age 55. Voluntary retirement is prior to age 55 with 20 years of credited service. The benefit is an annual retirement allowance equal to the greater of (a), (b), or (c), as follows: (a) 50% of final compensation; (b) for members retiring with 25 years or more of service, 65% of final compensation, plus 1% for each year of service in excess of 25 years, to a maximum of 70% of final compensation; or (c) for members as of August 29, 1985 who would not have 20 years of service by age 55, benefit as defined in (a) above. For members as of August 29, 1985, who would have 20 years of service, but would not have 25 years of service at age 55, benefit is as defined in (a) above plus 3% for each year of service.

CPFPF

There are no active members in CPFPF. Additionally, based on the recent actuarial valuation, the State made no contribution towards the normal cost or unfunded accrued liability during the fiscal year ended June 30, 2019. The vesting and benefit provisions were set by N.J.S.A. 43:16.

Notes to Financial Statements — June 30, 2019, *continued*

TPAF

The contribution policy is set by N.J.S.A. 18A:66 and requires contributions by active members and contributing employers. Pursuant to the provisions of P.L. 2011, C. 78, the member contribution rate was 7.50% in State fiscal year 2019. The State's contribution is based on an actuarially determined amount, which includes the normal cost and unfunded accrued liability.

The vesting and benefit provisions are set by N.J.S.A. 18A:66. TPAF provides retirement, death, and disability benefits. All benefits vest after ten years of service. Members are always fully vested for their own contributions and, after three years of service credit, become vested for 2% of related interest earned on the contributions. In the case of death before retirement, members' beneficiaries are entitled to full interest credited to the members' accounts.

The following represents the membership tiers for TPAF:

Tier	Definition
1	Members who were enrolled prior to July 1, 2007
2	Members who were eligible to enroll on or after July 1, 2007, and prior to November 2, 2008
3	Members who were eligible to enroll on or after November 2, 2008, and prior to May 22, 2010
4	Members who were eligible to enroll on or after May 22, 2010, and prior to June 28, 2011
5	Members who were eligible to enroll on or after June 28, 2011

Service retirement benefits of 1/55th of final average salary for each year of service credit is available to tiers 1 and 2 members upon reaching age 60 and to tier 3 members upon reaching age 62. Service retirement benefits of 1/60th of final average salary for each year of service credit is available to tier 4 members upon reaching age 62 and tier 5 members upon reaching age 65. Early retirement benefits are available to tiers 1 and 2 members before reaching age 60, tiers 3 and 4 with 25 years or more of service credit before age 62, and tier 5 before age 65 with 30 years or more of service credit. Benefits are reduced by a fraction of a percent for each month that a member retires prior to the retirement age for his/her respective tier. Deferred retirement is available to members who have at least 10 years of service credit and have not reached the service retirement age for the respective tier.

PFRS

The contribution policy is set by N.J.S.A. 43:16A and requires contributions by active members and contributing employers. Pursuant to the provisions of P.L. 2011, C. 78, the active member contribution rate was 10.0% in State fiscal year 2019. Employers' contributions are based on an actuarially determined amount, which includes the normal cost and unfunded accrued liability.

The vesting and benefit provisions are set by N.J.S.A. 43:16A. PFRS provides retirement as well as death and disability benefits. All benefits vest after ten years of service, except disability benefits, which vest after four years of service.

The following represents the membership tiers for PFRS:

Tier	Definition
1	Members who were enrolled prior to May 22, 2010
2	Members who were eligible to enroll on or after May 22, 2010, and prior to June 28, 2011
3	Members who were eligible to enroll on or after June 28, 2011

Service retirement benefits are available at age 55 and are generally determined to be 2% of final compensation for each year of creditable service up to 30 years plus 1% for each year of service in excess of 30 years. Members may seek special retirement after achieving 25 years of creditable service, in which benefits would equal 65% (tiers 1 and 2 members) and 60% (tier 3 members) of final compensation plus 1% for each year of creditable service over 25 years, but not to exceed 30 years. Members may elect deferred retirement benefits after achieving ten years of service, in which case benefits would begin at age 55 equal to 2% of final compensation for each year of service.

Notes to Financial Statements — June 30, 2019, *continued*

PERS

The contribution policy is set by N.J.S.A. 43:15A and requires contributions by active members and contributing employers. Pursuant to the provisions of P.L. 2011, C. 78, the member contribution rate was 7.50% in State fiscal year 2019. The rate for members who are eligible for the Prosecutors Part of PERS (P.L. 2001, C. 366) was 10.0% in State fiscal year 2019. Employers' contributions are based on an actuarially determined amount, which includes the normal cost and unfunded accrued liability.

The vesting and benefit provisions are set by N.J.S.A. 43:15A. PERS provides retirement, death, and disability benefits. All benefits vest after ten years of service.

The following represents the membership tiers for PERS:

Tier	Definition
1	Members who were enrolled prior to July 1, 2007
2	Members who were eligible to enroll on or after July 1, 2007, and prior to November 2, 2008
3	Members who were eligible to enroll on or after November 2, 2008, and prior to May 22, 2010
4	Members who were eligible to enroll on or after May 22, 2010, and prior to June 28, 2011
5	Members who were eligible to enroll on or after June 28, 2011

Service retirement benefits of 1/55th of final average salary for each year of service credit is available to tiers 1 and 2 members upon reaching age 60 and to tier 3 members upon reaching age 62. Service retirement benefits of 1/60th of final average salary for each year of service credit is available to tier 4 members upon reaching age 62 and tier 5 members upon reaching age 65. Early retirement benefits are available to tiers 1 and 2 members before reaching age 60, tiers 3 and 4 with 25 years or more of service credit before age 62, and tier 5 with 30 years or more of service credit before age 65. Benefits are reduced by a fraction of a percent for each month that a member retires prior to the age at which a member can receive full early retirement benefits in accordance with their respective tier. Tier 1 members can receive an unreduced benefit from age 55 to age 60 if they have at least 25 years of service. Deferred retirement is available to members who have at least 10 years of service credit and have not reached the service retirement age for the respective tier.

CPF

The State of New Jersey makes an annual appropriation payment to CPF to pay current year benefits. The contribution requirements were established by the statutes mentioned in the previous table and are not actuarially determined.

Benefits are payable under various State of New Jersey legislation in an amount equal to one-half of the compensation received by the participant for his/her service.

Notes to Financial Statements – June 30, 2019, *continued*

(c) Defined Contribution Pension Plans

The Division administers the following defined contribution plans to certain members as further discussed below:

Plan	Established as of	Legislation	Membership
NJSEDCP	June 19, 1978	Chapter 39, P.L. 1978, amended by Chapter 449, P.L. 1985, effective January 14, 1986, and further amended by Chapter 116, P.L. 1997, effective June 6, 1997	Any state employee who is a member of a state-administered retirement system or an employee of an eligible state agency, authority, commission or instrumentality of state government provided the employee has at least 12 continuous months of employment, and any individual employed through a Governor's appointment.
SACT	1963	Chapter 123, P.L. 1963, amended by Chapter 90, P.L. 1965	Active members of several state-administered retirement systems to provide specific benefits to supplement the guaranteed benefits that are provided by their basic retirement system.

Plan Membership

At June 30, 2019, membership in the defined contribution pension plans consisted of the following:

Plan	Members
NJSEDCP	56,299
SACT	2,971

Contribution Requirements and Benefit Provisions

NJSEDCP

Participants may defer between 1% and 100% of their salary, less any Internal Revenue Code (IRC) Section 414(h) reductions, or \$19,000 annually. Under the limited "catch-up" provision, a participant may be eligible to defer up to a maximum of twice the annual maximum in the three years immediately preceding the retirement age at which no reduction in benefits would be applicable.

There are no employer or nonemployer entities that are required to contribute to the plan.

Assets in the plan are held in trust for the exclusive benefit of plan members and their beneficiaries in accordance with Governmental Accounting Standards Board (GASB) Statement No. 32, Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans. Plan members are fully vested for the current valuation of their account from the date of enrollment in the plan. Benefits are payable upon separation from service with the State of New Jersey.

SACT

Participants contribute through payroll deductions and may contribute from 1% to 100% of their base salary. Contributions are voluntary and may be suspended at the beginning of any quarter. Contributions under the Tax Sheltered Supplemental Annuity Plan are subject to Federal law limitations and qualify for tax sheltered treatment permitted under Section 403(b) of the IRC. Participants are always fully vested for the accumulated units in their accounts.

Notes to Financial Statements – June 30, 2019, *continued*

Upon retirement, a participant receives a life annuity benefit or may elect to receive a benefit paid as a single cash payment or various forms of monthly annuity payments with a beneficiary provision based on the value of the participant’s account in the month of retirement. Upon the death of a participant, the designated beneficiary may elect to receive a lump sum equal to the account value or an annuity under any of the settlement options, which a retiree could elect under SACT. Upon termination of employment and withdrawal from the basic retirement systems, a participant must also withdraw his/her account under SACT as a lump sum settlement.

(d) Other Postemployment Benefit Plan

The Division administers the State Health Benefits Local Government Retired Employees plan. The plan was established in 1961 under Title 52 Article 14 – 17.25 et. seq. and offers medical and prescription coverage to qualified local government public retirees and their spouses. Local employers must adopt a resolution to participate. The OPEB plan is overseen by the State Health Benefits Commission (the Commission), which was established by NJSA 52:14-17.27. The Commission reviews any member appeals related to member eligibility, benefit or claim denial, and benefit payments for the medical and prescription drug claims. They also have contracting authority for vendors to administer the medical and prescription drug programs as well as the health benefit consultant and actuary. Further, they approve the premiums for the various plans on an annual basis. The Commission is comprised of one representative each from the Office of the Treasurer, Department of Banking and Insurance, Civil Service Commission, State Employee Union, and Local Employee Union.

Plan Membership and Contributing Employers

Membership and contributing employers/nonemployers of the defined benefit OPEB plan consisted of the following at June 30, 2019:

Inactive plan members or beneficiaries currently receiving benefits	27,871
Inactive plan members entitled to but not yet receiving benefits	–
Active plan members	63,032
Total	<u>90,903</u>
Contributing employers	<u>590</u>
Contributing nonemployers	1

Contribution Requirements and Benefit Provisions

The funding policy for the OPEB plan is pay-as-you-go; therefore, there is no prefunding of the liability. However, due to premium rates being set prior to each calendar year, there is a minimal amount of net position available to cover benefits in future years. Contributions to pay for the health benefit premiums of participating employees in the OPEB plan are collected from the State of New Jersey, participating local employers, and retired members. The State of New Jersey makes contributions to cover those employees eligible under P.L. 1997, C. 330 as disclosed below. Local employers remit employer contributions on a monthly basis. Retired member contributions are generally received on a monthly basis.

The employers participating in the OPEB plan made a contribution of \$346.4 million and the State of New Jersey, as the nonemployer contributing entity, contributed \$43.9 million for fiscal year 2019.

Pursuant to P.L. 2011, C. 78, future retirees eligible for postretirement medical coverage who have less than 20 years of creditable service on June 28, 2011 will be required to pay a percentage of the cost of their health care coverage in retirement provided they retire with 25 or more years of pension service credit. The percentage of the premium for which the retiree will be responsible will be determined based on the retiree’s annual retirement benefit and level of coverage.

Notes to Financial Statements – June 30, 2019, *continued*

The State provides partially funded benefits to certain local police officers and firefighters who retire with 25 years of service or on disability from an employer who does not provide coverage under the provisions of P.L. 1997, C. 330. To be eligible for Chapter 330 postretirement medical benefits, the employee must have retired from an employer who does not provide any payment toward health insurance at retirement.

(e) Agency Funds

The Division oversees PAF, ABP and DEP as agency funds. For PAF, the Division utilizes the annual appropriation payment from the State to pay COLA benefits to retirees and beneficiaries of POPF, CPFPPF and CPF. For ABP, the Division collects from the State, the contributions related to the employer portion of the plan and remits it to the pension providers (insurance and mutual fund companies) on behalf of the participating employees at the State and county colleges. For DEP, the Division receives employer contributions from the State and local employers and from active and retired employees to pay premiums to the plan.

(2) Summary of Significant Accounting Policies

(a) Reporting Entity

The financial statements include all funds, which are administered by the Division over which operating controls are with the individual Plan's governing Boards and/or the State of New Jersey. The financial statements of the Plans and the agency funds are included in the financial statements of the State of New Jersey; however, the accompanying financial statements are intended to present solely the funds listed above, which are administered by the Division and not the State of New Jersey as a whole.

(b) Measurement Focus and Basis of Accounting

The accompanying financial statements were prepared in accordance with U.S. generally accepted accounting principles as applicable to governmental organizations. In doing so, the Division adheres to reporting requirements established by GASB.

The accrual basis of accounting is used for measuring financial position and changes in net position of the pension trust funds, other postemployment benefit plan, and agency funds. Under this method, contributions are recorded in the accounting period in which they are legally due from the employer or plan member, and deductions are recorded at the time the liabilities are due and payable in accordance with the terms of each plan. The accounts of the Division are organized and operated on the basis of funds. All funds are accounted for using an economic resources measurement focus.

Fiduciary Funds

The Division reports the following types of funds:

Pension trust funds and other postemployment benefit plan – Account for monies received for, expenses incurred by and the net position available for plan benefits of the various public employee retirement systems and an OPEB plan. The pension trust funds include JRS, POPF, SPRS, CPFPPF, TPAF, PFRS, PERS, CPF, NJSEDCP, and SACT.

Agency funds – Agency funds are used to account for the assets that the Division holds on behalf of others as their agent. Agency funds are custodial in nature and do not involve measurement of results of operations.

(c) Receivables

Receivables consist primarily of member and employer contributions and other amounts that are legally required to be due to the Plans.

(d) Capital Assets

Capital assets utilized by the Division include equipment, which is owned and paid for by the State of New Jersey.

Notes to Financial Statements — June 30, 2019, *continued****(e) Investments***

The Division of Investment, Department of the Treasury, State of New Jersey (Division of Investment) manages and invests certain assets of seven of the defined benefit pension plans (JRS, POPF, SPRS, CPFPPF, TPAF, PFRS and PERS) and two defined contribution pension plans (SACT and certain accounts in NJSEDCP). Accounts managed by the Division of Investment included in the accompanying statement of fiduciary net position are: Common Pension Fund D and Common Pension Fund E (collectively known as the Common Pension Funds), SACT and certain accounts in NJSEDCP. Common Pension Fund D invests primarily in global equity and fixed income securities. Common Pension Fund E invests primarily in global diversified credit funds and alternative investments, which includes private equity, real estate, real asset, and absolute return strategy funds.

In addition, the Division of Investment manages the State of New Jersey Cash Management Fund (CMF), which is available on a voluntary basis for investment by State and certain non-State participants. CMF is considered to be an investment trust fund as defined in GASB Statement No. 31, *Certain Investments and External Investment Pools*. Units of ownership in CMF may be purchased or redeemed on any given business day (excluding State holidays) at the unit cost or value of \$1.00. Participant shares are valued on a fair value basis. For additional information about CMF, refer to the audited financial statements, which can be obtained at <http://www.state.nj.us/treasury/doinvest/cm/FinancialStatementsFiscal2019.pdf>.

Prudential Retirement is the third-party administrator for the NJSEDCP. Prudential Retirement provides recordkeeping, administrative services and access to 22 investment options through a combination of their separate account product offerings and retail branded mutual funds. The four state-managed investments options (NJSEDCP Fixed Income Fund, NJSEDCP Equity Fund, NJSEDCP Small Capitalization Equity Fund, and NJSEDCP Cash Management Fund) were closed to new contributions on December 31, 2005. On August 1, 2014, the NJSEDCP Fixed Income Fund and the NJSEDCP Cash Management Fund were closed. On December 15, 2014, the NJSEDCP Equity Fund and the NJSEDCP Small Capitalization Fund were opened to new contributions. The Board of the NJSEDCP is the fiduciary for the investments of the Plan. The Division of Pensions and Benefits maintains its administrative oversight functions for the Plan.

Investment transactions are accounted for on a trade or investment date basis. Interest and dividend income is recorded on the accrual basis, with dividends accruing on the ex-dividend date. The net increase in the fair value of investments includes the net realized and unrealized gains or losses on investments.

(f) Members' Loans

Members of JRS, SPRS, TPAF, PFRS, and PERS who have at least three years of service in these plans may borrow up to 50% of their accumulated member contributions. Repayment of loan balances is deducted from payroll checks and bears a commercially reasonable interest rate as set by the State Treasurer. For 2019, the interest rate was 7.75%. There was a \$15 processing fee per loan. Members who retire with an outstanding loan have the option of paying the loan in full prior to receiving any benefits or continuing their monthly loan payment schedule into retirement.

(g) Administrative Expenses

Administrative expenses are paid by the plans to the State of New Jersey, Department of the Treasury and are included in the accompanying financial statements.

In certain funds (JRS, SPRS, TPAF, PFRS and PERS) miscellaneous expenses and reimbursements from the fund that comprise various adjustments to member and employer accounts are incorporated into the administrative expense amounts included in the accompanying financial statements

Notes to Financial Statements – June 30, 2019, *continued*

(h) Income Tax Status

Based on Internal Revenue Service (IRS) determination letters received in January 2012 for JRS, POPF, SPRS, TPAF, and PERS and in June 2012 for CPFPF and PFRS, the seven pension funds comply with the qualification requirements of the Internal Revenue Code (IRC).

NJSEDCP and SACT are eligible plans as described in Section 457 and Section 401(a) of the IRC, respectively.

(i) Commitments

Common Pension Fund E is obligated, under certain private equity, real estate, real asset, absolute return strategy, and global diversified credit fund agreements to make additional capital contributions up to contractual levels over the investment period specified for each investment. As of June 30, 2019, Common Pension Fund E had unfunded commitments totaling approximately \$10.1 billion

(j) Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make significant estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates

(3) Employers' Net Pension Liability (Asset) – Defined Benefit Plans

Components of Net Pension Liability (Asset)

The components of the net pension liability (asset) of the participating employers for the defined benefit plans at June 30, 2019 are as follows:

	<u>JRS</u>	<u>POPF</u>	<u>SPRS</u>	<u>CPFPF</u>	<u>TPAF</u>	<u>PFRS</u>	<u>PERS</u>
Total pension liability	\$ 1,110,222,406	4,725,031	4,619,851,586	4,291,213	84,215,846,719	46,164,302,326	71,004,230,141
Plan fiduciary net position	157,864,193	4,925,932	1,791,789,567	1,387,550	22,696,734,276	27,792,420,945	29,847,977,666
Net pension liability (asset)	\$ <u>952,358,213</u>	<u>(200,901)</u>	<u>2,828,062,019</u>	<u>2,903,663</u>	<u>61,519,112,443</u>	<u>18,371,881,381</u>	<u>41,156,252,475</u>
Plan fiduciary net position as a percentage of the total pension liability	14.22%	104.25%	38.78%	32.33%	26.95%	60.20%	42.04%

The total pension liability was determined by actuarial valuations as of July 1, 2018, which was rolled forward to June 30, 2019, using the following actuarial assumptions, applied to all periods in the measurement:

	<u>JRS</u>	<u>POPF</u>	<u>SPRS</u>	<u>CPFPF</u>	<u>TPAF</u>	<u>PFRS</u>	<u>PERS</u>
Inflation rate:							
Price	2.75%	N/A	2.75%	N/A	2.75%	2.75%	2.75%
Wage	3.25%	N/A	3.25%	N/A	3.25%	3.25%	3.25%
Salary increases:							
Initial fiscal year applied through	2025	N/A	2025	N/A	2026	All future years	2026
Rate	Varies through 2025	N/A	2.95%	N/A	1.55% - 4.45% based on years of service	3.25% - 15.25% based on years of service	2.00% - 6.00% based on years of service
Thereafter	2.75%	N/A	3.95%	N/A	2.75% - 5.65% based on years of service	Not Applicable	3.00% - 7.00% based on years of service
Long-term expected rate of return	7.00%	2.00%	7.00%	2.00%	7.00%	7.00%	7.00%
Period of actuarial experience study upon which actuarial assumptions were based	July 1, 2014 - June 30, 2018	N/A	July 1, 2014 - June 30, 2018	N/A	July 1, 2015 - June 30, 2018	July 1, 2013 - June 30, 2018	July 1, 2014 - June 30, 2018

N/A – This is a closed plan, therefore there are no active employees.

Notes to Financial Statements – June 30, 2019, *continued*

The following table represents the mortality table and improvement assumptions used:

Plan	Pre-retirement mortality	Post-retirement mortality	Disability
JRS	The Pub-2010 Teachers Above-Median Income Employee mortality table, unadjusted, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Teachers Above-Median Income Employee mortality table, unadjusted, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Non-Safety Disabled Retiree mortality table, unadjusted, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.
POPF	Not applicable as there are no active members.	Pub-2010 Safety Healthy Retiree mortality tables for healthy retirees and PUB-2010 General Healthy Retiree mortality tables for beneficiaries, with future improvements from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	PUB-2010 Safety Disabled Retiree mortality tables with future improvements from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.
SPRS	The Pub-2010 Public Safety Above-Median Income Employee mortality table, unadjusted, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Public Safety Above-Median Income Healthy Retiree mortality table for healthy retirees (Healthy Annuitants) and PUB-2010 General Above-Median Income Healthy Retiree mortality table for beneficiaries (Contingent annuitants), unadjusted, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Public Safety Disabled Retiree mortality table, unadjusted, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.
CPFPF	Not applicable as there are no active members.	Pub-2010 Safety Healthy Retiree mortality tables for healthy retirees and PUB-2010 General Healthy Retiree mortality tables for beneficiaries, with future improvements from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	Not applicable as there are no disabled members.
TPAF	The Pub-2010 Teachers Above-Median Income Employee mortality table with a 93.9% adjustment for males and 85.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Teachers Above-Median Income Healthy Retiree mortality table with a 114.7% adjustment for males and 99.6% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Non-Safety Disabled Retiree mortality table with a 106.3% adjustment for males and 100.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.
PFRS	The Pub-2010 Safety Employee mortality table 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. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Safety Retiree Below-Median Income Weighted mortality table 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. Mortality improvement is based on Scale MP-2019. Beneficiaries (Contingent Annuitants): The Pub-2010 General Retiree Below-Median Income Weighted mortality table, unadjusted, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Safety Disabled Retiree mortality table 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. Mortality improvement is based on Scale MP-2019.
PERS	The Pub-2010 General Below-Median Income Employee mortality table with a 82.2% adjustment for males and 101.4% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 General Below-Median Income Healthy Retiree mortality table with a 91.4% adjustment for males and 99.7% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.	The Pub-2010 Non-Safety Disabled Retiree mortality table with a 127.7% adjustment for males and 117.2% adjustment for females, and with future improvement from the base year of 2010 on a generational basis. Mortality improvement is based on Scale MP-2019.

Notes to Financial Statements – June 30, 2019, *continued*

Long-Term Expected Rate of Return

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plans' investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the pension plans' target asset allocation as of June 30, 2019 are summarized in the following table:

Asset Class	JRS, SPRS, TPAF, PFRS and PERS	POPF & CPFPP
Risk Mitigation Strategies	4.67%	–
Cash Equivalents	2.00%	2.00%
U.S. Treasuries	2.68%	–
Investment Grade Credit	4.25%	–
High Yield	5.37%	–
Private Credit	7.92%	–
Real Assets	9.31%	–
Real Estate	8.33%	–
US Equity	8.26%	–
Non-U.S. Developed Markets Equity	9.00%	–
Emerging Markets Equity	11.37%	–
Private Equity	10.85%	–

Discount Rate

The discount rates used to measure the total pension liabilities of the plans were as follows:

Plan	Discount Rate
JRS	4.07%
POPF	3.50%
SPRS	5.51%
CPFPP	3.50%
TPAF	5.60%
PFRS	6.85%
PERS	6.28%

Notes to Financial Statements – June 30, 2019, *continued*

The following table represents the crossover period, if applicable, for each defined benefit plan:

	<u>JRS</u>	<u>POPF</u>	<u>SPRS</u>	<u>CPFPP</u>	<u>TPAF</u>	<u>PFRS</u>	<u>PERS</u>
Period of projected benefit payments for which the following rates were applied:							
Long-term expected rate of return	Through June 30, 2030	Not applicable	Through June 30, 2051	Not applicable	Through June 30, 2054	Through June 30, 2076	Through June 30, 2057
Municipal Bond rate*	From July 1, 2030 and thereafter	All periods	From July 1, 2051 and thereafter	All periods	From July 1, 2054 and thereafter	From July 1, 2076 and thereafter	From July 1, 2057 and thereafter

* The municipal bond return rate used is 3.50%. The source is the Bond Buyer Go 20-Bond Municipal Bond Index, which includes tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher.

Sensitivity of Net Pension Liability

The following presents the net pension liability of each plan calculated using the discount rates as disclosed above as well as what each plan’s net pension liability (asset) would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage-point higher than the current rate:

<u>Pension Plan (rates used)</u>	<u>At 1% decrease</u>	<u>At current discount rate</u>	<u>At 1% increase</u>
JRS (3.07%, 4.07%, 5.07%)	\$ 1,079,043,478	952,358,213	845,620,938
POPF (2.50%, 3.50%, 4.50%)	32,390	(200,901)	(412,014)
SPRS (4.51%, 5.51%, 6.51%)	3,485,236,159	2,828,062,019	2,296,038,312
CPFPP (2.50%, 3.50%, 4.50%)	3,086,213	2,903,663	2,737,893
TPAF (4.60%, 5.60%, 6.60%)	72,544,649,801	61,519,112,443	52,371,397,951
PFRS (5.85%, 6.85%, 7.85%)	24,067,316,615	18,371,881,381	13,658,537,725
PERS (5.28%, 6.28%, 7.28%)	49,394,327,441	41,156,252,475	34,222,574,208

(4) Employers’ Net Pension Liability – Defined Benefit Plans - OPEB

Components of Net OPEB Liability – OPEB Plan

The components of the net OPEB liability of the participating employers for the OPEB plan at June 30, 2019, are as follows:

Total OPEB liability	\$	13,819,244,582
Plan fiduciary net position		273,173,482
Net OPEB liability	\$	<u>13,546,071,100</u>
Plan fiduciary net position as a percentage of the total OPEB liability		1.98%

Notes to Financial Statements – June 30, 2019, *continued*

The total OPEB liability was determined by an actuarial valuation as of July 1, 2018, which was rolled forward to June 30, 2019 using the following actuarial assumptions, applied to all periods in the measurement:

Inflation rate	2.50%
Salary Increases*	
PERS	
Initial fiscal year applied through	2026
Rate	2.00% to 6.00%
Rate thereafter	3.00% to 7.00%
PFRS	
Rate for all future years	3.25% to 15.25%
Mortality	
PERS	Pub-2010 General classification headcount weighted mortality with fully generational mortality improvement projections from the central year using Scale MP-2019
PFRS	Pub-2010 Safety classification headcount weighted mortality with fully generational mortality improvement projections from the central year using Scale MP-2019
Long-term rate of return	2.00%

*Salary increases are based on years of service within the respective plan.

Actuarial assumptions used in the July 1, 2018 valuation were based on the results of the PFRS and PERS experience studies prepared for July 1, 2013 to June 30, 2018 and July 1, 2014 to June 30, 2018, respectively.

For pre-Medicare medical benefits, the trend is initially 5.7% and decreases to a 4.5% long-term trend rate after eight years. For post-65 medical benefits, the actual fully-insured Medicare Advantage trend rates for fiscal year 2020 are reflected. The assumed post-65 medical trend is 4.5% for all future years. For prescription drug benefits, the initial trend rate is 7.5% and decreases to a 4.5% long-term trend rate after eight years.

As the OPEB plan only invests in the State of New Jersey CMF, the long-term expected rate of return on OPEB investments was based off the best-estimate ranges of future real rates of return (expected returns, net of OPEB plan investment expense and inflation) for cash equivalents, which is 2.00%.

The discount rate for the OPEB plan was 3.50%. This represents the municipal bond return rate as chosen by the Division. The source is the Bond Buyer Go 20-Bond Municipal Bond Index, which includes tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher. As the long-term rate of return is less than the municipal bond rate, it is not considered in the calculation of the discount rate, rather the discount rate is set at the municipal bond rate.

Sensitivity of Net OPEB Liability to changes in the discount rate:

At 1% decrease (2.50%)	At current discount rate (3.50%)	At 1% increase (4.50%)
\$ 15,662,704,137	13,546,071,100	11,826,026,995

Sensitivity of Net OPEB Liability to changes in the healthcare trend rate:

1% Decrease	Healthcare Cost Trend Rate	1% Increase
\$ 11,431,214,644	13,546,071,100	16,243,926,531

Notes to Financial Statements – June 30, 2019, *continued*

(5) Investments

Investments (including investments held directly by the Common Pension Funds) as of June 30, 2019 are as follows:

Common Pension Fund D:

Cash	\$	173,745,419
Cash Management Fund		1,570,027,226
Domestic equities		24,690,613,350
International equities		14,689,257,029
Domestic fixed income		9,657,129,003
International fixed income		1,351,491,650
Other ⁽¹⁾		160,958,454
		<u>52,293,222,131</u>

Common Pension Fund E:

Cash		27,993,790
Cash Management Fund		929,613,246
Private equity funds		8,768,887,481
Global diversified credit funds		4,686,113,324
Absolute return strategy funds		4,350,868,877
Real estate funds		3,847,147,915
Real assets		1,905,042,244
Opportunistic private equity investments		422,541,807
Other ⁽¹⁾		14,730,192
		<u>24,952,938,876</u>

All Other Investments:

Cash Management Fund		1,690,840,084
Domestic equities		796,970,015
Fixed income mutual funds		484,041,502
Equity mutual funds		3,452,128,926
		<u>6,423,980,527</u>
Total	\$	83,670,141,534

⁽¹⁾ Includes assets (other than investments) and liabilities included in the net position of the Common Pension Funds. Common Pension Fund D excludes assets and liabilities related to securities lending.

New Jersey State statute provides for a State Investment Council (the Council) and a Director. Investment authority is vested in the Director of the Division of Investment and the role of the Council is to formulate investment policies. The Council issues regulations, which establish guidelines for permissible investments for the Common Pension Funds managed by the Division of Investment, which include global equity investments, non-convertible preferred stocks, covered call options, put options, futures contracts, obligations of the U.S. Treasury, government agencies, corporations, international governments and agencies, global diversified credit investments, swap transactions, state and municipal general obligations, public authority revenue obligations, collateralized notes and mortgages, commercial paper, certificates of deposit, repurchase agreements, money market funds, private equity funds, real estate funds, other real assets, absolute return strategy funds, and the CMF.

Notes to Financial Statements — June 30, 2019, *continued*

The Council approves an investment plan that includes a targeted asset allocation, as well as long-term targeted ranges for asset classes. The asset allocation targets approved on May 29, 2019 by the Council for the Pension Fund, is as follows:

Asset Class	Target
U.S. equity	28.00%
Non-U.S. developed markets equity	12.50%
Emerging markets equity	6.50%
Private equity	12.00%
Global Growth	59.00%
Real Estate	7.50%
Real Assets	2.50%
Real Return	10.00%
High yield	2.00%
Private Credit	6.00%
Investment grade credit	10.00%
Income	18.00%
Cash equivalents	5.00%
US Treasuries	5.00%
Risk mitigation strategies	3.00%
Defensive	13.00%
Total	100.00%

The asset allocation policy is reviewed on at least an annual fiscal year basis.

Rate of Return

The annual money-weighted rate of return for the Pension Funds (which includes JRS, SPRS, TPAF, PFRS, and PERS), POPF, CPFPPF, and the OPEB plan were 6.17%, 2.29%, 2.29% and 2.29%, respectively. The money-weighted rate of return considers the changing amounts actually invested during a period and weights the amounts of pension plan investments by the proportion of time they are available to earn a return during that period. External cash flows are determined on a monthly basis and are assumed to occur at the end of each month. External cash inflows are netted with external cash outflows, resulting in a net external cash flow in each month. The money-weighted rate of return is calculated net of investment expenses.

Deposit and Investment Risk Disclosure

Custodial credit risk, as it relates to investments, is the risk that in the event of the failure of the custodian, the Plans will not be able to recover the value of investments or collateral securities that are in the possession of the third party. The Plans' investment securities are not exposed to custodial credit risk as they are held in segregated accounts in the name of the Plans with the custodians.

The Plans' investments are subject to various risks. Among these risks are credit risk, concentration of credit risk, interest rate risk, and foreign currency risk. Each one of these risks is discussed in more detail below.

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The credit risk of issuers and debt instruments is evaluated by nationally recognized statistical rating agencies, such as Moody's Investors Service, Inc. (Moody's), Standard & Poor's Corporation (S&P), and Fitch Ratings (Fitch). Concentration of credit risk is the risk of loss attributed to the magnitude of an investment in a single issuer. There are no restrictions in the amount that can be invested in U.S. Treasury and government agency obligations. Council regulations require minimum credit ratings for certain categories of fixed income obligations held directly by the various funds and limit the amount that can be invested in any one issuer or issue.

Notes to Financial Statements – June 30, 2019, *continued*

The credit ratings and limits for the Pension Funds as of June 30, 2019 are as follows:

Category	Minimum rating			Limitation of issuer's outstanding debt/stock	Limitation of issue	Other limitations
	Moody's	S&P	Fitch			
Certificates of deposit ⁽¹⁾ Domestic International	A3/P-1 Aa3/P-1	A-/A-1 AA-/A-1	A-/F-1 AA-/F-1	– –	– –	Split rating allowable. Cannot exceed 10% of issuer's primary capital ⁽²⁾ . Not more than 5% of pension fund assets can be invested in any one issuer and affiliated entities.
Collateralized notes and mortgages	Baa3	BBB-	BBB-	–	25%	Not more than 5% of pension fund assets can be invested in any one issuer and affiliated entities.
Commercial paper	P-1	A-1	F-1	–	–	Split rating allowable. Not more than 5% of pension fund assets can be invested in any one issuer and affiliated entities.
Global debt obligations	Baa3	BBB-	BBB-	10%	–	Not more than 5% of pension fund assets can be invested in any one issuer and affiliated entities
Global diversified credit investments: Direct bank loans Funds	– –	– –	– –	10% –	– –	Not more than 10% of pension fund assets can be invested in this category. Not more than 5% of pension fund assets can be invested in any one issuer and affiliated entities.
International government and agency obligations	Baa3	BBB-	BBB-	25%	25%	Not more than 5% of pension fund assets can be invested in this category.

(1) As of July 1, 2019, the long-term rating requirement was eliminated.

(2) As of July 1, 2019, the 10% limitation is applied to the issuer's outstanding debt.

Notes to Financial Statements – June 30, 2019, *continued*

Category	Minimum rating			Limitation of issuer's outstanding debt/stock	Limitation of issue	Other limitations
	Moody's	S&P	Fitch			
Money market funds	–	–	–	–	–	Not more than 5% of pension fund assets can be invested in money market funds; limited to 5% of shares or units outstanding.
Mortgage backed						
Pass-through securities	A3	A-	A-	–	–	Not more than 10% of pension fund assets can be invested in mortgage backed securities.
Senior debt securities	–	–	–	–	25%	
Non-convertible preferred stocks	Baa3	BBB-	BBB-	10%	25%	Not more than 5% of pension fund assets can be invested in any one issuer and affiliated entities.
Repurchase agreements:						
Bank or trust company	–	–	–	–	–	–
Broker	P-1	A-1	F-1	–	–	–
State, municipal, and public Authority obligations	A3	A-	A-	10%	10%	Not more than 2% of pension fund assets can be invested in debt of any one obligor.
Swap transactions	Baa2	BBB	BBB	–	–	Notional value of net exposure to any one counterparty shall not exceed 1% of pension fund assets. Notional value of all swap transactions shall not exceed 5% of pension fund assets but may be increased to 10% for a fixed period of time.

Up to 8% of the fair value of the combined assets of the Pension Funds may be invested in global debt obligations, collateralized notes and mortgages, non-convertible preferred stock, and mortgage-backed pass-through securities that do not meet the minimum credit rating requirements set forth above.

Notes to Financial Statements – June 30, 2019, *continued*

The total amount of a particular class of stock directly purchased of any one entity by the Common Pension Funds cannot exceed 10% of that class of stock outstanding. The total amount of shares or interests directly purchased or acquired of any one exchange traded fund or global, regional or country fund by the Common Pension Funds shall not exceed 10% of the total shares outstanding or interests of such fund.

The NJSEDCP Equity Fund and the NJSEDCP Small Capitalization Equity Fund are invested in equity securities that are denominated in U.S. dollars that trade on a securities exchange in the United States or the over-the-counter market. The NJSEDCP Equity Fund and the NJSEDCP Small Capitalization Equity Fund may hold up to 25% of their assets either in short-term fixed income securities, as permitted by the Council regulations, or in CMF. Not more than 10% of the market value of the NJSEDCP Equity Fund or the NJSEDCP Small Capitalization Equity Fund can be invested in the equity of any one issuer and affiliated entities. The total amount of a particular class of stock directly purchased or acquired of any one entity cannot exceed 5% of that class of stock outstanding. The total amount of shares directly purchased or acquired of any one exchange traded fund shall not exceed 5% of the total shares outstanding of such fund.

The funds managed by Prudential Retirement investments for the NJSEDCP consist of a number of individual investment managers, which individually have investment guidelines that they comply with and follow. For Prudential Retirement, the NJSEDCP is a participant directed program offering a range of diversified investment alternatives. The options include bond investments, which are diversified by sector and number of securities held, mitigating undue concentration of both credit and foreign currency risks as well as interest rate risk.

SACT can only invest in equity securities denominated in U.S. dollars that are traded on a securities exchange in the United States or over-the-counter market. For SACT, not more than 10% of the market value of the fund can be invested in the equity of any one issuer and affiliated entities. The total amount of shares directly purchased or acquired of any one exchange traded fund shall not exceed 5% of the total shares outstanding of such fund. The total amount of a particular class of stock directly purchased or acquired of any one entity shall not exceed 5% of that class of stock outstanding.

The following tables disclose aggregate fair value, by major credit quality rating category as of June 30, 2019 for the fixed income securities held directly by the Common Pension Funds. The first table includes fixed income securities rated by Moody's. The second table discloses Standard & Poor's ratings for fixed income securities not rated by Moody's (in thousands).

	Moody's rating											Totals
	Aaa	Aa	A	Baa	Ba	BB	B	Caa	Ca	CCC	C	
Corporate obligations	\$775,338	1,062,700	4,540,673	405,804	314,987	626	406,105	109,934	2,961	835	1,468	7,621,431
U.S. Treasury bonds	1,510,012	–	–	–	–	–	–	–	–	–	–	1,510,012
Foreign government obligations	171,021	606,725	25,973	–	–	–	259	–	–	–	–	803,978
International corporate obligations	194,428	50,976	49,233	40,270	60,257	2,839	67,855	28,153	140	–	–	494,151
Foreign agency obligations	336,246	–	–	–	–	–	–	–	–	–	–	336,246
Municipal obligations	–	96,638	32,976	–	–	–	–	–	–	–	–	129,614
Mortgages (FHLMC/FNMA/GNMA)	12,589	–	–	–	–	–	–	–	–	–	–	12,589
Other	–	–	–	–	198	–	1,833	–	–	–	–	2,031
	\$2,999,634	1,817,039	4,648,855	446,074	375,442	3,465	476,052	138,087	3,101	835	1,468	10,910,052

Notes to Financial Statements – June 30, 2019, *continued*

	Standard and Poor's rating						Fitch's rating			Totals
	AAA	BBB	BB	B	CCC	CC	BBB	BB	B	
Foreign government obligations	\$ 39,837	–	–	–	–	–	–	–	–	39,837
Corporate obligations	15,053	13,799	5,487	1,727	1,527	111	–	–	–	37,704
International corporate obligations	248	462	5,752	1,488	146	239	425	193	703	9,656
Asset backed securities	–	338	–	–	–	–	–	–	–	338
	\$ 55,138	14,599	11,239	3,215	1,673	350	425	193	703	87,535

The tables do not include certain domestic and international corporate obligations and certain fixed income mutual funds, which invest in an underlying portfolio of fixed income securities, totaling \$495,075,998, and do not have a Moody's or Standard & Poor's rating. The above tables also do not include investment in the Cash Management Fund totaling \$4,190,480,556, which is not rated.

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. Commercial paper must mature within 270 days. Certificates of deposits are limited to a term of one year or less. Repurchase agreements must mature within 30 days. Council regulations permit the Common Pension Funds to enter into foreign exchange contracts for the purpose of hedging the international portfolio.

The following table summarizes the maturities (or, in the case of Remics and mortgage-backed securities, the expected average life) of the Common Pension Funds' fixed income portfolio as of June 30, 2019 (in thousands):

Fixed income investment type	Maturities in years				Total fair value
	Less than 1	1 - 5	6 - 10	More than 10	
Corporate obligations	\$ 291,137	2,716,483	2,892,067	1,766,382	7,666,069
U.S. Treasury bonds	295,383	613,212	316,412	285,005	1,510,012
Foreign government obligations	139,052	369,906	121,357	213,500	843,815
International corporate obligations	1,114	355,118	119,348	31,595	507,175
Federal agency obligations	99,332	236,914	–	–	336,246
Municipal obligations	–	45,328	–	84,286	129,614
Mortgages (FHLMC/FNMA/GNMA)	–	382	10,106	2,101	12,589
Bank loans	–	1,246	–	–	1,246
Asset backed securities	–	–	–	338	338
	\$ 826,018	4,338,589	3,459,290	2,383,207	11,007,104

The fixed income exchange traded funds held by the Common Pension Funds and the fixed income mutual funds held by NJSEDCP as of June 30, 2019 were \$1,516,932 and \$484,041,502, respectively. These funds have a weighted average duration of 3.12 and 5.64 years, respectively.

Notes to Financial Statements – June 30, 2019, *continued*

The Common Pension Funds invest in global markets. Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment. The Common Pension Funds had the following foreign currency exposure as of June 30, 2019 (expressed in thousands of U.S. dollars):

Currency	Equities	Fixed Income	Alternative Investments	Total fair value
Australian dollar	\$ 631,120	–	–	631,120
Brazilian real	351,562	–	–	351,562
Canadian dollar	846,673	58,365	–	905,038
Chilean peso	31,581	–	–	31,581
Columbian peso	–	1,218	–	1,218
Czech koruna	16,799	–	–	16,799
Danish krone	160,727	–	–	160,727
Euro	2,503,826	30,712	803,745	3,338,283
Hong Kong dollar	1,409,346	–	–	1,409,346
Hungarian forint	30,743	–	–	30,743
Indonesian rupiah	131,698	–	–	131,698
Japanese yen	2,013,221	–	–	2,013,221
Malaysian ringgit	89,200	–	–	89,200
Mexican peso	101,366	–	–	101,366
New Israeli sheqel	33,552	–	–	33,552
New Taiwan dollar	12,229	–	–	12,229
New Zealand dollar	18,172	–	–	18,172
Norwegian krone	48,819	–	–	48,819
Pakistan rupee	3,459	–	–	3,459
Philippine peso	36,739	–	–	36,739
Polish zloty	53,203	–	–	53,203
Pound sterling (U.K.)	1,387,717	2,533	117,993	1,508,243
Qatari rial	31,155	–	–	31,155
Singapore dollar	114,491	–	–	114,491
South African rand	323,981	–	–	323,981
South Korean won	625,290	–	–	625,290
Swedish krona	232,400	–	–	232,400
Swiss franc	722,216	–	–	722,216
Thailand baht	157,052	–	–	157,052
Turkish lira	40,761	–	–	40,761
UAE dirham	33,806	–	–	33,806
	\$ 12,192,904	92,828	921,738	13,207,470

Notes to Financial Statements — June 30, 2019, *continued*

The Pension Funds' interests in alternative investments may contain elements of credit, currency and market risk. Such risks include, but are not limited to, limited liquidity, absence of regulatory oversight, dependence upon key individuals, speculative investments (both derivatives and nonmarketable investments), and nondisclosure of portfolio composition. Council regulations provide that not more than 38% of the market value of the Pension Funds can be invested in alternative investments, with limits on the individual investment categories of real estate (9%), real assets (7%), private equity (12%) and absolute return strategy (15%).

Not more than 5% of the market value invested through direct investments, separate accounts, fund-of-funds, commingled funds, co-investments and joint ventures in global diversified credit, private equity, real asset and absolute return strategy investments, plus outstanding commitments, may be committed to any one partnership or investment. Investments made through separate accounts, funds-of-funds, comingled funds, co-investments and joint ventures cannot comprise more than 20% of any one investment managers' total assets.

As of June 30, 2019, the net position of Common Pension Fund E includes receivables of \$14.7 million related to the redemption of hedge funds.

(6) Securities Lending Collateral

The State Investment Council policies permit the Common Pension Funds and several of the direct pension plan portfolios to participate in securities lending programs, whereby securities are loaned to brokers or other borrowers and, in return, the Common Pension Funds have rights to the collateral received. All of the publicly traded securities held in Common Pension Funds are eligible for the securities lending program. Collateral received may consist of cash, letters of credit, or U.S. Treasury obligations having a fair value equal to or exceeding 102% (U.S. dollar denominated) or 105% (non-U.S. dollar denominated) of the value of the loaned securities at the time the loan is made. Collateral is marked to market daily and adjusted as needed to maintain the required minimum level.

For loans of U.S. government securities or sovereign debt issued by non-U.S. governments, in the event that the fair value of the collateral falls below 100% of the fair value of the outstanding loaned securities to an individual borrower, or the fair value of the collateral of all loans of such securities falls below the collateral requirement, additional collateral shall be transferred by the borrower to the respective funds no later than the close of the next business day so that the fair value of such additional collateral together with collateral previously delivered meets the collateral requirements.

For loans of all other types of securities, in the event that the fair value of the collateral falls below the collateral requirement of either 102% or 105% (depending on whether the securities are denominated in U.S. dollars or a foreign currency, respectively) of the fair value of the outstanding loaned securities to an individual borrower, additional collateral shall be transferred in an amount that will increase the aggregate of the borrower's collateral to meet the collateral requirements. As of June 30, 2019, the Common Pension Funds had no aggregate credit risk exposure to borrowers because the collateral amount held by the Common Pension Funds exceeded the fair value of the securities on loan.

The contract with the Common Pension Funds' securities lending agent requires them to indemnify the Common Pension Funds if the brokers or other borrowers fail to return the securities and provide that collateral securities may be sold in the event of a borrower default. The Common Pension Funds are also indemnified for any loss of principal or interest on collateral invested in repurchase agreements. The Common Pension Funds cannot participate in any dividend reinvestment program or vote with respect to any securities that are on loan on the applicable record date. The securities loans can be terminated by notification by either the borrower or the Common Pension Funds. The term to maturity of the securities loans is generally matched with the term to maturity of the investment of the cash collateral.

The securities lending collateral is subject to various risks. Among these risks are custodial credit risk, credit risk, concentration of credit risk, and interest rate risk. Securities lending collateral is invested in repurchase agreements, the maturities of which cannot exceed 30 days. The collateral for repurchase agreements is limited to obligations of the U.S. Government or certain U.S. Government agencies, collateralized notes and mortgages, and corporate obligations meeting certain minimum rating criteria. Total exposure to any individual issuer is limited consistent with internal policies for funds managed by the Division of Investment.

Notes to Financial Statements – June 30, 2019, *continued*

For securities exposed to credit risk in the collateral portfolio, the following table discloses aggregate fair value, by major credit quality rating category as of June 30, 2019 (in thousands):

	Rating		Totals
	Aaa/AAA	Not rated	
Repurchase agreements	\$ 901,000	–	901,000
State Street Navigator Securities Lending Money Market Portfolio	–	107,389	107,389
	\$ 901,000	107,389	1,008,389

Custodial credit risk for investments is the risk that in the failure of the counterparty to the transaction, the Pension Funds will not recover the value of the investments that are in the possession of an outside party. The repurchase agreement’s underlying securities are held in a segregated account at the tri-party bank.

As of June 30, 2019, the Pension Funds had outstanding loaned investment securities with an aggregate fair value of \$992,246,119 and did not hold any noncash collateral. There were no borrowers or lending agent default losses, and no recoveries or prior period losses during the year.

(7) Derivatives

The Pension Funds invest in derivative securities through the Common Pension Funds. A derivative security is an investment whose value is derived from other financial instruments such as commodity prices, bonds and stock prices, or a market index. The Common Pension Funds’ derivative securities are considered investment derivative instruments. The fair value of all derivative securities is reported in the statement of fiduciary net position, and the change in fair value is recorded in the statement of changes in fiduciary net position as a net increase or decrease in fair value of investments.

Derivative transactions involve, to varying degrees, credit risk and market risk. Credit risk is the possibility that a loss may occur because a party to a transaction fails to perform according to terms. Market risk includes, but is not limited to, the possibility that a change in interest rate risk, foreign currency risk, or the value of the underlying securities will cause the value of a financial instrument to decrease or become more costly to settle. The market or the value of underlying security, or securities, risk associated with derivatives, the prices of which are constantly fluctuating, is regulated by imposing limits as to the types, amounts and degree of risk that the Common Pension Funds may undertake as set forth in the Council Regulations.

The Common Pension Funds may use financial futures to replicate an underlying security or indices they wish to hold in the portfolio. In certain instances, it may be beneficial to own a futures contract rather than the underlying security. Additionally, the Common Pension Funds may use futures contracts to improve the yield or adjust the duration of the fixed income portfolio or may sell futures contracts to hedge the portfolio. A financial futures contract is an agreement between a buyer and a seller that is based on a referenced item, such as financial indices, or interest rates or a financial instrument, such as equity or fixed income securities, physical commodities or currencies. Futures contracts may call for physical delivery of specified quantity of the underlying asset at a specified price (futures or strike price) and date, or be settled in cash. Futures contracts must be traded on a securities exchange or over-the-counter market. The net change in the futures contracts value is settled daily in cash with the exchanges. The cash to fulfill these obligations is held in a margin account. As the fair value of the futures contract varies from the original contract price, a gain or loss is paid to or received from the clearinghouse and recognized in the statement of changes in fiduciary net position.

Foreign currency forward contracts are used as a means to hedge against currency risks in the Common Pension Funds. Foreign currency forward contracts are agreements to buy or sell a specific amount of a foreign currency at a specified delivery or maturity date for an agreed upon price. Foreign currency forward contracts are marked to market on a daily basis with the change in fair value included in investment income in the statement of changes in fiduciary net position.

Notes to Financial Statements – June 30, 2019, *continued*

The Common Pension Funds utilize covered call and put options in an effort to add value to or reduce the risk level in the portfolio. Options are agreements that give the owner of the option the right, but not obligation, to buy (in the case of a call option) or to sell (in the case of a put option) a specific amount of an asset for a specific price (called the strike price) on or before a specified expiration date. The Common Pension Funds enter into covered calls when they write (or sell) call options on underlying stocks held by the Common Pension Funds or stock indices. The Common Pension Funds enter into covered put options when they purchase put options on underlying stocks held by the Common Pension Funds or stock indices. The Common Pension Funds enter into put spreads when they purchase put options while simultaneously writing put options on the same underlying securities or indices at a lower strike price. The purchaser of put options pays a premium at the outset of the agreement and stands to gain from an unfavorable change (i.e., a decrease) in the price of the instrument underlying the option. The writer of call options receives a premium at the outset of the agreement and may bear the risk of an unfavorable change (i.e., an increase) in the price of the instrument underlying the option.

As of June 30, 2019, the Common Pension Fund's derivative investments included foreign currency forward contracts:

	Notional value (local)	Receivable	Payable	Change in fair value
Foreign currency forward contracts:				
Buy:				
Euro	1,183,376	\$ 1,348,532	1,337,431	11,101
Pound sterling	19,000	24,217	24,268	(51)
Sell:				
Euro	28,540,193	\$ 32,498,790	32,552,123	(53,333)
Pound sterling	1,942,750	2,475,687	2,478,973	(3,286)
Total Forward contracts		\$ 36,347,226	36,392,795	(45,569)

Certain of the alternative investment funds and partnerships may use derivative instruments to hedge against market risk and to enhance investment returns. At any point during the year, the Common Pension Funds may have additional exposure to derivatives primarily through limited liability vehicles such as limited partnerships and commingled investment funds.

(8) Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between independent market participants at the measurement date. Inputs refer broadly to the assumptions that market participants would use in pricing the asset or liability, including assumptions about risk. Inputs may be observable or unobservable. Observable inputs are inputs that reflect the assumptions market participants would use in pricing the asset or liability developed based on market data obtained from sources independent of the reporting entity. Unobservable inputs are inputs that reflect the reporting entity's own assumptions about the assumptions market participants would use in pricing the asset or liability developed based on the best information available in the circumstances. The three levels of the fair value hierarchy are as follows:

Level 1 – Quoted prices are available in active markets for identical investments as of the reporting date.

Level 2 – Pricing inputs are other than quoted prices in active markets, which are either directly or indirectly observable as of the reporting date, and fair value is determined through the use of models or other valuation methodologies.

Level 3 – Pricing inputs are unobservable for the investment and inputs into the determination of fair value require significant management judgment or estimation, including assumptions about risk.

Notes to Financial Statements – June 30, 2019, *continued*

Investments are reported at fair value as follows:

- Domestic and international equity securities and exchange traded funds are valued using closing sales prices reported on recognized securities exchanges on which the securities are principally traded; these securities are included as Level 1 in the chart below. For listed securities having no sales reported and for unlisted securities, such securities will be valued based upon the last reported bid price; these securities are included as Level 2 in the chart below.
- Fixed income and equity mutual funds are valued using the published daily closing prices reported by Prudential and are included as Level 1 in the chart below.
- Foreign and domestic government, agency and corporate obligations, municipal bonds, mortgages, bank loans and asset-backed securities are valued using an evaluated price, which is based on a compilation of primarily observable market information or broker quotes in a non-active market. These are included as Level 2 in the chart below.
- Foreign exchange contracts are valued using industry recognized market-based models to calculate the value that a holder or counterparty would receive within the bid-ask spread, in an orderly transaction under current market conditions. These securities are included as Level 2 in the chart below.
- Distributions from alternative investment vehicles are received as the underlying investments are liquidated. The Plan's ownership interest in partners' capital can never be redeemed, but could be sold subject to approval by the fund's management. As of June 30, 2019, a buyer (or buyers) for these investments have not yet been identified. The partnership interest may be sold at an amount different from the net asset value (NAV) per share (or its equivalent) of the plan's ownership interest in partners' capital.
- The valuation methods for investments measured at the NAV per share (or its equivalent) is presented in the table below.

Notes to Financial Statements – June 30, 2019, *continued*

The following table summarizes the fair value hierarchy of the investment portfolio as of June 30, 2019 (in thousands):

	<u>Total</u>	<u>Level 1</u>	<u>Level 2</u>
Investments at fair value			
Equity securities			
Domestic equities	\$ 25,382,703	25,368,795	13,908
International equities	13,815,188	13,813,907	1,281
Equity mutual funds	3,452,129	3,452,129	–
Exchange traded funds	<u>978,949</u>	<u>978,949</u>	<u>–</u>
Total equity securities	43,628,969	43,613,780	15,189
Debt securities			
Corporate obligations	7,666,069	–	7,666,069
U. S. Treasury bonds	1,510,012	–	1,510,012
Foreign government obligations	843,815	–	843,815
International corporate obligations	507,175	–	507,175
Federal agency obligations	336,246	–	336,246
Fixed income mutual funds	484,042	484,042	–
Municipal obligations	129,614	–	129,614
Mortgages (FHLMC/FNMA/GNMA)	12,589	–	12,589
Exchanged traded funds	1,517	1,517	–
Bank loans	1,246	–	1,246
Asset backed securities	<u>338</u>	<u>–</u>	<u>338</u>
Total debt securities	<u>11,492,663</u>	<u>485,559</u>	<u>11,007,104</u>
Total investments by fair value level	55,121,632	<u>44,099,339</u>	<u>11,022,293</u>
Investments measured at the net asset value (NAV)			
Buyout private equity funds	7,429,608		
Global diversified credit funds	4,686,113		
Real estate funds - equity	3,428,812		
Multi-strategy hedge funds	2,136,471		
Real assets	1,905,042		
Opportunistic hedge funds	1,069,911		
Debt related private equity funds	924,740		

FINANCIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS

Notes to Financial Statements – June 30, 2019, *continued*

	<u>Total</u>	<u>Level 1</u>	<u>Level 2</u>
Investments at fair value <i>continued</i>			
Credit oriented hedge funds	803,905		
Opportunistic private equity investments	422,542		
Real estate funds - debt	418,336		
Venture capital private equity funds	400,627		
Equity oriented hedge funds	340,583		
Secondary private equity funds	13,912		
Total investments measured at NAV	23,980,602		
Local Government Investment Pool			
Cash Management Fund	4,190,480		
Total investments	\$ 83,292,714		
Investments derivative instruments			
Foreign currency forward contracts (assets)	11,050	–	11,050
Foreign currency forward contracts (liabilities)	(56,619)	–	(56,619)
Total investment derivative instruments	\$ (45,569)	–	(45,569)

Notes to Financial Statements – June 30, 2019, *continued*

The following table represents the unfunded commitments, redemptions frequency and redemption notice period for investments measured at NAV as of June 30, 2019 (in thousands):

	Fair Value	Unfunded Commitments*	Redemption Frequency (if currently Eligible)	Redemption Notice Period
Buyout private equity funds ⁽¹⁾	\$ 7,429,608	3,421,316	None	N/A
Global diversified credit funds ⁽²⁾	4,686,113	1,931,968	Quarterly, Semi- annual	45 and 90 days
Real estate funds - equity ⁽³⁾	3,428,812	1,866,052	Quarterly	15 and 90 days
Multi-strategy hedge funds ⁽⁴⁾	2,136,471	127,791	Quarterly, Semi-annual	None
Real assets ⁽⁵⁾	1,905,042	1,019,323	None	None
Opportunistic hedge funds ⁽⁶⁾	1,069,911	125,000	Monthly, Quarterly	2-90 days
Debt related private equity funds ⁽⁷⁾	924,740	745,213	None	N/A
Credit oriented hedge funds ⁽⁸⁾	803,905	–	Monthly, Quarterly, Semi-annual, Annually	45-60 days
Opportunistic private equity funds ⁽⁹⁾	422,542	341,033	None	N/A
Real estate funds - debt ⁽¹⁰⁾	418,336	319,647	None	N/A
Venture capital private equity funds ⁽¹¹⁾	400,627	92,741	None	N/A
Equity oriented hedge funds ⁽¹²⁾	340,583	50,000	Quarterly, Semi-annual, Annually	45-92 days
Secondary private equity funds ⁽¹³⁾	13,912	12,857	None	N/A
Total investments measured at NAV	\$ 23,980,602	10,052,941		

* The unfunded commitments are comprised of funds at various points in their investment terms. Certain funds are outside of their investment period or within their dissolution period. Per the contractual fund agreements, these funds can no longer draw capital for new investments and thus are highly unlikely to utilize all of the remaining unfunded balances. In addition, the Division of Investment has contractual rights to veto further capital draws of certain funds on behalf of the Common Pension Fund E, limiting the ability to draw down these unfunded balances.

1. Buyout private equity funds include investments in 82 partnerships and 7 co-investment vehicles, which invest primarily in the equity of established operating companies in order to restructure the target company's reserve capital, management and/or organizational structure or facilitate ongoing growth of the firm. Return on investment is typically realized through an initial public offering, sale or merger of the company, or a recapitalization. All of the investments provide for transfer or sale of limited partnership interest with the prior written approval of the General Partner and seven investments further require the right of first refusal by the other partner in the investment. It is expected that the underlying assets will be liquidated over the next 1 to 14 years.
2. Global diversified credit funds include investments in 19 funds and separate account investments that make investment in mezzanine debt, credit structured products, commercial and residential mortgage-backed securities, commercial and residential whole loans, and other similar strategies. One of the funds has a quarterly redemption provision and one fund has a semi-annual redemption provision. Fifteen of these investments cannot be redeemed because the investments include restrictions. As of June 30, 2019, these remaining redemption restriction periods range from 3 to 72 months. It is expected that the underlying assets will be liquidated over the next 1 to 10 years.
3. Real estate funds - equity include investments in 48 funds or separate accounts that make investments in the equity of the underlying asset, where the investor acts as a shareholder in a specific property and receives a share of the rental income the property generates. Investments representing approximately 80% of real estate equity investments can never be redeemed. Thirty eight of the investments provide for the transfer or sale of the limited partnership interest with the prior written approval of the General Partner and nine investments further require the right of first refusal by the other partners in the investment. Distributions from each fund and separate account will be received as the underlying investments are liquidated. It is expected that the underlying assets will be liquidated over the next 6 months to 15 years.

Notes to Financial Statements — June 30, 2019, *continued*

4. Multi-strategy hedge funds include investments in 13 hedge funds that pursue multiple strategies to diversify risks and reduce volatility. Investments representing approximately 40% of the value of the investments cannot be redeemed because the investment includes restrictions that do not allow for redemptions. As of June 30, 2019, the remaining redemption restriction periods range from 6 to 19 months.
5. Real asset funds include investments in 19 fund or separate account strategies, which invest in the equity or debt of infrastructure, energy, utilities, water, timber, agriculture, metals, mining, and commodity-related and commodity-linked investments. Real asset investments include investments in products, services and technology related to the above. No real asset investments can be redeemed. All of the investments provide for transfer or sale of limited partnership interest with the prior written approval of the General Partner and one investment further requires the right of first refusal by the other partners in the investment. Distributions from each fund and separate account will be received as the underlying investments are liquidated. It is expected that the underlying assets will be liquidated over the next 1 to 17 years.
6. Opportunistic hedge funds include investments in 5 hedge funds that invest in speculative opportunities with high net market exposure across varied markets. Opportunistic funds include global macro funds, commodity trading advisor funds, and funds employing other similar strategies. Investments representing approximately 14% of the value of the investments in this type cannot be redeemed because the investments include restrictions. As of June 30, 2019, this remaining redemption restriction period is 1 year.
7. Debt related private equity funds include investments in 23 funds employing distressed, turnaround and mezzanine debt strategies. Distressed debt involves purchasing debt securities that are trading at a distressed level, in anticipation that those securities will have a higher market valuation and generate profit at a future date, or strategies which take a position to potentially gain control of an asset. Turnaround investments focus on acquiring voting control in companies that are in distress, and aim to subsequently restore the company to profitability. Mezzanine debt strategies provide a middle level of financing in leveraged buyouts, which is below the senior debt layer and above the equity layer. A typical mezzanine investment includes a loan to the borrower, in addition to the borrower's issuance of equity in the form of warrants, common stock, preferred stock, or some other equity investment. All of the investments provide for transfer or sale of the limited partnership interest with the prior written approval of the General Partner. Distributions from each fund will be received as the underlying investments of the funds are liquidated. It is expected that the underlying assets of the funds will be liquidated over the next 1 to 13 years.
8. Credit oriented hedge funds include investments in 7 hedge fund and separate account strategies that include both credit and distressed debt funds. Credit strategies typically invest both long and short in high yield and high-grade bonds, and structured products using fundamental credit analysis. These securities tend to be relatively liquid. Distressed debt strategies take advantage of corporate securities in default, under bankruptcy protection, in distress, or in liquidation. These securities are often illiquid. Investments representing approximately 98% of the value of the investments cannot be redeemed because the investment includes restrictions that do not allow for redemptions. As of June 30, 2019, these remaining redemption restriction periods range from 3 to 18 months.
9. Opportunistic private equity funds include investments in 4 funds and separate accounts, which acquire minority equity interests in investment management companies. Investments in these funds have a perpetual term and cannot be redeemed.
10. Real estate funds – debt include investments in 7 funds or separate accounts that make investments in the debt of the underlying asset, where the investor acts as a lender to the property owner and receives an interest rate on the loan. Investments can never be redeemed. Six of the investments provide for transfer or sale of the limited partnership interest with the prior written approval of the General Partner and two investments further require the right of first refusal by the other partners in the investment. Distributions from each fund and separate account will be received as the underlying investments are liquidated. It is expected that the underlying assets will be liquidated over the next 1 to 8 years.
11. Venture capital private equity funds include investments in 8 partnership vehicles that make equity investments primarily in high growth companies during their early or expansion stages. These companies may or may not have revenues or a client base and in most cases will not be cash flow positive. Distributions from each vehicle will be received as the underlying investments are liquidated. It is expected that the underlying assets will be liquidated over the next 6 months to 5 years of the investment.

Notes to Financial Statements – June 30, 2019, *continued*

12. Equity oriented hedge funds include investments in 3 hedge fund and separate account strategies that include both equity long/short and event driven funds. Equity long/short funds hold a combination of long and short positions primarily in publicly traded equities. Event driven funds invest in merger arbitrage, capital structure arbitrage, relative value, activist or other similar strategies. Investments representing approximately 4% of the value of the investments cannot be redeemed because the investment includes restrictions that do not allow for redemptions. As of June 30, 2019, these remaining redemption restriction periods range from 3 to 18 months.
13. Secondary private equity funds include investments in 3 funds that purchase secondary interests in private equity partnerships. The underlying investments represent ownership interests in private equity funds managed by buyout or venture capital firms after the capital has been deployed. Distributions from each fund will be received as the underlying investments are liquidated. It is expected that the underlying assets will be liquidated over the next 1 to 4 years.

(9) Local Employer's Contributions under P.L. 2009, C. 19

As discussed in Note 1, in the fiscal year ended June 30, 2009, the State passed P.L. 2009, C. 19 to allow local employers of PFRS and PERS to contribute 50% of the normal and accrued liability contributions amounts, while deferring the remaining amount for a 15-year period with payments beginning in the fiscal year ended June 30, 2012. At June 30, 2019, the remaining receivable balances related to P.L. 2009, C. 19 were \$86.9 million and \$29.0 million for PFRS and PERS, respectively.

(10) Reserves

The Plans maintain the following legally required reserves as follows (amounts indicated in parenthesis represent net position restricted for the respective reserve as indicated):

Members' Annuity Savings Reserve and Accumulative Interest Reserve - JRS (\$90,211,592); SPRS (\$239,278,067); TPAF (\$14,192,928,307); PFRS (\$4,023,973,993); PERS (\$15,756,816,896)

The Members' Annuity Savings Reserve (New Jersey Statutes Annotated (NJS): JRS 43:6A- 34.1 and 34.2; SPRS 53:5A-35; TPAF 18A:66-19 and 25; PFRS 43:16A-16; PERS 43:15A-25 and 33) is credited with all contributions made by active members of the Plans. Interest earned on member contributions is credited to the Accumulative Interest Reserve, which is applied to JRS, TPAF and PERS. Member withdrawals are paid out of these reserves.

Contingent Reserve - JRS (\$-96,398,398); SPRS (\$1,085,894,873); TPAF (\$-31,761,523,984); PERS (\$-19,922,162,827)

The Contingent Reserve (NJS: JRS 43:6A-33; SPRS 53:5A-34; TPAF 18A:66-18; PERS 43:15A-24) is credited with the contributions of contributing employers. Interest earnings, after crediting the Accumulative Interest Reserve and Retirement Reserve, as required, are credited to this account. Additionally, payments for administrative and miscellaneous expenses are made from this reserve.

Retirement Reserve - JRS (\$164,050,999); SPRS (\$466,616,627); TPAF (\$40,265,329,953); PFRS (\$27,250,114,084); PERS (\$33,842,715,655)

The Retirement Reserve (NJS: JRS 43:6A-34; SPRS 53:5A-36; TPAF 18A:66-21; PFRS 43:16A-16; PERS 43:15A-27) is the account from which retirement benefits including COLA adjustments are paid. Upon retirement of a member, accumulated contributions together with accumulated interest are transferred to the Retirement Reserve from the Members' Annuity Savings Reserve and Accumulative Interest Reserve. Any additional reserves needed to fund the balance of the retirement benefit are transferred from the Contingent Reserve or Pension Accumulation Reserve. Annually, interest as determined by the State Treasurer (7.50% for State fiscal year 2019) is credited to the Retirement Reserve.

Notes to Financial Statements – June 30, 2019, *continued*

Retirement Reserve – POPF (\$4,925,932)

The Retirement Reserve (NJS: POPF 43:7-13) is credited with State of New Jersey contributions and investment income. In addition, all benefits are paid from this account.

Non-Contributory Group Insurance Premium Reserve – PFRS – Local (\$57,556,934); PERS – Local (\$75,387,557)

The Non-Contributory Group Insurance Premium Reserve (NJS: PFRS 43:16A-56; PERS 43:15A-91) represents the accumulation of employer group life insurance contributions in excess of premiums disbursed to the insurance carrier since the inception of the noncontributory death benefit program plus reserves held by the insurance carrier. Members are eligible by statute for the noncontributory group life insurance plan in the first year of membership. TPAF, PFRS – State and PERS – State show no balance as these premium expenses are funded on a monthly basis.

Pension Accumulation Reserve – PFRS (\$-3,539,224,066)

The Pension Accumulation Reserve (NJS: PFRS 43:16A-16) is credited with the contributions of the State of New Jersey and other employers. Interest earnings, after crediting the Retirement Reserve, as required, are credited to this account. Additionally, payments for administrative and miscellaneous expenses are made from this Reserve.

Pension Reserve – CPFPPF (\$1,387,550)

The Pension Reserve (NJS: CPFPPF 43:16-5) is credited with State of New Jersey contributions and investment income.

Benefit Enhancement Reserve – PERS – Local (\$95,220,385)

The Benefit Enhancement Reserve (NJS: 43:15A-22) is a special reserve from which the required normal contributions to provide benefit increases under P.L. 2001, C. 353 and P.L. 2001, C. 133 will be charged. The reserve was established in 2002 and credited with excess assets equivalent to member contributions for State fiscal years 2000 and 2001 by transferring reserves in the Contingent Reserve to the Benefit Enhancement Reserve. Additional transfers will be made, as required, to maintain a reserve balance equal to the present value of expected additional normal contributions due to the increased benefits.

SHBP Reserve Fund – Local - Retired (\$273,173,482)

The net position of SHBP – Local (NJS: SHBP 52:14-17.42) is available to pay claims of future periods. These reserves are maintained by the fund to stabilize rates and to meet unexpected increase in claims.

Variable Accumulation Reserve – NJSEDCP (\$4,507,883,228); SACT (\$186,787,425)

The Variable Accumulation Reserve (NJS: NJSEDCP 52:18A-164; SACT 52:18A-109) is credited with member contributions and interest earnings on those contributions. Payments for administrative and miscellaneous expense are made from this reserve.

Variable Benefits Reserve – SACT (\$44,109,829)

The Variable Benefits Reserve (NJS: SACT 52:18A-109) represents contributions accumulations that are transferred to Annuity Benefits for retirees that are receiving monthly life annuity payments.

Notes to Financial Statements – June 30, 2019, *continued*

Various reserve balances as of June 30, 2019 are as follows:

	Pension Reserves	Other Postemployment Benefit Plan Reserves
Members' Annuity Savings Reserve and Accumulated		
Interest Reserve	\$ 34,303,208,855	—
Contingent Reserve	(50,694,190,336)	—
Retirement Reserve	101,993,753,250	—
Non-Contributory Group Insurance Premium Reserve	132,944,491	—
Pension Accumulation Reserve	(3,539,224,066)	—
Pension Reserve	1,387,550	—
SHBP Reserve	—	273,173,482
Benefit Enhancement Reserve	95,220,385	—
Variable Accumulation Reserve	4,694,670,653	—
Variable Benefits Reserve	44,109,829	—
Total	\$ 87,031,880,611	273,173,482

(11) Contingencies

The Division is a party to various legal actions arising in the ordinary course of its operations. While it is not feasible to predict the ultimate outcome of these actions, it is the opinion of management that the resolution of these matters will not have a material adverse effect on the Division's financial statements.

(12) Subsequent Events

Significant legislation

The federal government passed legislation in December 2019 that repeals the 40% excise tax on high-cost health plans and the health insurer fee, which is a tax on fully insured health plans such as the State's Medicare Advantage plans. The excise tax was scheduled to go into effect January 1, 2022 and the health insurer fee will be repealed beginning in plan year 2021.

The repeal of these two taxes will reduce net OPEB liabilities for the Local Government Retired OPEB plan determined as of the June 30, 2020 measurement date. The estimate of the impact of the tax repeals on the net OPEB liabilities is not yet available.

Investment performance

In recent weeks, global financial markets have experienced significant declines generally attributable to COVID-19 pandemic and other market-related risks. The investment assets of the pension funds have also incurred a considerable decline in value due to these unfavorable market conditions. In mid-March 2020, preliminary fiscal year-to-date return estimates show a considerable decline in value.

SCHEDULE 1

Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios
Defined Benefit Pension Plans
Judicial Retirement System (Unaudited)
June 30, 2019

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	\$ 37,584,273	\$ 35,477,981	37,224,230	33,333,864	30,702,986	32,123,341
Interest on total pension liability	38,067,870	36,209,627	30,788,977	36,471,524	41,473,055	40,332,123
Effect of economic/demographic (gains) or losses	19,557,727	(8,553,096)	14,120,673	254,822	(1,733,197)	-
Effect of assumptions changes or inputs	151,274,804	(23,084,707)	(70,235,370)	85,677,552	(41,873,530)	26,907,821
Transfers from other systems	1,310,118	2,859,841	1,121,097	726,284	2,081,523	-
Benefit payments	(59,591,606)	(58,286,421)	(56,365,718)	(54,686,521)	(52,430,016)	(49,604,080)
Net change in total pension liability	188,203,186	(15,376,775)	(43,346,111)	101,777,525	(21,779,179)	49,759,205
Total pension liability-beginning	922,019,220	937,395,995	980,742,106	878,964,581	900,743,760	850,984,555
Total pension liability-ending (a)	\$ 1,110,222,406	\$ 922,019,220	937,395,995	980,742,106	878,964,581	900,743,760
Plan fiduciary net position:						
Contributions-employer	\$ 29,702,700	\$ 24,023,637	20,341,379	14,794,774	17,031,026	15,874,857
Contributions-employee	9,688,270	9,177,453	10,348,191	9,271,869	6,310,124	5,096,577
Net investment (loss) income	9,230,701	14,809,869	20,031,152	(2,721,949)	8,475,641	34,448,036
Transfers from other systems	1,310,118	2,859,841	1,121,097	726,284	2,081,523	-
Benefit payments, including refunds of employee contributions	(59,591,606)	(58,286,421)	(56,365,718)	(54,686,521)	(52,430,016)	(49,604,080)
Administrative expense	(200,338)	(185,364)	(150,588)	(168,008)	(168,762)	(162,372)
Net change in Plan fiduciary net position	(9,860,155)	(7,600,985)	(4,674,487)	(32,783,551)	(18,700,464)	5,653,018
Plan fiduciary net position-beginning	167,724,348	175,325,333	179,999,820	212,783,371	231,483,835	225,830,817
Plan fiduciary net position-ending (b)	157,864,193	167,724,348	175,325,333	179,999,820	212,783,371	231,483,835
Plan's net pension liability-ending (a)-(b)	\$ 952,358,213	\$ 754,294,872	762,070,662	800,742,286	666,181,210	669,259,925
Plan fiduciary net position as a percentage of the total pension liability	14.22%	18.19%	18.70%	18.35%	24.21%	25.70%
Covered-employee payroll	\$ 77,763,777	\$ 69,216,709	68,062,584	67,097,166	66,028,491	67,810,110
Net pension liability as a percentage of covered-employee payroll	1,224.68%	1,089.76%	1,119.66%	1,193.41%	1,008.93%	986.96%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Notes to Schedule:

Changes in benefit terms:

None

Changes in assumptions:

Discount rate	4.07%	4.09%	3.83%	3.11%	4.12%	4.58%
Long-term expected rate of return	7.00%	7.00%	7.00%	7.65%	7.90%	7.90%

For 2019, the assumed rates of retirement, mortality, salary increases, and inflation were updated based on the July 1, 2014 - June 30, 2018 Experience Study. For healthy retiree and pre-retirement mortality, the Pub-2010 Teachers Above-Median Income Employee mortality table, unadjusted, with future improvement from the base year of 2010 on a generational basis was used. For disabled retiree mortality, the Pub-2010 Non-Safety Disabled Retiree mortality table, unadjusted, with future improvement from the base year of 2010 on a generational basis was used. For mortality improvement, Scale MP-2019 was used.

For 2016, salary increases were assumed to increase 2.00% through fiscal year 2025 and 3.00% for each fiscal year thereafter.

For 2015, the demographic assumptions were revised to reflect those recommended on the basis of the July 1, 2011 - June 30, 2014 experience study.

See accompanying independent auditors' report.

Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios
Defined Benefit Pension Plans
Prison Officers' Pension Fund (Unaudited)
June 30, 2019

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	\$ —	—	—	—	—	—
Interest on total pension liability	188,032	215,068	198,788	251,254	331,362	401,659
Effect of economic/demographic (gains) or losses	127,146	(407,471)	82,047	96,657	(296,620)	—
Effect of assumptions changes or inputs	(36,496)	(73,662)	(240,233)	1,171,953	163,490	129,449
Benefit payments	(816,972)	(947,877)	(1,069,209)	(1,240,307)	(1,377,505)	(1,583,408)
Net change in total pension liability	(538,290)	(1,213,942)	(1,028,607)	279,557	(1,179,273)	(1,052,300)
Total pension liability-beginning	5,263,321	6,477,263	7,505,870	7,226,313	8,405,586	9,457,886
Total pension liability-ending (a)	\$ 4,725,031	5,263,321	6,477,263	7,505,870	7,226,313	8,405,586
Plan fiduciary net position:						
Contributions-employer	\$ 412,250	484,565	552,131	634,217	698,360	793,174
Net investment income	111,413	70,215	30,847	18,067	6,355	7,368
Benefit payments, including refunds of employee contributions	(816,972)	(947,877)	(1,069,209)	(1,240,307)	(1,377,505)	(1,583,408)
Administrative expense	(4,215)	(4,315)	(4,134)	(5,312)	(5,843)	(5,853)
Net change in Plan fiduciary net position	(297,524)	(397,412)	(490,365)	(593,335)	(678,633)	(788,719)
Plan fiduciary net position-beginning	5,223,456	5,620,868	6,111,233	6,704,568	7,383,201	8,171,920
Plan fiduciary net position-ending (b)	4,925,932	5,223,456	5,620,868	6,111,233	6,704,568	7,383,201
Plan's net pension liability-ending (a)-(b)	\$ (200,901)	39,865	856,395	1,394,637	521,745	1,022,385
Plan fiduciary net position as a percentage of the total pension liability	104.25%	99.24%	86.78%	81.42%	92.78%	87.84%
Covered-employee payroll	N/A	N/A	N/A	N/A	N/A	N/A
Net pension liability as a percentage of covered-employee payroll	N/A	N/A	N/A	N/A	N/A	N/A

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Notes to Schedule:

Changes in benefit terms:

None

Changes in assumptions:

Discount rate

3.50%

3.87%

3.58%

2.85%

3.80%

4.29%

For 2019, the mortality tables used were the Pub-2010 Safety Healthy Retiree, Pub-2010 General Healthy Retiree, Pub-2010 Safety Disabled Retiree for healthy retirees, beneficiaries, and disabled retirees, respectively. Each used a base year of 2010 with future improvement from the base year on a generational basis using Scale MP-2019.

For 2016, the mortality improvement assumption was revised to be projected on a generational basis from the base year of 2000 to 2014 using Projection Scale BB as the base tables and further projected beyond the valuation date using the plan actuary's modified 2014 projection. Further, the RP-2000 disabled retiree mortality table is used for the period after disability retirement for disability retirements.

See accompanying independent auditors' report.

SCHEDULE 1

Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios — Defined Benefit Pension Plans — State Police Retirement System (Unaudited)
June 30, 2019

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	\$ 100,705,109	119,718,797	139,506,057	113,546,510	93,740,921	93,623,020
Interest on total pension liability	240,494,663	226,928,605	202,545,532	221,675,495	216,980,562	209,010,706
Effect of economic/demographic (gains) or losses	(11,528,958)	(19,592,172)	23,786,696	(17,580,385)	35,245,543	—
Effect of assumptions changes or inputs	(333,811,404)	(379,490,284)	(697,970,471)	747,941,075	435,691,094	92,686,900
Transfers from other systems	(39,834)	190,903	3,925	54,000	222,557	—
Benefit payments	(225,682,230)	(222,315,723)	(217,303,946)	(213,436,150)	(206,493,624)	(197,958,938)
Net change in total pension liability	(229,862,654)	(274,559,874)	(549,432,207)	852,200,545	575,387,053	197,361,688
Total pension liability-beginning	4,849,714,240	5,124,274,114	5,673,706,321	4,821,505,776	4,246,118,723	4,048,757,035
Total pension liability-ending (a)	\$ 4,619,851,586	4,849,714,240	5,124,274,114	5,673,706,321	4,821,505,776	4,246,118,723
Plan fiduciary net position:						
Contributions-employer	\$ 98,182,956	74,603,780	53,006,614	37,435,541	38,527,297	36,436,923
Contributions-employee	24,183,990	22,416,571	23,721,785	22,818,295	22,315,431	24,034,496
Net investment (loss) income	105,696,140	154,029,009	207,401,590	(19,284,054)	75,532,779	287,098,217
Transfers from other systems	(39,834)	190,903	3,925	54,000	222,557	—
Benefit payments, including refunds of employee contributions	(225,682,230)	(222,315,723)	(217,303,946)	(213,436,150)	(206,493,624)	(197,958,938)
Administrative expense	(596,137)	(377,193)	(294,745)	(334,630)	(351,724)	(280,026)
Net change in Plan fiduciary net position	1,744,885	28,547,347	66,535,223	(172,746,998)	(70,247,284)	149,330,672
Plan fiduciary net position-beginning	1,790,044,682	1,761,497,335	1,694,962,112	1,867,709,110	1,937,956,394	1,788,625,722
Plan fiduciary net position-ending (b)	1,791,789,567	1,790,044,682	1,761,497,335	1,694,962,112	1,867,709,110	1,937,956,394
Plan's net pension liability-ending (a)-(b)	\$ 2,828,062,019	3,059,669,558	3,362,776,779	3,978,744,209	2,953,796,666	2,308,162,329
Plan fiduciary net position as a percentage of the total pension liability	38.78%	36.91%	34.38%	29.87%	38.74%	45.64%
Covered-employee payroll	\$ 275,790,087	284,707,387	277,771,135	275,477,457	262,496,289	262,063,829
Net pension liability as a percentage of covered-employee payroll	1,025.44%	1,074.67%	1,210.63%	1,444.31%	1,125.27%	880.76%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Notes to Schedule:

Changes in benefit terms:

In 2017, Chapter 26, P.L. 2016 amended statutes to change the definition of child to include a child 18 years of age or older and enrolled in a secondary school, or under the age of 24 and enrolled in a degree program in an institution of higher education for at least 12 credits in each semester, provided that the member died in the line of duty while in active service. It also increases the accidental death benefit payable to children if there is no surviving spouse to 70% of final compensation.

Changes in assumptions:

Discount rate	5.51%	4.97%	4.42%	3.55%	4.59%	5.12%
Long-term expected rate of return	7.00%	7.00%	7.00%	7.65%	7.90%	7.90%

For 2019, the assumed rates of retirement, mortality, salary increases, and inflation were updated based on the July 1, 2014 - June 30, 2018 Experience Study. For healthy retiree and pre-retirement mortality, the Pub-2010 Public Safety Above-Median Income Employee mortality table, unadjusted, with future improvement from the base year of 2010 on a generational basis was used. For beneficiaries, the Pub-2010 General Above-Median Income Healthy Retiree mortality table, unadjusted, with future improvement from the base year of 2010 was used. For disabled retiree mortality, the Pub-2010 Public Safety Disabled Retiree mortality table, unadjusted, with future improvement from the base year of 2010 on a generational basis was used. For mortality improvement, Scale MP-2019 was used.

For 2016, salary increases were assumed to increased 2.95% through fiscal year 2025 and 3.95% for each fiscal year thereafter.

For 2015, the demographic assumptions were revised to reflect those recommended on the basis of the July 1, 2011 - June 30, 2014 experience study.

See accompanying independent auditors' report.

Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios
Defined Benefit Pension Plans
Consolidated Police and Firemen's Pension Fund (Unaudited)
June 30, 2019

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	\$ —	—	—	—	—	—
Interest on total pension liability	200,618	241,913	260,211	352,889	504,066	632,080
Effect of economic/demographic (gains) or losses	(196,476)	(582,507)	(984,588)	(71,313)	(993,528)	—
Effect of assumptions changes or inputs	(375,356)	(70,518)	(236,022)	1,273,909	193,719	163,528
Benefit payments	(1,033,175)	(1,289,899)	(1,535,623)	(1,881,252)	(2,445,627)	(2,942,035)
Net change in total pension liability	(1,404,389)	(1,701,011)	(2,496,022)	(325,767)	(2,741,370)	(2,146,427)
Total pension liability-beginning	5,695,602	7,396,613	9,892,635	10,218,402	12,959,772	15,106,199
Total pension liability-ending (a)	\$ 4,291,213	5,695,602	7,396,613	9,892,635	10,218,402	12,959,772
Plan fiduciary net position:						
Contributions-nonemployer	\$ —	325,000	575,000	148,000	—	11,740
Net investment income	28,518	21,542	10,099	10,856	198	585
Contributions-other	631,757	806,330	964,280	1,196,017	1,577,751	1,889,091
Benefit payments, including refunds of employee contributions	(1,033,175)	(1,289,899)	(1,535,623)	(1,881,252)	(2,445,627)	(2,942,035)
Administrative expense	(3,013)	(4,006)	(4,188)	(6,643)	(8,003)	(9,566)
Net change in Plan fiduciary net position	(375,913)	(141,033)	9,568	(533,022)	(875,681)	(1,050,185)
Plan fiduciary net position-beginning	1,763,463	1,904,496	1,894,928	2,427,950	3,303,631	4,353,816
Plan fiduciary net position-ending (b)	1,387,550	1,763,463	1,904,496	1,894,928	2,427,950	3,303,631
Plan's net pension liability-ending (a)-(b)	\$ 2,903,663	3,932,139	5,492,117	7,997,707	7,790,452	9,656,141
Plan fiduciary net position as a percentage of the total pension liability	32.33%	30.96%	25.75%	19.15%	23.76%	25.49%
Covered-employee payroll	N/A	N/A	N/A	N/A	N/A	N/A
Net pension liability as a percentage of covered-employee payroll	N/A	N/A	N/A	N/A	N/A	N/A

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Notes to Schedule:

Changes in benefit terms:

None

Changes in assumptions:

<i>Discount rate</i>	<i>3.50%</i>	<i>3.87%</i>	<i>3.58%</i>	<i>2.85%</i>	<i>3.80%</i>	<i>4.29%</i>
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For 2019, the mortality tables used were the Pub-2010 Public Safety Healthy Retiree and Pub-2010 General Healthy Retiree for healthy retirees and beneficiaries, respectively. Each used a base year of 2010 with future improvement from the base year on a generational basis using Scale MP-2019.

For 2016, the mortality improvement assumption was revised to be projected on a generational basis from the base year of 2000 to 2014 using Projection Scale BB as the base tables and further projected beyond the valuation date using the plan actuary's modified 2014 projection. Further, the RP-2000 disabled retiree mortality table is used for the period after disability retirement for disability retirements.

See accompanying independent auditors' report.

SCHEDULE 1

Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios
Defined Benefit Pension Plans
Teachers' Pension and Annuity Fund (Unaudited)
June 30, 2019

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	\$ 1,882,081,572	2,229,422,113	3,028,689,581	2,344,321,810	2,022,411,197	1,870,901,832
Interest on total pension liability	4,201,672,382	3,858,188,355	3,304,988,177	3,694,844,118	3,797,032,970	3,794,362,523
Effect of economic/demographic (gains) or losses	(155,621,840)	1,195,858,381	236,377,556	(134,644,168)	365,228,279	(24,898,221)
Effect of assumptions changes or inputs	(4,005,548,119)	(6,816,855,725)	(13,285,524,000)	10,827,093,000	5,913,556,000	2,614,173,709
Transfers from other systems	6,655,677	5,686,293	1,338,431	1,564,002	4,117,141	-
Benefit payments	(4,510,860,239)	(4,401,203,131)	(4,306,268,745)	(4,169,070,762)	(4,015,003,587)	(3,837,859,513)
Net change in total pension liability	(2,581,620,567)	(3,928,903,714)	(11,020,399,000)	12,564,108,000	8,087,342,000	4,416,680,330
Total pension liability-beginning	86,797,467,286	90,726,371,000	101,746,770,000	89,182,662,000	81,095,320,000	76,678,639,670
Total pension liability-ending (a)	\$ 84,215,846,719	86,797,467,286	90,726,371,000	101,746,770,000	89,182,662,000	81,095,320,000
Plan fiduciary net position:						
Contributions-employer	\$ 2,050,414	1,723,827	1,404,292	1,105,810	807,246	4,688,045
Contributions-nonemployer	2,013,446,234	1,514,407,623	1,125,614,188	798,963,467	539,796,289	423,012,101
Contributions-employee	846,166,328	810,899,751	790,788,033	761,711,695	740,296,265	716,183,306
Net investment (loss) income	1,361,781,295	2,016,316,929	2,736,988,791	(267,684,353)	1,066,062,926	4,100,273,453
Transfers from other systems	6,655,677	5,686,293	1,338,431	1,564,002	4,117,141	-
Employer specific contributions-delayed appropriation and delayed enrollments	300,112	345,897	357,659	243,660	358,899	-
Benefit payments, including refunds of employee contributions	(4,510,860,239)	(4,401,203,131)	(4,306,268,745)	(4,169,070,762)	(4,015,003,587)	(3,837,859,513)
Administrative expense	(13,922,385)	(13,222,178)	(11,923,787)	(13,768,112)	(13,890,080)	(12,170,971)
Net change in Plan fiduciary net position:	(294,382,564)	(65,044,989)	338,298,862	(2,886,934,593)	(1,677,454,901)	1,394,126,421
Plan fiduciary net position-beginning	22,991,116,840	23,056,161,829	22,717,862,967	25,604,797,560	27,282,252,461	25,888,126,040
Plan fiduciary net position-ending (b)	22,696,734,276	22,991,116,840	23,056,161,829	22,717,862,967	25,604,797,560	27,282,252,461
Plan's net pension liability-ending (a)-(b)	\$ 61,519,112,443	63,806,350,446	67,670,209,171	79,028,907,033	63,577,864,440	53,813,067,539
Plan fiduciary net position as a percentage of the total pension liability	26.95%	26.49%	25.41%	22.33%	28.71%	33.64%
Covered-employee payroll	\$ 10,823,504,797	10,636,814,121	10,436,205,103	10,305,472,484	10,162,263,470	10,038,792,896
Net pension liability as a percentage of covered-employee payroll	568.38%	599.86%	648.42%	766.86%	625.63%	536.05%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Notes to Schedule:

Changes in benefit terms:

None

Changes in assumptions:

Discount rate

4.60%

4.86%

4.25%

3.22%

4.13%

4.68%

Long-term expected rate of return

7.00%

7.00%

7.00%

7.65%

7.90%

7.90%

For 2019, the assumed rates of retirement, mortality, salary increases, and inflation were updated based on the July 1, 2015 - June 30, 2018 Experience Study. For pre-retirement mortality, the Pub-2010 Teachers Above-Median Income Employee mortality table with a 93.9% adjustment for males and 85.3% adjustment for females, and with future improvement from the base year of 2010 on a generational basis was used. For healthy retirees and beneficiaries, the Pub-2010 Teachers Above-Median Income Healthy Retiree mortality table with a 114.7% adjustment for males and 99.6% adjustment for females, and with future improvement from the base year of 2010 on a generational basis was used. For disabled retiree mortality, the Pub-2010 Non-Safety Disabled Retiree mortality table with a 106.3% adjustment for males, and a 100.3% adjustment for females, and with improvement from the base year of 2010 on a generational basis was used. For mortality improvement, Scale MP-2019 was used.

For 2016, the demographic assumptions were revised to reflect those recommended on the basis of the July 1, 2012 - June 30, 2015 experience study.

See accompanying independent auditors' report.

Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios
Defined Benefit Pension Plans
Police and Firemen's Pension Fund (Unaudited)
June 30, 2019

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	\$ 958,392,935	1,030,735,624	1,136,338,028	1,148,613,712	994,248,683	1,079,166,175
Interest on total pension liability	3,025,500,679	2,898,092,706	2,738,598,309	2,751,445,220	2,680,664,300	2,535,619,539
Effect of economic/demographic (gains) or losses	(138,356,304)	47,676,088	89,364,940	(34,916,637)	(215,122,438)	—
Effect of assumptions changes or inputs	(1,875,170,696)	(2,069,626,924)	(3,534,553,975)	343,078,737	3,755,474,472	649,814,155
Transfers from other systems	3,239,769	3,422,888	289,960	358,929	800,782	—
Benefit payments	(2,606,863,711)	(2,523,462,466)	(2,421,485,437)	(2,324,175,953)	(2,205,464,297)	(2,105,829,011)
Net change in total pension liability	(633,257,328)	(613,162,084)	(1,991,448,175)	1,884,404,008	5,010,601,502	2,158,770,858
Total pension liability-beginning	46,797,559,654	47,410,721,738	49,402,169,913	47,517,765,905	42,507,164,403	40,348,393,545
Total pension liability-ending (a)	\$ 46,164,302,326	46,797,559,654	47,410,721,738	49,402,169,913	47,517,765,905	42,507,164,403
Plan fiduciary net position:						
Contributions-employer	\$ 1,206,535,544	1,127,617,114	1,002,043,734	900,033,567	883,776,917	858,047,628
Contributions-nonemployer	130,202,000	108,857,000	86,467,000	61,466,000	76,038,000	—
Contributions-employee	410,943,242	395,604,883	395,878,384	388,681,408	386,991,641	385,660,096
Net investment (loss) income	1,549,138,833	2,139,481,226	2,791,104,860	(150,693,159)	922,598,676	3,381,553,869
Transfers from other systems	3,239,769	3,422,888	289,960	358,929	800,782	—
Employer specific contributions-additional contribution	847,716	173,554	268,910	1,923,531	535,424	—
Employer specific contributions-delayed appropriation	422,890	450,244	892,514	763,176	865,936	—
Employer specific contributions-delayed enrollments	96,603	90,933	179,386	142,034	224,629	—
Employer specific contributions-retroactive	6,501,177	3,120,240	11,476,881	3,661,101	24,536,440	—
Contributions-other	—	(12,230)	—	—	—	—
Benefit payments, including refunds of employee contributions	(2,606,863,711)	(2,523,462,466)	(2,421,485,437)	(2,324,175,953)	(2,205,464,297)	(2,105,829,011)

SCHEDULE 1

Required Supplementary Information
Schedule of Changes in Net Pension Liability and Related Ratios
Defined Benefit Pension Plans
Police and Firemen's Pension Fund (Unaudited)
June 30, 2019 continued

	2019	2018	2017	2016	2015	2014
Administrative expense	(7,199,218)	(4,505,685)	(4,124,457)	(4,292,891)	(4,531,012)	(3,884,342)
Net change in Plan fiduciary net position	693,864,845	1,250,837,701	1,862,991,735	(1,122,132,257)	86,373,136	2,515,548,240
Plan fiduciary net position-beginning	27,098,556,100	25,847,718,399	23,984,726,664	25,106,858,921	25,020,485,785	22,504,937,545
Plan fiduciary net position-ending (b)	27,792,420,945	27,098,556,100	25,847,718,399	23,984,726,664	25,106,858,921	25,020,485,785
Plan's net pension liability-ending (a)-(b)	\$ 18,371,881,381	19,699,003,554	21,563,003,339	25,417,443,249	22,410,906,984	17,486,678,618
Plan fiduciary net position as a percentage of the total pension liability	60.20%	57.91%	54.52%	48.55%	52.84%	58.86%
Covered-employee payroll	\$ 3,870,718,707	3,803,348,329	3,726,807,562	3,695,509,355	3,682,677,356	3,678,910,266
Net pension liability as a percentage of covered-employee payroll	474.64%	517.94%	578.59%	687.79%	608.55%	475.32%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Notes to Schedule:

Changes in benefit terms: In 2017, Chapter 26, P.L. 2016 increased the accidental death benefit payable to children if there is no surviving spouse to 70% of final compensation.

Changes in assumptions:

<i>Discount rate</i>	<i>6.85%</i>	<i>6.51%</i>	<i>6.14%</i>	<i>5.55%</i>	<i>5.79%</i>	<i>6.32%</i>
<i>Long-term expected rate of return</i>	<i>7.00%</i>	<i>7.00%</i>	<i>7.00%</i>	<i>7.65%</i>	<i>7.90%</i>	<i>7.90%</i>

For 2019, the assumed rates of retirement, mortality, salary increases, and inflation were updated based on the July 1, 2013 - June 30, 2018 Experience Study. For pre-retirement mortality, the Pub-2010 Safety Employee mortality table 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 was used. For healthy retirees, the Pub-2010 Safety Retiree Below-Median Income Weighted mortality table 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 was used. For beneficiaries mortality, the Pub-2010 General Retiree Below-Median Income Weighted mortality table, unadjusted, and with future improvement from the base year of 2010 on a generational basis was used. For disabled mortality, the Pub-2010 Safety Disabled Retiree mortality table 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 was used. For mortality improvement, Scale MP-2019 was used.

For 2016, the mortality improvement scale incorporated the plan actuary's modified 2014 projection scale. Further, salary increases were assumed to increase between 2.10% and 8.98% (based on age) through fiscal year 2026 and 3.10% and 9.98% (based on age) for each fiscal year thereafter. For 2015, demographic assumptions were revised in accordance with the results of the July 1, 2010 - June 30, 2013 experience study.

See accompanying independent auditors' report.

Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios – Defined Benefit Pension Plans – Public Employees’ Retirement System (Unaudited)

June 30, 2019

	2019	2018	2017	2016	2015	2014
Total pension liability:						
Service cost	\$ 1,330,518,589	1,555,424,045	1,865,398,219	1,628,065,678	1,523,631,386	1,592,214,831
Interest on total pension liability	4,084,253,310	3,849,650,265	3,412,789,012	3,653,373,426	3,647,688,354	3,506,486,225
Effect of economic/demographic (gains) or losses	137,159,950	(363,908,216)	306,941,390	600,806,505	1,050,795,158	–
Effect of assumptions changes or inputs	(3,283,548,860)	(5,613,718,254)	(10,156,789,076)	8,792,817,065	4,091,557,460	1,222,437,554
Transfers from other systems	(11,955,594)	(13,217,000)	854,976	778,753	1,651,542	–
Benefit payments	(4,118,371,422)	(3,936,320,575)	(3,810,818,692)	(3,629,651,915)	(3,441,046,065)	(3,259,290,114)
Net change in total pension liability	(1,861,944,027)	(4,522,089,735)	(8,381,624,171)	11,046,189,512	6,874,277,835	3,061,848,496
Total pension liability-beginning	72,866,174,168	77,388,263,903	85,769,888,074	74,723,698,562	67,849,420,727	64,787,572,231
Total pension liability-ending (a)	\$ 71,004,230,141	72,866,174,168	77,388,263,903	85,769,888,074	74,723,698,562	67,849,420,727
Plan fiduciary net position:						
Contributions-employer	\$ 1,862,706,649	1,680,631,409	1,465,931,579	1,273,425,342	1,085,237,214	917,689,000
Contributions-nonemployer	6,829,134	–	–	–	–	–
Contributions-employee	909,191,554	854,178,790	847,952,137	821,305,787	805,232,235	797,818,225
Net investment (loss) income	1,741,296,887	2,435,763,559	3,202,393,837	(237,215,643)	1,117,827,113	4,102,964,869
Transfers from other systems	(11,955,594)	(13,217,000)	854,976	778,753	1,651,542	–
Employer specific contributions-additional contribution	103,872	28,566	25,676	257,850	111,824	–
Employer specific contributions-delayed appropriation	1,775,826	2,687,967	3,224,612	1,721,199	1,664,415	–
Employer specific contributions-delayed enrollments	657,701	931,611	1,030,774	532,612	594,843	–
Employer specific contributions-retroactive	4,623,577	4,818,841	11,230,521	687,225	6,504,878	–
Other	2,387	–	(7,797)	(51,586)	(31,006)	–
Benefit payments, including refunds of employee contributions	(4,118,371,422)	(3,936,320,575)	(3,810,818,692)	(3,629,651,915)	(3,441,046,065)	(3,259,290,114)
Administrative expense	(21,257,441)	(21,368,150)	(19,648,715)	(23,285,920)	(23,761,860)	(21,756,019)
Net change in Plan fiduciary net position	375,603,130	1,008,135,018	1,702,168,908	(1,791,496,296)	(446,014,867)	2,537,425,961
Plan fiduciary net position-beginning	29,472,374,536	28,464,239,518	26,762,070,610	28,553,566,906	28,999,581,773	26,462,155,812
Plan fiduciary net position-ending (b)	29,847,977,666	29,472,374,536	28,464,239,518	26,762,070,610	28,553,566,906	28,999,581,773
Plan’s net pension liability-ending (a)-(b)	\$ 41,156,252,475	43,393,799,632	48,924,024,385	59,007,817,464	46,170,131,656	38,849,838,954
Plan fiduciary net position as a percentage of the total pension liability	42.04%	40.45%	36.78%	31.20%	38.21%	42.74%
Covered-employee payroll	\$ 11,440,021,762	11,360,644,671	11,296,345,312	11,320,198,747	11,441,433,226	11,448,531,265
Net pension liability as a percentage of covered-employee payroll	359.76%	381.97%	433.10%	521.26%	403.53%	339.34%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Notes to Schedule:

Changes in benefit terms:

None

Changes in assumptions:

Discount rate	6.28%	5.66%	5.00%	3.98%	4.90%	5.39%
Long-term expected rate of return	7.00%	7.00%	7.00%	7.65%	7.90%	7.90%

For 2019, the assumed rates of retirement, mortality, salary increases, and inflation were updated based on the July 1, 2014 - June 30, 2018 Experience Study. For pre-retirement mortality, the Pub 2010 General Below-Median Income Employee mortality table with a 82.2% adjustment for males and 101.4% adjustment for females, and with future improvement from the base year of 2010 on a generational basis was used. For healthy retirees and beneficiaries, the Pub-2010 General Below-Median Income Healthy Retiree mortality table with a 91.4% adjustment for males and 99.7% adjustment for females, and with future improvement from the base year of 2010 on a generational basis was used. For disabled retiree mortality, the Pub-2010 Non-Safety Disabled Retiree mortality table with a 127.7% adjustment for males, and a 117.2% adjustment for females, and with future improvement from the base year of 2010 on a generational basis was used. For mortality improvement, Scale MP-2019 was used.

For 2016, demographic assumptions were revised in accordance with the results of the July 1, 2011 - June 30, 2014 experience study and the mortality improvement scale incorporated the plan actuary’s modified MP-2014 projection scale. Further salary increases were assumed to increase between 1.65% and 4.15% (based on age) through fiscal year 2026 and 2.65% and 5.15% (based on age) for each fiscal year thereafter. See accompanying independent auditors’ report.

SCHEDULE 2

Required Supplementary Information
Schedule of Employer Contributions – Defined Benefit Pension Plans
(Unaudited)

	Actuarially determined contribution	Actual employer & nonemployer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
Year ended June 30:	Judicial Retirement System				
2019	\$ 49,099,041	29,702,700	(19,396,341)	77,763,777	38.20%
2018	47,224,943	24,023,637	(23,201,306)	69,216,709	34.71
2017	44,807,771	20,341,379	(24,466,392)	68,062,584	29.89
2016	47,305,819	14,794,774	(32,511,045)	67,097,166	22.05
2015	45,136,504	17,031,026	(28,105,478)	66,028,491	25.79
2014	43,922,167	15,874,681	(28,047,486)	67,810,110	23.41
2013	45,415,467	12,308,227	(33,107,240)	67,497,660	18.24
2012	42,475,660	5,969,713	(36,505,947)	67,437,125	8.85
2011	38,450,553	651,718	(37,798,835)	71,746,413	0.91
2010	32,540,704	1,032,857	(31,507,847)	70,133,372	1.47
Year ended June 30:	Prison Officers' Pension Fund				
2019	\$ –	–	–	N/A	N/A
2018	–	–	–	N/A	N/A
2017	–	–	–	N/A	N/A
2016	–	–	–	N/A	N/A
2015	–	–	–	N/A	N/A
2014	–	–	–	N/A	N/A
2013	–	–	–	N/A	N/A
2012	–	–	–	N/A	N/A
2011	–	–	–	N/A	N/A
2010	–	–	–	N/A	N/A

Required Supplementary Information
Schedule of Employer Contributions – Defined Benefit Pension Plans
(Unaudited)

	Actuarially determined contribution	Actual employer & nonemployer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
Year ended June 30:	State Police Retirement System				
2019	\$ 161,134,729	98,182,956	(62,951,773)	275,790,087	35.60%
2018	145,908,823	74,603,780	(71,305,043)	284,707,387	26.20
2017	135,017,662	53,006,614	(82,011,048)	277,771,135	19.08
2016	120,800,705	37,435,541	(83,365,164)	275,477,457	13.59
2015	110,904,703	38,527,297	(72,377,406)	262,496,289	14.68
2014	105,093,378	36,436,923	(68,656,455)	262,063,829	13.90
2013	99,876,582	27,777,047	(72,099,535)	283,216,927	9.81
2012	98,869,662	13,545,607	(85,324,055)	275,216,752	4.92
2011	114,120,061	2,201,604	(111,918,457)	289,980,657	0.76
2010	91,411,237	1,018,200	(90,393,037)	287,267,502	0.35
Year ended June 30:	Consolidated Police and Firemen's Pension Fund				
2019	\$ –	–	–	N/A	N/A
2018	325,191	325,000	(191)	N/A	N/A
2017	884,680	1,539,280	654,600	N/A	N/A
2016	491,683	1,324,017	832,334	N/A	N/A
2015	–	1,577,751	–	N/A	N/A
2014	864,041	1,900,831	1,036,790	N/A	N/A
2013	1,095,632	896,883	(198,749)	N/A	N/A
2012	1,240,860	174,000	(1,066,860)	N/A	N/A
2011	528,714	–	(528,714)	N/A	N/A
2010	1,679,690	–	(1,679,690)	N/A	N/A

SCHEDULE 2

Required Supplementary Information
Schedule of Employer Contributions – Defined Benefit Pension Plans
(Unaudited)

	Actuarially determined contribution	Actual employer & nonemployer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
Year ended June 30:					
Teachers' Pension and Annuity Fund					
2019	\$ 3,249,224,200	2,015,496,648	(1,233,727,552)	10,823,504,797	18.62%
2018	3,035,344,625	1,516,131,450	(1,519,213,175)	10,636,814,121	14.25
2017	2,737,175,151	1,127,018,480	(1,610,156,671)	10,436,205,103	10.80
2016	2,544,811,534	800,069,277	(1,744,742,257)	10,305,472,484	7.76
2015	2,306,611,715	540,603,535	(1,766,008,180)	10,162,263,470	5.32
2014	2,159,287,358	427,700,146	(1,731,587,212)	10,038,792,896	4.26
2013	2,331,811,395	647,059,335	(1,684,752,060)	9,779,212,916	6.62
2012	2,269,823,968	317,927,358	(1,951,896,610)	9,682,318,739	3.28
2011	2,123,175,951	30,655,332	(2,092,520,619)	10,025,401,658	—
2010	1,796,358,016	33,199,655	(1,763,158,361)	9,797,020,060	—
<hr/>					
Year ended June 30:					
Police and Firemen's Retirement System					
2019	\$ 1,545,236,051	1,332,222,254	(213,013,797)	3,870,718,707	34.42%
2018	1,424,767,509	1,236,395,284	(188,372,225)	3,803,348,329	32.51
2017	1,335,659,737	1,046,327,392	(289,332,345)	3,726,807,562	28.08
2016	1,311,849,713	986,654,840	(325,194,873)	3,695,509,355	26.70
2015	1,217,110,411	941,950,336	(275,160,075)	3,682,677,356	25.58
2014	1,150,719,106	880,431,697	(270,287,409)	3,678,910,266	23.93
2013	1,279,412,723	895,743,379	(383,669,344)	3,656,218,573	24.50
2012	1,238,132,402	826,461,015	(411,671,387)	3,649,416,297	22.65
2011	1,337,424,856	889,724,548	(447,700,308)	3,720,534,369	23.91
2010	1,161,763,447	758,722,185	(403,041,262)	3,673,674,523	20.65

Required Supplementary Information
Schedule of Employer Contributions — Defined Benefit Pension Plans
(Unaudited)

	Actuarially determined contribution	Actual employer & nonemployer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
Year ended June 30:	Public Employees' Retirement System				
2019	\$ 2,457,773,619	1,912,209,917	(545,563,702)	11,440,021,762	16.72%
2018	2,306,287,092	1,632,971,072	(673,316,020)	11,360,644,671	14.37
2017	2,207,859,541	1,448,520,025	(759,339,516)	11,296,345,312	12.82
2016	2,097,570,117	1,265,246,226	(832,323,891)	11,320,198,747	11.18
2015	1,935,315,246	1,067,584,583	(867,730,663)	11,441,433,226	9.33
2014	1,797,073,081	941,023,184	(856,049,897)	11,448,531,265	8.22
2013	1,911,359,009	1,087,389,140	(823,969,869)	11,433,091,635	9.51
2012	1,895,158,413	976,093,907	(919,064,506)	11,609,042,726	8.41
2011	1,824,391,081	832,016,186	(992,374,895)	11,981,354,783	6.94
2010	1,422,475,763	640,282,996	(782,192,767)	11,995,447,141	5.34

See accompanying independent auditors' report.

SCHEDULE 2

Required Supplementary Information
Schedule of Employer Contributions – Defined Benefit Pension Plans
Last 10 Fiscal Years (Unaudited)

Notes to Schedule:

Method and assumptions used in calculations of employers' actuarially determined contributions: The actuarially determined contributions are calculated as of July 1 preceding the fiscal year in which the contributions are reported. Unless otherwise noted above, the following actuarial methods and assumptions were used to determine contribution rates in the Schedule of Employer Contributions.

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS
Actuarial cost method	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit	Projected Unit Credit
Amortization method	Level Dollar, open	Level Dollar	Level Dollar, open	Level Dollar	Level Dollar, open	Level Dollar, open	Level Dollar, open
Remaining amortization period	30 years	1 year	30 years	1 years	30 years	30 years	30 years
Asset valuation method	Five-year smoothing difference between market value and expected actuarial value	Market value	Five-year smoothing difference between market value and expected actuarial value	Five-year smoothed method with write-up	Five-year smoothing difference between market value and expected actuarial value	Five-year smoothing difference between market value and expected actuarial value	Five-year smoothing difference between market value and expected actuarial value
Projected salary increase 2019, 2018, 2017, and 2016							
Initial fiscal year applied through	2025	N/A^	2025	N/A^	2026 1.55 - 3.80% Based on years of service 2.00 - 4.90% Based on years of service	2025	2026
Rate	2.00%	N/A^	2.95%	N/A^		2.10 - 8.98% based on age	1.65 - 4.15% based on age
Thereafter	3.00%	N/A^	3.95%	N/A^		3.10 - 9.98% based on age	2.65 - 5.15% based on age
2015 and 2014							
Through fiscal year 2021	2.00%	N/A^	2.95%	N/A^	Varies based on experience	2.60 - 9.48% based on age	2.15 - 4.40% based on age
Thereafter	3.00%	N/A^	3.95%	N/A^	Varies based on experience	3.60 - 10.48% based on age	3.15 - 5.40% based on age
Projected COLAs	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*	N/A*
Investment rate of return							
2019	7.50%	5.00%	7.50%	2.00%	7.50%	7.50%	7.50%
2018	7.50%	5.00%	7.50%	2.00%	7.50%	7.50%	7.50%
2017	7.50%	5.00%	7.50%	2.00%	7.50%	7.50%	7.50%
2016	7.65%	5.00%	7.65%	2.00%	7.65%	7.65%	7.65%
2015	7.90%	5.00%	7.90%	2.00%	7.90%	7.90%	7.90%
2014	7.90%	5.00%	7.90%	2.00%	7.90%	7.90%	7.90%

*Pursuant to the provisions of Chapter 78, P.L. 2011, cost of living adjustment (COLA) increases were suspended for all current and future retirees of all retirement systems.

^ This is a closed plan, therefore there are no active employees.

Contributions: Contributions reported on Schedule 1 include actual contributions by State and, where applicable, the local employer's contribution revenue recorded in fiscal year 2018 that is due in fiscal year 2019 and contributions to the Non-Contributory Group Insurance Premium Fund. Contributions reported on Schedule 2 represent actual contributions by the State and local employers (where applicable) made during the year, including contributions to the Non-Contributory Group Life Insurance Premium Fund.

See accompanying independent auditors' report.

Required Supplementary Information
Schedule of Investment Returns – Defined Benefit Pension Plans
Annual Money-Weighted Rate of Return, Net of Investment Expense (Unaudited)

Year ended June 30:	JRS, SPRS, TPAF, PERS and PFRS*	POPF	CPFPF
2019	6.17%	2.29%	2.29%
2018	9.11%	1.36%	1.36%
2017	13.01%	0.53%	0.53%
2016	(1.15)%	0.28%	0.50%
2015	4.08%	0.09%	0.34%
2014	16.79%	0.09%	0.02%

*The annual money-weighted rate of return, net of investment expense, which includes JRS, SPRS, TPAF, PFRS and PERS, is calculated on the investments held within Common Pension Funds D and E, and the State of New Jersey, Cash Management Fund for the Pension Funds, as a whole rather than by individual plan since the portfolios are managed through common trust funds.

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

SCHEDULE 4

Required Supplementary Information
Schedule of Changes in Net OPEB Liability and Related Ratios (Unaudited)
June 30, 2019

	<u>2019</u>	<u>2018</u>	<u>2017</u>
Total OPEB liability:			
Service cost	\$ 666,574,660	896,235,148	1,064,525,862
Interest on total OPEB liability	636,082,461	764,082,232	648,423,508
Changes of benefit terms	(1,903,958)	—	—
Difference between expected and actual experience	(1,399,921,930)	(3,626,384,047)	—
Effect of changes of assumptions	(1,635,760,217)	(2,314,240,675)	(2,587,850,974)
Contributions - employee	43,249,952	53,987,166	53,585,505
Benefit payments	(470,179,613)	(421,621,253)	(417,488,848)
Net change in total OPEB liability	<u>(2,161,858,645)</u>	<u>(4,647,941,429)</u>	<u>(1,238,804,947)</u>
Total OPEB liability-beginning	15,981,103,227	20,629,044,656	21,867,849,603
Total OPEB liability-ending (a)	\$ <u>13,819,244,582</u>	<u>15,981,103,227</u>	<u>20,629,044,656</u>
Plan fiduciary net position:			
Contributions-employer	\$ 346,415,056	421,194,662	381,813,324
Contributions-nonemployer contributing entity	543,854,500	53,548,285	53,064,311
Contributions-employee	43,249,952	53,987,166	53,585,505
Net investment income	4,826,936	2,320,422	791,049
Benefit payments	(470,179,613)	(421,621,253)	(417,488,848)
Administrative expense	(9,478,435)	(8,200,113)	(8,894,576)
Net change in Plan fiduciary net position	<u>(41,311,604)</u>	<u>101,229,169</u>	<u>62,870,765</u>
Plan fiduciary net position-beginning	314,485,086	213,255,917	150,385,152
Plan fiduciary net position-ending (b)	273,173,482	314,485,086	213,255,917
Plan's net OPEB liability-ending (a)-(b)	\$ <u>13,546,071,100</u>	<u>15,666,618,141</u>	<u>20,415,788,739</u>
Plan fiduciary net position as a percentage of the total OPEB liability	1.98%	1.97%	1.03%
Covered-employee payroll	\$ 4,801,677,470	4,646,915,753	4,336,016,376
Net OPEB liability as a percentage of covered-employee payroll	282.11%	337.14%	470.84%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Notes to Schedule:

Changes in benefit terms:

In 2019, there were slight changes to the Chapter 48 provisions.

Changes in assumptions:

In 2019, the discount rate changed to 3.50% from 3.87%, and there were changes in the assumed health care cost trend, PPO/HMO future retiree elections, and excise tax assumptions. Further, decrements, salary scale, and mortality assumptions were updated based on the July 1, 2013 - June 30, 2018 PFRS and July 1, 2014 - June 30, 2018 PERS experience studies. For mortality related to PFRS members and retirees, the Pub-2010 "Safety" classification headcount-weighted mortality table with fully generational mortality improvement projections from the central year using Scale MP-2019 was used. For mortality related to PERS members and retirees, the Pub-2010 "General" classification headcount-weighted mortality table with fully generational mortality improvement projections from the central year using Scale MP-2019 was used.

In 2018, the discount rate changed to 3.87% from 3.58%, there were changes in the census, claims and premiums experience and a decrease in the assumed health care cost trend and excise tax assumptions. In 2017, the discount rate changed to 3.58% from 2.85%.

See accompanying independent auditors' report.

Required Supplementary Information
Schedule of Investment Returns – OPEB Plan
Annual Money-Weighted Rate of Return, Net of Investment Expense
(Unaudited)

Year ended June 30:	
2019	2.29%
2018	1.28%
2017	0.58%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditors' report.

Schedule to Administrative Expenses
Year ended June 30, 2019

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS	NJSEDCP	TOTAL
Personnel Services									
Salaries and Wages	\$ 115,988	2,094	314,170	1,167	5,633,416	3,985,343	8,096,602	261,350	18,410,130
Employee benefits	57,854	679	87,288	618	2,837,238	1,875,856	4,116,351	128,191	9,104,075
Total personnel services	173,842	2,773	401,458	1,785	8,470,654	5,861,199	12,212,953	389,541	27,514,205
Professional services:									
Actuarial services	2,799	153	33,457	130	368,966	237,439	408,730	–	1,051,674
Data processing	4,958	270	29,315	230	1,174,538	407,977	1,921,530	26,682	3,565,500
Information systems	5,684	310	33,610	264	1,346,594	467,741	2,203,012	82	4,057,297
Other professional ⁽¹⁾	3,744	204	22,394	174	888,941	311,639	1,454,057	–	2,681,153
Medical reviews (exams/hearings)	–	–	32,059	–	241,921	435,530	871,605	–	1,581,115
Elections	–	–	–	–	–	107,384	137,562	–	244,946
Internal audit and legal	3,269	178	19,334	152	774,613	269,063	1,267,258	–	2,333,867
Total professional services	20,454	1,115	170,169	950	4,795,573	2,236,773	8,263,754	26,764	15,515,552
Communication:									
Travel	9	1	55	–	4,225	5,077	7,382	–	16,749
Telephone	357	19	2,108	17	84,468	29,340	138,188	2,800	257,297
Postage	1,170	64	6,917	54	277,145	96,267	453,406	1,000	836,023
Motor pool	26	1	153	1	6,118	2,125	10,009	–	18,433
Printing and office	278	15	1,646	13	65,930	49,211	107,862	–	224,955
Total communication	1,840	100	10,879	85	437,886	182,020	716,847	3,800	1,353,457
Miscellaneous:									
Office space	3,476	189	20,555	162	823,561	286,065	1,347,336	–	2,481,344
Maintenance	208	11	1,227	10	49,175	17,081	80,450	–	148,162
Equipment	441	25	2,611	21	104,602	36,333	171,127	–	315,160
Other services and charges	17	2	104	–	4,165	1,446	6,813	12,000	24,547
Total miscellaneous	4,142	227	24,497	193	981,503	340,925	1,605,726	12,000	2,969,213
Total administrative expenses	\$ 200,278	4,215	607,003	3,013	14,685,616	8,620,917	22,799,280	432,105	47,352,427

⁽¹⁾ Portion of consulting

See accompanying independent auditors' report.

FINANCIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS

SCHEDULE 7

Schedule of Investment Expenses Year ended June 30, 2019

	JRS	POPF	SPRS	CPFPPF	TPAF	PFRS	PERS	NJSEDCP	Total
Investment expense	\$ 87,962	1,834	266,627	1,319	6,450,756	3,786,476	10,014,729	219,476	20,829,179

See accompanying independent auditors' report.

SCHEDULE 8

Schedule of Expenses for Consultants Year ended June 30, 2019

	JRS	POPF	SPRS	CPFPPF	TPAF	PFRS	PERS	Total
Actuarial:								
Cheiron	\$ 2,799	153	33,457	130	368,966	237,439	408,730	1,051,674
Medical reviews (exams/hearings)	—	—	32,059	—	241,921	435,530	871,605	1,581,115
Board elections:								
Election America	—	—	—	—	—	107,384	137,562	244,946
Total expenses for consultants	\$ 2,799	153	65,516	130	610,887	780,353	1,417,897	2,877,735

See accompanying independent auditors' report.

**Combining Schedule of Fiduciary Net Position Information
Fiduciary Funds – Select Pension Trust Funds
June 30, 2019**

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS	Total
Assets:								
Cash and cash equivalents	\$ 720,054	118,112	985,575	10,992	6,180,296	3,616,695	5,767,776	17,399,500
Receivables:								
Contributions:								
Members	826,413	–	2,314,582	–	84,097,036	58,868,315	79,589,589	225,695,935
Employers	30,475	–	151,066	–	123,713,405	1,116,253,564	1,091,157,332	2,331,305,842
Accrued interest and dividends	998	54	3,964	71	82,302	3,727,503	73,514	3,888,406
Other	886,293	32,292	98,472	181,943	3,653,862	3,949,920	8,030,435	16,833,217
Total receivables	<u>1,744,179</u>	<u>32,346</u>	<u>2,568,084</u>	<u>182,014</u>	<u>211,546,605</u>	<u>1,182,799,302</u>	<u>1,178,850,870</u>	<u>2,577,723,400</u>
Investments, at fair value:								
Cash Management Fund	9,966,380	4,847,579	40,048,799	1,287,986	530,787,273	304,621,976	445,915,628	1,337,475,621
Common Pension Fund D	101,650,624	–	1,188,543,171	–	15,001,060,665	16,929,310,898	19,072,656,773	52,293,222,131
Common Pension Fund E	48,506,951	–	567,135,128	–	7,158,359,748	8,078,001,134	9,100,935,915	24,952,938,876
Total investments	<u>160,123,955</u>	<u>4,847,579</u>	<u>1,795,727,098</u>	<u>1,287,986</u>	<u>22,690,207,686</u>	<u>25,311,934,008</u>	<u>28,619,508,316</u>	<u>78,583,636,628</u>
Securities lending collateral	1,962,719	–	22,948,963	–	289,647,691	326,879,274	368,264,027	1,009,702,674
Members' loans and mortgages	338,374	–	11,691,381	–	270,804,824	1,527,112,724	529,382,511	2,339,329,814
Total assets	<u>164,889,281</u>	<u>4,998,037</u>	<u>1,833,921,101</u>	<u>1,480,992</u>	<u>23,468,387,102</u>	<u>28,352,342,003</u>	<u>30,701,773,500</u>	<u>84,527,792,016</u>
Liabilities:								
Accounts payable and accrued expenses	46	814	171,006	–	101,535,010	6,840,887	132,504,142	241,051,905
Retirement benefits payable	4,962,702	70,742	18,580,605	93,442	377,193,446	217,743,295	344,618,701	963,262,933
Noncontributory group life insurance premiums payable	30,475	–	100,081	–	3,135,963	3,591,393	8,854,142	15,712,054
Administrative expense payable	71,518	549	358,621	–	490,857	5,261,359	–	6,182,904
Securities lending collateral and rebates payable	1,960,347	–	22,921,221	–	289,297,550	326,484,124	367,818,849	1,008,482,091
Total liabilities	<u>7,025,088</u>	<u>72,105</u>	<u>42,131,534</u>	<u>93,442</u>	<u>771,652,826</u>	<u>559,921,058</u>	<u>853,795,834</u>	<u>2,234,691,887</u>
Net position restricted for pensions	<u>\$ 157,864,193</u>	<u>4,925,932</u>	<u>1,791,789,567</u>	<u>1,387,550</u>	<u>22,696,734,276</u>	<u>27,792,420,945</u>	<u>29,847,977,666</u>	<u>82,293,100,129</u>

See accompanying independent auditors' report.

FINANCIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS

SCHEDULE 10

Combining Schedule of Changes in Fiduciary Net Position Information Fiduciary Funds – Select Pension Trust Funds Year ended June 30, 2019

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS	Total
Additions:								
Contributions:								
Members:								
State	\$ 9,688,270	–	24,183,990	–	846,166,328	52,202,489	355,581,371	1,287,822,448
Local	–	–	–	–	–	358,740,753	553,610,183	912,350,936
Employers:								
State	29,702,700	–	98,182,956	–	2,050,414	196,322,771	890,001,213	1,216,260,054
Local	–	–	–	–	–	1,010,212,773	972,705,436	1,982,918,209
Nonemployer	–	–	–	–	2,013,446,234	130,202,000	6,829,134	2,150,477,368
Employer specific and other	–	412,250	–	631,757	300,112	7,868,386	7,163,363	16,375,868
Total contributions	39,390,970	412,250	122,366,946	631,757	2,861,963,088	1,755,549,172	2,785,890,700	7,566,204,883
Investment income:								
Net increase in fair value of investments	5,975,125	–	13,926,924	–	857,404,310	950,672,825	1,074,808,322	2,902,787,506
Interest	3,343,538	113,247	92,035,843	29,837	510,827,741	602,252,484	676,503,294	1,885,105,984
	9,318,663	113,247	105,962,767	29,837	1,368,232,051	1,552,925,309	1,751,311,616	4,787,893,490
Less investment expense	87,962	1,834	266,627	1,319	6,450,756	3,786,476	10,014,729	20,609,703
Net investment income	9,230,701	111,413	105,696,140	28,518	1,361,781,295	1,549,138,833	1,741,296,887	4,767,283,787
Transfers	1,310,118	–	110,843	–	15,148,965	3,765,634	8,589,133	28,924,693
Total additions	49,931,789	523,663	228,173,929	660,275	4,238,893,348	3,308,453,639	4,535,776,720	12,362,413,363
Deductions:								
Benefits:								
Benefit expense-retirement allowances	58,847,179	816,972	223,317,477	1,033,175	4,408,262,599	2,563,694,176	3,896,686,814	11,152,658,392
Non-contributory group insurance expense	702,700	–	2,182,956	–	41,107,648	35,769,359	86,793,757	166,556,420
Refunds of contributions	41,727	–	181,797	–	61,489,992	7,400,176	134,890,851	204,004,543
Transfers	–	–	150,677	–	8,493,288	525,865	20,544,727	29,714,557
Administrative and miscellaneous expenses	200,338	4,215	596,137	3,013	13,922,385	7,199,218	21,257,441	43,182,747
Total deductions	59,791,944	821,187	226,429,044	1,036,188	4,533,275,912	2,614,588,794	4,160,173,590	11,596,116,659
Change in net position	(9,860,155)	(297,524)	1,744,885	(375,913)	(294,382,564)	693,864,845	375,603,130	766,296,704
Net position restricted for pensions:								
Beginning of year	167,724,348	5,223,456	1,790,044,682	1,763,463	22,991,116,840	27,098,556,100	29,472,374,536	81,526,803,425
End of year	\$ 157,864,193	4,925,932	1,791,789,567	1,387,550	22,696,734,276	27,792,420,945	29,847,977,666	82,293,100,129

See accompanying independent auditors' report.

**Combining Schedule of Balance Sheet Information
Fiduciary Funds – Agency Funds
June 30, 2019**

	Alternate Benefit Program Fund	Pension Adjustment Fund	Dental Expense Program Fund	Total Agency Funds
Assets:				
Cash and cash equivalents	\$ 2,554,236	115,631	126,054	2,795,921
Receivables:				
State related employer contributions	–	102,629	–	102,629
Other	42,699,854	814	2,111,563	44,812,231
Total receivables	<u>42,699,854</u>	<u>103,443</u>	<u>2,111,563</u>	<u>44,914,860</u>
Investments, at fair value:				
Cash Management Fund	144,429	2,072,618	50,573,699	52,790,746
Total investments	<u>144,429</u>	<u>2,072,618</u>	<u>50,573,699</u>	<u>52,790,746</u>
Total assets	<u>\$ 45,398,519</u>	<u>2,291,692</u>	<u>52,811,316</u>	<u>100,501,527</u>
Liabilities:				
Accounts payable and accrued expenses	\$ 42,775,706	–	52,811,316	95,587,022
Assets held for local contributing employers	–	1,990,368	–	1,990,368
Pension adjustment payroll payable	–	83,960	–	83,960
Due to State of New Jersey	2,622,813	92,689	–	2,715,502
Due to other funds	–	124,675	–	124,675
Total liabilities	<u>\$ 45,398,519</u>	<u>2,291,692</u>	<u>52,811,316</u>	<u>100,501,527</u>

See accompanying independent auditors' report.

SCHEDULE 12

**Combining Schedule of Changes in Fiduciary Net Position Information
Fiduciary Funds – Agency Funds
Year ended June 30, 2019**

	Alternate Benefit Program Fund	Pension Adjustment Fund	Dental Expense Program Fund	Total Agency Funds
Additions:				
Contributions:				
Members	\$ 870,410	–	111,429,344	112,299,754
Employers	212,349,605	1,136,759	39,755,631	253,241,995
Total contributions	<u>213,220,015</u>	<u>1,136,759</u>	<u>151,184,975</u>	<u>365,541,749</u>
Investment income:				
Interest	581,194	47,952	1,211,305	1,840,451
Total investment income	<u>581,194</u>	<u>47,952</u>	<u>1,211,305</u>	<u>1,840,451</u>
Total additions	<u>213,801,209</u>	<u>1,184,711</u>	<u>152,396,280</u>	<u>367,382,200</u>
Deductions:				
Benefits	211,168,972	1,109,276	149,662,152	361,940,400
Refunds of contributions	2,632,237	75,435	2,734,128	5,441,800
Total deductions	<u>213,801,209</u>	<u>1,184,711</u>	<u>152,396,280</u>	<u>367,382,200</u>
Change in net position	–	–	–	–
Net position - beginning of year	–	–	–	–
Net position - end of year	<u>\$ –</u>	<u>–</u>	<u>–</u>	<u>–</u>

See accompanying independent auditors' report.

**Combining Schedule of Balance Sheet Information
Agency Fund – Dental Expense Program Fund
June 30, 2019**

	State	Local	Total Agency Fund – Dental Expense Program Fund
	<hr/>	<hr/>	<hr/>
Assets:			
Cash and cash equivalents	\$ 105,880	20,174	126,054
Receivables:			
Other	1,902,985	208,578	2,111,563
Total receivables	<hr/> 1,902,985	<hr/> 208,578	<hr/> 2,111,563
Investments, at fair value:			
Cash Management fund	39,227,341	11,346,358	50,573,699
Total investments	<hr/> 39,227,341	<hr/> 11,346,358	<hr/> 50,573,699
Total assets	<hr/> \$ 41,236,206	<hr/> 11,575,110	<hr/> 52,811,316
Liabilities:			
Accounts payable and accrued expenses	\$ 41,236,206	11,575,110	52,811,316
Total liabilities	<hr/> \$ 41,236,206	<hr/> 11,575,110	<hr/> 52,811,316

See accompanying independent auditors' report.

FINANCIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS

SCHEDULE 14

Combining Schedule of Changes in Fiduciary Net Position Information Agency Fund – Dental Expense Program Fund Year ended June 30, 2019

	<u>State</u>	<u>Local</u>	<u>Total Agency Fund – Dental Expense Program Fund</u>
Additions:			
Contributions:			
Members	\$ 58,262,005	53,167,339	111,429,344
Employers	34,928,824	4,826,807	39,755,631
Total contributions	<u>93,190,829</u>	<u>57,994,146</u>	<u>151,184,975</u>
Investment income:			
Net decrease in fair value of investments	–	–	–
Interest	920,888	290,417	1,211,305
Total investment income	<u>920,888</u>	<u>290,417</u>	<u>1,211,305</u>
Total additions	<u>94,111,717</u>	<u>58,284,563</u>	<u>152,396,280</u>
Deductions:			
Benefits	91,732,284	57,929,868	149,662,152
Refunds of contributions	2,379,433	354,695	2,734,128
Total deductions	<u>94,111,717</u>	<u>58,284,563</u>	<u>152,396,280</u>
Change in net position	–	–	–
Net position - beginning of year	–	–	–
Net position - end of year	<u>\$ –</u>	<u>–</u>	<u>–</u>

See accompanying independent auditors' report.

**Schedule of Changes in Assets and Liabilities Information
Agency Fund – Alternate Benefit Program Fund
June 30, 2019**

	Balance June 30, 2018	Additions	Deductions	Balance June 30, 2019
Assets:				
Cash and cash equivalents	\$ 804,731	190,017,480	188,267,975	2,554,236
Receivables:				
Other	40,385,204	42,699,854	40,385,204	42,699,854
Investments, at fair value:				
Cash Management Fund	576,602	217,982,402	218,414,575	144,429
Total assets	\$ 41,766,537	450,699,736	447,067,754	45,398,519
Liabilities:				
Accounts payable and accrued expenses	\$ 40,494,611	43,412,020	41,130,925	42,775,706
Due to State of New Jersey	1,271,926	2,622,813	1,271,926	2,622,813
Total liabilities	\$ 41,766,537	46,034,833	42,402,851	45,398,519

See accompanying independent auditors' report.

**Schedule of Changes in Assets and Liabilities Information
Agency Fund – Pension Adjustment Fund
June 30, 2019**

	Balance June 30, 2018	Additions	Deductions	Balance June 30, 2019
Assets:				
Cash and cash equivalents	\$ 124,795	744,921	754,085	115,631
Receivables:				
State related employer contributions	191,300	890,150	978,821	102,629
Other	1,787	23,625	24,598	814
Investments, at fair value:				
Cash Management Fund	1,890,381	1,307,144	1,124,907	2,072,618
Total assets	\$ 2,208,263	2,965,840	2,882,411	2,291,692
Liabilities:				
Assets held for local contributing employers	\$ 1,965,508	–	(24,860)	1,990,368
Pension adjustment payroll payable	60,025	1,112,515	1,088,580	83,960
Due to State of New Jersey	42,114	92,689	42,114	92,689
Due to other funds	140,616	661,262	677,203	124,675
Total liabilities	\$ 2,208,263	1,866,466	1,783,037	2,291,692

See accompanying independent auditors' report.

FINANCIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS

SCHEDULE 17

Schedule of Changes in Assets and Liabilities Information Agency Fund – Dental Expense Program Fund – Total June 30, 2019

	Balance June 30, 2018	Additions	Deductions	Balance June 30, 2019
Assets:				
Cash and cash equivalents	\$ 195,156	37,387,690	37,456,792	126,054
Receivables:				
Other	355,783	151,882,164	150,126,384	2,111,563
Investments, at fair value:				
Cash Management Fund	47,909,742	228,635,098	225,971,141	50,573,699
Total assets	\$ 48,460,681	417,904,952	413,554,317	52,811,316
Liabilities:				
Accounts payable and accrued expenses	\$ 48,460,681	48,867,752	44,517,117	52,811,316
Total liabilities	\$ 48,460,681	48,867,752	44,517,117	52,811,316

See accompanying independent auditors' report.

SCHEDULE 18

Schedule of Changes in Assets and Liabilities Information Agency Fund – Dental Expense Program Fund – State June 30, 2019

	Balance June 30, 2018	Additions	Deductions	Balance June 30, 2019
Assets:				
Cash and cash equivalents	\$ 181,496	31,266,294	31,341,910	105,880
Receivables:				
Other	192,196	93,710,894	92,000,105	1,902,985
Investments, at fair value:				
Cash Management Fund	37,044,423	164,290,536	162,107,618	39,227,341
Total assets	\$ 37,418,115	289,267,724	285,449,633	41,236,206
Liabilities:				
Accounts payable and accrued expenses	\$ 37,418,115	36,914,201	33,096,110	41,236,206
Total liabilities	\$ 37,418,115	36,914,201	33,096,110	41,236,206

See accompanying independent auditors' report.

**Schedule of Changes in Assets and Liabilities Information
Agency Fund – Dental Expense Program Fund – Local
June 30, 2019**

	Balance June 30, 2018	Additions	Deductions	Balance June 30, 2019
Assets:				
Cash and cash equivalents	\$ 13,660	6,121,396	6,114,882	20,174
Receivables:				
Other	163,587	58,171,270	58,126,279	208,578
Investments, at fair value:				
Cash Management Fund	10,865,319	64,344,562	63,863,523	11,346,358
Total assets	<u>\$ 11,042,566</u>	<u>128,637,228</u>	<u>128,104,684</u>	<u>11,575,110</u>
Liabilities:				
Accounts payable and accrued expenses	\$ 11,042,566	11,953,551	11,421,007	11,575,110
Total liabilities	<u>\$ 11,042,566</u>	<u>11,953,551</u>	<u>11,421,007</u>	<u>11,575,110</u>

See accompanying independent auditors' report.

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INVESTMENT SECTION

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State of New Jersey

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

DEPARTMENT OF THE TREASURY
DIVISION OF INVESTMENT
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ELIZABETH MAHER MUOIO
State Treasurer

COREY AMON
Director

The Division of Investment (“Division”) is responsible for the investment management of the assets of seven public pension systems: The Consolidated Police & Firemen’s Pension Fund, the Judicial Retirement System, the Police & Firemen’s Retirement System, the Prison Officers’ Pension Fund, the Public Employees’ Retirement System, the State Police Retirement System, and the Teachers’ Pension & Annuity Fund (collectively referred to as the “Pension Fund”).

The Division was created in 1950 by the New Jersey Legislature (P.L. 1950, c.270) to centralize all functions relating to the purchase, sale or exchange of securities for the State’s diverse funds under experienced and professional management. The statute also established the State Investment Council (the “Council”) to formulate investment procedures and policies to be followed by the Director. The statute vests investment authority in the Director of the Division (the “Director”), who is appointed by the State Treasurer from candidates nominated by the Council. New and amended regulations adopted by the Council after public comments are filed with the Office of Administrative Law and reported in the New Jersey Register.

On July 3, 2018, the Governor signed P.L. 2018, c. 55 (the “Act”) which, among other changes, transfers the authority to direct investment policy of the Police and Firemen’s Retirement System (“PFRS”) to a newly constituted twelve-member PFRS Board of Trustees (the “New PFRS Board”). The Act further provides that all functions, powers, and duties relating to the formulation, establishment, amendment, modification or repeal of any policy, procedure, method or practice on the investment or reinvestment of moneys of PFRS shall be performed by the New PFRS Board. The purchase, sale or exchange of any investments or securities under the control and management of the New PFRS Board shall continue to be exercised by the Division. The Act took effect on the 266th day following enactment, or July 5, 2019. Regulations governing the investment of PFRS assets will be adopted by the New PFRS Board.

During fiscal year 2019, the Council is comprised of 15 members pursuant to N.J.S.A. 52:18A-83, as modified by the Act. Nine members are appointed by the Governor for staggered five-year terms, and are drawn traditionally from the investment community. Eight of these nine hold appointments subject to the advice and consent of the Senate, and one appointee is selected by the Governor from nominees submitted jointly by the President of the Senate and Speaker of the Assembly. Two members are appointed by the Governor for five-year terms from nominees submitted by the New Jersey State AFL-CIO. Two members are appointed by the Governor for three-year terms from nominees submitted by the New Jersey Education Association and the State Troopers Fraternal Organization. Two members are designated to the Council for three-year terms by the respective pension system’s board of trustees for the Public Employees’ Retirement System and the Teachers’ Pension and Annuity Trust. State law requires that no Council member shall hold any office, position or employment with any political party, and none can benefit from the transactions of the Division.

All investments by the Director must conform to the heightened “prudent person” standard set by the New Jersey Legislature (N.J.S.A. 52:18A-89). This standard requires the Director “to manage and invest the portfolio solely in the interests of the beneficiaries of the portfolio and for the exclusive purpose of providing financial benefits to the beneficiaries of the portfolio.”

To the best of our knowledge, performance is calculated using the time-weighted return based on the modified Dietz method.

Director
Division of Investment

State Investment Council
Policies Regarding the Investment of Pension Fund Assets
(at June 30, 2019)

- Investment of pension assets is governed by the State Investment Council Regulations (N.J.A.C. 17:16) (the “Regulations”) as well as an annual asset allocation plan approved by the State Investment Council.
- Global equity investments, excluding exchange traded funds that invest in fixed income assets, strategies or indices, shall not exceed 70 percent of the market value of the pension assets.
- Unlimited investment is permitted in securities issued by the U.S. Government and designated agencies.
- Investment in global debt obligations, non-convertible preferred stocks, and collateralized notes and mortgages are subject to minimum rating requirements of Baa3 by Moody’s, BBB- by Standard & Poor’s and BBB- by Fitch Ratings. Investment in mortgage backed passthrough securities are subject to a minimum rating requirement of A3 by Moody’s, A- by Standard & Poor’s and A- by Fitch Ratings. Up to eight percent of the pension assets may be invested in these securities not meeting the minimum rating requirements.
- Investment in global diversified credit investments is limited to no more than 10% of pension assets in the aggregate.
- Investments in international government and agency obligations are limited to direct debt obligations of a sovereign government or its political subdivisions, debt obligations of agencies of a sovereign government which are unconditionally guaranteed as to principal and interest by the sovereign government’s full faith and credit, and debt obligations of international agencies or financial institutions that are backed, but not necessarily guaranteed, by the collective credit of multiple sovereign governments.
- Investments in fixed income securities such as municipal bonds, commercial paper, repurchase agreements, and certificates of deposit are all permitted by specific Regulations which specify high credit standards and conservative investment limits.
- Subject to specified limitations, futures, swaps, covered call options and put options may be utilized in the management of the portfolios.
- The currency exposure on international investments may be hedged through currency transactions.
- The Regulations contain limits on (1) the percentage of the pension assets that can be invested in any one security, (2) the percentage of the outstanding amount of any one security that can be owned and (3) the percentage of pension assets invested in any one issuer and affiliated entities. These limits help to insure that the portfolio is adequately diversified and that competitive market pricing is obtained.
- Investments in alternative investments are limited to no more than 38% of the portfolio in the aggregate, with individual category limitations for private equity (12%), real estate (9%), real assets (7%) and hedge funds (15%).

PROXY VOTING

- The Proxy Voting Policy summarizes guidelines for addressing key proxy issues. Business judgment is applied in determining the most advantageous position to the pension fund as a shareholder.
- The Division seeks to vote all proxies received, unless shares are out on loan. Under certain circumstances, the Division may restrict shares from being loaned, or recall loaned shares in order to preserve the right to vote on proxy issues.

Pension Fund Rate of Return – Periods Ending June 30, 2019

	Annualized		
	1 Year	3 Year	5 Year
Risk Mitigation	5.04	4.13	2.97
<i>T-Bill + 300 BP</i>	5.39	4.45	3.94
Total Short Term and Cash ¹	3.11	2.00	1.56
<i>91 Day Treasury Bill (Daily)</i>	2.31	1.38	0.87
Governments	6.72	1.01	1.26
<i>Custom Government Benchmark</i>	7.24	1.46	2.04
Total Liquidity	4.35	1.20	1.20
<i>Liquidity Benchmark</i>	4.04	1.42	1.32
Investment Grade Credit	10.07	3.25	3.70
<i>Custom Investment Grade Credit Benchmark</i>	9.42	3.14	3.56
Public High Yield	6.75	7.19	4.69
<i>Bloomberg Barclays Corp High Yield</i>	7.48	7.52	4.70
Global Diversified Credit	5.79	10.48	7.86
<i>Bloomberg Barclays Corp High Yield</i>	7.48	7.52	4.70
Credit-Oriented Hedge Funds	(1.56)	5.03	2.93
<i>50 HFRI DR 50 HFRI CA (1 Month Lag)</i>	3.01	7.08	2.93
Debt Related Private Equity	2.61	9.06	7.89
<i>Bloomberg Barclays Corp High Yield (1 Qtr Lag) + 300 bps</i>	9.12	11.85	7.86
Debt Related Real Estate	6.83	6.41	5.67
<i>Bloomberg Barclays CMBS 2.0 Baa (1 Qtr Lag) + 100 bps</i>	11.63	8.95	7.98
Total Income	7.35	6.22	5.03
<i>Income Benchmark</i>	8.41	6.03	4.29
Real Return Real Assets and Commodities	0.48	6.57	0.92
<i>Custom Cambridge Real Asset Index</i>	0.43	9.55	(0.53)
Equity Related Real Estate	8.69	10.01	11.36
<i>Real Estate Index</i>	6.55	7.01	9.18
Total Real Return	5.84	8.87	7.57
<i>Real Return Benchmark</i>	4.85	7.63	5.20
US Equity	7.85	13.37	9.04
<i>S&P 1500 SUPER COMPOSITE (DAILY)</i>	9.32	13.91	10.45
Non-US Equity Developed Markets Equity	1.16	9.21	2.52
<i>Custom International Developed Markets Benchmark²</i>	1.40	9.03	2.15
Emerging Markets Equity	2.38	9.80	1.77
<i>Custom International Emerging Markets Benchmark²</i>	1.30	10.72	2.71
Equity-Oriented Hedge Funds	(2.63)	5.35	1.77
<i>50 HFRI EH 50 HFRI ED ACTIVIST (1 Month Lag)</i>	(3.73)	4.66	3.24
Buyouts-Venture Capital	10.03	13.61	13.18
<i>Custom Cambridge Blend</i>	12.29	15.74	12.13
Total Global Growth	6.27	12.09	7.32
<i>Global Growth Benchmark</i>	7.28	12.91	8.06
Opportunistic Investments	(3.90)	7.37	6.44
Total Pension Fund	6.27	9.43	6.21
<i>Policy Index</i>	7.07	9.62	6.33

¹ The cash aggregate comprises the two common pension fund cash accounts, in addition to the seven plan cash accounts.

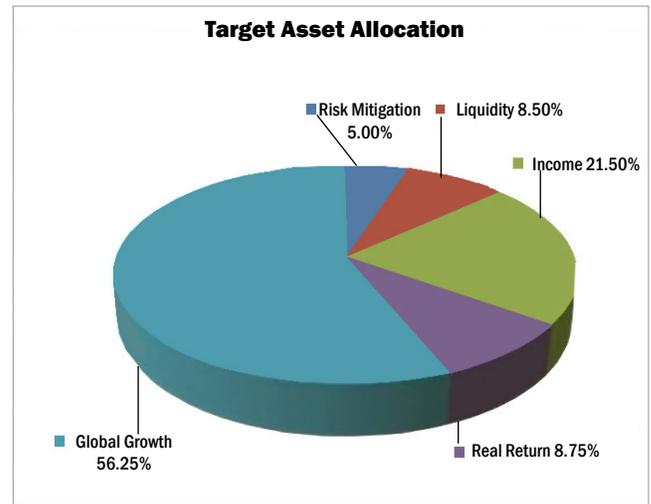
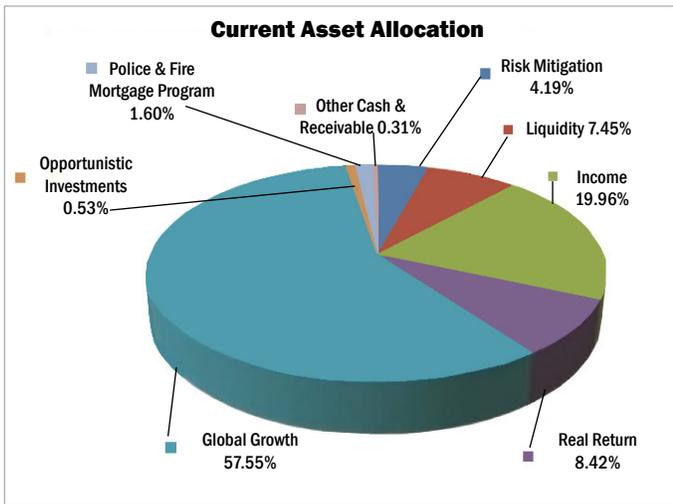
² Source: MSCI. Each benchmark is a custom index calculated by MSCI for, and as requested by the Division, based on screening criteria defined by the Division. These benchmarks exclude those securities deemed ineligible for investment under the State statutes governing investments in Iran, Sudan and companies that boycott Israel. The MSCI data is for internal use only and may not be redistributed or used in connection with creating or offering any securities, financial products or indices. Neither MSCI nor any other third party involved in or related to compiling, computing or creating the MSCI data (the "MSCI Parties") makes any express or implied warranties or representations with respect to such data (or the results to be obtained by the use thereof), and the MSCI Parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to such data. Without limiting any of the foregoing, in no event shall any of the MSCI Parties have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

Pension Fund Asset Allocation – June 30, 2019

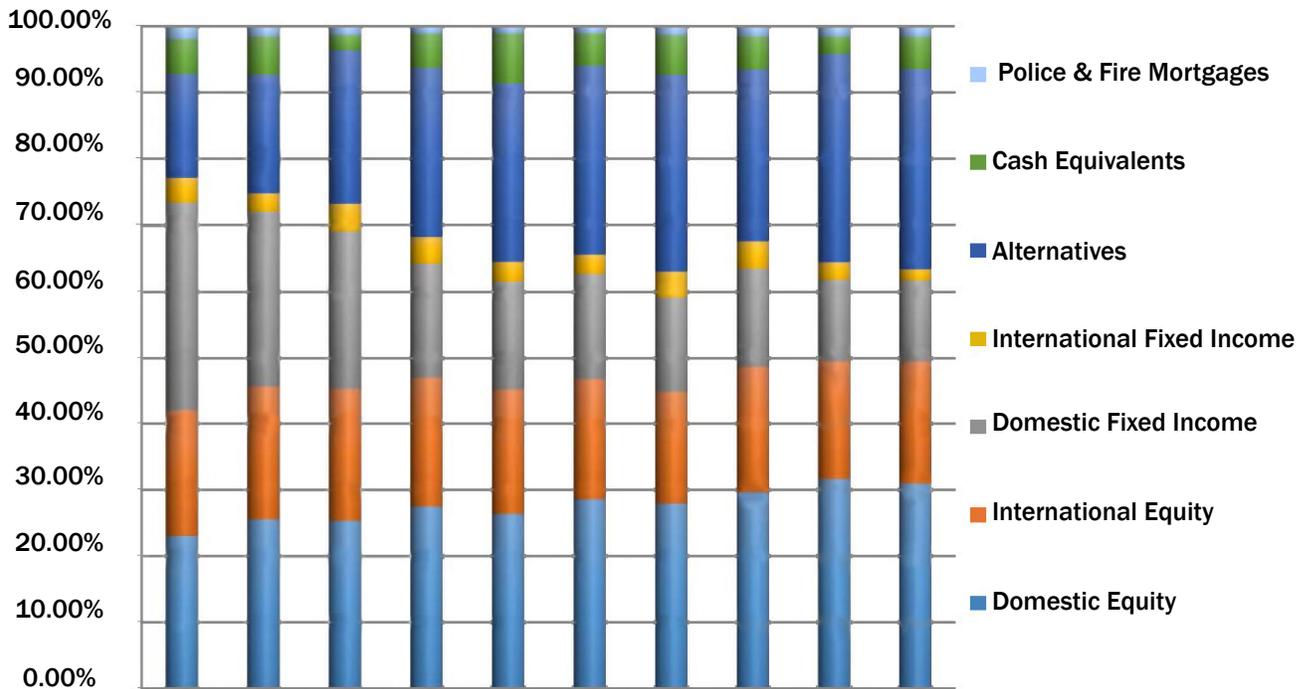
	Actual Allocation %	Target %	Difference %	Allocation \$ (millions)
Total Risk Mitigation	4.19%	5.00%	(0.81%)	3,347.74
Total Cash and Short Term ⁽¹⁾	5.55%	5.50%	0.05%	4,439.03
Governments	1.90%	3.00%	(1.10)%	1,517.25
Total Liquidity	7.45%	8.50%	(1.05%)	5,956.28
Investment Grade Credit	9.89%	10.00%	(0.11%)	7,911.23
Public High Yield	1.39%	2.50%	(1.11%)	1,109.91
Global Diversified Credit	5.99%	5.00%	0.99%	4,789.64
Credit Oriented Hedge Funds	1.01%	1.00%	0.01%	809.71
Debt Related Private Equity	1.16%	2.00%	(0.84%)	924.74
Debt Related Real Estate	0.52%	1.00%	(0.48%)	418.34
Total Income	19.96%	21.50%	(1.54%)	15,963.56
Real Assets	2.77%	2.50%	0.27%	2,214.08
Equity Related Real Estate	5.65%	6.25%	(0.60%)	4,519.99
Total Real Return	8.42%	8.75%	(0.33)%	6,734.08
US Equity	29.72%	30.00%	(0.28%)	23,773.71
Non-US Equity Developed Markets Equity	11.46%	11.50%	(0.04%)	9,165.05
Emerging Markets Equity	6.44%	6.50%	(0.06%)	5,148.17
Buyouts/Venture Capital	9.81%	8.25%	1.56%	7,844.15
Equity Oriented Hedge Funds	0.14%	0.00%	0.14%	108.04
Total Global Growth	57.55%	56.25%	1.30%	46,039.12
Opportunistic Investments	0.53%	0.00%	0.53%	422.54
Police and Fire Mortgage Program ⁽²⁾	1.60%	0.00%	1.60%	1,280.88
Other Cash and Receivables	0.31%	0.00%	0.31%	247.54
Total Pension Fund	100.00%	100.00%	0.00%	79,991.73

⁽¹⁾The cash aggregate comprises the two common pension fund cash accounts, in addition to seven plan cash accounts.

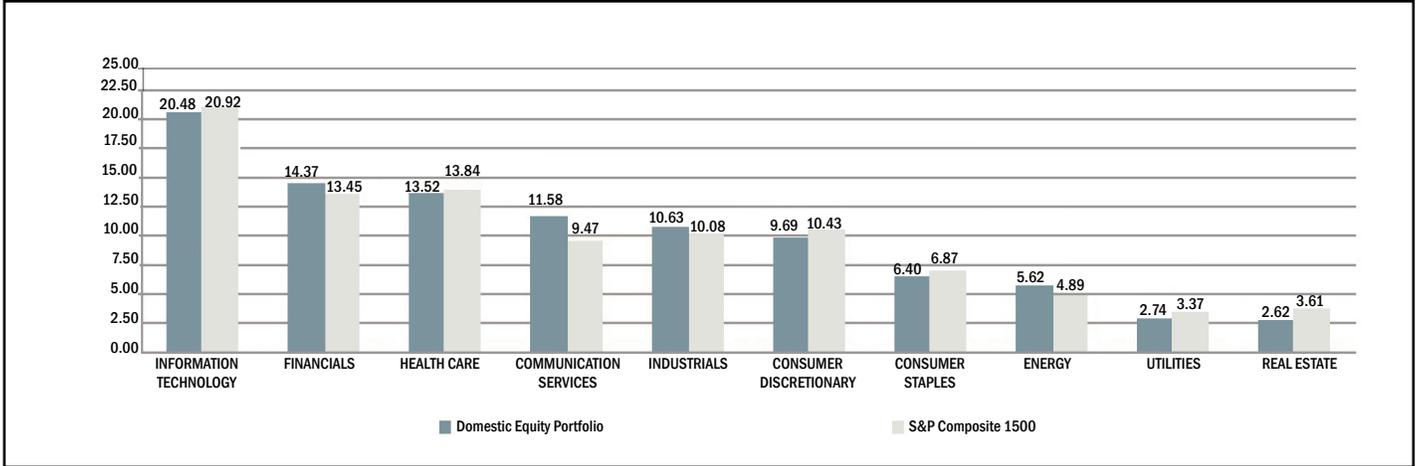
⁽²⁾For Financial Reporting, the Police and Fire Mortgage Program is considered a receivable under GASB 72. Totals may not equal sum of components due to rounding.



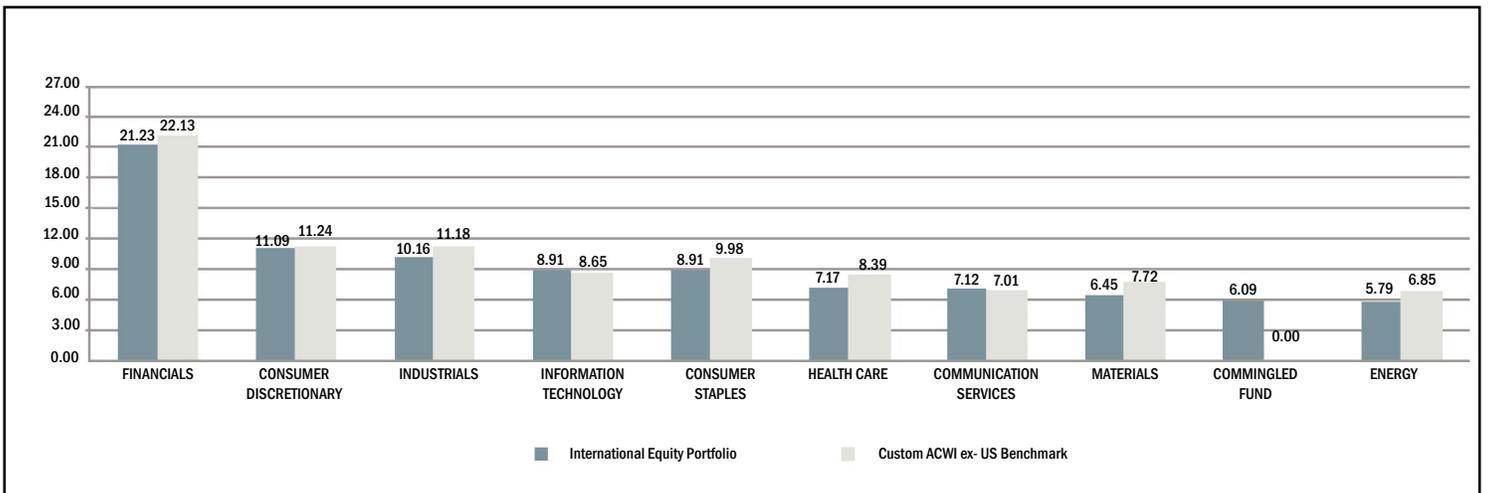
Pension Fund Composite Asset Allocation History



**U.S Equities Market
Select Portfolio Sector Weightings June 30, 2019**



**International Equities Market
Select Portfolio Sector Weightings June 30, 2019**



List of Largest Assets Held by the Pension Fund

**Largest Domestic Stock Holdings (by Fair Value)
June 30, 2019**

Shares	Stock	Fair Value (USD)
7,800,000	MICROSOFT CORP.	1,044,888,000
511,000	AMAZON.COM	967,644,930
3,780,000	APPLE INC.	748,137,600
613,000	ALPHABET INC.	662,597,830
15,100,000	AT&T	506,001,000
2,590,000	FACEBOOK INC.	499,870,000
4,260,000	JPMORGAN CHASE	476,268,000
13,000,000	BANK OF AMERICA	377,000,000
2,092,600	VISA INC	363,170,730
2,410,000	JOHNSON & JOHNSON	335,664,800

**Largest Domestic Bond Holdings (by Fair Value)
June 30, 2019**

Par	Bonds	Coupon	Due	Fair Value (USD)
183,939,000	US TREASURY NOTES	1.13%	03/31/2020	182,731,900
120,000,000	US TREASURY NOTES	2.63%	02/15/2029	126,543,750
120,000,000	INTEL CORP	2.35%	05/11/2022	120,953,950
120,000,000	US TREASURY NOTES	2.50%	05/15/2046	119,306,250
116,725,000	US TREASURY NOTES	1.88%	05/31/2022	117,253,910
100,000,000	BANK OF AMERICA CORP	3.97%	03/05/2029	106,881,014
107,439,000	US TREASURY NOTES	1.25%	07/31/2023	105,374,157
100,000,000	BOEING CO	3.60%	05/01/2034	104,270,102
93,000,000	GOLDMAN SACHS GROUP INC	4.22%	05/01/2029	99,743,277
100,000,000	RFCSP STRIP PRINCIPAL	0.00%	10/15/2019	99,331,894

List of Largest Assets Held by the Pension Fund, *continued*

**Largest International Stock Holdings (by Fair Value)
June 30, 2019**

Shares	Stock	Fair Value (USD)
8,284,096	ISHARES MSCI INDIA ETF	292,428,589
8,263,124	ISHARES MSCI TAIWAN	288,878,815
5,291,484	TENCENT HOLDINGS LTD	238,819,489
1,224,986	ALIBABA GROUP HOLDING	207,573,878
4,658,240	SAMSUNG ELECTRONICS CO LTD	189,613,545
1,640,311	NESTLE SA	170,020,338
3,451,476	TAIWAN SEMICONDUCTOR SP ADR	135,194,315
384,172	ROCHE HOLDING AG	108,218,297
1,176,800	NOVARTIS AG REG	107,662,113
8,057,500	PING AN INSURANCE GROUP CO H	96,741,568

**Largest International Bond Holdings (by Fair Value)
June 30, 2019**

Par	Bonds	Coupon	Due	Fair Value (USD)
69,000,000	HYDRO QUEBEC	8.50%	12/01/2029	105,252,863
100,000,000	KFW	2.75%	10/01/2020	100,969,000
100,000,000	INTL BK RECON + DEVELOP	3.00%	09/27/2013	99,649,342
60,000,000	PROVINCE OF QUEBEC	7.50%	09/15/2029	86,947,310
45,000,000	PROVINCE OF SASKATCHEWAN	8.50%	07/15/2022	52,938,319
50,000,000	KFW	2.63%	02/28/2024	51,751,872
43,000,000	PROVINCE OF NEW BRUNSWICK	8.75%	05/01/2022	50,407,128
46,000,000	NOVA SCOTIA PROVINCE	9.25%	03/01/2020	48,093,000
46,000,000	PROVINCE OF MANITOBA	8.80%	01/15/2020	47,602,180
42,436,000	NOVA SCOTIA PROVINCE	8.25%	11/15/2019	43,357,102

Fiscal Year 2019 Commissions on Global Securities⁽¹⁾

Broker	Shares	Total Commissions	Commissions per Share
Abel/Noser LLC.	1,500,000	\$ 75,000	\$ 0.050
B. Riley FBR, Inc.	1,138,579	39,850	0.035
Barclays Capital Inc.	10,788,228	315,513	0.029
BMO Capital Markets Corp.	7,963,049	79,531	0.010
BTIG LLC	2,749,127	93,358	0.034
Buckingham Research Group Inc. (The)	1,132,664	39,643	0.035
Canaccord Genuity Inc.	1,199,900	38,497	0.032
Capital Institutional Services, Inc.	40,363,148	2,018,157	0.050
Citigroup Global Markets, Inc.	14,071,278	394,755	0.028
Cowen and Company, LLC	7,807,693	273,269	0.035
Craig-Hallum Capital Group LLC	5,775,023	202,126	0.035
Credit Suisse Securities (USA) LLC	5,314,700	163,939	0.031
DBS Vickers Securities (USA) Inc.	2,322,000	16,190	0.007
Deutsche Bank Securities Inc.	3,215,560	112,545	0.035
Evercore Group L.L.C	4,914,609	172,011	0.035
FBN Securities, Inc.	19,410,100	125,014	0.006
Goldman, Sachs & Co. LLC	4,410,000	154,350	0.035
Gordon, Haskett Capital Corp.	10,124,610	506,231	0.050
Instinet, LLC	63,126,163	1,821,431	0.029
J.P. Morgan Securities LLC	101,132,837	730,371	0.007
Jane Street Execution Services LLC	1,000,000	5,000	0.005
Jefferies LLC	12,943,372	94,827	0.007
JMP Securities LLC	994,000	34,790	0.035
Kepler Capital Markets Inc.	2,521,521	27,838	0.011
Leerink Partners LLC	2,010,834	70,379	0.035
Loop Capital Markets LLC	8,158,390	81,904	0.010
Macquarie Capital (USA) Inc.	152,267,427	158,073	0.001
Meridian Equity Partners, Inc.	12,612,145	125,121	0.010
Merrill Lynch, Pierce, Fenner & Smith, Inc.	5,240,182	183,021	0.035
Mizuho Securities USA LLC	5,789,381	76,613	0.013
Morgan Stanley & Co. LLC	11,682,534	270,205	0.023
Raymond James & Associates, Inc.	2,404,900	84,172	0.035
RBC Capital Markets, LLC	3,538,984	122,829	0.035
Sanford C. Bernstein & Co. LLC	30,611,233	283,833	0.009
Stifel, Nicolaus & Co., Inc.	2,765,880	91,528	0.033
SunTrust Robinson Humphrey, Inc.	1,273,311	44,566	0.035
Themis Trading LLC	25,201,411	727,899	0.029
UBS Securities LLC	7,307,419	255,760	0.035
WallachBeth Capital LLC	3,000,000	17,500	0.006
Wells Fargo Securities LLC	8,498,804	234,538	0.028
Williams Capital Group, L.P. (The)	10,889,691	108,525	0.010
	619,170,677	\$ 10,470,702	\$ 0.017
Trades executed through advisers with various brokers	1,175,257,605	\$ 2,225,334	\$ 0.002

⁽¹⁾ Includes commissions for all funds under Division of Investment Management.

Schedule of Fees
Year ending June 30, 2019

(000's)	Pension Fund Net Assets under Management	Fees (a)	Basis Points
Investment Advisers' fees:			
Fixed Income advisers	\$ 851,466	\$ 3,537	
International small cap advisers	696,373	4,990	
Emerging Market advisers	5,148,171	13,298	
	<u>\$ 6,696,011</u>	<u>21,825</u>	<u>32.594</u>
Alternative Investment, opportunistic and global diversified credit funds	<u>\$ 23,980,602</u>	<u>333,958</u>	<u>139.262</u>
Other investment service fees:			
Custodian		1,734	
Security Lending Fees		17,145	
Investment consultants		2,241	
		<u>21,120</u>	
Total	<u>\$ 78,186,356</u>	<u>\$ 376,903</u>	<u>48.206</u>

(a) Fees for alternative investment, opportunistic and global diversified credit funds include the management fees.
It does not include performance allocation.

ACTUARIAL SECTION

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Classic Values, Innovative Advice

September 29, 2020
The Board of Trustees
Public Employees' Retirement System
of New Jersey

Re: Actuary's Certification Letter

Dear Board Members:

This is the Actuary's Certification Letter for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the Public Employees' Retirement System of New Jersey (PERS or System) as of June 30, 2019. This letter includes references to three documents produced by Cheiron for the System: the Actuarial Valuation Report as of July 1, 2018 (transmitted April 25, 2019) and the GASB 67 and 68 Reports as of June 30, 2019 (transmitted March 2020).

Actuarial Valuation Report as of July 1, 2018

The purpose of the annual Actuarial Valuation Report as of July 1, 2018 is to determine the actuarial funding status of PERS on that date and to calculate the Statutory Contribution amounts for the State and Local employers for the Fiscal Year Ending 2020. The prior review was conducted as of July 1, 2017, and included the Statutory Contribution amounts for the Fiscal Year Ending 2019.

Actuarial funding is based on the Projected Unit Credit Cost Method. The Statutory Contribution amounts contain two components: the employer normal cost (cost of benefits for the upcoming year) and an amortization for the unfunded actuarial liability (UAL). The funding methodology prescribed by the N.J. State Statutes does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption and are unable to evaluate whether the investment rate of return assumption includes an appropriate adjustment for administrative expenses.

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

- The amortization amount is calculated to amortize the UAL over an open 30 year period as a level dollar amount.
- Beginning with the July 1, 2019 actuarial valuation, the amortization amount will be calculated to amortize the UAL over a closed 30 year period (i.e. for each subsequent actuarial valuation, the amortization period shall decrease by one year) as a level dollar amount.
- Beginning with the July 1, 2029 actuarial valuation, when the amortization period reaches 20 years, an increase or decrease in the UAL as a result of actuarial losses and gains will increase or decrease, respectively, the amortization period for the UAL, except that the amortization period will not exceed 20 years.

Certain portions of the normal cost and UAL attributable to Local employers are payable by the State and/or over different periods in accordance with N.J. 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 Statutory Contribution, any existing UAL may not be fully amortized in the future.

Member contributions are set in the N.J. State Statutes.

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

For actuarial valuation purposes, assets are valued at Actuarial Value as prescribed in the N.J. State Statutes. Under this method, the assets used to determine the Statutory Contribution amounts take into account market value by spreading all investment gains and losses (returns above or below expected returns) over a rolling five year period.

The actuarial value of assets is intended to dampen the volatility of the market value of assets, resulting in a smoother pattern of contributions. Actuarial Standards of Practice (ASOP) No. 44 states that the asset valuation method should produce an actuarial value of assets that falls within a reasonable range of market value, recognizes the difference between the market value and actuarial value of assets within a reasonably short period of time, and is likely to produce actuarial value of assets that are sometimes greater than and sometimes less than the corresponding market values. The asset method required under the N.J. State Statutes does not meet the requirements of ASOP No. 44 because this method has produced actuarial value of assets which have consistently been greater than the market value of assets and recognizes investment losses slowly over time. Additionally, the method may produce an actuarial value of assets that falls outside of a reasonable range of the market value.

We prepared the following schedules, which we understand will be included in the Actuarial Section of the CAFR, based on the July 1, 2018 actuarial valuation. All historical information prior to the July 1, 2018 actuarial valuation shown in these schedules is based on information reported by the prior actuary, Buck Global, LLC.

- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Schedule of Funded Liabilities by Type (formerly referred to as the Solvency Test)
- Analysis of Financial Experience: Change in Unfunded Actuarial Accrued Liability
- Summary of Plan Provisions
- Summary of Current Actuarial Assumptions and Methods
- Membership Information (Active, Deferred Vested, and Retired)

The actuarial assumptions are the same as those used by the prior actuary. The demographic assumptions are based on the recommendations from the July 1, 2011 – June 30, 2014 Experience Study prepared by the prior actuary and approved by the Board of Trustees on October 14, 2015.

The investment return assumption of 7.50% and the annual salary increases that are 50 basis points lower than the rates shown in the July 1, 2011 – June 30, 2014 Experience Study were recommended by the State Treasurer. In addition, the State Treasurer has recommended that the investment return assumption will be reduced to 7.30% in the July 1, 2019 valuation and 7.00% in the July 1, 2021 valuation.

Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study as of the issuance of this report. Subsequent to the issuance of this valuation, we completed an experience study covering the period from July 1, 2014 – June 30, 2018. On February 19, 2020, the Board approved those assumptions for use in the July 1, 2019 actuarial valuation.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices except as noted. In particular, the assumptions (other than the investment rate of return) and methods (other than the asset method) used for funding purposes meet the requirements of the Actuarial Standards of Practice (ASOP), in particular ASOPs Nos. 4, 27 and 35. As noted above, the asset method does not meet the requirements of ASOP No. 44.

GASB 67 and 68 Reports as of June 30, 2019

The purpose of the GASB 67 and 68 Reports as of June 30, 2019 is to provide accounting and financial reporting information under GASB 67 for PERS and under GASB 68 for the State and Local employers. These reports are not appropriate for other purposes, including the measurement of funding requirements for PERS.

For financial reporting purposes, the Total Pension Liability is based on the July 1, 2018 actuarial valuation updated to the measurement date of June 30, 2019. As a result of the Experience Study covering the period July 1, 2014 – June 30, 2018, the assumed rates of termination, retirement, mortality, disability, salary increases and inflation were updated. Additionally, the assumed discount rate used to measure the Total Pension Liability was changed as of the measurement date, increasing from 5.66% as of June 30, 2018 to 6.28% as of June 30, 2019. 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 changes in assumptions.

Please refer to our GASB 67 and 68 Reports as of June 30, 2019 for additional information related to the financial reporting of the System. We prepared the following schedules for inclusion in the Financial Section of the CAFR based on the June 30, 2019 GASB 67 and 68 reports:

- Change in Net Pension Liability
- Sensitivity of Net Pension Liability to Changes in Discount Rate
- Schedule of Changes in Net Pension Liability and Related Ratios
- Schedule of Employer Contributions
- Notes to the Schedule of Employer Contributions

The demographic and economic (other than the investment rate of return) actuarial assumptions are based on the recommendations from the July 1, 2014 – June 30, 2018 Experience Study performed by Cheiron and approved by the Board of Trustees on February 19, 2020 with one exception. The calculation of Total Pension Liability as of June 30, 2019 was based on the SOA's Scale MP-2019 mortality improvement scale upon direction from the DPB. While we do not find the use of the SOA's Scale MP-2019 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. The assumptions used in the most recent reports are intended to produce results that, in the aggregate, reasonably approximate the anticipated future experience of the Plan. The next experience analysis is expected to cover the years through 2021.

Based on the State Treasurer's recommendation, the following investment return assumptions are used to determine the Statutory Contribution amounts:

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

In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum as recommended of the State Treasurer. Because the investment return assumptions and the longterm expected rate of return assumption are recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption.

We certify that the reports were performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for disclosure purposes have been prepared in accordance with our understanding of generally accepted accounting principles as promulgated by the GASB.

Disclaimers

In preparing our reports, we relied on information (some oral and some written) supplied by the Division of Pensions and Benefits (DPB). 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.

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
PUBLIC EMPLOYEES' RETIREMENT SYSTEM

These reports are for the use of PERS, DPB and their auditor in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of these reports is not an intended user and is considered a third party.

Cheiron's reports were prepared for PERS for the purposes described herein and for use by the plan auditor in completing an audit related to matters herein. Other users of these reports are not intended as users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any such party.

These reports and their 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 opinions contained in these reports. These reports do not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Respectfully submitted,



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



Jonathan B. Chipko, FSA, MAAA, EA
Consulting Actuary



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2018. Cheiron did not audit. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1 to A-3: Contributing Active Member Data by Tier
- A-4: Non-Contributing Active Member Data by Tier
- A-5: Inactive Member Data by Status
- A-6: Reconciliation of Plan Membership

Table A-1 Contributing Active Member Data by Tier State							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	41,962	44,940	-6.6%	Count	3,133	3,251	-3.6%
Average Age	52.66	52.16	1.0%	Average Age	47.49	46.62	1.9%
Average Service	20.35	19.66	3.5%	Average Service	10.33	9.33	10.7%
Average Salary	\$ 69,875	\$ 69,190	1.0%	Average Salary	\$ 56,820	\$ 55,533	2.3%
Total Annual Salary	\$ 2,932,098,109	\$ 3,109,418,071	-5.7%	Total Annual Salary	\$ 178,017,536	\$ 180,537,491	-1.4%
Tier 3				Tier 4			
Count	2,201	2,311	-4.8%	Count	1,512	1,602	-5.6%
Average Age	46.28	45.46	1.8%	Average Age	44.88	43.92	2.2%
Average Service	8.87	7.86	12.8%	Average Service	7.53	6.53	15.3%
Average Salary	\$ 55,318	\$ 53,877	2.7%	Average Salary	\$ 58,419	\$ 57,525	1.6%
Total Annual Salary	\$ 121,755,110	\$ 124,508,836	-2.2%	Total Annual Salary	\$ 88,329,071	\$ 92,155,103	-4.2%
Tier 5				Total			
Count	19,785	16,221	22.0%	Count	68,593	68,325	0.4%
Average Age	39.30	38.94	0.9%	Average Age	48.20	48.34	-0.3%
Average Service	2.97	2.66	11.8%	Average Service	14.23	14.43	-1.4%
Average Salary	\$ 51,229	\$ 50,500	1.4%	Average Salary	\$ 63,181	\$ 63,312	-0.2%
Total Annual Salary	\$ 1,013,573,148	\$ 819,165,078	23.7%	Total Annual Salary	\$ 4,333,772,974	\$ 4,325,784,579	0.2%

All records for multiple members, which are members employed by more than one PERS-participating employer at one time, are shown.

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
PUBLIC EMPLOYEES' RETIREMENT SYSTEM

MEMBERSHIP INFORMATION, *continued*

Table A-2 Contributing Active Member Data by Tier Local							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	84,856	91,924	-7.7%	Count	8,711	9,235	-5.7%
Average Age	55.93	55.42	0.9%	Average Age	51.49	50.72	1.5%
Average Service	19.66	18.85	4.3%	Average Service	10.35	9.31	11.2%
Average Salary	\$ 53,147	\$ 51,336	3.5%	Average Salary	\$ 40,544	\$ 38,427	5.5%
Total Annual Salary	\$ 4,509,830,568	\$ 4,718,976,652	-4.4%	Total Annual Salary	\$ 353,175,877	\$ 354,871,385	-0.5%
Tier 3				Tier 4			
Count	5,522	5,820	-5.1%	Count	2,416	2,595	-6.9%
Average Age	49.92	48.94	2.0%	Average Age	46.99	46.01	2.1%
Average Service	8.90	7.86	13.3%	Average Service	7.58	6.54	15.9%
Average Salary	\$ 43,929	\$ 41,737	5.3%	Average Salary	\$ 50,879	\$ 48,340	5.3%
Total Annual Salary	\$ 242,575,203	\$ 242,911,151	-0.1%	Total Annual Salary	\$ 122,923,756	\$ 125,442,553	-2.0%
Tier 5				Total			
Count	45,110	39,181	15.1%	Count	146,615	148,755	-1.4%
Average Age	41.75	41.12	1.5%	Average Age	50.93	50.94	0.0%
Average Service	2.99	2.56	16.9%	Average Service	13.37	13.32	0.4%
Average Salary	\$ 41,626	\$ 40,329	3.2%	Average Salary	\$ 48,469	\$ 47,207	2.7%
Total Annual Salary	\$ 1,877,743,384	\$ 1,580,120,863	18.8%	Total Annual Salary	\$ 7,106,248,788	\$ 7,022,322,604	1.2%

All records for multiple members, which are members employed by more than one PERS-participating employer at one time, are shown.

MEMBERSHIP INFORMATION, *continued*

Table A-3 Contributing Active Member Data by Tier Total							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	126,818	136,864	-7.3%	Count	11,844	12,486	-5.1%
Average Age	54.85	54.35	0.9%	Average Age	50.43	49.65	1.6%
Average Service	19.88	19.12	4.0%	Average Service	10.35	9.32	11.1%
Average Salary	\$ 58,682	\$ 57,198	2.6%	Average Salary	\$ 44,849	\$ 42,881	4.6%
Total Annual Salary	\$ 7,441,928,677	\$ 7,828,394,723	-4.9%	Total Annual Salary	\$ 531,193,413	\$ 535,408,876	-0.8%
Tier 3				Tier 4			
Count	7,723	8,131	-5.0%	Count	3,928	4,197	-6.4%
Average Age	48.89	47.95	1.9%	Average Age	46.18	45.21	2.1%
Average Service	8.89	7.86	13.2%	Average Service	7.56	6.54	15.7%
Average Salary	\$ 47,175	\$ 45,188	4.4%	Average Salary	\$ 53,781	\$ 51,846	3.7%
Total Annual Salary	\$ 364,330,313	\$ 367,419,987	-0.8%	Total Annual Salary	\$ 211,252,827	\$ 217,597,656	-2.9%
Tier 5				Total			
Count	64,895	55,402	17.1%	Count	215,208	217,080	-0.9%
Average Age	41.00	40.48	1.3%	Average Age	50.06	50.12	-0.1%
Average Service	2.99	2.59	15.4%	Average Service	13.64	13.67	-0.24%
Average Salary	\$ 44,554	\$ 43,307	2.9%	Average Salary	\$ 53,158	\$ 52,276	1.7%
Total Annual Salary	\$ 2,891,316,532	\$ 2,399,285,941	20.5%	Total Annual Salary	\$ 11,440,021,762	\$ 11,348,107,183	0.8%

All records for multiple members, which are members employed by more than one PERS-participating employer at one time, are shown.

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
PUBLIC EMPLOYEES' RETIREMENT SYSTEM

MEMBERSHIP INFORMATION, *continued*

Table A-4 Non-Contributing Active Member Data by Tier						
	State		Local Employers		Total	
	July 1, 2018	July 1, 2017	July 1, 2018	July 1, 2017	July 1, 2018	July 1, 2017
Tier 1						
Count	5,950	6,033	17,527	17,914	23,477	23,947
Average Age	58.5	57.6	61.8	60.9	61.0	60.0
Accumulated Deductions with Interest	\$ 357,365,625	\$ 334,911,766	\$ 668,857,429	\$ 641,967,985	\$ 1,026,223,054	\$ 976,879,751
Tier 2						
Count	382	414	1,669	1,821	2,051	2,235
Average Age	52.1	50.9	53.4	52.1	53.1	51.8
Accumulated Deductions with Interest	\$ 8,490,800	\$ 6,583,240	\$ 19,086,168	\$ 18,837,628	\$ 27,576,968	\$ 25,420,868
Tier 3						
Count	274	336	989	1,111	1,263	1,447
Average Age	47.1	46.2	49.8	48.6	49.2	48.0
Accumulated Deductions with Interest	\$ 5,651,543	\$ 5,276,110	\$ 11,568,516	\$ 10,871,361	\$ 17,220,059	\$ 16,147,471
Tier 4						
Count	167	183	333	354	500	537
Average Age	44.1	42.7	46.1	44.1	45.4	43.6
Accumulated Deductions with Interest	\$ 3,938,251	\$ 3,022,635	\$ 5,310,392	\$ 4,298,918	\$ 9,248,643	\$ 7,321,553
Tier 5						
Count	2,632	2,134	7,467	6,221	10,099	8,355
Average Age	36.1	35.8	38.1	37.6	37.5	37.1
Accumulated Deductions with Interest	\$ 19,292,261	\$ 14,514,843	\$ 39,043,109	\$ 29,462,759	\$ 58,335,370	\$ 43,977,602
Total						
Count	9,405	9,100	27,985	27,421	37,390	36,521
Average Age	51.4	51.5	54.2	54.2	53.5	53.5
Accumulated Deductions with Interest	\$ 394,738,480	\$ 364,308,594	\$ 743,865,614	\$ 705,438,651	\$ 1,138,604,094	\$ 1,069,747,245

MEMBERSHIP INFORMATION, *continued*

Table A-5 Inactive Member Data by Status						
	July 1, 2018			July 1, 2017		
	State	Local Employers	Total	State	Local Employers	Total
Retirees						
Count	48,977	100,497	149,474	47,749	99,014	146,763
Annual Retirement Allowances	\$ 1,423,009,992	\$ 1,858,895,467	\$ 3,281,905,459	\$ 1,370,440,135	\$ 1,790,170,223	\$ 3,160,610,358
Average Retirement Allowance	\$ 29,055	\$ 18,497	\$ 21,956	\$ 28,701	\$ 18,080	\$ 21,535
Beneficiaries						
Count	4,437	10,739	15,176	4,313	10,491	14,804
Annual Retirement Allowances	\$ 76,247,249	\$ 137,597,453	\$ 213,844,702	\$ 73,062,782	\$ 131,408,320	\$ 204,471,102
Average Retirement Allowance	\$ 17,184	\$ 12,813	\$ 14,091	\$ 16,940	\$ 12,526	\$ 13,812
Ordinary Disability						
Count	4,631	8,103	12,734	4,597	8,115	12,712
Annual Retirement Allowances	\$ 93,021,193	\$ 137,416,595	\$ 230,437,788	\$ 91,515,020	\$ 136,558,350	\$ 228,073,370
Average Retirement Allowance	\$ 20,087	\$ 16,959	\$ 18,096	\$ 19,908	\$ 16,828	\$ 17,942
Accidental Disability						
Count	511	853	1,364	515	837	1,352
Annual Retirement Allowances	\$ 15,455,362	\$ 23,996,718	\$ 39,452,080	\$ 15,446,806	\$ 23,470,787	\$ 38,917,593
Average Retirement Allowance	\$ 30,245	\$ 28,132	\$ 28,924	\$ 29,994	\$ 28,042	\$ 28,785
In-Pay Total						
Count	58,556	120,192	178,748	57,174	118,457	175,631
Annual Retirement Allowances	\$ 1,607,733,796	\$ 2,157,906,233	\$ 3,765,640,029	\$ 1,550,464,743	\$ 2,081,607,680	\$ 3,632,072,423
Average Retirement Allowance	\$ 27,456	\$ 17,954	\$ 21,067	\$ 27,118	\$ 17,573	\$ 20,680
Deferred Vested Members						
Count	169	440	609	174	409	583
Annual Retirement Allowances	\$ 2,522,196	\$ 4,454,100	\$ 6,976,296	\$ 2,428,380	\$ 4,086,276	\$ 6,514,656
Average Retirement Allowance	\$ 14,924	\$ 10,123	\$ 11,455	\$ 13,956	\$ 9,991	\$ 11,174

QDRO benefits included with member records for valuation purposes.

MEMBERSHIP INFORMATION, *continued*

Table A-6 Reconciliation of Plan Membership from July 1, 2017 to July 1, 2018							
	Contributing Actives	Non-Contributing Actives	Deferred Vested	Retired	Disabled	Beneficiaries	Total
1. July 1, 2017	215,439	36,474	583	146,763	14,064	14,804	428,127
Multiple Member Adjustment	1,641	47	0	386	20	40	2,134
Conversion	255	924	6	(988)	(90)	(95)	12
Adjusted July 1, 2017	<u>217,335</u>	<u>37,445</u>	<u>589</u>	<u>146,161</u>	<u>13,994</u>	<u>14,749</u>	<u>430,273</u>
2. Additions							
a. New entrants	15,220	1,024					16,244
b. Data corrections	152	89	0	29	3	180	453
c. Total	<u>15,372</u>	<u>1,113</u>	<u>0</u>	<u>29</u>	<u>3</u>	<u>180</u>	<u>16,697</u>
3. Reductions							
a. Withdrawal/Certain Period End	(3,007)	(5,636)	(1)			(25)	(8,669)
b. Died without beneficiary	(345)	(162)	(3)	(4,328)	(461)	(802)	(6,101)
c. Data corrections	(138)	(4)	(18)	(1)			(161)
d. Total	<u>(3,490)</u>	<u>(5,802)</u>	<u>(22)</u>	<u>(4,329)</u>	<u>(461)</u>	<u>(827)</u>	<u>(14,931)</u>
4. Changes in Status							
a. Contributing Actives	(7,890)	7,893		(3)			0
b. Non-Contributing Actives	1,677	(1,677)					0
c. Deferred Vested	(8)	(216)	224				0
d. Retired	(7,423)	(1,004)	(182)	8,527	(1)		(83)
e. Disabled	(337)	(339)		(6)	681		(1)
f. Died with beneficiary	(28)	(23)		(905)	(118)	1,074	0
g. Total	<u>(14,009)</u>	<u>4,634</u>	<u>42</u>	<u>7,613</u>	<u>562</u>	<u>1,074</u>	<u>(84)</u>
5. July 1, 2018	215,208	37,390	609	149,474	14,098	15,176	431,955

QDRO benefits included with member records for valuation purposes.

All records for multiple members, which are members employed by more than one PERS-participating employer at one time, are shown. The decreases due to Changes in Status occur when active records for multiple members are combined into a single retiree record.

ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Investment Rate of Return** 7.50% per annum, compounded annually.
- 2. Administrative Expenses** No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute.
- 3. Interest Crediting Rate on Accumulated Deductions** 7.50% per annum, compounded annually.
- 4. Cost-of-Living Adjustments (COLAs)** No future COLAs are assumed. Previously granted COLAs are included in the data.
- 5. 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.

- 6. 401 (a)(17) Pay Limit** \$275,000 in 2018 increasing 3.00% per annum, compounded annually.
- 7. Social Security Wage Base** \$128,400 in 2018 increasing 4.00% per annum, compounded annually.

Actuarial Assumptions And Methods, continued

8. 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

Ultimate Rates				
Age	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.

Actuarial Assumptions And Methods, *continued*

9. 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.

10. 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 Content 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.

Actuarial Assumptions And Methods, continued

11. Retirement Representative retirement rates are as follows:

Age	Not Eligible for Unreduced Retirement Benefit		Eligible for Unreduced Retirement Benefit	
	State	Local	State	Local
45	0.24%	0.16%	NIA	NIA
50	1.10	0.64	NIA	NIA
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	NIA	NIA	16.20	16.54
66	NIA	NIA	17.00	15.75
67	NIA	NIA	15.00	13.65
68	NIA	NIA	15.00	11.55
69	NIA	NIA	15.00	11.55
70	NIA	NIA	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

Actuarial Assumptions And Methods, *continued*

- 12. 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.
- 13. Form of Payment** Current active members are assumed to elect the Maximum Option.
- 14. Non-Contributory Group Insurance Benefit Form of Payment** All benefits are assumed to be paid as lump sums.
- 15. Data** All non-contributing members are included in the valuation with a liability based on the reported ASF.
- Per discussions with DPB, the statuses for active records in Locations 4 - 7 (General Assembly and Senate) are based on changes in service instead of the contribution code.
- For current beneficiaries with incomplete information, reasonable assumptions were made based on information available in prior years.
- Inactive participants receiving benefits according to the 2017 data but omitted from the 2018 data are assumed to have died without a beneficiary.
- 16. Rationale for Assumptions** The demographic assumptions used in this report reflect the results 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. The valuation is based on a 7.50% interest rate, and 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, which were recommended by the State Treasurer. Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study.
- 17. Changes in Assumptions since Last Valuation** None.

Actuarial Assumptions And Methods, continued

B. Projection Assumptions

- 1. Investment Rate of Return**
 - 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.
 - Accumulated deductions with interest are projected at the ultimate investment rate of return of 7.00%.
- 2. Appropriate Percentages**

The State is assumed to appropriate 70% of the Statutory contribution in FYE 2020, and to increase the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023.
- 3. Administrative Expenses**

0.39% of expected pension benefit payments for the year for the State and 0.68% of expected pension benefit payments for the year for Local employers.
- 4. New Entrants**
 - Contributing active population assumed to remain at 2018 levels.
 - Assumed to join mid-year.
 - Age/sex distributions based on the last three years of new hires.
 - Salary based on salary for most recent hires reported on 2018 data.
 - New entrant salary assumed to increase with the age 65 salary increase rates.
- 5. Demographic Assumptions**

Same as those used for valuation purposes.

C. 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 which are valued as the Accumulated Deductions with interest 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, 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).

Actuarial Assumptions And Methods, continued

- 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.

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.

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

Early Retirement Incentive Programs

Local employers which elected to participate in various early retirement incentive programs authorized by NJ Statute make contributions to cover the cost of these programs over amortization periods elected by the employer to the extent permitted by NJ Statute.

Chapter 133, P.L. 2001

Chapter 133, P.L. 2001 increased the accrual rate from 1/60 to 1/55. In addition, it lowered the age required for a veteran benefit equal to 1/55 of highest 12-month Compensation for each Year of Service from 60 to 55.

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

Actuarial Assumptions And Methods, *continued*

Chapter 259, P.L. 2001

Chapter 259, P.L. 2001 established the Workers' Compensation Judges Part of the System with special retirement benefits for Workers' Compensation Judges. See Appendix C for details.

In accordance with the provisions of Chapter 259, P.L. 2001, the additional contributions for these special retirement benefits will be funded by transfers from the Second Injury Fund.

Chapter 366, P.L. 2001

Chapter 366, P.L. 2001 established the Prosecutors Part of the System with special retirement benefits for Prosecutors. See Appendix C for details.

Chapter 366, P.L. 2001 also requires the State be liable for any increase in pension costs to a County that results from the enrollment of Prosecutors in the Prosecutors Part. Any increase in the unfunded actuarial liability arising from the benefits established for the Prosecutors Part are to be amortized over a closed 30 year period.

Chapter 19, P.L. 2009

Chapter 19, P.L. 2009 provided that the State Treasurer will reduce for Local employers the normal and accrued liability contributions to 50 percent of the amount certified for fiscal year 2009. The remaining 50% of the contribution (unfunded liability) will be paid by the Local employers in level annual payments over a period of 15 years with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets. The legislation also 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 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 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 liability will be adjusted by the rate of return on the actuarial value of assets.

4. Changes Since Last Valuation

Based on clarification from the Division of Pensions and Benefits, the actuarial liability is based solely on the formula benefit without any comparison to the value of the estimated member annuity.

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.

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)(7) 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.

Summary of Plan Provisions, continued

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.

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 will provide a total retirement allowance of:

- (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 will provide a total retirement allowance of:

- (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 will provide a total retirement allowance of 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.

Summary of Plan Provisions, continued

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 will provide a total retirement allowance of 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.

(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.

Summary of Plan Provisions, continued

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 will provide a total retirement allowance of:

- 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 will provide a total retirement allowance of 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.

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 will provide a total retirement allowance of 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.

Summary of Plan Provisions, continued

(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.

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 will provide a total retirement allowance of 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 nonlegislative 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 will provide a total retirement allowance of 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 will provide a total retirement allowance of the greater of:

- 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.

Summary of Plan Provisions, continued

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 will provide a total retirement allowance of 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 will provide a total retirement allowance of 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.

(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 which together will provide a total retirement allowance of 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 which together will provide a total retirement allowance of 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 which together will provide a total retirement allowance of 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.

Summary of Plan Provisions, continued

d. Age 60.

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

(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 with provide a total retirement allowance of 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.

Summary of Plan Provisions, *continued*

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 I: 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.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), we prepared the following schedules for the System. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

Table D-1
Schedule of Retirees and Beneficiaries
Added to and Removed from Rolls

State								
Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ¹	% Increase in Average Annual Allowance ¹
	Number ¹	Annual Allowance	Number ¹	Annual Allowance	Number ¹	Annual Allowance		
2018	3,217	\$102,255,260	2,281	\$45,351,461	58,556	\$1,607,733,796	\$ 27,456	1.25%
2017	3,267	104,489,121	1,479	29,655,761	57,174	1,550,464,743	27,118	1.83%
2016	3,515	109,122,538	2,203	40,303,068	55,386	1,474,917,885	26,630	2.45%
2015	4,114	124,446,887	1,754	32,905,541	54,074	1,405,596,194	25,994	2.33%
2014	3,183	93,940,693	1,696	30,809,304	51,714	1,313,713,988	25,403	2.06%
2013	2,864	82,357,835	1,685	29,723,562	50,227	1,250,142,686	24,890	1.96%

¹ Beginning with the 2018 valuation, multiple members with benefits in receipt from both State and Local employers are included in State headcounts.

This change resulted in 446 more records on the rolls as of July 1, 2018. The annual allowance for these records was included for all years.

Table D-2
Schedule of Retirees and Beneficiaries
Added to and Removed from Rolls

Local Employers								
Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ¹	% Increase in Average Annual Allowance ¹
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance		
2018	7,272	\$151,992,839	5,537	\$76,519,975	120,192	\$2,157,906,233	\$17,954	2.17%
2017	7,444	155,525,527	3,725	50,460,932	118,457	2,081,607,680	17,573	2.04%
2016	7,856	159,065,854	5,681	72,658,490	114,738	1,975,865,848	17,221	2.65%
2015	7,870	149,903,333	4,309	54,707,095	112,563	1,888,507,678	16,777	2.02%
2014	7,003	137,416,194	4,288	52,540,322	109,002	1,792,563,653	16,445	2.40%
2013	6,911	123,953,479	4,169	49,483,971	106,287	1,706,902,310	16,059	1.90%

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-3
Schedule of Retirees and Beneficiaries
Added to and Removed from Rolls

Total								
Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ¹	% Increase in Average Annual Allowance ¹
	Number ¹	Annual Allowance	Number ¹	Annual Allowance	Number ¹	Annual Allowance		
2018	10,489	\$254,248,099	7,818	\$121,871,436	178,748	\$3,765,640,029	\$ 21,067	1.87%
2017	10,711	260,014,648	5,204	80,116,693	175,631	3,632,072,423	20,680	1.95%
2016	11,371	268,188,392	7,884	112,961,558	170,124	3,450,783,733	20,284	2.61%
2015	11,984	274,350,220	6,063	87,612,636	166,637	3,294,103,872	19,768	2.28%
2014	10,186	231,356,887	5,984	83,349,626	160,716	3,106,277,641	19,328	2.30%
2013	9,775	206,311,314	5,854	79,207,533	156,514	2,957,044,996	18,893	1.90%

¹Beginning with the 2018 valuation, multiple members with benefits in receipt from both State and Local employers are included in State headcounts. This change resulted in 446 more records on the rolls as of July 1, 2018. The annual allowance for these records was included for all years.

Table D-4
Schedule of Active Member Valuation Data

State					
Valuation Date JULY 1,	Number of Contributing Active Members ¹	Annual Compensation ²	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers ³
2018	68,593	\$4,333,772,974	\$ 63,181	-0.45%	283
2017	68,156	4,325,784,579	63,469	-0.49%	N/A
2016	68,502	4,369,066,658	63,780	0.02%	N/A
2015	69,687	4,443,605,376	63,765	2.39%	N/A
2014	72,952	4,543,384,095	62,279	1.64%	N/A
2013	74,365	4,556,719,103	61,275	1.02%	N/A

¹Beginning with the 2018 valuation, reflects all records for multiple members.

²Limited annual compensation.

³Number of locations reporting contributing active members. For GASB reporting purposes, the State may be considered the participating employer for multiple locations.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-5
Schedule of Active Member Valuation Data

Local Employers					
Valuation Date JULY 1,	Number of Contributing Active Members¹	Annual Compensation²	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers³
2018	146,615	\$7,106,248,788	\$48,469	1.66%	1,670
2017	147,283	7,022,322,604	47,679	2.61%	N/A
2016	149,077	6,927,278,654	46,468	2.76%	N/A
2015	152,070	6,876,593,371	45,220	2.33%	N/A
2014	156,101	6,898,049,131	44,190	2.75%	N/A
2013	160,253	6,891,812,162	43,006	2.78%	N/A

¹ Beginning with the 2018 valuation, reflects all records for multiple members.

² Limited annual compensation.

³ Number of locations reporting contributing active members.

Table D-6
Schedule of Active Member Valuation Data

Total					
Valuation Date JULY 1,	Number of Contributing Active Members¹	Annual Compensation²	Annual Average Compensation	% Increase in Average Annual Compensation	Number of Participating Employers³
2018	215,208	\$11,440,021,762	\$53,158	0.92%	1,953
2017	215,439	11,348,107,183	52,674	1.46%	N/A
2016	217,579	11,296,345,312	51,918	1.70%	N/A
2015	221,757	11,320,198,747	51,048	2.20%	N/A
2014	229,053	11,441,433,226	49,951	2.37%	N/A
2013	234,618	11,448,531,265	48,796	2.16%	N/A

¹ Beginning with the 2018 valuation, reflects all records for multiple members.

² Limited annual compensation.

³ Number of locations reporting contributing active members. For GASB reporting purposes, the State may be considered the participating employer for multiple locations.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-7
Schedule of Funding Progress

State						
Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$8,057,092,909	\$23,745,716,631	\$15,688,623,722	33.93%	\$4,333,772,974	362.01%
2017	8,208,333,488	23,324,861,385	15,116,527,897	35.19%	4,325,784,579	349.45%
2016	8,466,901,791	22,411,751,124	13,944,849,333	37.78%	4,369,066,658	319.17%
2015	8,868,254,006	21,635,507,298	12,767,253,292	40.99%	4,443,605,376	287.32%
2014	9,128,235,998	20,842,690,918	11,714,454,920	43.80%	4,543,384,095	257.84%
2013	9,614,698,050	19,993,957,432	10,379,259,382	48.09%	4,556,719,103	227.78%

¹ Includes receivable amounts. Excludes Special Asset Value.

² Limited annual compensation for combining actives.

Table D-8
Schedule of Funding Progress

Local Employers						
Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$23,264,877,618	\$33,103,627,533	\$9,838,749,915	70.28%	\$7,106,248,788	138.45%
2017	22,522,697,150	32,238,416,280	9,715,719,130	69.86%	7,022,322,604	138.35%
2016	21,900,421,798	30,673,935,604	8,773,513,806	71.40%	6,927,278,654	126.65%
2015	21,495,828,937	29,431,895,200	7,936,066,263	73.04%	6,876,593,371	115.41%
2014	20,766,663,796	28,255,077,220	7,488,413,424	73.50%	6,898,049,131	108.56%
2013	19,978,598,632	27,005,782,517	7,027,183,885	73.98%	6,891,812,162	101.96%

¹ Includes receivable amounts. Excludes Special Asset Value.

² Limited annual compensation for contributing actives.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-9
Schedule of Funding Progress

Total						
Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$31,321,970,527	\$56,849,344,164	\$25,527,373,637	55.10%	\$11,440,021,762	223.14%
2017	30,731,030,638	55,563,277,665	24,832,247,027	55.31%	11,348,107,183	218.82%
2016	30,367,323,589	53,085,686,728	22,718,363,139	57.20%	11,296,345,312	201.11%
2015	30,364,082,943	51,067,402,498	20,703,319,555	59.46%	11,320,198,747	182.89%
2014	29,894,899,794	49,097,768,138	19,202,868,344	60.89%	11,441,433,226	167.84%
2013	29,593,296,682	46,999,739,949	17,406,443,267	62.96%	11,448,531,265	152.04%

¹Includes receivable amounts. Excludes Special Asset Value.

²Limited annual compensation for combining actives.

Table D-10
Schedule of Funded Liabilities by Type (Solvency Test)

State							
Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ²	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member (1)	Retirees, Beneficiaries & Deferred Vested ¹ (2)	Contributing & Non-Contributing Active Member Benefit Financed by Employer ¹ (3)		(1)	(2)	(3)
2018	\$5,953,378,763	\$15,070,236,164	\$2,722,101,704	\$8,057,092,909	100.0%	13.96%	0.00%
2017	5,727,517,176	14,487,785,677	3,109,558,532	8,208,333,488	100.0%	17.12%	0.00%
2016	5,504,706,131	13,686,116,692	3,220,928,301	8,466,901,791	100.0%	21.64%	0.00%
2015	5,302,732,138	12,797,013,628	3,535,761,532	8,868,254,006	100.0%	27.86%	0.00%
2014	5,169,631,309	11,857,858,226	3,815,201,383	9,128,235,998	100.0%	33.38%	0.00%
2013	4,885,643,785	11,293,634,256	3,814,679,391	9,614,698,050	100.0%	41.87%	0.00%

¹Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2).

²Includes receivable amounts. Excludes Special Asset Value.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-11
Schedule of Funded Liabilities by Type (Solvency Test)

Local Employers							
Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ²	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member (1)	Retirees, Beneficiaries & Deferrd Vesteds ¹ (2)	Contributing & Non-Contributing Active Member Benefit Financed by Employer ¹ (3)		(1)	(2)	(3)
2018	\$8,934,728,567	\$19,552,684,545	\$4,616,214,421	\$23,264,877,618	100.00%	73.29%	0.00%
2017	8,542,088,646	18,737,855,865	4,958,471,769	22,522,697,150	100.00%	74.61%	0.00%
2016	8,168,141,804	17,622,616,344	4,883,177,456	21,900,421,798	100.00%	77.92%	0.00%
2015	7,829,248,004	16,502,540,582	5,100,106,614	21,495,828,937	100.00%	82.82%	0.00%
2014	7,477,372,802	15,523,266,419	5,254,437,999	20,766,663,796	100.00%	85.61%	0.00%
2013	7,060,416,742	14,775,793,049	5,169,572,726	19,978,598,632	100.00%	87.43%	0.00%

¹Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2).

²Includes receivable amounts. Excludes Special Asset Value.

Table D-12
Schedule of Funded Liabilities by Type (Solvency Test)

Total							
Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ²	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member (1)	Retirees, Beneficiaries & Deferrd Vesteds ¹ (2)	Contributing & Non-Contributing Active Member Benefit Financed by Employer ¹ (3)		(1)	(2)	(3)
2018	\$14,888,107,330	\$34,622,920,709	\$7,338,316,125	\$31,321,970,527	100.0%	47.47%	0.00%
2017	14,269,605,822	33,225,641,542	8,068,030,301	30,731,030,638	100.0%	49.54%	0.00%
2016	13,672,847,935	31,308,733,036	8,104,105,757	30,367,323,589	100.0%	53.32%	0.00%
2015	13,131,980,142	29,299,554,210	8,635,868,146	30,364,082,943	100.0%	58.81%	0.00%
2014	12,647,004,111	27,381,124,645	9,069,639,382	29,894,899,794	100.0%	62.99%	0.00%
2013	11,946,060,527	26,069,427,305	8,984,252,117	29,593,296,682	100.0%	67.69%	0.00%

¹Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2).

²Includes receivable amounts. Excludes Special Asset Value.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-13
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

State						
Valuation Date JULY 1,	Actuarial Value of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan/Policy Changes	Contributions¹	Changes in Unfunded Actuarial Accrued Liability
2018	\$130,951,573	\$93,268,738	\$(112,274,899)	\$0	\$460,150,413	\$572,095,825
2017	171,949,238	103,170,590	328,696,298	0	567,862,438	1,171,678,564
2016	274,008,949	21,165,025	199,010,114	0	683,411,953	1,177,596,041
2015	162,379,506	164,489,294	53,217,646	0	672,711,926	1,052,798,372
2014	87,486,113	95,327,747	10,733,967	0	1,141,647,711	1,335,195,538
2013	243,785,379	47,279,664	0	0	479,307,797	770,372,840

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.

Table D-14
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Local Employers						
Valuation Date JULY 1,	Actuarial Value of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan/Policy Changes	Contributions¹	Changes in Unfunded Actuarial Accrued Liability
2018	\$154,877,626	\$161,064,936	\$(176,743,018)	\$0	\$(16,168,759)	\$123,030,785
2017	263,103,187	249,175,903	439,168,994	0	(9,242,760)	942,205,324
2016	536,039,915	28,949,988	251,983,145	0	20,474,495	837,447,543
2015	234,583,215	90,076,858	152,550,941	0	(29,558,175)	447,652,839
2014	129,116,581	303,918,905	12,554,678	0	15,639,375	461,229,539
2013	464,450,689	(49,533,766)	0	0	(20,124,445)	394,792,478

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-15
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Total						
Valuation Date JULY 1,	Actuarial Value of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan/Policy Changes	Contributions¹	Changes in Unfunded Actuarial Accrued Liability
2018	\$285,829,199	\$254,333,674	\$(289,017,917)	\$0	\$443,981,654	\$695,126,610
2017	435,052,425	352,346,493	767,865,292	0	558,619,678	2,113,883,888
2016	810,048,864	50,115,013	450,993,259	0	703,886,448	2,015,043,584
2015	396,962,721	254,566,152	205,768,587	0	643,153,751	1,500,451,211
2014	216,602,694	399,246,652	23,288,645	0	1,157,287,086	1,796,425,077
2013	708,236,068	(2,254,102)	0	0	459,183,352	1,165,165,318

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.



Classic Values, Innovative Advice

September 29, 2020
The Board of Trustees
Teachers Pension and Annuity Fund
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

This is the Actuary's Certification Letter for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the Teachers' Pension and Annuity Fund of New Jersey (TPAF or Fund) as of June 30, 2019. This letter includes references to three documents produced by Cheiron for the Fund: the Actuarial Valuation Report as of July 1, 2018 (transmitted April 25, 2019) and the GASB 67 and 68 Reports as of June 30, 2019 (transmitted March 2020).

Actuarial Valuation Report as of July 1, 2018

The purpose of the annual Actuarial Valuation Report as of July 1, 2018 is to determine the actuarial funding status of TPAF on that date and to calculate the Statutory Contribution amount for the State for the Fiscal Year Ending 2020. The prior review was conducted as of July 1, 2017, and included the Statutory Contribution amount for the Fiscal Year Ending 2019.

Actuarial funding is based on the Projected Unit Credit Cost Method. The Statutory Contribution amounts contain two components: the employer normal cost (cost of benefits for the upcoming year) and an amortization for the unfunded actuarial liability (UAL). The funding methodology prescribed by the N.J. State Statutes does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption and are unable to evaluate whether the investment rate of return assumption includes an appropriate adjustment for administrative expenses.

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

- The amortization amount is calculated to amortize the UAL over an open 30 year period as a level dollar amount.
- Beginning with the July 1, 2019 actuarial valuation, the amortization amount will be calculated to amortize the UAL over a closed 30 year period (i.e. for each subsequent actuarial valuation, the amortization period shall decrease by one year) as a level dollar amount.
- Beginning with the July 1, 2029 actuarial valuation, when the amortization period reaches 20 years, an increase or decrease in the UAL as a result of actuarial losses and gains will increase or decrease, respectively, the amortization period for the UAL, except that the amortization period will not exceed 20 years.

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 Statutory Contribution, any existing UAL may not be fully amortized in the future.

Member contributions are set in the N.J. State Statutes.

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

For actuarial valuation purposes, assets are valued at Actuarial Value as prescribed in the N.J. State Statutes. Under this method, the assets used to determine the Statutory Contribution amounts take into account market value by spreading all investment gains and losses (returns above or below expected returns) over a rolling five year period.

The actuarial value of assets is intended to dampen the volatility in the market value of assets, resulting in a smoother pattern of contributions. Actuarial Standards of Practice (ASOP) No. 44 states that the asset valuation method should produce an actuarial value of assets that falls within a reasonable range of market value, recognizes the difference between the market value and actuarial value of assets within a reasonably short period of time, and is likely to produce actuarial value of assets that are sometimes greater than and sometimes less than the corresponding market values. The asset method required under the N.J. State Statutes does not meet the requirements of ASOP No. 44 because this method has produced actuarial value of assets which have consistently been greater than the market value of assets and recognizes investment losses slowly over time. Additionally, the method may produce an actuarial value of assets that falls outside of a reasonable range of the market value.

We prepared the following schedules, which we understand will be included in the Actuarial Section of the CAFR, based on the July 1, 2018 actuarial valuation. All historical information prior to the July 1, 2018 actuarial valuation shown in these schedules is based on information reported by the prior actuary, Milliman.

- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Schedule of Funded Liabilities by Type (formerly referred to as the Solvency Test)
- Analysis of Financial Experience: Change in Unfunded Actuarial Accrued Liability
- Summary of Plan Provisions
- Summary of Current Actuarial Assumptions and Methods
- Membership Information (Active, Deferred Vested, and Retired)

The actuarial assumptions are the same as those used by the prior actuary. The demographic assumptions are based on the recommendations from the July 1, 2012 – June 30, 2015 Experience Study prepared by the prior actuary and approved by the Board of Trustees.

The investment return assumption of 7.50% was recommended by the State Treasurer. In addition, the State Treasurer has recommended that the investment return assumption will be reduced to 7.30% in the July 1, 2019 valuation and 7.00% in the July 1, 2021 valuation.

Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study as of the issuance of this report. Subsequent to the issuance of this valuation, we completed an experience study covering the period from July 1, 2015 – June 30, 2018. On February 6, 2020, the Board approved those assumptions for use in the July 1, 2019 actuarial valuation.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices except as noted. In particular, the assumptions (other than the investment rate of return) and methods (other than the asset method) used for funding purposes meet the requirements of the Actuarial Standards of Practice (ASOP), in particular ASOPs Nos. 4, 27 and 35. As noted above, the asset method does not meet the requirements of ASOP No. 44.

GASB 67 and 68 Reports as of June 30, 2019

The purpose of the GASB 67 and 68 Reports as of June 30, 2019 is to provide accounting and financial reporting information under GASB 67 for TPAF and under GASB 68 for the State and Local employers. These reports are not appropriate for other purposes, including the measurement of funding requirements for TPAF.

For financial reporting purposes, the Total Pension Liability is based on the July 1, 2018 actuarial valuation updated to the measurement date of June 30, 2019. As a result of the Experience Study covering the period July 1, 2015 – June 30, 2018, the assumed rates of termination, retirement, mortality, disability, salary increases and inflation were updated. Additionally, the assumed discount rate used to measure the Total Pension Liability was changed as of the measurement date, increasing from 4.86% as of June 30, 2018 to 5.60% as of June 30, 2019. 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 changes in assumptions.

Please refer to our GASB 67 and 68 Reports as of June 30, 2019 for additional information related to the financial reporting of the Fund. We prepared the following schedules for inclusion in the Financial Section of the CAFR based on the June 30, 2019 GASB 67 and 68 reports:

- Change in Net Pension Liability
- Sensitivity of Net Pension Liability to Changes in Discount Rate
- Schedule of Changes in Net Pension Liability and Related Ratios
- Schedule of Employer Contributions
- Notes to the Schedule of Employer Contributions

The demographic and economic (other than the investment rate of return) actuarial assumptions are based on the recommendations from the July 1, 2015 – June 30, 2018 Experience Study performed by Cheiron and approved by the Board of Trustees on February 6, 2020 with one exception. The calculation of Total Pension Liability as of June 30, 2019 was based on the SOA's Scale MP-2019 mortality improvement scale upon direction from the DPB. While we do not find the use of the SOA's Scale MP-2019 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. The assumptions used in the most recent reports are intended to produce results that, in the aggregate, reasonably approximate the anticipated future experience of the Plan. The next experience analysis is expected to cover the years through 2021.

Based on the State Treasurer's recommendation, the following investment return assumptions are used to determine the Statutory Contribution amounts:

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

In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum as recommended of the State Treasurer. Because the investment return assumptions and the long-term expected rate of return assumption are recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption.

We certify that the reports were performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for disclosure purposes have been prepared in accordance with our understanding of generally accepted accounting principles as promulgated by the GASB.

Disclaimers

In preparing our reports, we relied on information (some oral and some written) supplied by the Division of Pensions and Benefits (DPB). 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.

These reports are for the use of TPAF, DPB and their auditor in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of these reports is not an intended user and is considered a third party.

Cheiron's reports were prepared for TPAF for the purposes described herein and for use by the plan auditor in completing an audit related to matters herein. Other users of these reports are not intended as users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any such party.

These reports and their 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 opinions contained in these reports. These reports do not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Respectfully submitted,



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



Jonathan B. Chipko, FSA, MAAA, EA
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Principal Consulting Actuary



MEMBERSHIP INFORMATION

The data for this valuation was provided by the Division of Pensions and Benefits as of July 1, 2018. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standards of Practice No. 23. The following is a list of data charts contained in this section:

- A-I: Contributing Active Member Data by Tier
- A-4: Non-Contributing Active Member Data by Tier
- A-3: Inactive Member Data by Status
- A-4: Reconciliation of Membership

Table A-1 Contributing Active Member Data by Tier							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	81,416	85,615	-4.9%	Count	10,466	10,688	-2.3%
Average Age	49.5	49.0	0.9%	Average Age	41.0	40.1	2.3%
Average Service	19.4	18.7	3.6%	Average Service	10.04	9.4	10.7%
Average Appropriation Pay	\$87,908	\$ 85,534	2.8%	Average Appropriation Pay	\$ 68,138	\$ 65,400	4.2%
Total Appropriation Payroll	\$ 7,157,147,775	\$ 7,322,957,003	-2.3%	Total Appropriation Payroll	\$ 711,766,029	\$ 698,999,887	1.8%
Tier 3				Tier 4			
Count	5,184	5,340	-2.9%	Count	3,038	3,124	-2.8%
Average Age	39.9	38.9	2.5%	Average Age	38.0	36.9	2.9%
Average Service	8.9	7.9	12.7%	Average Service	7.7	6.7	14.9%
Average Appropriation Pay	\$ 65,799	\$ 63,150	4.2%	Average Appropriation Pay	\$ 64,481	\$ 62,115	3.8%
Total Appropriation Payroll	\$ 341,104,057	\$ 337,222,479	1.2%	Total Appropriation Payroll	\$ 195,893,162	\$194,047,326	1.0%
Tier 5				Total			
Count	41,044	36,221	13.3%	Count	141,128	140,988	0.1%
Average Age	34.6	34.0	1.8%	Average Age	43.9	43.9	0.2%
Average Service	3.6	3.1	15.7%	Average Service	13.5	13.3	1.3%
Average Appropriation Pay	\$ 58,902	\$ 57,502	2.4%	Average Appropriation Pay	\$ 76,693	\$ 75,439	1.7%
Total Appropriation Payroll	\$ 2,417,593,774	\$ 2,082,791,174	16.1%	Total Appropriation Payroll	\$ 10,823,504,797	\$ 10,636,017,869	1.8%

Starting with the 2018 valuation, all records for multiple members, which are active members employed by more than one TPAF-participating employer at the same time, are shown.

MEMBERSHIP INFORMATION, *continued*

Table A-2 Non-Contributing Member Data by Tier							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	7,932	8,035	-1.3%	Count	1,072	1,103	-2.8%
Average Age	50.3	49.7	1.3%	Average Age	41.0	40.2	2.1%
Average Service	12.4	12.0	2.9%	Average Service	6.9	6.2	11.4%
Average Last Reported Pay	\$ 63,060	\$ 61,675	2.2%	Average Last Reported Pay	\$ 57,230	\$ 56,430	1.4%
Total Last Reported Pay	\$ 464,817,285	\$ 458,063,840	1.5%	Total Last Reported Pay	\$ 59,233,360	\$ 59,985,417	-1.3%
Tier 3				Tier 4			
Count	580	578	0.3%	Count	318	325	-2.2%
Average Age	40.6	39.5	2.6%	Average Age	38.2	37.2	2.4%
Average Service	6.1	5.3	16.3%	Average Service	5.7	5.0	15.2%
Average Last Reported Pay	\$ 57,518	\$ 54,820	4.9%	Average Last Reported Pay	\$ 60,585	\$ 57,844	4.7%
Total Last Reported Pay	\$ 32,957,741	\$ 31,192,706	5.7%	Total Last Reported Pay	\$ 19,144,971	\$ 18,625,806	2.8%
Tier 5				Total			
Count	4,466	3,829	16.6%	Count	14,368	13,870	3.6%
Average Age	36.2	35.9	0.9%	Average Age	44.6	44.4	0.4%
Average Service	2.6	2.2	17.6%	Average Service	8.5	8.4	1.4%
Average Last Reported Pay	\$ 55,176	\$ 55,898	-1.3%	Average Last Reported Pay	\$ 59,805	\$ 59,245	0.9%
Total Last Reported Pay	\$ 241,558,869	\$ 201,848,079	19.7%	Total Last Reported Pay	\$ 817,712,226	\$ 769,715,848	6.2%

Average pay calculations exclude 695 and 878 members with no reported pay information as of July 1, 2018 and July 1, 2017, respectively.

MEMBERSHIP INFORMATION, *continued*

Table A-3 Inactive Member Data by Status			
	July 1, 2018	July 1, 2017	% Change
<u>Retirees</u>			
Count	94,434	92,711	1.9%
Annual Retirement Allowances	\$ 4,011,000,750	\$ 3,914,034,990	2.5%
Average Retirement Allowances	\$ 42,474	\$ 42,218	0.6%
<u>Beneficiaries</u>			
Count	6,628	6,316	4.9%
Annual Retirement Allowances	\$ 176,461,487	\$ 166,622,557	5.9%
Average Retirement Allowances	\$ 26,624	\$ 26,381	0.9%
<u>Disabled</u>			
Count	3,641	3,553	2.5%
Annual Retirement Allowances	\$ 107,984,444	\$ 104,004,628	3.8%
Average Retirement Allowances	\$ 29,658	\$ 29,272	1.3%
<u>In-Pay Total</u>			
Count	104,703	102,580	2.1%
Annual Retirement Allowances	\$ 4,295,446,681	\$ 4,184,662,175	2.6%
Average Retirement Allowances	\$ 41,025	\$ 40,794	0.6%
<u>Deferred Vested Members</u>			
Count	219	206	6.3%
Annual Retirement Allowances	\$ 3,570,312	\$ 3,305,904	8.0%
Average Retirement Allowances	\$ 16,303	\$ 16,048	1.6%

QDRO benefits included with member records for valuation purposes.

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
TEACHERS' PENSION AND ANNUITY FUND

MEMBERSHIP INFORMATION, *continued*

Table A-4 Reconciliation of Plan Membership from July 1, 2017 to July 1, 2018							
	Contributing Actives	Non-Contributing Actives	Deferred Vested	Retired	Disabled	Beneficiaries	Total
1. July 1, 2017	140,988	13,870	206	92,711	3,553	6,316	257,644
2. Additions							
a. New entrants	7,085	300					7,385
b. New dependents						9	9
c. Data corrections	32			11	0	114	157
d. Total	7,117	300	0	11	0	123	7,551
3. Reductions							
a. Withdrawal/Certain Period End	(669)	(2,085)					(2,754)
b. Died without beneficiary				(1,605)	(80)	(318)	(2,003)
c. Data corrections		(1)	(9)			(10)	(20)
d. Total	(669)	(2,086)	(9)	(1,605)	(80)	(328)	(4,777)
4. Changes in Status							
a. Contributing Actives	1,789	(1,789)	0				0
b. Non-Contributing Actives	(4,488)	4,488					0
c. Deferred Vested		(100)	100				0
d. Retired	(3,472)	(234)	(78)	3,784			0
e. Disabled	(122)	(77)		(1)	200		0
f. Died with beneficiary	(15)	(4)		(466)	(32)	517	0
g. Total	(6,308)	2,284	22	3,317	168	517	0
5. July 1, 2018	141,128	14,368	219	94,434	3,641	6,628	260,418

ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Investment Rate of Return** 7.50% per annum, compounded annually.
- 2. Administrative Expenses** No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute.
- 3. Interest Crediting Rate on Accumulated Deductions** 7.50% per annum, compounded annually.
- 4. Cost-of-Living Adjustments (COLAs)** No future COLAs are assumed. Previously granted COLAs are included in the data.
- 5. Salary Increases** Salary increases vary by age and time period. Representative salary increase rates are shown below.

Years of Service	Period Ending	
	June 30, 2026	Ultimate Period
0-8	3.80%	4.90%
9-12	4.55	5.45
13	4.30	5.30
14	4.15	4.95
15	3.95	4.55
16	3.40	4.00
17	3.15	3.65
18	2.85	3.45
19	2.70	3.20
20	2.50	3.10
21	2.25	2.75
22	2.00	2.60
23-25	1.90	2.45
26-30	1.70	2.30
31+	1.55	2.00

Salary increases are assumed to occur on October 1.

- 6. 401 (a)(17) Pay Limit** \$275,000 in 2018 increasing 2.30% per annum, compounded annually.
- 7. Social Security Wage Base** \$128,400 in 2018 increasing 3.30% per annum, compounded annually.

ACTUARIAL ASSUMPTIONS AND METHODS, continued

8. Termination

Representative termination rates are as follows:

Less than 10 Years of Service			
Years of Service	Male	Female	
		< Age 40	Age 40+
0	10.23%	9.66%	10.96%
1	7.64	6.80	7.57
2	6.89	6.58	6.85
3	5.12	5.39	5.16
4	3.46	4.76	3.18
5	2.77	4.49	2.75
6	2.09	4.30	2.07
7	1.85	3.98	1.78
8	1.50	3.80	1.38
9	1.25	3.23	1.39

10-14 Years of Service		15-19 Years of Service			20-24 Years of Service	
Age	Male	Female	Male	Female	Male	Female
30	1.12%	3.07%	0.78%	2.77%	0.45%	0.74%
35	1.05	2.50	0.70	1.87	0.45	0.74
40	0.99	1.56	0.63	0.94	0.44	0.57
45	1.05	0.99	0.61	0.61	0.41	0.36
50	1.10	0.96	0.72	0.64	0.44	0.37
55	1.38	1.41	1.04	0.94	0.67	0.62

No termination is assumed after attainment of retirement eligibility.

Age	Male	Female
Under 50	60%	75%
50-54	70	75
55 or Older	80	85

All other members are assumed to receive a refund of Accumulated Deductions with applicable interest.

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

9. Disability

Representative disability rates are as follows:

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

Accidental disability rates apply at all ages.

Ordinary disability rates apply upon attainment of 10 years of service until the attainment of unreduced retirement eligibility with at least 25 years of service.

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.

10. Mortality

Pre-Retirement Mortality: RP-2006 Employee White Collar Mortality Tables, set back 3 years for males and 5 years for females, projected on a generational basis from a base year of 2006 using a 60-year average of improvement rates based on Social Security data from 1953 to 2013.

All pre-retirement deaths are assumed to be ordinary deaths.

Post-Retirement Healthy Mortality: RP-2006 Healthy Annuitant White Collar Mortal Tables, with adjustments as described in the latest experience study, projected on a generational basis from a base year of 2006 using a 60-year average of improvement rates based on Social Security data from 1953 to 2013.

Disabled Mortality: RP-2006 Disabled Retiree Mortality Tables with rates adjusted by 90%. No mortality improvement is assumed for disabled retiree mortality.

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

11. Retirement

Representative retirement rates for Tier I members are as follows:

Less than Age 55 or Less than 25 Years of Service			Attainment of Age 55 and 25 Years of Service			
			First Eligible		After First Eligible	
Age	Male	Female	Male	Female	Male	Female
<48	1.20%	1.20%	N/A	N/A	N/A	N/A
48	1.45	1.45	N/A	N/A	N/A	N/A
49	1.65	1.65	N/A	N/A	N/A	N/A
50	1.95	1.95	N/A	N/A	N/A	N/A
51	2.35	2.35	N/A	N/A	N/A	N/A
52	2.75	2.75	N/A	N/A	N/A	N/A
53	3.75	3.75	N/A	N/A	N/A	N/A
54	4.75	4.75	N/A	N/A	N/A	N/A
55	N/A	N/A	15.00%	17.00%	N/A	N/A
56	N/A	N/A	22.00	19.00	12.00%	13.00%
57	N/A	N/A	22.00	19.00	13.00	14.00
58	N/A	N/A	28.00	27.00	14.00	15.00
59	N/A	N/A	28.00	27.00	16.00	17.00
60	7.00	5.00	35.00	33.00	20.00	21.00
61	6.50	5.00	32.00	38.00	22.50	23.00
62	8.00	7.50	45.00	50.00	35.00	32.00
63	9.00	7.50	45.00	50.00	30.00	29.00
64	9.00	7.50	45.00	50.00	30.00	29.00
65	14.00	12.00	50.00	55.00	33.00	33.00
66-70	18.00	15.00	55.00	55.00	30.00	30.00
71-74	19.00	16.00	55.00	55.00	27.00	30.00
75	100.00	100.00	100.00	100.00	100.00	100.00

ACTUARIAL ASSUMPTIONS AND METHODS, continued

Representative retirement rates for Tier 2 members are as follows:

Less than Age 60 or Less than 25 Years of Service			Attainment of Age 60 and 25 Years of Service			
			First Eligible		After First Eligible	
Age	Male	Female	Male	Female	Male	Female
<48	0.60%	0.60%	N/A	N/A	N/A	N/A
48	0.75	0.75	N/A	N/A	N/A	N/A
49	0.85	0.85	N/A	N/A	N/A	N/A
50	1.00	1.00	N/A	N/A	N/A	N/A
51	1.20	1.20	N/A	N/A	N/A	N/A
52	1.40	1.40	N/A	N/A	N/A	N/A
53	1.90	1.90	N/A	N/A	N/A	N/A
54	2.40	2.40	N/A	N/A	N/A	N/A
55	11.50	11.50	N/A	N/A	N/A	N/A
56	12.00	12.00	N/A	N/A	N/A	N/A
57	12.50	12.50	N/A	N/A	N/A	N/A
58	13.50	13.50	N/A	N/A	N/A	N/A
59	14.00	14.00	N/A	N/A	N/A	N/A
60	7.00	5.00	32.00%	31.00%	N/A	N/A
61	6.50	5.00	32.00	38.00	22.50%	23.00%
62	8.00	7.50	45.00	50.00	35.00	32.00
63	9.00	7.50	45.00	50.00	30.00	29.00
64	9.00	7.50	45.00	50.00	30.00	29.00
65	14.00	12.00	50.00	55.00	33.00	33.00
66-70	18.00	15.00	55.00	55.00	30.00	30.00
71-74	19.00	16.00	55.00	55.00	27.00	30.00
75	100.00	100.00	100.00	100.00	100.00	100.00

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

Representative retirement rates for Tier 3 and 4 members are as follows:

Less than Age 62 or Less than 25 Years of Service			Attainment of Age 62 and 25 Years of Service			
			First Eligible		After First Eligible	
Age	Male	Female	Male	Female	Male	Female
<48	0.55%	0.55%	N/A	N/A	N/A	N/A
48	0.70	0.70	N/A	N/A	N/A	N/A
49	0.75	0.75	N/A	N/A	N/A	N/A
50	0.90	0.90	N/A	N/A	N/A	N/A
51	1.10	1.10	N/A	N/A	N/A	N/A
52	1.25	1.25	N/A	N/A	N/A	N/A
53	1.70	1.70	N/A	N/A	N/A	N/A
54	2.15	2.15	N/A	N/A	N/A	N/A
55	10.50	10.50	N/A	N/A	N/A	N/A
56	10.75	10.75	N/A	N/A	N/A	N/A
57	11.00	11.00	N/A	N/A	N/A	N/A
58	12.00	12.00	N/A	N/A	N/A	N/A
59	12.50	12.50	N/A	N/A	N/A	N/A
60	20.00	20.00	N/A	N/A	N/A	N/A
61	22.00	22.00	N/A	N/A	N/A	N/A
62	30.00	24.00	50.00%	46.00%	N/A	N/A
63	9.00	7.50	45.00	50.00	30.00%	29.00%
64	9.00	7.50	45.00	50.00	30.00	29.00
65	14.00	12.00	50.00	55.00	33.00	33.00
66-70	18.00	15.00	55.00	55.00	30.00	30.00
71-74	19.00	16.00	55.00	55.00	27.00	30.00
75	100.00	100.00	100.00	100.00	100.00	100.00

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

Representative retirement rates for Tier 5 members are as follows:

Less than Age 65 or Less than 30 Years of Service			Attainment of Age 65 and 30 Years of Service			
			First Eligible		After First Eligible	
Age	Male	Female	Male	Female	Male	Female
<48	0.30%	0.30%	N/A	N/A	N/A	N/A
48	0.35	0.35	N/A	N/A	N/A	N/A
49	0.40	0.40	N/A	N/A	N/A	N/A
50	0.45	0.45	N/A	N/A	N/A	N/A
51	0.55	0.55	N/A	N/A	N/A	N/A
52	0.65	0.65	N/A	N/A	N/A	N/A
53	0.85	0.85	N/A	N/A	N/A	N/A
54	1.10	1.10	N/A	N/A	N/A	N/A
55	5.00	5.00	N/A	N/A	N/A	N/A
56	6.00	6.00	N/A	N/A	N/A	N/A
57	7.00	7.00	N/A	N/A	N/A	N/A
58	8.00	8.00	N/A	N/A	N/A	N/A
59	9.00	9.00	N/A	N/A	N/A	N/A
60	15.00	15.00	N/A	N/A	N/A	N/A
61	16.00	16.00	N/A	N/A	N/A	N/A
62	36.00	32.00	N/A	N/A	N/A	N/A
63	28.00	28.00	N/A	N/A	N/A	N/A
64	28.00	28.00	N/A	N/A	N/A	N/A
65	40.00	40.00	50.00%	55.00%	N/A	N/A
66-70	18.00	15.00	55.00	55.00	30.00%	30.00%
71-74	19.00	16.00	55.00	55.00	27.00	30.00
75	100.00	100.00	100.00	100.00	100.00	100.00

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

- 12. 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.
- 13. Form of Payment** Current actives are assumed to elect the Maximum Option.
- 14. Data** Information provided by the prior actuary was relied upon for the purposes of setting the status of and valuing non-contributing records. For non-contributing terminated members, a deferred retirement benefit is estimated, when applicable, based on the reported ASF and last known salary. For non-contributing members with incomplete information, the benefit is based on the ASF.
- For current beneficiaries with incomplete information, reasonable assumptions were made based on information available in prior years.
- Inactive participants receiving benefits according to the 2017 data but omitted from the 2018 data are assumed to have died without a beneficiary.
- 15. Rationale for Assumptions** The July 1, 2018 valuation results are based on the same actuarial assumptions as used in the July 1, 2017 valuation produced by the prior actuary. The demographic assumptions were based on the July 1, 2012 - June 30, 2015, Experience Study prepared by the prior actuary, which were subsequently approved by the Board of Trustees. The investment return assumption is based on the State Treasurer's recommendation. Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study.
- 16. Changes in Assumptions Since Last Valuation** None.

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

B. Projection Assumptions

- 1. Investment Rate of Return**
 - 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.
 - Accumulated deductions with interest are projected at the ultimate investment rate of return of 7.00%.

- 2. Appropriation Percentages** The State is assumed to appropriate 70% of the Statutory contribution in FYE 2020, and to increase the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023.

- 3. Administrative Expenses** 0.30% of expected pension benefit payments for the year.

- 4. New Entrants**
 - Contributing active population assumed to remain at 2018 levels.
 - Assumed to join mid-year.
 - Age/ sex distributions based on the last three years of new hires.
 - Salary based on salary for most recent hires reported on 2018 data.
 - New entrant salary assumed to increase with the 31 + years of service salary increase rates

- 5. Demographic Assumptions** Same as those used for valuation purposes.

C. Actuarial Methods

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

1. Actuarial Cost Methods

The actuarial cost method for funding calculations is the Projected Unit Credit Cost Method. Non-contributory active members only use the 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 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).

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

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

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

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

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 Fund 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.

Chapter 98, P.L. 2017, the Lottery Enterprise Contribution Act, allows the TPAF to receive 77.78% 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 TPAF, 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.

Early Retirement Incentive Programs

State and Local employers which elected to participate in various early retirement incentive programs authorized by NJ Statute make contributions to cover the cost of these programs over amortization periods elected by the employer to the extent permitted by NJ Statute.

Chapter 133, P.L. 2001

Chapter 133, P.L. 2001 increased the accrual rate from 1/60 to 1/55. In addition, it lowered the age required for a veteran benefit equal to 1/55 of highest 12-month Compensation for each Year of Service from 60 to 55.

Chapter 133, P.L. 2001 established the Benefit Enhancement Fund (BEF) to fund the additional annual employer normal contribution due to the Statute's increased benefits. (Chapter 353, P.L. 2001 extended this coverage to this Statute's additional annual employer normal contribution.) If the assets in the BEF are insufficient to cover the normal contribution for the increased benefits for a valuation period, the State will pay such amount. As of July 1, 2018, there are no assets in the BEF.

ACTUARIAL ASSUMPTIONS AND METHODS, continued

4. Changes since the last valuation

Based on clarification from the Division of Pensions and Benefits, the actuarial liability is based solely on the formula benefit without any comparison to the value of the estimated member annuity.

This summary of Plan provisions provides an overview of the major provisions of the TPAF used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 18A, Chapter 66, 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.

SUMMARY OF PLAN PROVISIONS

1. Eligibility for Membership

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

- 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 members must be scheduled to work at least 32 hours per week, Tier 3 members must have an annual salary of \$7,500 (indexed for inflation) and other members must have an annual salary of \$500.

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.

SUMMARY OF PLAN PROVISIONS, continued

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 1/7 of 1% each July thereafter until it attains an ultimate rate of 7.5% on July 1, 2018.

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 will provide a total allowance of:

- (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 will provide a total allowance of:

- (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 direct from active service.

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

Veterans may receive a Service Retirement benefit if greater.

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

Benefit is either:

SUMMARY OF PLAN PROVISIONS, *continued*

- (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 I 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 will provide a total allowance of 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.

- (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 Fund and is not considered for valuation purposes.

SUMMARY OF PLAN PROVISIONS, *continued*

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 will provide a total allowance of:

- 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 will provide a total allowance of 72.7% of the 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 Fund and is not considered for valuation purposes. Both Member and employer contributions to the Fund 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 Fund.

10. 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 I: 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.

11. 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.

12. Changes in Plan Provisions Since Last Valuation

None.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), we have prepared the following schedules for the Fund. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

Table D-1
Schedule of Retirees and Beneficiaries
Added to and Removed from Rolls

State								
Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ¹	% Increase in Average Annual Allowance ¹
	Number	Annual Allowance	Number ¹	Annual Allowance	Number ¹	Annual Allowance		
2018	4,634	\$192,293,599	2,511	\$82,862,457	104,703	\$4,295,446,681	\$ 41,025	1.50%
2017	4,792	N/A	2,510	N/A	103,528	4,184,662,175	40,421	0.61%
2016	5,460	N/A	2,444	N/A	101,246	4,067,574,984	40,175	0.75%
2015	5,789	N/A	2,381	N/A	98,230	3,916,956,144	39,875	0.81%
2014	5,284	N/A	2,191	N/A	94,822	3,750,680,254	39,555	1.04%
2013	4,614	N/A	2,193	N/A	91,729	3,591,007,462	39,148	0.96%

¹Beginning with the 2018 valuation, QDRO records excluded from headcounts and QDRO benefits, included with member records. This change resulted in 948 fewer records on the rolls as of July 1, 2018.

Table D-2
Schedule of Active Member Valuation Data

State					
Valuation Date JULY 1,	Number of Contributing Active Members ¹	Annual Compensation ¹	Annual Average Compensation	% Increase in Average Annual Allowance ¹	Number of Participating Employers ²
2018	141,128	\$10,823,504,797	\$ 76,693	1.84%	678
2017	143,092	10,775,872,458	75,307	1.59%	N/A
2016	142,845	10,588,493,706	74,126	1.02%	N/A
2015	142,454	10,453,176,648	73,379	0.82%	N/A
2014	141,874	10,325,972,743	72,783	2.83%	N/A
2013	151,318	10,710,424,746	70,781	1.36%	N/A

¹ Prior to July 1, 2018, includes non-contributing active members reported on active data with compensation. Prior to July 1, 2014, includes all non-contributing active members.

² Number of locations reporting contributing active members. For GASB reporting purposes, the State may be considered the participating employer for multiple locations.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-3
Schedule of Funding Progress

Total						
Valuation Date JULY 1,	Actuarial Value of Assets¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$26,308,754,955	\$60,971,919,315	\$34,663,164,360	43.15%	\$10,823,504,797	320.26%
2017	26,549,410,215	59,954,548,700	33,405,138,485	44.28%	10,775,872,458	310.00%
2016	27,169,758,348	57,865,971,163	30,696,212,815	46.95%	10,588,493,706	289.90%
2015	28,301,404,184	55,359,377,071	27,057,972,887	51.12%	10,453,176,648	258.85%
2014	29,044,777,902	53,749,976,641	24,705,198,739	54.04%	10,325,972,743	239.25%
2013	30,469,857,304	52,366,655,055	21,896,797,751	58.19%	10,710,424,746	204.44%

¹Includes receivable amounts. Excludes Special Asset Value

Table D-4
Schedule of Funded Liabilities by Type (Solvency Test)

Valuation Date JULY 1,	Accrued Liabilities For			Actuarial Value of Assets¹	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vesteds (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer (3)		(1)	(2)	(3)
2018	\$13,283,767,530	\$40,171,903,581	\$7,516,248,204	\$26,308,754,955	100.00%	32.42%	0.00%
2017	12,466,587,057	39,224,970,512	8,262,991,131	26,549,410,215	100.00%	35.90%	0.00%
2016	11,709,150,079	38,027,977,392	8,128,843,692	27,169,758,348	100.00%	40.66%	0.00%
2015	11,129,745,608	36,128,130,029	8,101,501,434	28,301,404,184	100.00%	47.53%	0.00%
2014	10,624,778,098	34,587,834,921	8,537,363,622	29,044,777,902	100.00%	53.26%	0.00%
2013	10,079,938,128	33,312,970,535	8,973,746,392	30,469,857,304	100.00%	61.21%	0.00%

¹Includes receivable amounts. Excludes Special Asset Value.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-5
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Valuation Date JULY 1,	Actuarial Value of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan/Policy Changes	Contributions¹	Changes in Unfunded Actuarial Accrued Liability
2018	\$367,568,407	\$140,440,865	\$(286,796,037)	\$0	\$1,036,812,640	\$1,258,025,875
2017	513,526,758	126,550,240	822,620,195	0	1,246,228,477	2,708,925,670
2016	859,296,816	173,672,067	1,144,195,634	0	1,461,075,411	3,638,239,928
2015	495,166,374	398,659,572	0	0	1,458,948,202	2,352,774,148
2014	350,424,947	114,878,752	0	0	2,343,097,289	2,808,400,988
2013	902,561,234	22,121,971	(404,297,149)	0	1,050,981,941	1,571,367,997

¹Change due to contributions (greater)/less than normal cost, plus interest on the Unfunded Actuarial Accrued Liability.



Classic Values, Innovative Advice

September 29, 2020

The Board of Trustees

The Police and Firemen's Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

This is the Actuary's Certification Letter for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the Police and Firemen's Retirement System of New Jersey (PFRS or System) as of June 30, 2019. This letter includes references to three documents produced by Cheiron for the System: the Actuarial Valuation Report as of July 1, 2018 (transmitted April 25, 2019) and the GASB 67 and 68 Reports as of June 30, 2019 (transmitted March 2020).

Actuarial Valuation Report as of July 1, 2018

The purpose of the annual Actuarial Valuation Report as of July 1, 2018 is to determine the actuarial funding status of PFRS on that date and to calculate the Statutory Contribution amounts for the State and Local employers for the Fiscal Year Ending 2020. The prior review was conducted as of July 1, 2017, and included the Statutory Contribution amounts for the Fiscal Year Ending 2019.

Actuarial funding is based on the Projected Unit Credit Cost Method. The Statutory Contribution amounts contain two components: the employer normal cost (cost of benefits for the upcoming year) and an amortization for the unfunded actuarial liability (UAL). The funding methodology prescribed by the N.J. State Statutes does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption and are unable to evaluate whether the investment rate of return assumption includes an appropriate adjustment for administrative expenses.

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

- The amortization amount is calculated to amortize the UAL over an open 30 year period as a level dollar amount.
- Beginning with the July 1, 2018 actuarial valuation, the amortization amount will be calculated to amortize the UAL over a closed 30 year period (i.e. for each subsequent actuarial valuation, the amortization period shall decrease by one year) as a level dollar amount.
- Beginning with the July 1, 2028 actuarial valuation, when the amortization period reaches 20 years, an increase or decrease in the UAL as a result of actuarial losses and gains will increase or decrease, respectively, the amortization period for the UAL, except that the amortization period will not exceed 20 years.

Certain portions of the normal cost and UAL attributable to Local employers are payable by the State and/or over different periods in accordance with N.J. 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 Statutory Contribution, any existing UAL may not be fully amortized in the future.

Member contributions are set in the N.J. State Statutes.

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

For actuarial valuation purposes, assets are valued at Actuarial Value as prescribed in the N.J. State Statutes. Under this method, the assets used to determine the Statutory Contribution amounts take into account market value by spreading all investment gains and losses (returns above or below expected returns) over a rolling five year period.

The actuarial value of assets is intended to dampen the volatility in the market value of assets, resulting in a smoother pattern of contributions. Actuarial Standards of Practice (ASOP) No. 44 states that the asset valuation method should produce an actuarial value of assets that falls within a reasonable range of market value, recognizes the difference between the market value and actuarial value of assets within a reasonably short period of time, and is likely to produce actuarial value of assets that are sometimes greater than and sometimes less than the corresponding market values. The asset method required under the N.J. State Statutes does not meet the requirements of ASOP No. 44 because this method has produced actuarial value of assets which have consistently been greater than the market value of assets and recognizes investment losses slowly over time. Additionally, the method may produce an actuarial value of assets that falls outside of a reasonable range of the market value.

We prepared the following schedules, which we understand will be included in the Actuarial Section of the CAFR, based on the July 1, 2018 actuarial valuation. All historical information prior to the July 1, 2018 actuarial valuation shown in these schedules is based on information reported by the prior actuary, Buck Global, LLC.

- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Schedule of Funded Liabilities by Type (formerly referred to as the Solvency Test)
- Analysis of Financial Experience: Change in Unfunded Actuarial Accrued Liability
- Summary of Plan Provisions
- Summary of Current Actuarial Assumptions and Methods
- Membership Information (Active, Deferred Vested, and Retired)

The actuarial assumptions are the same as those used by the prior actuary. The demographic assumptions are based on the recommendations from the July 1, 2010 – June 30, 2013 Experience Study prepared by the prior actuary and approved by the Board of Trustees on February 9, 2015.

The investment return assumption of 7.50%, the annual salary increases that are 50 basis points lower than the rates shown in the July 1, 2011 – June 30, 2014 Experience Study, and a select period for annual salary increases through the fiscal year ending 2026 were recommended by the State Treasurer. In addition, the State Treasurer has recommended that the investment return assumption will be reduced to 7.30% in the July 1, 2019 valuation and 7.00% in the July 1, 2021 valuation.

Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study as of the issuance of this report. Subsequent to the issuance of this valuation, we completed an experience study covering the period from July 1, 2013 – June 30, 2018. On January 13, 2020, the Board approved those assumptions for use in the July 1, 2019 actuarial valuation.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices except as noted. In particular, the assumptions (other than the investment rate of return) and methods (other than the asset method) used for funding purposes meet the requirements of the Actuarial Standards of Practice (ASOP), in particular ASOPs Nos. 4, 27 and 35. As noted above, the asset method does not meet the requirements of ASOP No. 44.

GASB 67 and 68 Reports as of June 30, 2019

The purpose of the GASB 67 and 68 Reports as of June 30, 2019 is to provide accounting and financial reporting information under GASB 67 for PFRS and under GASB 68 for the State and Local employers. These reports are not appropriate for other purposes, including the measurement of funding requirements for PFRS.

For financial reporting purposes, the Total Pension Liability is based on the July 1, 2018 actuarial valuation updated to the measurement date of June 30, 2019. As a result of the Experience Study covering the period July 1, 2013 – June 30, 2018, the assumed rates of termination, retirement, mortality, disability, salary increases and inflation were updated. Additionally, the assumed discount rate used to measure the Total Pension Liability was changed as of the measurement date, increasing from 6.51% as of June 30, 2018 to 6.85% as of June 30, 2019. 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 changes in assumptions.

Please refer to our GASB 67 and 68 Reports as of June 30, 2019 for additional information related to the financial reporting of the System. We prepared the following schedules for inclusion in the Financial Section of the CAFR based on the June 30, 2019 GASB 67 and 68 reports:

- Change in Net Pension Liability
- Sensitivity of Net Pension Liability to Changes in Discount Rate
- Schedule of Changes in Net Pension Liability and Related Ratios
- Schedule of Employer Contributions
- Notes to the Schedule of Employer Contributions

The demographic and economic (other than the investment rate of return) actuarial assumptions are based on the recommendations from the July 1, 2013 – June 30, 2018 Experience Study performed by Cheiron and approved by the Board of Trustees on January 13, 2020 with one exception. The calculation of Total Pension Liability as of June 30, 2019 was based on the SOA's Scale MP-2019 mortality improvement scale upon direction from the DPB. While we do not find the use of the SOA's Scale MP-2019 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. The assumptions used in the most recent reports are intended to produce results that, in the aggregate, reasonably approximate the anticipated future experience of the Plan. The next experience analysis is expected to cover the years through 2021.

Based on the State Treasurer's recommendation, the following investment return assumptions are used to determine the Statutory Contribution amounts:

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

In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum as recommended of the State Treasurer. Because the investment return assumptions and the long-term expected rate of return assumption are recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption.

We certify that the reports were performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for disclosure purposes have been prepared in accordance with our understanding of generally accepted accounting principles as promulgated by the GASB.

Disclaimers

In preparing our reports, we relied on information (some oral and some written) supplied by the Division of Pensions and Benefits (DPB). 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.

These reports are for the use of PFRS, DPB and their auditor in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of these reports is not an intended user and is considered a third party.

Cheiron's reports were prepared for PFRS for the purposes described herein and for use by the plan auditor in completing an audit related to matters herein. Other users of these reports are not intended as users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any such party.

These reports and their 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 opinions contained in these reports. These reports do not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Respectfully submitted,



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



Jonathan B. Chipko, FSA, MAAA, EA
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Principal Consulting Actuary



MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2018. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data tables contained in this section:

- A-1 to A-3: Contributing Active Member Data by Tier
- A-4 to A-6: Non-Contributing Active Member Data by Tier
- A-7: Inactive Member Data by Status
- A-8: Reconciliation of Plan Membership

Table A-1 Contributing Active Member Data by Tier State							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	4,327	4,485	-3.5%	Count	232	231	0.4%
Average Age	44.31	43.54	1.8%	Average Age	34.74	33.79	2.8%
Average Service	17.05	16.26	4.9%	Average Service	7.44	6.43	15.7%
Total Annual Salary	\$ 356,943,257	\$ 370,160,432	-3.6%	Total Annual Salary	\$ 14,911,997	\$ 14,900,184	0.1%
Average Salary	\$ 82,492	\$ 82,533	0.0%	Average Salary	\$ 64,276	\$ 64,503	-0.4%
Tier 3				Total			
Count	2,248	2,014	11.6%	Count	6,807	6,730	1.1%
Average Age	29.86	29.25	2.1%	Average Age	39.21	38.93	0.7%
Average Service	3.12	2.65	17.7%	Average Service	12.12	11.85	2.3%
Total Annual Salary	\$ 108,086,260	\$ 96,630,985	11.9%	Total Annual Salary	\$ 479,941,514	\$ 481,691,601	-0.4%
Average Salary	\$ 48,081	\$ 47,980	0.2%	Average Salary	\$ 70,507	\$ 71,574	-1.5%

MEMBERSHIP INFORMATION, *continued*

Table A-2							
Contributing Active Member Data by Tier							
Local Employers							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	23,484	24,830	-5.4%	Count	504	503	0.2%
Average Age	44.33	43.71	1.4%	Average Age	34.10	33.18	2.8%
Average Service	17.95	17.35	3.5%	Average Service	7.51	6.50	15.5%
Total Annual Salary	\$2,722,102,4227	\$2,800,300,011	-2.8%	Total Annual Salary	\$44,376,652	\$40,829,651	8.7%
Average Salary	\$115,913	\$112,779	2.8%	Average Salary	\$88,049	\$81,172	8.5%
Tier 3				Total			
Count	10,025	8,077	24.1%	Count	34,013	33,410	1.8%
Average Age	30.40	30.15	0.8%	Average Age	40.07	40.27	-0.5%
Average Service	3.28	2.86	14.7%	Average Service	13.47	13.68	-1.6%
Total Annual Salary	\$624,298,119	\$480,527,066	29.9%	Total Annual Salary	\$3,390,777,193	\$3,321,656,728	2.1%
Average Salary	\$62,274	\$59,493	4.7%	Average Salary	\$99,691	\$99,421	0.3%

Table A-3							
Contributing Active Member Data by Tier							
Total							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	27,811	29,315	-5.1%	Count	736	734	0.3%
Average Age	44.33	43.69	1.5%	Average Age	34.30	33.37	2.8%
Average Service	17.81	17.19	3.6%	Average Service	7.49	6.48	15.6%
Total Annual Salary	\$3,079,045,679	\$3,170,460,443	-2.9%	Total Annual Salary	\$59,288,649	\$55,729,835	6.4%
Average Salary	\$110,713	\$108,151	2.4%	Average Salary	\$80,555	\$75,926	6.1%
Tier 3				Total			
Count	12,273	10,091	21.6%	Count	40,820	40,140	1.7%
Average Age	30.30	29.97	1.1%	Average Age	39.93	40.05	-0.3%
Average Service	3.25	2.82	15.3%	Average Service	13.25	13.38	-1.0%
Total Annual Salary	\$732,384,379	\$577,158,051	26.9%	Total Annual Salary	\$3,870,718,707	\$3,803,348,329	1.8%
Average Salary	\$59,674	\$57,195	4.3%	Average Salary	\$94,824	\$94,752	0.1%

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
POLICE AND FIREMEN'S RETIREMENT SYSTEM

MEMBERSHIP INFORMATION, *continued*

Table A-4							
Non-Contributing Active Member Data by Tier							
State							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	234	251	-6.8%	Count	7	8	-12.5%
Average Age	48.21	47.21	2.1%	Average Age	33.00	33.69	-2.0%
Average Service	20.22	19.14	5.6%	Average Service	7.55	6.44	17.3%
Total Last Reported Pay	\$ 16,692,846	\$ 18,010,395	-7.3%	Total Last Reported Pay	\$ 452,669	\$ 514,581	-12.0%
Average Last Reported Pay	\$ 71,337	\$ 71,755	-0.6%	Average Last Reported Pay	\$ 64,667	\$ 64,323	0.5%
Tier 3				Total			
Count	121	83	45.8%	Count	362	342	5.8%
Average Age	30.64	29.15	5.1%	Average Age	42.04	42.51	-1.1%
Average Service	3.36	2.83	18.6%	Average Service	14.34	14.89	-3.7%
Total Last Reported Pay	\$ 5,463,160	\$ 3,642,428	50.0%	Total Last Reported Pay	\$ 22,608,675	\$ 22,167,404	2.0%
Average Last Reported Pay	\$ 45,150	\$ 43,885	2.9%	Average Last Reported Pay	\$ 62,455	\$ 64,817	-3.6%

Table A-5							
Non-Contributing Active Member Data by Tier							
Local Employers							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	770	758	1.6%	Count	15	18	-16.7%
Average Age	47.39	46.92	1.0%	Average Age	35.33	33.15	6.6%
Average Service	21.02	20.47	2.7%	Average Service	7.44	6.47	15.0%
Total Annual Salary	\$ 66,403,425	\$ 62,856,032	5.6%	Total Annual Salary	\$ 1,128,035	\$ 1,198,123	-5.8%
Average Salary	\$ 86,238	\$ 82,924	4.0%	Average Salary	\$ 75,202	\$ 66,562	13.0%
Tier 3				Total			
Count	328	261	25.7%	Count	1,113	1,037	7.3%
Average Age	30.15	29.56	2.0%	Average Age	42.15	42.31	-0.4%
Average Service	3.21	2.67	20.2%	Average Service	15.59	15.75	-1.0%
Total Annual Salary	\$ 16,301,994	\$ 12,035,719	35.4%	Total Annual Salary	\$ 83,833,454	\$ 76,089,874	10.2%
Average Salary	\$ 49,701	\$ 46,114	7.8%	Average Salary	\$ 75,322	\$ 73,375	2.7%

MEMBERSHIP INFORMATION, *continued*

Table A-6 Non-Contributing Active Member Data by Tier Total							
	July 1, 2018	July 1, 2017	% Change		July 1, 2018	July 1, 2017	% Change
Tier 1				Tier 2			
Count	1,004	1,009	-0.5%	Count	22	26	-15.4%
Average Age	47.58	46.99	1.3%	Average Age	34.59	33.32	3.8%
Average Service	20.83	20.14	3.4%	Average Service	7.48	6.46	15.7%
Total Last Reported Pay	\$ 83,096,271	\$ 80,866,427	2.8%	Total Last Reported Pay	\$ 1,580,704	\$ 1,712,704	-7.7%
Average Last Reported Pay	\$ 82,765	\$ 80,145	3.3%	Average Last Reported Pay	\$ 71,850	\$ 65,873	9.1%
Tier 3				Total			
Count	449	344	30.5%	Count	1,475	1,379	7.0%
Average Age	30.28	29.46	2.8%	Average Age	42.12	42.36	-0.6%
Average Service	3.25	2.71	20.0%	Average Service	15.28	15.53	-1.6%
Total Last Reported Pay	\$ 21,765,154	\$ 15,678,147	38.8%	Total Last Reported Pay	\$ 106,442,129	\$ 98,257,278	8.3%
Average Last Reported Pay	\$ 48,475	\$ 45,576	6.4%	Average Last Reported Pay	\$ 72,164	\$ 71,253	1.3%

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
POLICE AND FIREMEN'S RETIREMENT SYSTEM

MEMBERSHIP INFORMATION, *continued*

Table A-7 Inactive Member Data by Status						
	July 1, 2018			July 1, 2017		
	State	Local Employers	Total	State	Local Employers	Total
Retirees						
Count	4,733	26,494	31,227	4,640	26,018	30,658
Annual Retirement Allowances	\$ 249,573,316	\$ 1,756,246,563	\$ 2,005,819,879	\$ 243,779,017	\$ 1,692,897,884	\$ 1,936,676,901
Average Retirement Allowances	\$ 52,730	\$ 66,288	\$ 64,234	\$ 52,539	\$ 65,066	\$ 63,170
Beneficiaries						
Count	847	6,589	7,436	818	6,556	7,374
Annual Retirement Allowances	\$ 26,921,871	\$ 217,121,737	\$ 244,043,608	\$ 25,489,718	\$ 210,306,296	\$ 235,796,014
Average Retirement Allowances	\$ 31,785	\$ 32,952	\$ 32,819	\$ 31,161	\$ 32,078	\$ 31,977
Ordinary Disability						
Count	728	2,212	2,940	735	2,203	2,938
Annual Retirement Allowances	\$ 20,150,423	\$ 66,327,842	\$ 86,478,265	\$ 20,328,284	\$ 65,327,095	\$ 85,655,379
Average Retirement Allowances	\$ 27,679	\$ 29,985	\$ 29,414	\$ 27,658	\$ 29,654	\$ 29,154
Accidental Disability						
Count	365	2,599	2,964	355	2,546	2,901
Annual Retirement Allowances	\$ 16,631,546	\$ 137,315,370	\$ 153,946,916	\$ 16,011,093	\$ 131,854,181	\$ 147,865,274
Average Retirement Allowances	\$ 45,566	\$ 52,834	\$ 51,939	\$ 45,102	\$ 51,789	\$ 50,970
In-Pay Total						
Count	6,673	37,894	44,567	6,548	37,323	43,871
Annual Retirement Allowances	\$ 313,277,156	\$ 2,177,011,512	\$ 2,490,288,668	\$ 305,608,112	\$ 2,100,385,456	\$ 2,405,993,568
Average Retirement Allowances	\$ 46,947	\$ 57,450	\$ 55,877	\$ 46,672	\$ 56,276	\$ 54,842
Deferred Vested Members						
Count	6	36	42	7	34	41
Annual Retirement Allowances	\$ 103,452	\$ 667,188	\$ 770,640	\$ 130,092	\$ 684,360	\$ 814,452
Average Retirement Allowances	\$ 17,242	\$ 18,533	\$ 18,349	\$ 18,585	\$ 20,128	\$ 19,865

QDRO benefits included with member records for valuation purposes.

MEMBERSHIP INFORMATION, *continued*

Table A-8 Reconciliation of Plan Membership from July 1, 2017 to July 1, 2018							
	Contributing Actives	Non-Contributing Actives	Deferred Vested	Retired	Disabled	Beneficiaries	Total
1. July 1, 2017	40,140	1,379	41	30,658	5,839	7,374	85,431
2. Additions							
a. New entrants	2,500	42					2,542
b. New dependents						105	105
c. Data corrections			0	4	4		8
d. Total	<u>2,500</u>	<u>42</u>	<u>0</u>	<u>4</u>	<u>4</u>	<u>105</u>	<u>2,655</u>
3. Reductions							
a. Withdrawals	(131)	(171)					(302)
b. Died without beneficiary				(310)	(68)	(416)	(794)
c. Data corrections		(2)	(2)	(28)	(13)	(41)	(86)
d. Total	<u>(131)</u>	<u>(173)</u>	<u>(2)</u>	<u>(338)</u>	<u>(81)</u>	<u>(457)</u>	<u>(1,182)</u>
4. Changes in Status							
a. Contributing Actives	201	(200)	(1)				0
b. Non-Contributing Actives	(548)	548					0
c. Deferred Vested		(5)	5				0
d. Retired	(1,210)	(37)	(1)	1,248			0
e. Disabled	(112)	(75)		(1)	188		0
f. Died with beneficiary	(20)	(4)		(344)	(46)	414	0
g. Total	<u>(1,689)</u>	<u>227</u>	<u>3</u>	<u>903</u>	<u>142</u>	<u>414</u>	<u>0</u>
5. July 1, 2018	40,820	1,475	42	31,227	5,904	7,436	86,904

QDRO benefits included with member records for valuation purposes.

ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Investment Rate of Return** 7.50% per annum, compounded annually.
- 2. Administrative Expenses** No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute.
- 3. Cost-of-Living Adjustments (COLAs)** No future COLAs are assumed. Previously granted COLAs are included in the data.
- 4. Salary Increases** Salary increases vary by age and time period. Representative salary increase rates are shown below:

Age	Prior to FYE 2026	FYE 2026 and thereafter
25	8.98%	9.98%
30	5.97	6.97
35	4.17	5.17
40	3.33	4.43
45	2.90	3.90
50	2.75	3.75
55	2.60	3.60
60	2.35	3.35
64	2.10	3.10

Salary increases are assumed to occur on July 1.

- 5. 401 (a)(17) Pay Limit** \$275,000 in 2018 increasing 3.00% per annum, compounded annually.
- 6. Social Security Wage Base** \$128,400 in 2018 increasing 4.00% per annum, compounded annually.
- 7. Termination** Representative termination rates are as follows:

Age	Years of Service					
	0-1	2	3	4	5-9	10+
25	6.90%	2.03%	1.18%	0.60%	0.35%	0.00%
30	9.30	2.75	1.76	1.31	0.60	0.24
35	9.80	3.17	1.76	1.57	0.77	0.24
40	13.70	2.25	1.85	1.74	0.67	0.27
45	3.50	2.25	1.85	2.32	1.35	0.28
50	0.00	2.25	1.85	2.00	1.60	0.30
55	0.00	0.00	0.00	0.00	0.00	0.00

Actuarial Assumptions And Methods, continued

No termination is assumed after attainment of retirement eligibility. All members with 10 or more years of service at termination are assumed to elect a deferred retirement benefit.

8. Disability

Representative disability rates are as follows:

Age	Ordinary Disability	Accidental Disability
25	0.045%	0.029%
30	0.147	0.278
35	0.265	0.393
40	0.362	0.423
45	0.394	0.396
50	0.449	0.179
55	0.554	0.161
60	1.024	0.161
64	1.680	0.161
65+	0.000	0.000

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

Members retiring under the ordinary disability decrement with less than four years of service are assumed to receive a return of Aggregate Contributions.

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.

Actuarial Assumptions And Methods, continued

9. Mortality Pre-Retirement Accidental Mortality: Custom table with representative rates as follows.

Age	Rates
25	0.006%
30	0.006
35	0.008
40	0.008
45	0.009
50	0.009
55	0.014
60	0.013
64	0.008
65+	0.000

No mortality improvement is assumed for pre-retirement accidental mortality.

Pre-Retirement Ordinary Mortality: RP-2000 Combined Healthy Mortality Tables projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB and the Content Modified 2014 Projection Scale thereafter.

Post-Retirement Healthy Female Retiree and Beneficiary Mortality: RP-2000 Combined Healthy Mortality Tables projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB and the Content Modified 2014 Projection Scale thereafter.

Post-Retirement Healthy Male Retiree Mortality: RP-2000 Combined Healthy Mortality Tables projected on a generational basis using Projection Scale AA from the base year of 2012 to 2013 and the Content Modified 2014 Projection Scale thereafter.

Disabled Retiree Mortality: Custom table with representative rates as follows.

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

No mortality improvement is assumed for disabled retiree mortality.

Actuarial Assumptions And Methods, *continued*

10. Retirement

Representative retirement rates are as follows:

Age	Years of Service			
	Less Than 21	21 - 24	25	26+
40	4.00%	0.60%	45.57%	15.40%
45	4.00	0.60	54.83	15.40
50	4.30	0.60	57.62	18.48
55	6.00	0.00	64.94	24.47
60	3.20	0.00	77.49	27.34
64	37.50	0.00	85.24	51.03

Mandatory retirement at age 65.

Retirement rates for less than 25 years of service prior to age 55 apply only to members enrolled as of January 18, 2000 upon completion of 20 years of service.

**11. 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.

**12. Non-Contributory
 Group Insurance
 Benefit Form of
 Payment**

All benefits are assumed to be paid as lump sums.

13. 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 participants receiving benefits according to the 2017 data but omitted from the 2018 data are assumed to have died without a beneficiary.

Actuarial Assumptions And Methods, continued

14. Rationale Assumptions

The July 1, 2018 valuation results are based on the same actuarial methods and assumptions as used in the July 1, 2017 valuation produced by the prior actuary. The demographic assumptions were based on the July 1, 2010 - June 30, 2013 Experience Study prepared by the prior actuary, which was approved by the Board of Trustees on February 9, 2015. The valuation is based on a 7.50% interest rate, annual salary increases that are 0.5% lower than the rates shown in the experience study and a select period for annual salary increases through fiscal year ending 2026, which were recommended by the State Treasurer. Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study.

15. Changes in Assumptions since Last Valuation

None.

B. Projection Assumptions

1. Investment Rate of Return

- 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. Appropriation Percentages

The State is assumed to appropriate 70% of the Statutory contribution in FYE 2020, and to increase the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023

3. Administrative Expenses

0.21 % of expected pension benefit payments for the year for the State and 0.18% of expected pension benefit payments for the year for Local employers.

4. New Entrants

- Contributing active population assumed to remain at 2018 levels .
- Assumed to join mid-year .
- Age/sex distributions based on the last three years of new hires .
- Salary based on salary for most recent hires reported on 2018 data.
- New entrant salary assumed to increase with the age 64 salary increase rates.

5. Demographic Assumptions

Same as those used for valuation purposes.

C. 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.

Actuarial Assumptions And Methods, continued

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.

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 the 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.

Local employers' contributions are expected to be paid on April 1 st, 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.

Actuarial Assumptions And Methods, *continued*

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

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.

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.

Actuarial Assumptions And Methods, continued

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.

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 pre-retirement 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.

Actuarial Assumptions And Methods, continued

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. Changes in Actuarial Methods since Last Valuation

None.

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.

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.

SUMMARY OF PLAN PROVISIONS, continued

- (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 equal the greater 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 equal:

- 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.

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 equal 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, a total of 20% (35%, 50%) of Final 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 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.

- (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 noncontributory 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.

SUMMARY OF PLAN PROVISIONS, continued

(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 equal the greater 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 equal:

- 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.

(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.

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

None.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), we prepared the following schedules for the System. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in the report.

Table D-1
Schedule of Retirees and Beneficiaries Added to and Removed from Rolls

State								
Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ^{1,2,3}	% Increase in Average Annual Allowance ^{1,2}
	Number ³	Annual Allowance	Number ^{1,2}	Annual Allowance	Number ^{1,2,3}	Annual Allowance		
2018	256	\$ 12,439,023	131	\$ 4,867,322	6,673	\$ 313,277,156	\$ 46,947	7.64%
2017	372	17,056,592	172	5,162,512	7,007	305,608,112	43,615	1.07%
2016	407	17,916,150	188	5,868,202	6,807	293,751,067	43,154	0.84%
2015	597	27,506,231	136	4,428,009	6,588	281,941,189	42,796	1.24%
2014	411	18,319,747	125	3,624,098	6,127	259,008,914	42,273	1.08%
2013	562	25,376,310	144	3,961,938	5,841	244,287,186	41,823	1.68%

¹Beginning with the 2018 valuation, QDRO records excluded from headcounts and QDRO benefits included with member records. The change resulted in 459 fewer records on the rolls as of July 1, 2018.

²Location 91999 was reclassified as a Local employer beginning with 2016 valuation; 30 retirees receiving \$1,361,259 and 6 beneficiaries receiving \$168,613 were removed from the State rolls in 2016.

³Location 91999 was reclassified as a State employer beginning with the 2018 valuation; 29 retirees receiving \$1,398,446 and 5 beneficiaries receiving \$123,147 were added to the State rolls in 2018.

Table D-2
Schedule of Retirees and Beneficiaries Added to and Removed from Rolls

Local Employers								
Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ^{1,2,3}	% Increase in Average Annual Allowance ^{1,2}
	Number ²	Annual Allowance	Number ^{1,3}	Annual Allowance	Number ^{1,2,3}	Annual Allowance		
2018	1,740	\$ 121,278,555	1,169	\$ 45,359,799	37,894	\$ 2,177,011,512	\$ 57,450	8.15%
2017	1,879	119,494,770	1,157	41,177,074	39,540	2,100,385,456	53,121	1.97%
2016	2,131	127,903,000	977	33,478,631	38,818	2,022,136,965	52,093	1.77%
2015	2,223	137,472,290	1,008	34,566,655	37,664	1,927,850,322	51,185	2.23%
2014	2,157	125,562,304	1,061	37,217,915	36,449	1,824,960,208	50,069	2.01%
2013	2,126	123,863,237	1,062	34,299,782	35,353	1,735,172,993	49,081	2.32%

¹Beginning with the 2018 valuation, QDRO records excluded from headcounts and QDRO benefits included with member records. This change resulted in 2,217 fewer records on the rolls as of July 1, 2018.

²Location 91999 was reclassified as a Local employer beginning with 2018 valuation; 30 retirees receiving \$1,361,259 and 6 beneficiaries receiving \$168,613 were added to the Local employer rolls in 2016.

³Location 91999 was reclassified as a State employer beginning with the 2018 valuation; 29 retirees receiving \$1,398,446 and 5 beneficiaries receiving \$123,147 were removed from the Local employer rolls in 2018.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-3
Schedule of Retirees and Beneficiaries Added to and Removed from Rolls

Total								
Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ^{1,2,3}	% Increase in Average Annual Allowance ^{1, 2, 3}
	Number ^{2, 3}	Annual Allowance	Number ^{1, 2, 3}	Annual Allowance	Number ^{1,2,3}	Annual Allowance		
2018	1,996	\$ 133,717,578	1,300	\$ 50,227,121	44,567	\$ 2,490,288,668	\$ 55,877	8.10%
2017	2,251	136,551,362	1,329	46,339,586	46,547	2,405,993,568	51,690	1.83%
2016	2,538	145,819,150	1,165	39,346,833	45,625	2,315,888,032	50,759	1.65%
2015	2,820	164,978,521	1,144	38,994,664	44,252	2,209,791,511	49,937	2.02%
2014	2,568	143,882,051	1,186	40,842,013	42,576	2,083,969,122	48,947	1.86%
2013	2,688	149,239,547	1,206	38,261,720	41,194	1,979,460,179	48,052	2.17%

¹ Beginning with the 2018 valuation, QDRO records excluded from headcounts and QDRO benefits included with member records. This change resulted in 2,676 fewer records on the rolls as of July 1, 2018.

² Location 91999 was reclassified as a Local employer beginning with the 2016 valuation; 30 retirees receiving \$1,361,259 and 6 beneficiaries receiving \$168,613 were added to the Local employers rolls and removed from the State rolls in 2016.

³ Location 91999 was reclassified as a State employer beginning with the 2018 valuation; 29 retirees receiving \$1,398,446 and 5 beneficiaries receiving \$123,147 were added to the State rolls and removed from the Local employers rolls in 2018.

Table D-4
Schedule of Active Member Valuation Data

State					
Valuation Date JULY 1,	Number of Contributing Active Members ¹	Annual Compensation ¹	Annual Average Compensation ¹	% Increase in Average Annual Compensation ¹	Number of Participating Employers ²
2018	6,807	\$ 479,941,514	70,507	-1.07%	40
2017	7,072	504,025,065	71,271	-3.00%	N/A
2016	6,911	507,802,380	73,477	-2.38%	N/A
2015	6,883	518,087,705	75,271	-0.14%	N/A
2014	7,025	529,501,284	75,374	0.54%	N/A
2013	7,098	532,147,062	74,971	-0.65%	N/A

¹ Prior to July 1, 2018, includes non-contributing active members

² Number of locations reporting contributing active members. For GASB reporting purposes, the State may be considered the participating employer for multiple locations.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-5
Schedule of Active Member Valuation Data

Local Employers					
Valuation Date JULY 1,	Number of Contributing Active Members¹	Annual Compensation¹	Annual Average Compensation¹	% Increase in Average Annual Compensation¹	Number of Participating Employers²
2018	34,013	\$ 3,390,777,193	\$ 99,691	1.01%	576
2017	34,447	3,399,605,586	98,691	0.68%	N/A
2016	33,878	3,320,721,980	98,020	0.27%	N/A
2015	33,476	3,272,560,644	97,758	-0.38%	N/A
2014	33,081	3,246,344,549	98,133	0.99%	N/A
2013	33,274	3,233,135,473	97,167	1.52%	N/A

¹Prior to July 1, 2018, includes non-contributing active members.

² Number of locations reporting contributing active members.

Table D-6
Schedule of Active Member Valuation Data

Total					
Valuation Date JULY 1,	Number of Contributing Active Members¹	Annual Compensation¹	Annual Average Compensation¹	% Increase in Average Annual Compensation¹	Number of Participating Employers²
2018	40,820	\$ 3,870,718,707	\$ 94,824	0.85%	616
2017	41,519	3,903,630,651	94,020	0.17%	N/A
2016	40,789	3,828,524,360	93,861	-0.07%	N/A
2015	40,359	3,790,648,349	93,923	-0.24%	N/A
2014	40,106	3,775,845,833	94,147	0.95%	N/A
2013	40,372	3,765,282,535	93,265	1.22%	N/A

¹Prior to July 1, 2018, includes non-contributing active members.

² Number of locations reporting contributing active members. For GASB reporting purposes, the State may be considered the participating employer for multiple locations.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-7
Schedule of Funding Progress

State						
Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$ 1,872,048,766	\$ 4,983,733,970	\$ 3,111,685,204	37.56%	\$ 479,941,514	648.35%
2017	1,887,486,318	4,873,081,731	2,985,595,413	38.73%	504,025,065	592.35%
2016	1,928,447,404	4,676,642,040	2,748,194,636	41.24%	507,802,380	541.19%
2015	2,004,579,109	4,516,438,165	2,511,859,056	44.38%	518,087,705	484.83%
2014	2,062,185,965	4,365,609,664	2,303,423,699	47.24%	529,501,284	435.02%
2013	2,127,491,585	4,188,523,037	2,061,031,452	50.79%	532,147,062	387.30%

¹Includes receivable amounts.

²Prior to July 1, 2018, includes non-contributing active members.

Table D-8
Schedule of Funding Progress

Local Employers						
Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$ 26,109,128,660	\$ 35,523,376,524	\$ 9,414,247,864	73.50%	\$ 3,390,777,193	277.64%
2017	25,183,776,588	34,474,127,537	9,290,350,949	73.05%	3,399,605,586	273.28%
2016	24,420,145,823	32,793,439,210	8,373,293,387	74.47%	3,320,721,980	252.15%
2015	23,935,037,150	31,205,965,303	7,270,928,153	76.70%	3,272,560,644	222.18%
2014	23,066,498,788	30,239,286,907	7,172,788,119	76.28%	3,246,344,549	220.95%
2013	22,170,221,173	28,811,698,272	6,641,477,099	76.95%	3,233,135,473	205.42%

¹Includes receivable amounts.

²Prior to July 1, 2018, includes non-contributing active members.

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
POLICE AND FIREMEN'S RETIREMENT SYSTEM

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-9
Schedule of Funding Progress

Total						
Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$ 27,981,177,426	\$ 40,507,110,494	\$ 12,525,933,068	69.08%	\$ 3,870,718,707	323.61%
2017	27,071,262,906	39,347,209,268	12,275,946,362	68.80%	3,903,630,651	314.48%
2016	26,348,593,227	37,470,081,250	11,121,488,023	70.32%	3,828,524,360	290.49%
2015	25,939,616,259	35,722,403,468	9,782,787,209	72.61%	3,790,648,349	258.08%
2014	25,128,684,753	34,604,896,571	9,476,211,818	72.62%	3,775,845,833	250.97%
2013	24,297,712,758	33,000,221,309	8,702,508,551	73.63%	3,765,282,535	231.12%

¹Includes receivable amounts.

²Prior to July 1, 2018, includes non-contributing active members.

Table D-10
Schedule of Funded Liabilities by Type (Solvency Test)

State							
Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ²	Portion of Actuarial Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vested ¹ (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer ¹ (3)		(1)	(2)	(3)
2018	\$ 500,503,234	\$ 3,483,286,430	\$ 999,944,306	\$ 1,872,048,766	100%	39.38%	0.00%
2017	475,818,046	3,424,967,760	972,295,925	1,887,486,318	100%	41.22%	0.00%
2016	463,313,193	3,266,044,658	947,284,189	1,928,447,404	100%	44.86%	0.00%
2015	453,476,665	3,068,942,554	994,018,946	2,004,579,109	100%	50.54%	0.00%
2014	461,707,703	2,836,126,945	1,067,775,016	2,062,185,965	100%	56.43%	0.00%
2013	446,509,394	2,645,278,934	1,096,734,709	2,127,491,585	100%	63.55%	0.00%

¹Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2).

²Includes receivable amounts.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-11
Schedule of Funded Liabilities by Type (Solvency Test)

Local Employers							
Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ²	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vested ¹ (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer ¹ (3)		(1)	(2)	(3)
2018	\$ 3,358,899,795	\$ 23,292,240,823	\$ 8,872,235,906	\$ 26,109,128,660	100.00%	97.67%	0.00%
2017	3,247,943,768	22,521,319,267	8,704,864,502	25,183,776,588	100.00%	97.40%	0.00%
2016	3,131,241,592	21,445,939,675	8,216,257,943	24,420,145,823	100.00%	99.27%	0.00%
2015	3,028,571,346	19,956,349,181	8,221,044,776	23,935,037,150	100.00%	100.00%	11.56%
2014	2,953,537,557	18,953,799,304	8,331,950,046	23,066,498,788	100.00%	100.00%	13.91%
2013	2,842,256,925	17,710,792,805	8,258,648,542	22,170,221,173	100.00%	100.00%	19.58%

¹Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2).

² Includes receivable amounts.

Table D-12
Schedule of Funded Liabilities by Type (Solvency Test)

Total							
Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ²	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vested ¹ (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer ¹ (3)		(1)	(2)	(3)
2018	\$ 3,859,403,029	\$ 26,775,527,253	\$ 9872,180,212	\$ 27,981,177,426	100.00%	90.09%	0.00%
2017	3,723,761,814	25,946,287,027	9,677,160,427	27,071,262,906	100.00%	89.98%	0.00%
2016	3,594,554,785	24,711,984,333	9,163,542,132	26,348,593,227	100.00%	92.08%	0.00%
2015	3,482,048,011	23,025,291,735	9,215,063,722	25,939,616,259	100.00%	97.53%	0.00%
2014	3,415,245,260	21,789,926,249	9,399,725,062	25,128,684,753	100.00%	99.65%	0.00%
2013	3,288,766,319	20,356,071,739	9,355,383,251	24,297,712,758	100.00%	100.00%	6.98%

¹Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2).

² Includes receivable amounts.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-13
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

State ¹						
Valuation Date JULY 1,	Actuarial Value of Asset Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan Changes	Contributions ²	Change in Unfunded Actuarial Accrued Liability
2018	\$ 47,194,210	\$ (21,317,092)	\$ (918,724)	\$ 0	\$ 101,131,397	\$ 126,089,791
2017	N/A	N/A	N/A	N/A	N/A	237,400,777
2016	N/A	N/A	N/A	N/A	N/A	236,335,580
2015	N/A	N/A	N/A	N/A	N/A	208,435,357
2014	N/A	N/A	N/A	N/A	N/A	242,392,247
2013	N/A	N/A	N/A	N/A	N/A	171,804,136

¹ Prior actuary did not provide enough information for the sources of (gain)/loss split by State and Local employers.

² Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.

Table D-14
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Local ¹						
Valuation Date JULY 1,	Actuarial Value of Asset Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan Changes	Contributions ²	Change in Unfunded Actuarial Accrued Liability
2018	\$ 107,152,686	\$ 28,336,995	\$ (52,999,153)	\$ 0	\$ 41,406,387	\$ 123,896,915
2017	N/A	N/A	N/A	N/A	N/A	917,057,562
2016	N/A	N/A	N/A	N/A	N/A	1,102,365,234
2015	N/A	N/A	N/A	N/A	N/A	98,140,034
2014	N/A	N/A	N/A	N/A	N/A	531,311,020
2013	N/A	N/A	N/A	N/A	N/A	485,635,741

¹ Prior actuary did not provide enough information for the sources of (gain)/loss split by State and Local employers.

² Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-15
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Total						
Valuation Date JULY 1,	Actuarial Value of Asset Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan Changes	Contributions¹	Change in Unfunded Actuarial Accrued Liability
2018	\$ 154,346,896	\$ 7,019,903	\$ (53,917,877)	\$ 0	\$ 142,537,784	\$ 249,986,706
2017	259,929,381	58,991,642	657,629,731	0	177,907,585	1,154,458,339
2016	558,181,587	110,733,636	432,218,931	0	237,566,660	1,338,700,814
2015	187,148,126	101,636,627	(179,494,261)	0	197,284,899	306,575,391
2014	8,564,819	85,366,939	359,942,089	0	319,829,420	773,703,267
2013	416,678,002	101,967,970	0	0	138,793,905	657,439,877

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.



Classic Values, Innovative Advice

September 29, 2020
The Board of Trustees
The State Police Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

This is the Actuary's Certification Letter for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the State Police Retirement System of New Jersey (SPRS or System) as of June 30, 2019. This letter includes references to three documents produced by Cheiron for the System: the Actuarial Valuation Report as of July 1, 2018 (transmitted April 25, 2019) and the GASB 67 and 68 Reports as of June 30, 2019 (transmitted March 2020).

Actuarial Valuation Report as of July 1, 2018

The purpose of the annual Actuarial Valuation Report as of July 1, 2018 is to determine the actuarial funding status of SPRS on that date and to calculate the Statutory Contribution amount for the State for the Fiscal Year Ending 2020. The prior review was conducted as of July 1, 2017, and included the Statutory Contribution amount for the Fiscal Year Ending 2019.

Actuarial funding is based on the Projected Unit Credit Cost Method. The Statutory Contribution amounts contain two components: the employer normal cost (cost of benefits for the upcoming year) and an amortization for the unfunded actuarial liability (UAL). The funding methodology prescribed by the N.J. State Statutes does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption and are unable to evaluate whether the investment rate of return assumption includes an appropriate adjustment for administrative expenses.

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

- The amortization amount is calculated to amortize the UAL over an open 30 year period as a level dollar amount.
- Beginning with the July 1, 2019 actuarial valuation, the amortization amount will be calculated to amortize the UAL over a closed 30 year period (i.e. for each subsequent actuarial valuation, the amortization period shall decrease by one year) as a level dollar amount.
- Beginning with the July 1, 2029 actuarial valuation, when the amortization period reaches 20 years, an increase or decrease in the UAL as a result of actuarial losses and gains will increase or decrease, respectively, the amortization period for the UAL, except that the amortization period will not exceed 20 years.

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 Statutory Contribution, any existing UAL may not be fully amortized in the future.

Member contributions are set in the N.J. State Statutes.

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

For actuarial valuation purposes, assets are valued at Actuarial Value as prescribed in the N.J. State Statutes. Under this method, the assets used to determine the Statutory Contribution amounts take into account market value by spreading all investment gains and losses (returns above or below expected returns) over a rolling five year period.

The actuarial value of assets is intended to dampen the volatility in the market value of assets, resulting in a smoother pattern of contributions. Actuarial Standards of Practice (ASOP) No. 44 states that the asset valuation method should produce an actuarial value of assets that falls within a reasonable range of market value, recognizes the difference between the market value and actuarial value of assets within a reasonably short period of time, and is likely to produce actuarial value of assets that are sometimes greater than and sometimes less than the corresponding market values. The asset method required under the N.J. State Statutes does not meet the requirements of ASOP No. 44 because this method has produced actuarial value of assets which have consistently been greater than the market value of assets and recognizes investment losses slowly over time. Additionally, the method may produce an actuarial value of assets that falls outside of a reasonable range of the market value.

We prepared the following schedules, which we understand will be included in the Actuarial Section of the CAFR, based on the July 1, 2018 actuarial valuation. All historical information prior to the July 1, 2018 actuarial valuation shown in these schedules is based on information reported by the prior actuary, Buck Global, LLC.

- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Schedule of Funded Liabilities by Type (formerly referred to as the Solvency Test)
- Analysis of Financial Experience: Change in Unfunded Actuarial Accrued Liability
- Summary of Plan Provisions
- Summary of Current Actuarial Assumptions and Methods
- Membership Information (Active, Deferred Vested, and Retired)

The actuarial assumptions are the same as those used by the prior actuary. The demographic assumptions are based on the recommendations from the July 1, 2011 – June 30, 2014 Experience Study prepared by the prior actuary and approved by the Board of Trustees on January 26, 2016.

The investment return assumption of 7.50% and the annual salary increases that are 50 basis points lower than the rates shown in the July 1, 2011 – June 30, 2014 Experience Study were recommended by the State Treasurer. In addition, the State Treasurer has recommended that the investment return assumption will be reduced to 7.30% in the July 1, 2019 valuation and 7.00% in the July 1, 2021 valuation.

Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study as of the issuance of this report. Subsequent to the issuance of this valuation, we completed an experience study covering the period from July 1, 2014 – June 30, 2018. On January 28, 2020, the Board approved those assumptions for use in the July 1, 2019 actuarial valuation.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices except as noted. In particular, the assumptions (other than the investment rate of return) and methods (other than the asset method) used for funding purposes meet the requirements of the Actuarial Standards of Practice (ASOP), in particular ASOPs Nos. 4, 27 and 35. As noted above, the asset method does not meet the requirements of ASOP No. 44.

GASB 67 and 68 Reports as of June 30, 2019

The purpose of the GASB 67 and 68 Reports as of June 30, 2019 is to provide accounting and financial reporting information under GASB 67 for SPRS and under GASB 68 for the State. These reports are not appropriate for other purposes, including the measurement of funding requirements for SPRS.

For financial reporting purposes, the Total Pension Liability is based on the July 1, 2018 actuarial valuation updated to the measurement date of June 30, 2019. As a result of the Experience Study covering the period July 1, 2014 – June 30, 2018, the assumed rates of termination, retirement, mortality and inflation were updated. Additionally, the assumed discount rate used to measure the Total Pension Liability was changed as of the measurement date, increasing from 4.97% as of June 30, 2018 to 5.51% as of June 30, 2019. 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 changes in assumptions.

Please refer to our GASB 67 and 68 Reports as of June 30, 2019 for additional information related to the financial reporting of the System. We prepared the following schedules for inclusion in the Financial Section of the CAFR based on the June 30, 2019 GASB 67 and 68 reports:

- Change in Net Pension Liability
- Sensitivity of Net Pension Liability to Changes in Discount Rate
- Schedule of Changes in Net Pension Liability and Related Ratios
- Schedule of Employer Contributions
- Notes to the Schedule of Employer Contributions

The demographic and economic (other than the investment rate of return) actuarial assumptions are based on the recommendations from the July 1, 2014 – June 30, 2018 Experience Study performed by Cheiron and approved by the Board of Trustees on January 28, 2020 with one exception. The calculation of Total Pension Liability as of June 30, 2019 was based on the SOA's Scale MP-2019 mortality improvement scale upon direction from the DPB. While we do not find the use of the SOA's Scale MP-2019 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. The assumptions used in the most recent reports are intended to produce results that, in the aggregate, reasonably approximate the anticipated future experience of the Plan. The next experience analysis is expected to cover the years through 2021.

Based on the State Treasurer's recommendation, the following investment return assumptions are used to determine the Statutory Contribution amounts:

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

In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum as recommended of the State Treasurer. Because the investment return assumptions and the long-term expected rate of return assumption are recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption.

We certify that the reports were performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for disclosure purposes have been prepared in accordance with our understanding of generally accepted accounting principles as promulgated by the GASB.

Disclaimers

In preparing our reports, we relied on information (some oral and some written) supplied by the Division of Pensions and Benefits (DPB). 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.

These reports are for the use of SPRS, DPB and their auditor in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of these reports is not an intended user and is considered a third party.

Cheiron's reports were prepared for SPRS for the purposes described herein and for use by the plan auditor in completing an audit related to matters herein. Other users of these reports are not intended as users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any such party.

These reports and their 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 opinions contained in these reports. These reports do not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

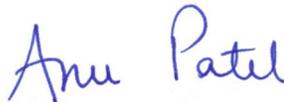
Respectfully submitted,



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



Jonathan B. Chipko, FSA, MAAA, EA
Consulting Actuary



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2018. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1: Contributing Active Member Data by Tier
- A-2: Non-Contributing Active Member Data by Tier
- A-3: Inactive Member Data, Total Annual and Average Retirement Allowances by Status
- A-4: Reconciliation of Plan Membership

Table A-1			
Contributing Active Member Data by Tier			
	July 1, 2018	July 1, 2017	% Change
Tier 1			
Count	1,877	1,964	-4.4%
Average Age	42.6	42.1	1.3%
Average Service	16.4	15.8	3.7%
Average Appropriation Pay	\$ 116,265	\$ 115,226	0.9%
Total Appropriation Payroll	\$ 218,229,434	\$ 226,304,033	-3.6%
Tier 2			
Count	784	798	-1.8%
Average Age	31.1	30.1	3.3%
Average Service	4.1	3.0	38.0%
Average Appropriation Pay	\$ 73,419	\$ 73,191	0.3%
Total Appropriation Payroll	\$ 57,560,653	\$ 58,406,303	-1.4%
Total			
Count	2,661	2,762	-3.7%
Average Age	39.2	38.6	1.6%
Average Service	12.8	12.1	5.5%
Average Appropriation Pay	\$ 103,642	\$ 103,081	0.5%
Total Appropriation Payroll	\$ 275,790,087	\$ 284,710,336	-3.1%

MEMBERSHIP INFORMATION, *continued*

Table A-2			
Non-Contributing Active Member Data by Tier			
	July 1, 2018	July 1, 2017	% Change
Tier 1			
Count	29	33	-12.1%
Average Age	47.8	47.0	1.6%
Average Service	11.7	11.9	-1.6%
Average Last Reported Pay	\$ 91,036	\$ 92,327	-1.4%
Total Last Reported Pay	\$ 2,640,041	\$ 3,046,787	-13.3%
Tier 2			
Count	23	17	35.3%
Average Age	31.5	32.6	-3.6%
Average Service	2.7	2.7	-0.4%
Average Last Reported Pay	\$ 73,941	\$ 74,418	-0.6%
Total Last Reported Pay	\$ 1,700,650	\$ 1,265,099	34.4%
Total			
Count	52	50	4.0%
Average Age	40.5	42.1	-3.8%
Average Service	7.7	8.8	-12.0%
Average Last Reported Pay	\$ 83,475	\$ 86,238	-3.2%
Total Last Reported Pay	\$ 4,340,691	\$ 4,311,886	0.7%

MEMBERSHIP INFORMATION, *continued*

Table A-3			
Inactive Member Data by Status			
	July 1, 2018	July 1, 2017	% Change
Retirees			
Count	2,694	2,655	1.1%
Annual Retirement Allowance	\$ 191,956,729	\$ 187,291,821	2.5%
Average Retirement Allowance	\$ 71,253	\$ 70,278	1.4%
Beneficiaries			
Count	432	408	5.9%
Annual Retirement Allowance	\$ 16,133,043	\$ 15,045,517	7.2%
Average Retirement Allowance	\$ 37,345	\$ 36,876	1.3%
Ordinary Disability			
Count	125	122	2.5%
Annual Retirement Allowance	\$ 5,058,044	\$ 4,877,728	3.7%
Average Retirement Allowance	\$ 40,464	\$ 39,981	1.2%
Accidental Disability			
Count	153	146	4.8%
Annual Retirement Allowance	\$ 9,048,918	\$ 8,558,614	5.7%
Average Retirement Allowance	\$ 59,143	\$ 58,621	0.9%
In-Pay Total			
Count	3,404	3,341	1.9%
Annual Retirement Allowance	\$ 222,196,734	\$ 215,773,680	3.0%
Average Retirement Allowance	\$ 65,275	\$ 64,584	1.1%
Deferred Vested Members			
Count	0	0	N/A
Annual Retirement Allowance	\$ 0	\$ 0	N/A
Average Retirement Allowance	\$ 0	\$ 0	N/A

QDRO benefits included with member records for valuation purposes.

MEMBERSHIP INFORMATION, *continued*

Table A-4 Reconciliation of Plan Membership from July 1, 2017 to July 1, 2018							
	Contributing Actives	Non-Contributing Actives	Deferred Vested	Retired	Disabled	Beneficiaries	Total
1. July 1, 2017	2,762	50	0	2,655	268	408	6,153
2. Additions							
a. New entrants							0
b. New dependent						1	1
c. Data Correction						6	6
d. Total	0	0	0	0	0	7	7
3. Reductions							
a. Withdrawal	(2)	(5)					(7)
b. Died without beneficiary				(23)		(13)	(36)
c. Payments ceased							0
d. Total	(2)	(5)	0	(23)	0	(13)	(43)
4. Changes in Status							
a. Contributing Active	2	(2)					0
b. Non-Contributing Active	(11)	11					0
c. Deferred Vested							0
d. Retired	(78)	(1)		79			0
e. Disabled	(10)	(1)			11		0
f. Died with beneficiary	(2)			(27)	(1)	30	0
g. Total	(99)	7	0	52	10	30	0
5. July 1, 2018	2,661	52	0	2,694	278	432	6,117

QDRO benefits included with member records for valuation purposes.

ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Investment Rate of Return** 7.50% per annum, compounded annually.
- 2. Administrative Expenses** No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute.
- 3. Cost-of-Living Adjustments (COLAs)** No future COLAs are assumed. Previously granted COLAs are included in the data.
- 4. Salary Increases** Salaries are assumed to increase by 2.95% per year through fiscal year 2025 and 3.95% per year for fiscal years 2026 and thereafter.

Salary increases are assumed to occur on January 1.
- 5. 401 (a)(17) Pay Limit** \$275,000 in 2018 increasing 3.00% per annum, compounded annually.
- 6. Social Security Wage Base** \$128,400 in 2018 increasing 4.00% per annum, compounded annually.
- 7. Termination** Representative termination rates are as follows:

Age	Less Than 5 Years of Service	Between 5 and 19 Years of Service
25	0.375%	0.000%
30	0.375	0.200
35	0.825	0.140
40	0.000	0.075
45	0.000	0.100
50	0.000	0.000

No termination is assumed after attainment of retirement eligibility.

All members with 10 or more years of service at termination are assumed to elect a deferred retirement benefit.

ACTUARIAL ASSUMPTIONS AND METHODS, continued

8. Disability

Representative termination rates are as follows:

Age	Ordinary Disability	Accidental Disability
25	0.041%	0.025%
30	0.061	0.053
35	0.169	0.194
40	0.172	0.208
45	0.218	0.214
50	0.375	0.220

No ordinary disability is assumed after attainment of special retirement eligibility at 25 years of service.

Accidental disability rates apply at all ages until the mandatory retirement age of 55.

Members retiring under the ordinary disability decrement with less than four years of service are assumed to receive a return of aggregate contributions.

Members retiring under the ordinary disability decrement with 20 or more years of service 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.

9. Mortality

Healthy Mortality: RP-2000 Combined Healthy Mortality Tables (unadjusted for females and set back 3 years for males) projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB and the Content Modified 2014 Projection scale thereafter. These tables are also used for purposes of the pre-retirement ordinary death benefit.

Disabled Mortality: RP-2000 Combined Healthy Mortality Tables (set forward 5 years for males and females) without projection.

Representative mortality rates for purposes of the pre-retirement accidental death benefit are as follows:

Age	Rates
25	0.040%
30	0.050
35	0.050
40	0.050
45	0.060
50	0.090

ACTUARIAL ASSUMPTIONS AND METHODS, continued

No mortality improvement is assumed for purposes of the pre-retirement accidental death benefit.

For purposes of pre-retirement accidental death benefits based on Adjusted Final Compensation, the benefit is assumed to increase at the same rate as active salaries.

10. Retirement

For those with 25 years of service or less:

Service	Rates
20	2.00%
21	0.500
22	0.000
23	0.000
24	0.000
25	50.000

For those with more than 25 years of service:

Age	Rates
42 or younger	5.000%
43-47	28.000
48-53	33.000
54	61.000

Mandatory retirement at age 55.

**11. Family
 Composition
 Assumptions**

For members not currently in receipt, 83.3% 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 18 are assumed to receive a benefit until age 18 while those over age 18 are assumed to receive a benefit for the remainder of their lifetime.

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

- | | |
|--|---|
| 12. Data | <p>Information provided by the prior actuary was relied upon for the purposes of setting the status of and valuing non-contributing active records.</p> <p>For current beneficiaries with missing data, reasonable assumptions were made based on the information available in prior years.</p> <p>Inactives receiving benefits according to the 2017 data but omitted from the 2018 data are assumed to have died without a beneficiary.</p> |
| 13. Rationale for assumptions | <p>The demographic assumptions used in this report reflect the results of the July 1, 2011 - June 30, 2014 Experience Study prepared by the prior actuary, which was approved by the Board of Trustees on January 26, 2016. The valuation is based on a 7.50% interest rate and annual salary increases that are 0.5% lower than the rates shown in the experience study, which were recommended by the State Treasurer. Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study.</p> |
| 14. Changes in Assumptions since last Valuation | <p>None</p> |

B. Projection Assumptions

- | | |
|-------------------------------------|---|
| 1. Investment Rate of Return | <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. Appropriation Percentages | <p>The State is assumed to appropriate 70% of the Statutory contribution in FYE 2020, and to increase the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023.</p> |
| 3. Administrative Expenses | <p>0.17% of expected pension benefit payments for the year.</p> |
| 4. New Entrants | <ul style="list-style-type: none"> • Contributing active population assumed to remain at 2018 levels. • Assumed to join mid-year. • Age/sex distributions based on the last three years of new hires. • Salary based on salary for most recent hires reported on 2018 data. |
| 5. Demographic Assumptions | <p>Same as those used for valuation purposes.</p> |

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

C. Actuarial Methods

The actuarial methods used for determining State contributions are described as follows.

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. 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.

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.

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 return on the previous year's assets and the 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. State Contribution Payable Dates

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.

4. Changes in Methods Since the Last Valuation

None.

SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the SPRS used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 53, Chapter SA, 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

All members of the former State Police and Benevolent Fund and full-time commissioned officers, non-commissioned officers or troopers of the Division of State Police. Membership is a condition of employment.

- a) Tier 1 Member: Any member hired on or before May 21, 2010.
- b) Tier 2 Member: Any member hired after May 21, 2010.

2. Plan Year

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

3. Service Credit

Service rendered while a member as described above.

4. Credited Service

A year is credited for each year of service as an officer or trooper in the State Police.

5. Compensation

Base salary in accordance with established salary policies of the state for all employees in the same position. Compensation does not include individual salary adjustments granted primarily in anticipation of the retirement or for temporary or extracurricular duties beyond the regular work day or shift. Effective June 30, 1996, Chapter 113, P. L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the program cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code. Chapter 1, P. L. 2010 provides that for members hired on or after May 22, 2010, the amount of compensation used for employer and member contributions and benefits under the System cannot exceed the annual maximum wage contribution base for Social Security, pursuant to the Federal Insurance Contributions Act

6. Final Compensation

Average compensation received by the member in the last 12 months of credited service preceding retirement or death. Such term includes the value of the member's maintenance allowance for the same period. Chapter 1, P. L. 2010 provides that for members hired on or after May 22, 2010, Final Compensation means the average annual compensation for service for which contributions are made during any three fiscal years of membership providing the largest possible benefit to the member or the member's beneficiary.

7. Aggregate Contributions

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

SUMMARY OF PLAN PROVISIONS, *continued*

8. Member Contributions

Each member contributes 9.0% of base salary. For contribution purposes, compensation does not include overtime, bonuses, maintenance or any adjustments before retirement.

9. Adjusted Final Compensation

For purposes of the pre-retirement accidental death benefit, the amount of compensation or compensation as adjusted, as the case may be, increased by the same percentage increase which is applied in any adjustments of the compensation schedule of active members after the member's death and before the date on which the deceased member of the retirement system would have accrued 25 years of service under an assumption of continuous service, at which time that amount will become fixed. Adjustments to compensation or adjusted compensation shall take effect at the same time as any adjustments in the compensation schedule of active members.

10. Benefits

a) Service and Special Retirement:

Mandatory retirement at age 55. Voluntary retirement prior to age 55.

- (1) Service Retirement: 20 years of service credit, or members as of August 29, 1985 who would not have 20 years of service credit at age 55.

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

- (2) Special Retirement: 25 years of service credit.

Benefit is an annual retirement allowance equal to 65% of final compensation, plus 1 % for each year of service credit in excess of 25 years, to a maximum of 70% of final compensation.

- (3) Members as of August 29, 1985 who would have 20 years of service credit but not 25 years at age 55.

Benefit is an annual retirement allowance equal to 50% of final compensation, plus 3% for each year of service credit in excess of 20 years.

b) Deferred Retirement:

Termination of service prior to age 55 with 10 years of service credit.

Benefit is either a refund of aggregate contributions, or a deferred life annuity beginning at age 55 equal to 2% of final compensation for each year of service credit up to 25 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 of the plan. Benefit is equal to:

- a. Lump sum payment equal to 350% of final compensation, also known as the noncontributory group life insurance benefit, plus

SUMMARY OF PLAN PROVISIONS, *continued*

- b. Spousal life annuity of 50% of final compensation payable until spouse's death or remarriage. If there is no surviving spouse, or upon death or remarriage, a total of 20% (35%, 50%) of final 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 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 of the plan resulting during performance of duties. Benefit is equal to:
- a. Lump sum payment equal to 350% of final compensation, also known as the non-contributory group life insurance benefit, plus
 - b. Spousal life annuity of 70% of final compensation or adjusted final compensation (if appropriate) payable until spouse's death. If there is no surviving spouse, or upon death of the surviving spouse, 70% of final compensation or adjusted final compensation (if appropriate) payable to surviving children in equal shares. If there is no surviving spouse or dependent children, 25% (40%) of final compensation or adjusted final compensation (if appropriate) to one (two) dependent parents. If there is no surviving spouse, dependent child(ren) or parent(s), the benefit is a refund of accumulated contributions
- (3) Death After Retirement: Death of a retired member of the plan. Benefit is equal to:
- a. Lump sum payment equal to 50% of final compensation for a member retired under service, special or deferred retirement. For a member receiving a disability benefit, lump sum payment of 350% of final 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 noncontributory 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, 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 service credit and mentally or physically incapacitated for the performance of his usual duty and of any other available duty in the Division of State Police and such incapacity is likely to be permanent.
- Benefit is an immediate life annuity equal to the greater of:
- a. 40% of final compensation, or
 - b. 1.5% of final compensation for each year of service credit.
- (2) Involuntary Ordinary Disability Retirement: Ordinary Disability Retirement applied for by the employer.
- Benefit is an immediate life annuity equal to:
- a. For members with 20 years of service credit but less than 25 years, 50% of final compensation plus 3% of final compensation for each year of service credit in excess of 20 years, to a maximum of 65% of final compensation.
 - b. For all other members, the Ordinary Disability benefit.
- (3) Accidental Disability Retirement: Totally and permanently disabled as a direct result of a traumatic event occurring during and as a result of his regular or assigned duties and such member is mentally or physically incapacitated for the performance of his usual duties in the Division of State Police.
- Benefit is an immediate life annuity equal to 2/3 of annual rate of compensation, including the maintenance allowance, at the time of the traumatic event or retirement, whichever is greater.

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
STATE POLICE RETIREMENT SYSTEM

SUMMARY OF PLAN PROVISIONS, *continued*

11. Forms of Payment

No optional forms of payment available.

12. Changes in Plan Provisions since Last Valuation

None.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), we prepared the following schedules for the Fund. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

Table D-1
Schedule Retirees and Beneficiaries Added to and Removed from Rolls

Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ¹	% Increase in Average Annual Allowance ¹
	Number	Annual Allowance	Number ¹	Annual Allowance	Number ¹	Annual Allowance		
2018	127	\$ 9,003,637	64	\$ 2,802,076	3,404	\$ 222,196,734	\$ 65,275	8.54%
2017	101	5,551,153	79	3,074,257	3,588	215,773,680	60,138	0.54%
2016	137	8,351,556	82	3,165,408	3,566	213,292,784	59,813	0.91%
2015	160	10,330,374	58	2,732,284	3,511	208,106,636	59,273	0.77%
2014	201	14,131,655	45	1,563,031	3,409	200,508,546	58,817	1.81%
2013	291	20,641,305	68	2,192,736	3,253	187,939,922	57,774	3.28%

¹ Beginning with the 2018 valuation. QDRO records excluded from headcounts and QDRO benefits included with member records. This change resulted in 247 fewer records on the rolls as of July 1, 2018.

Table D-2
Schedule of Active Member Valuation Data

Valuation Date JULY 1,	Number of Contributing Active Members ¹	Annual Compensation ¹	Annual Average Compensation ¹	% Increase / (Decrease) in Average Annual Compensation ¹
2018	2,661	\$ 275,790,087	\$ 103,642	0.84%
2017	2,812	289,022,222	102,782	0.83%
2016	2,725	277,771,135	101,934	(0.98%)
2015	2,676	275,477,457	102,944	(1.09%)
2014	2,522	262,496,289	104,083	(1.46%)
2013	2,481	262,063,829	105,628	1.48%

¹ Prior to July 1, 2018, includes non-contributing active members.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-3
Schedule of Funding Progress

Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability ¹ (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a)/(b)	Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c)/(d)
2018	\$ 1,939,304,839	\$ 3,430,821,762	\$ 1,491,516,923	56.53%	\$ 275,790,087	540.82%
2017	1,923,127,122	3,346,082,274	1,422,955,152	57.47%	289,022,222	492.33%
2016	1,931,131,875	3,209,386,033	1,278,254,158	60.17%	277,771,135	460.18%
2015	1,969,239,472	3,090,220,484	1,120,981,012	63.72%	275,477,457	406.92%
2014	1,981,376,495	2,963,182,120	981,805,625	66.87%	262,496,289	374.03%
2013	1,990,797,312	2,870,590,700	879,793,388	69.35%	262,063,829	335.72%

¹ Includes receivable amounts.

² Prior to July 1, 2018, includes non-contributing active members.

Table D-4
Schedule of Funded Liabilities by Type (Solvency Test)

Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ¹	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member (1)	Retirees, Beneficiaries & Deferred Vesteds (2)	Contributing & Non-Contributing Active Member Benefit Financed by Employer (3)		(1)	(2)	(3)
2018	\$ 215,026,809	\$ 2,512,523,540	\$ 703,271,413	\$ 1,939,304,839	100.00%	68.63%	0.00%
2017	206,680,622	2,445,366,686	694,034,966	1,923,127,122	100.00%	70.19%	0.00%
2016	190,955,019	2,401,980,284	616,450,730	1,931,131,875	100.00%	72.45%	0.00%
2015	181,536,046	2,289,865,821	618,818,617	1,969,239,472	100.00%	78.07%	0.00%
2014	173,529,948	2,173,442,158	616,210,014	1,981,376,495	100.00%	83.18%	0.00%
2013	171,462,709	2,034,551,263	664,576,728	1,990,797,312	100.00%	89.42%	0.00%

¹ Includes receivable amounts.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

Table D-5
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Valuation Date JULY 1,	Actuarial Value of Asset Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Change	Plan Changes	Contributions¹	Change in Unfunded Actuarial Accrued Liability
2018	\$ 14,491,075	\$ (3,282,548)	\$ 2,791,271	\$ 0	\$ 54,561,973	\$ 68,561,771
2017	23,174,471	1,508,647	55,934,385	239,606	63,843,885	144,700,994
2016	46,667,367	(8,038,512)	45,696,315	0	72,947,976	157,273,146
2015	17,135,937	71,841	52,383,620	0	69,583,989	139,175,387
2014	3,558,670	16,454,524	1,252,085	0	80,746,958	102,012,237
2013	39,486,464	15,629,542	0	0	52,296,702	107,412,708

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.



Classic Values, Innovative Advice

September 29, 2020
State House Commission
The Judicial Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Commission:

This is the Actuary's Certification Letter for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the Judicial Retirement System of New Jersey (JRS or System) as of June 30, 2019. This letter includes references to three documents produced by Cheiron for the System: the Actuarial Valuation Report as of July 1, 2018 (transmitted April 23, 2019) and the GASB 67 and 68 Reports as of June 30, 2019 (transmitted March 2020).

Actuarial Valuation Report as of July 1, 2018

The purpose of the annual Actuarial Valuation Report as of July 1, 2018 is to determine the actuarial funding status of JRS on that date and to calculate the Statutory Contribution amount for the State for the Fiscal Year Ending 2020. The prior review was conducted as of July 1, 2017, and included the Statutory Contribution amount for the Fiscal Year Ending 2019.

Actuarial funding is based on the Projected Unit Credit Cost Method. The Statutory Contribution amounts contain two components: the employer normal cost (cost of benefits for the upcoming year) and an amortization for the unfunded actuarial liability (UAL). The funding methodology prescribed by the N.J. State Statutes does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption and are unable to evaluate whether the investment rate of return assumption includes an appropriate adjustment for administrative expenses.

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

- The amortization amount is calculated to amortize the UAL over an open 30 year period as a level dollar amount.
- Beginning with the July 1, 2019 actuarial valuation, the amortization amount will be calculated to amortize the UAL over a closed 30 year period (i.e. for each subsequent actuarial valuation, the amortization period shall decrease by one year) as a level dollar amount.
- Beginning with the July 1, 2029 actuarial valuation, when the amortization period reaches 20 years, an increase or decrease in the UAL as a result of actuarial losses and gains will increase or decrease, respectively, the amortization period for the UAL, except that the amortization period will not exceed 20 years spending plan.

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 Statutory Contribution, any existing UAL may not be fully amortized in the future.

Member contributions are set in the N.J. State Statutes.

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

For actuarial valuation purposes, assets are valued at Actuarial Value as prescribed in the N.J. State Statutes. Under this method, the assets used to determine the Statutory Contribution amounts take into account market value by spreading all investment gains and losses (returns above or below expected returns) over a rolling five year period.

The actuarial value of assets is intended to dampen the volatility in the market value of assets, resulting in a smoother pattern of contributions. Actuarial Standards of Practice (ASOP) No. 44 states that the asset valuation method should produce an actuarial value of assets that falls within a reasonable range of market value, recognizes the difference between the market value and actuarial value of assets within a reasonably short period of time, and is likely to produce actuarial value of assets that are sometimes greater than and sometimes less than the corresponding market values. The asset method required under the N.J. State Statutes does not meet the requirements of ASOP No. 44 because this method has produced actuarial value of assets which have consistently been greater than the market value of assets and recognizes investment losses slowly over time. Additionally, the method may produce an actuarial value of assets that falls outside of a reasonable range of the market value.

We prepared the following schedules, which we understand will be included in the Actuarial Section of the CAFR, based on the July 1, 2018 actuarial valuation. All historical information prior to the July 1, 2018 actuarial valuation shown in these schedules is based on information reported by the prior actuary, Buck Global, LLC.

- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Schedule of Funded Liabilities by Type (formerly referred to as the Solvency Test)
- Analysis of Financial Experience: Change in Unfunded Actuarial Accrued Liability
- Summary of Plan Provisions
- Summary of Current Actuarial Assumptions and Methods
- Membership Information (Active, Deferred Vested, and Retired)

The actuarial assumptions are the same as those used by the prior actuary. The demographic assumptions are based on the recommendations from the July 1, 2011 – June 30, 2014 Experience Study prepared by the prior actuary and approved by the State House Commission on October 26, 2015.

The investment return assumption of 7.50% and the annual salary increases that are 50 basis points lower than the rates shown in the July 1, 2011 – June 30, 2014 Experience Study were recommended by the State Treasurer. In addition, the State Treasurer has recommended that the investment return assumption will be reduced to 7.30% in the July 1, 2019 valuation and 7.00% in the July 1, 2021 valuation.

Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study as of the issuance of this report. Subsequent to the issuance of this valuation, we completed an experience study covering the period from July 1, 2014 – June 30, 2018. On July 2, 2020, the Commission approved those assumptions for use in the July 1, 2019 actuarial valuation.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices except as noted. In particular, the assumptions (other than the investment rate of return) and methods (other than the asset method) used for funding purposes meet the requirements of the Actuarial Standards of Practice (ASOP), in particular ASOPs Nos. 4, 27 and 35. As noted above, the asset method does not meet the requirements of ASOP No. 44.

GASB 67 and 68 Reports as of June 30, 2019

The purpose of the GASB 67 and 68 Reports as of June 30, 2019 is to provide accounting and financial reporting information under GASB 67 for JRS and under GASB 68 for the State. These reports are not appropriate for other purposes, including the measurement of funding requirements for JRS.

For financial reporting purposes, the Total Pension Liability is based on the July 1, 2018 actuarial valuation updated to the measurement date of June 30, 2019. As a result of the Experience Study covering the period July 1, 2014 – June 30, 2018, the assumed rates of retirement, mortality, salary increases and inflation were updated. Additionally, the assumed discount rate used to measure the Total Pension Liability was changed as of the measurement date, decreasing from 4.09% as of June 30, 2018 to 4.07% as of June 30, 2019. 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 changes in assumptions.

Please refer to our GASB 67 and 68 Reports as of June 30, 2019 for additional information related to the financial reporting of the System. We prepared the following schedules for inclusion in the Financial Section of the CAFR based on the June 30, 2019 GASB 67 and 68 reports:

- Change in Net Pension Liability
- Sensitivity of Net Pension Liability to Changes in Discount Rate
- Schedule of Changes in Net Pension Liability and Related Ratios
- Schedule of Employer Contributions
- Notes to the Schedule of Employer Contributions

The demographic and economic (other than the investment rate of return) actuarial assumptions are based on the recommendations from the July 1, 2014 – June 30, 2018 Experience Study performed by Cheiron and approved by the State House Commission on July 2, 2020 with one exception. The calculation of Total Pension Liability as of June 30, 2019 was based on the SOA's Scale MP-2019 mortality improvement scale upon direction from the DPB. While we do not find the use of the SOA's Scale MP-2019 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. The assumptions used in the most recent reports are intended to produce results that, in the aggregate, reasonably approximate the anticipated future experience of the Plan. The next experience analysis is expected to cover the years through 2021.

Based on the State Treasurer's recommendation, the following investment return assumptions are used to determine the Statutory Contribution amounts:

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

In accordance with Paragraph 40 of GASB Statement No. 67, the projection of the Plan's fiduciary net position is based on a long-term expected rate of return of 7.00% per annum as recommended of the State Treasurer. Because the investment return assumptions and the long-term expected rate of return assumption are recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption.

We certify that the reports were performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for disclosure purposes have been prepared in accordance with our understanding of generally accepted accounting principles as promulgated by the GASB.

Disclaimers

In preparing our reports, we relied on information (some oral and some written) supplied by the Division of Pensions and Benefits (DPB). 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.

These reports are for the use of JRS, DPB and their auditor in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of these reports is not an intended user and is considered a third party.

Cheiron's reports were prepared for JRS for the purposes described herein and for use by the plan auditor in completing an audit related to matters herein. Other users of these reports are not intended as users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any such party.

These reports and their 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 opinions contained in these reports. These reports do not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Respectfully submitted,



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



Jonathan B. Chipko, FSA, MAAA, EA
Consulting Actuary



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2018. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1: Contributing Active Member Data
- A-2: Non-Contributing Active Member Data
- A-3: Inactive Member Data. Total Annual and Average Retirement Allowances by Status
- A-4: Reconciliation of Plan Membership

Table A-1 Contributing Active Member Data			
	July 1, 2018	July 1, 2017	% Change
Count	447	430	4.0%
Average Age	58.3	58.3	0.1%
Average Judicial Service	8.2	8.3	-1.2%
Average Appropriation Pay	\$ 173,968	\$ 166,013	4.8%
Total Appropriation Payroll	\$ 77,763, 777	\$ 71,385,705	8.9%

Table A-2 Non-Contributing Active Member Data			
Members Eligible for Annuity	July 1, 2018	July 1, 2017	% Change
Count	5	0	N/A
Average Age	60.7	N/A	N/A
Average Judicial Service	10.2	N/A	N/A
Average Last Reported Pay	\$ 165,000	N/A	N/A
Total Last Reported Pay	\$ 825,000	\$ 0	N/A
Members Eligible for Refund			
Count	1	0	N/A
Total Accumulated Savings Fund	\$ 43,514	N/A	N/A
Total			
Count	6	0	N/A

MEMBERSHIP INFORMATION, *continued*

Table A-3			
Inactive Member Data by Status			
	July 1, 2018	July 1, 2017	% Change
Retirees			
Count	444	442	0.5%
Annual Retirement Allowances	\$ 47,161,286	\$ 47,014,884	0.3%
Average Retirement Allowance	\$ 106,219	\$ 106,369	-0.1%
Beneficiaries			
Count	161	162	-0.6%
Annual Retirement Allowances	\$ 8,953,548	\$ 8,647,996	3.5%
Average Retirement Allowance	\$ 55,612	\$ 53,383	4.2%
Ordinary Disability			
Count	9	7	28.6%
Annual Retirement Allowances	\$ 1,049,214	\$ 818,564	28.2%
Average Retirement Allowance	\$ 116,579	\$ 116,938	-0.3%
In-Pay Total			
Count	614	611	0.5%
Annual Retirement Allowances	\$ 57,164,048	\$ 56,481,444	1.2%
Average Retirement Allowance	\$ 93,101	\$ 92,441	0.7%
Deferred Vested Members			
Count	4	4	0.0%
Annual Retirement Allowances	\$ 183,500	\$ 183,500	0.0%
Average Retirement Allowance	\$ 45,875	\$ 45,875	0.0%

QDRO benefits included with member records for valuation purposes.

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
JUDICIAL RETIREMENT SYSTEM

MEMBERSHIP INFORMATION, *continued*

Table A-4 Reconciliation of Plan Membership from July 1, 2017 to July 1, 2018							
	Contributing Actives	Non-Contributing Actives	Deferred Vested	Retired	Disabled	Beneficiaries	Total
1. July 1, 2017	430	0	4	442	7	162	1,045
2. Additions							
a. New entrants	45						45
b. New dependents						3	3
c. Data corrections							0
c. Total	45	0	0	0	0	3	48
3. Reductions							
a. Withdrawal	(2)						(2)
b. Died without beneficiary		(1)		(5)		(13)	(19)
c. Payments ceased						(1)	(1)
d. Total	(2)	(1)	0	(5)	0	(14)	(22)
4. Changes in Status							
a. Contributing Active							0
b. Non-Contributing Active	(16)	16					0
c. Deferred Vested							0
d. Retired	(9)	(7)		16			0
e. Disabled	(1)	(1)			2		0
f. Died with beneficiary		(1)		(9)		10	0
g. Total	(26)	7	0	7	2	10	0
5. July 1, 2018	447	6	4	444	9	161	1,071

QDRO benefits included with member records for valuation purposes.

ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Investment Rate of Return** 7.50% per annum, compounded annually.
- 2. Administrative Expenses** No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute.
- 3. Cost-of-Living Adjustments (COLAs)** No future COLA is assumed. Previously granted COLAs are included in the data.
- 4. Salary Increases** Salaries are assumed to increase by 2.00% per year through fiscal year 2025 and 3.00% per year for fiscal years 2026 and thereafter.

Salary increases are assumed to occur on January 1.
- 5. 401 (a)(17) Pay Limit** \$275,000 in 2018 increasing 3.00% per annum, compounded annually.
- 6. Disability** Representative disability rates are as follows:

Age	Rates
30	0.022%
35	0.026%
40	0.033%
45	0.064%
50	0.114%
55	0.197%
60	0.326%
65	0.473%

- 7. Mortality** Healthy Mortality: RP-2000 Combined Healthy Mortality Tables (unadjusted for males and set forward 3 years for females) projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB and the Content Modified 2014 Projection scale thereafter.

Disabled Mortality: RP-2000 Disability Mortality Tables (set forward 2 years for males and females) without projection.

ACTUARIAL ASSUMPTIONS AND METHODS, continued

8. Retirement

Retirement Rates				
Age	Age 60 with 20 Years of Judicial Service or Age 65 with 15 Years of Judicial Service	After Age 59 with Less than 12 Years of Judicial Service	After Age 59 with 12 or More Years of Judicial Service (but have not attained 60/20JS or 65/15JS)	Prior to age 60 with 5 Years of Judicial Service and 25 Years of Public Service
50	0.0%	0.0%	0.0%	0.0%
51	0.0	0.0	0.0	0.0
52	0.0	0.0	0.0	0.0
53	0.0	0.0	0.0	0.0
54	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0
56	0.0	0.0	0.0	0.0
57	0.0	0.0	0.0	0.0
58	0.0	0.0	0.0	0.0
59	0.0	0.0	0.0	0.0
60	30.0	2.5	0.0	0.0
61	20.0	2.5	0.0	0.0
62	20.0	2.5	0.0	0.0
63	30.0	2.5	0.0	0.0
64	30.0	2.5	0.0	0.0
65	37.5	2.5	10.0	0.0
66	24.0	2.5	0.0	0.0
67	24.0	2.5	0.0	0.0
68	24.0	2.5	0.0	0.0
69	24.0	2.5	0.0	0.0

100% at age 70.

9. Termination

None assumed.

10. Family Composition Assumptions

For members not currently in receipt, 90% of members are assumed married. Husbands are assumed to be three years older than wives.

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 with husbands assumed to be three years older than wives.

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

For purposes of the statutory death benefit for members currently in receipt, 100% of participants are assumed married, with the exception of those members who elected Optional Forms A, B, C or D and are currently in receipt of their maximum retirement allowance. The spouse is assumed to be the reported beneficiary. If no beneficiary date of birth is provided, husbands are assumed to be three years older than wives.

No additional dependent children or parents are assumed.

Current dependents under age 21 are assumed to receive a benefit until age 21. Current dependents over age 21 are assumed to receive a benefit for the remainder of their lifetime.

11. Form of Payment

Current actives are assumed to elect the Maximum Option.

12. Data

Information provided by the prior actuary was relied upon for the purposes of valuing the deferred vested members.

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

Inactives receiving benefits according to the 2017 data but omitted from the 2018 data are assumed to have died without a beneficiary.

13. Rationale for Assumptions

The demographic assumptions used in this report reflect the results of the July 1, 2011 - June 30, 2014 Experience Study prepared by the prior actuary, which was approved by the State House Commission on October 26, 2015. The valuation is based on a 7.50% interest rate and annual salary increases that are 0.5% lower than the rates shown in the experience study, which were recommended by the State Treasurer. Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not performed our own actuarial experience study.

14. Changes in Assumptions Since Last Valuation

None

B. Projection Assumptions

1. Investment Rate of Return

- 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. Appropriation Percentages

The State is assumed to appropriate 70% of the Statutory contribution in FYE 2020, and to increase the percent by 10% a year, until reaching 100% of the Statutory contribution beginning with FYE 2023.

3. Administrative Expenses

0.32% of expected pension benefit payments for the year.

ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

- 4. New Entrants**
- Contributing active population assumed to remain at 2018 levels.
 - Assumed to join mid-year.
 - Age/sex distributions based on the last three years of new hires.
 - Salary based on salary for most recent hires reported on 2018 data.
- 5. Demographic Assumptions** Same as those used for valuation purposes.

C. Actuarial Methods

The actuarial methods used for determining State contributions are described as follows.

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 judicial service. 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.

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.

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 return on the previous year's assets and the 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. State Contribution Payable Dates

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.

4. Changes in Methods Since the Last Valuation

None.

SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the JRS used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 43, Chapter 6A, 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

Chief Justice and Associate Justices of the State Supreme Court, and judges of the Appellate Court, Superior Court and Tax Court of the State of New Jersey.

2. Plan Year

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

3. Service Credit

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

4. Final Salary

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

5. Accumulated Deductions

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

6. Employee Contributions

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

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

a) For Members enrolled prior to January 1, 1996:

(1) Member contributes 9% (phased in over a period of seven years beginning October 2011) of the salary for that position on January 18, 1982.

(2) Member contributes 12% (9% of that phased in over a period of seven years beginning October 2011) of the difference between current salary and salary for that position on January 18, 1982.

b) For members enrolled on or after January 1, 1996, Member contributes 12% (9% of that phased in over a period of seven years beginning October 2011) of full salary.

7. Retirement Allowance

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

SUMMARY OF PLAN PROVISIONS, *continued*

8. Benefits

a) Service Retirements

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

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

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

- (2) Age 65 while serving as a judge, 5 consecutive years of judicial service and 15 years in the aggregate of public service; or Age 60 while serving as a judge, 5 consecutive years of judicial service and 20 years in the aggregate of public service.

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

- (3) Age 60 while serving as a judge, 5 consecutive years of judicial service and 15 years in the aggregate of public service.

Benefit is an annual retirement allowance equal to 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year of public service in excess of 25 years.

- (4) Age 60 while serving as a judge.

Benefit is an annual retirement allowance equal to 2% of final salary for each year of judicial service up to 25 years plus 1% for each year of public service in excess of 25 years.

b) Early Retirement

Prior to age 60 while serving as a judge, 5 consecutive years of judicial service and 25 or more years in the aggregate of public service.

Benefit is an annual retirement allowance equal to 2% of final salary for each year of public service up to 25 years plus 1% of final salary for each year of public service in excess of 25 years, actuarially reduced for commencement prior to age 60.

c) Vested Termination

Termination of service prior to age 60, with 5 consecutive years of judicial service and 10 years in the aggregate of public service.

Benefit is a refund of accumulated deductions, or a deferred life annuity beginning at age 60 equal to 2% of final salary for each year of public service up to 25 years, plus 1% of final salary for each year of public service in excess of 25 years.

d) Disability Retirement

Physically or otherwise incapacitated for the full and efficient service to State in his judicial capacity and such incapacity is likely to be permanent.

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

e) Death Benefits

- (1) Before Retirement: Death of an active member of the plan. Benefit is equal to:

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

SUMMARY OF PLAN PROVISIONS, *continued*

(2) After Retirement: Death of a retired member of the plan. The benefit is equal to:

- a) Lump sum of 25% of final salary for a member retired under service or early retirement. For a member receiving a disability benefit, a lump sum of 150% of final salary if death occurred before the member attained age 60 and 25% of final salary if death occurred after age 60, plus
- b) Spousal life annuity of 25% of final salary adjusted for any previously granted Cost-of-Living Adjustments, or the salary of an active judge in the member's final position at retirement, if larger, 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 final salary payable to one (two, three or more) dependent child(ren). This is also known as the statutory death benefit.

9. Forms of Payment

In addition to the post retirement death benefits listed above, the member may elect the following forms of payment.

- a) Maximum Option: Single life annuity with a return of the balance of the member accumulated deductions with 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

10. Changes in Plan Provisions since Last Valuation

None.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), we prepared the following schedules for the System. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

Table D-1
Schedule of Retirees and Beneficiaries
Added to and Removed from Rolls

Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance ¹	% Increase in Average Annual Allowance ¹
	Number ¹	Annual Allowance	Number ¹	Annual Allowance	Number ¹	Annual Allowance		
2018	31	\$ 2,668,375	28	\$ 1,958,556	614	\$ 57,164,048	\$ 93,101	2.69%
2017	37	3,058,274	19	1,670,094	623	56,481,444	90,660	-0.44%
2016	41	3,599,047	22	1,471,553	605	55,093,264	91,063	0.75%
2015	43	4,254,340	18	1,234,963	586	52,965,770	90,385	1.52%
2014	34	3,165,378	22	1,456,153	561	49,946,393	89,031	1.33%
2013	48	4,091,470	34	2,021,915	549	48,237,168	87,864	1.82%

¹Beginning with the 2018 valuation, QDRO records excluded from head-counts and QDRO benefits included with member records. This change resulted in 12 fewer records on the rolls as of July 1, 2018.

Table D-2
Schedule of Active Member Valuation Data

Valuation Date JULY 1,	Number of Contributing Active Members ¹	Annual Compensation ¹	Annual Average Compensation ¹	% Increase in Average Annual Compensation ¹
2018	447	\$ 77,763,777	\$ 173,968	4.79%
2017	430	71,385,705	166,013	0.00%
2016	410	68,062,584	166,006	-0.05%
2015	404	67,097,166	166,082	-0.14%
2014	397	66,028,491	166,319	0.32%
2013	409	67,810,110	165,795	-0.03%

¹ Prior to July 1, 2018, includes non-contributing active members.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-3
Schedule of Funding Progress

Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll ² (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$ 209,981,271	\$ 670,562,613	\$ 460,581,342	31.31%	\$ 77,763,777	592.28%
2017	216,952,852	646,507,109	429,554,257	33.56%	71,385,705	601.74%
2016	226,310,119	629,810,812	403,500,693	35.93%	68,062,584	592.84%
2015	243,864,022	602,364,200	358,500,178	40.48%	67,097,166	534.30%
2014	258,101,497	632,679,937	374,578,440	40.79%	66,028,491	567.30%
2013	276,966,331	620,376,292	343,409,961	44.64%	67,810,110	506.43%

¹Includes receivable amounts.

Table D-4
Schedule of Funded Liabilities by Type (Solvency Test)

Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ²	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vested ¹ (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer ¹ (3)		(1)	(2)	(3)
2018	\$ 44,573,503	\$ 474,289,256	\$ 151,699,854	\$ 209,981,271	100.00%	34.87%	0.00%
2017	37,093,233	471,714,228	137,699,648	216,952,852	100.00%	38.13%	0.00%
2016	31,564,870	460,298,517	137,947,425	226,310,119	100.00%	42.31%	0.00%
2015	26,322,768	430,541,499	145,499,933	243,864,022	100.00%	50.53%	0.00%
2014	23,058,086	444,577,573	165,044,278	258,101,497	100.00%	52.87%	0.00%
2013	20,588,967	435,970,958	163,816,367	276,966,331	100.00%	58.81%	0.00%

¹Prior to July 1, 2018, actuarial accrued liability for deferred vesteds included under (3) instead of (2).

²Includes receivable amounts.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, continued

**Table D-5
 Analysis of Financial Experience
 Change in Unfunded Actuarial Accrued Liability**

Valuation Date JULY 1,	Actuarial Value of Assets Investment (Gain)/Loss	Actuarial Accrued Liability (Gain)/Loss	Assumption & Method Changes	Plan Changes	Contributions¹	Change in Unfunded Actuarial Accrued Liability
2018	\$ 3,628,245	\$ 11,259,223	\$ 240,890	0	\$ 15,898,727	\$ 31,027,085
2017	4,846,305	(4,615,530)	7,782,928	0	18,039,861	26,053,564
2016	7,475,692	6,312,912	7,095,990	0	24,115,921	45,000,515
2015	4,537,795	(2,080,753)	(46,435,820)	0	27,900,516	(16,078,262)
2014	3,383,419	(5,591,539)	550,325	0	32,826,274	31,168,479
2013	8,171,361	(2,041,123)	0	0	22,290,931	28,421,169

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.



Classic Values, Innovative Advice

September 29, 2020
Board of Trustees
Consolidated Police and Firemen's Pension Fund
of New Jersey

Re: Actuary's Certification Letter

Members of the Commission:

This is the Actuary's Certification Letter for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the Consolidated Police and Firemen's Pension Fund of New Jersey (CPFPPF or Fund) as of June 30, 2019. This letter includes references to two documents produced by Cheiron for the Fund: the Actuarial Valuation Report as of July 1, 2018 (transmitted April 24, 2019) and the GASB 67 Report as of June 30, 2019 (transmitted March 2020).

Actuarial Valuation Report as of July 1, 2018

The purpose of the annual Actuarial Valuation Report as of July 1, 2018 is to determine the actuarial funding status of CPFPPF on that date and to calculate the Statutory Contribution amount for the State for the Fiscal Year Ending 2020. The prior review was conducted as of July 1, 2017, and included the Statutory Contribution amount for the Fiscal Year Ending 2019.

This funding valuation excludes assets and liabilities associated with Cost-of-Living Adjustments. The Cost-of-Living Adjustments are separately funded on a pay-as-you-go basis through the Pension Adjustment Fund, which was established pursuant to Chapter 143, P.L. 1958.

Actuarial funding is based on the Projected Unit Credit Cost Method. The Statutory Contribution amounts contain two components: the employer normal cost (cost of benefits for the upcoming year) and an amortization for the unfunded actuarial liability (UAL). Since CPFPPF does not have any active members, there is no normal cost component. Also, because CPFPPF has a surplus (assets in excess of actuarial liability), there is no UAL funding component. The funding methodology prescribed by the N.J. State Statutes does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption and are unable to evaluate whether the investment rate of return assumption includes an appropriate adjustment for administrative expenses.

The UAL as of June 30, 1990 was amortized over a closed period of nine years. Without additional guidance, we have assumed that any future UAL will be amortized over one year.

For actuarial valuation purposes, assets are valued at Actuarial Value as prescribed in the N.J. State Statutes. Under this method, the assets used to determine the Statutory Contribution amounts take into account market value by spreading all investment gains and losses (returns above or below expected returns) over a rolling five year period.

The actuarial value of assets is intended to dampen the volatility in the market value of assets, resulting in a smoother pattern of contributions. Actuarial Standards of Practice (ASOP) No. 44 states that the asset valuation method should produce an actuarial value of assets that falls within a reasonable range of market value, recognizes the difference between the market value and actuarial value of assets within a reasonably short period of time, and is likely to produce actuarial value of assets that are sometimes greater than and sometimes less than the corresponding market

values. The asset method required under the N.J. State Statutes does not meet the requirements of ASOP No. 44 because this method has produced actuarial value of assets which have consistently been greater than the market value of assets and recognizes investment losses slowly over time. Additionally, the method may produce an actuarial value of assets that falls outside of a reasonable range of the market value.

We prepared the following schedules, which we understand will be included in the Actuarial Section of the CAFR, based on the July 1, 2018 actuarial valuation. All historical information prior to the July 1, 2018 actuarial valuation shown in these schedules is based on information reported by the prior actuary, Buck Global, LLC.

- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Funding Progress
- Schedule of Funded Liabilities by Type (formerly referred to as the Solvency Test)
- Analysis of Financial Experience: Change in Unfunded Actuarial Accrued Liability
- Summary of Plan Provisions
- Summary of Current Actuarial Assumptions and Methods
- Membership Information (Active, Deferred Vested, and Retired)

The actuarial assumptions are the same as those used by the prior actuary. Cheiron has reviewed the demographic and economic assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study as of the issuance of this report. Subsequent to the issuance of this valuation, we completed a draft experience study dated October 23, 2019 and approved by the Division of Pensions and Benefits (DPB) for use in the July 1, 2019 actuarial valuation.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices except as noted. In particular, the assumptions and methods (other than the asset method) used for funding purposes meet the requirements of the Actuarial Standards of Practice (ASOP), in particular ASOPs Nos. 4, 27 and 35. As noted above, the asset method does not meet the requirements of ASOP No. 44.

GASB 67 Report as of June 30, 2019

The purpose of the GASB 67 Report as of June 30, 2019 is to provide accounting and financial reporting information under GASB 67 for CPFPF. This report is not appropriate for other purposes, including the measurement of funding requirements for CPFPF.

For financial reporting purposes, the Total Pension Liability is based on the July 1, 2018 actuarial valuation updated to the measurement date of June 30, 2019. As a result of the draft Experience Study dated October 23, 2019, the assumed rates of mortality were updated. Additionally, the assumed discount rate used to measure the Total Pension Liability was changed as of the measurement date, decreasing from 3.87% as of June 30, 2018 to 3.50% as of June 30, 2019. 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 changes in assumptions.

Please refer to our GASB 67 Report as of June 30, 2019 for additional information related to the financial reporting of the Fund. We prepared the following schedules for inclusion in the Financial Section of the CAFR based on the June 30, 2019 GASB 67 report:

- Change in Net Pension Liability
- Sensitivity of Net Pension Liability to Changes in Discount Rate
- Schedule of Employer Contributions
- Notes to the Schedule of Employer Contributions

The demographic and economic actuarial assumptions are based on the recommendations from the draft Experience Study dated October 23, 2019, performed by Cheiron and approved by the DPB, with one exception. The calculation of Total Pension Liability as of June 30, 2019 was based on the SOA's Scale MP-2019 mortality improvement scale upon direction from the DPB. The assumptions used in the most recent report are intended to produce results that, in the aggregate, reasonably approximate the anticipated future experience of the Plan. The next experience analysis is expected to cover the years through 2021.

The State prescribed the use of an expected long-term rate of return based on the Bond Buyer Go 20-Bond Municipal Bond Index for GASB 67 purposes in lieu of the 2.00% long-term rate of return used for funding.

We certify that the reports were performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for disclosure purposes have been prepared in accordance with our understanding of generally accepted accounting principles as promulgated by the GASB.

Disclaimers

In preparing our reports, we relied on information (some oral and some written) supplied by the DPB. 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.

These reports are for the use of CPFPPF, DPB and their auditor in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of these reports is not an intended user and is considered a third party.

Cheiron's reports were prepared for CPFPPF for the purposes described herein and for use by the plan auditor in completing an audit related to matters herein. Other users of these reports are not intended as users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any such party.

These reports and their 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 opinions contained in these reports. These reports do not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Respectfully submitted,



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



Jonathan B. Chipko, FSA, MAAA, EA
Consulting Actuary



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2018. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1 and A-2: Inactive Member Data by Age and Status
- A-3: Reconciliation of Plan Membership

Table A-1			
Counts by Age and Status of Inactive Members			
as of July 1, 2018			
Attained Age	Status		Total
	Retiree	Beneficiary	
Under 45	0	0	0
45-49	0	0	0
50-54	0	0	0
55-59	0	0	0
60-64	0	1	1
65-69	0	0	0
70-74	0	4	4
75-79	0	3	3
80-84	0	6	6
85 & Over	2	46	48
Total	2	60	62

MEMBERSHIP INFORMATION, continued

Table A-2 Annual Retirement Allowances by Age and Status of Inactive Members as of July 1, 2018			
Attained Age	Status		Total
	Retiree	Beneficiary	
Under 45	\$ 0	\$ 0	\$ 0
45-49	0	0	0
50-54	0	0	0
55-59	0	0	0
60-64	0	3,575	3,575
65-69	0	0	0
70-74	0	9,018	9,018
75-79	0	7,409	7,409
80-84	0	30,433	30,433
85 & Over	43,143	350,500	393,643
Total	\$ 43,143	\$ 400,935	\$ 444,078

Table A-3 Reconciliation of Plan Members from July 1, 2017 to July 1, 2018			
	Retired	Beneficiaries	Total
1. July 1, 2017	2	75	77
2. Reductions			
a. Died without beneficiary		(15)	(15)
3. Changes in Status			
a. Died with beneficiary			
4. July 1, 2018	2	60	62

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Investment Rate of Return** 2.00% compounded annually.
- 2. Administrative Expenses** No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute.
- 3. Mortality** RP-2000 Combined Healthy Mortality Tables projected on a generational basis from the base year of 2000 to 2014 using Projection scale BB as the base tables. Tables are further projected beyond the valuation date using the Content Modified 2014 projection scale.
- 4. Family Composition Assumptions**

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

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

Males are assumed to be four years older than females.

No assumption was made for children.
- 5. Rationale for Assumptions** The actuarial assumptions were adopted by the Division of Pensions and Benefits with the demographic assumptions based on recommendations from the prior actuary. Cheiron has reviewed the assumptions. While we consider these assumptions to be generally reasonable, we have not yet performed our own actuarial experience study.
- 6. Changes in Actuarial Assumptions since Last Valuation** None.

B. Actuarial Methods

The actuarial methods used for determining State 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 allocated to periods prior to the valuation year. The unfunded actuarial liability is the actuarial liability on the valuation date less the actuarial value of assets.

The unfunded actuarial liability as of June 30, 1990 was amortized over a closed period of nine years. Without additional guidance, we assumed that if there is an unfunded actuarial liability in the future it will be amortized over one year.

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS, *continued*

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 an annual rate of the prior year's investment rate of return, with a further adjustment to reflect 20% of the difference between the resulting value and the actual market value of Plan assets.

3. State Contribution Payable Dates

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.

4. Changes in Actuarial Methods Since Last Valuation

None.

SUMMARY OF PLAN PROVISIONS

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

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

2. Active Member

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

3. Employee Member

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

4. Plan Year

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

5. Service Credit

Service rendered while a member as described above.

6. Compensation

Base salary, not including individual salary adjustments which are granted primarily in anticipation of retirement or additional remuneration for performing temporary duties beyond the regular workday. (Effective June 30, 1996, Chapter 113, P.L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the program cannot exceed the compensation limitation of Section 401 (a)(17) of the Internal Revenue Code.)

7. Final Compensation

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

8. Average Salary

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

9. Contributions

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

SUMMARY OF PLAN PROVISIONS, *continued*

10. Benefits

a) Service Retirements:

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

b) Death Benefits

(1) While on Duty

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

(2) While not on duty after retirement

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

c) Ordinary Disability Retirement

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

d) Accidental Disability Retirement

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

e) Cost-of-Living Adjustments

Cost-of-living increases are granted to retired members and their eligible survivors in accordance with the Pension Adjustment Act. The additional liability due to the pension adjustment is paid by the Pension Adjustment Fund, which was established pursuant to Chapter 143, P.L. 1958. Chapter 78, P.L. 2011 suspended the cost of living adjustments for current and future retirees and beneficiaries until reactivated as permitted by law.

11. Changes in Plan Provisions Since Last Valuation

No changes.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), we prepared the following schedules for the Fund. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

Table D-1
Schedule of Retirees and Beneficiaries Added to and Removed from Rolls

Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance	% Increase (Decrease) in Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance		
2018	0	\$ 0	15	\$ 96,452	62	\$ 444,078	\$ 7,163	2.04%
2017	0	0	18	117,408	77	540,530	7,020	1.36%
2016	0	0	29	164,935	95	657,938	6,926	4.37%
2015	0	0	25	210,952	124	822,873	6,636	(4.35%)
2014	0	0	36	268,424	149	1,033,825	6,938	(1.43%)
2013	0	0	56	414,903	185	1,302,249	7,039	(1.21%)

Table D-2
Schedule of Funding Progress

Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a)/(b)	Covered Payroll (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c)/(d)
2018	\$ 2,313,665	\$ 2,186,581	\$ (127,084)	105.81%	\$ 0	N/A
2017	2,721,368	2,674,728	(46,640)	101.74%	0	N/A
2016	3,017,928	3,336,743	318,815	90.45%	0	N/A
2015	3,340,908	4,208,241	867,333	79.39%	0	N/A
2014	4,366,457	4,848,499	482,042	90.06%	0	N/A
2013	6,445,847	6,102,292	(343,555)	105.63%	0	N/A

¹ Includes receivable amounts.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-3
Schedule of Funded Liabilities by Type (Solvency Test)

Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ¹	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vesteds (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer (3)		(1)	(2)	(3)
2018	\$ 0	\$ 2,186,581	\$ 0	\$ 2,313,665	N/A	100.00%	N/A
2017	0	2,674,728	0	2,721,368	N/A	100.00%	N/A
2016	0	3,336,743	0	3,017,928	N/A	90.45%	N/A
2015	0	4,208,241	0	3,340,908	N/A	79.39%	N/A
2014	0	4,848,499	0	4,366,457	N/A	90.06%	N/A
2013	0	6,102,292	0	6,445,847	N/A	100.00%	N/A

¹ Includes receivable amounts.

Table D-4
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Valuation Date JULY 1,	Actuarial Value of Assets Investment (Gain)/(Loss)	Actuarial Accrued Liability (Gain)/(Loss)	Assumption & Method Changes	Plan Changes	Contributions ¹	Change in Unfunded Actuarial Accrued Liability
2018	\$ 137,551	\$ (63,930)	\$ 10,670	\$ 0	\$ (164,735)	\$ (80,444)
2017	164,069	(154,174)	0	0	(375,350)	(365,455)
2016	194,017	(264,949)	0	0	(477,586)	(548,518)
2015	228,240	(201,179)	348,589	0	9,641	385,291
2014	265,707	(314,561)	0	0	874,451	825,597
2013	306,998	(650,553)	0	0	(847,099)	(1,190,654)

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.



Classic Values, Innovative Advice

September 29, 2020

Board of Trustees

Prison Officers' Pension Fund

of New Jersey

Re: Actuary's Certification Letter

Dear Board Members:

This is the Actuary's Certification Letter for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the Prison Officers' Pension Fund of New Jersey (POPF or Fund) as of June 30, 2019. This letter includes references to two documents produced by Cheiron for the Fund: the Actuarial Valuation Report as of July 1, 2018 (transmitted April 26, 2019) and the GASB 67 Report as of June 30, 2019 (transmitted March 2020).

Actuarial Valuation Report as of July 1, 2018

The purpose of the annual Actuarial Valuation Report as of July 1, 2018 is to determine the actuarial funding status of POPF on that date and to calculate the Statutory Contribution amount for the State for the Fiscal Year Ending 2020. The prior review was conducted as of July 1, 2017, and included the Statutory Contribution amount for the Fiscal Year Ending 2019.

This funding valuation excludes assets and liabilities associated with Cost-of-Living Adjustments. The Cost-of-Living Adjustments are separately funded on a pay-as-you-go basis through the Pension Adjustment Fund, which was established pursuant to Chapter 143, P.L. 1958.

Actuarial funding is based on the Projected Unit Credit Cost Method. The Statutory Contribution amounts contain two components: the employer normal cost (cost of benefits for the upcoming year) and an amortization for the unfunded actuarial liability (UAL). Since POPF does not have any active members, there is no normal cost component. Also, because POPF has a surplus (assets in excess of actuarial liability), there is no UAL funding component. The funding methodology prescribed by the N.J. State Statute does not include a cost component for administrative expenses, and therefore administrative expenses are implicitly covered by the investment rate of return assumption. Because the investment return assumption is recommended by the State Treasurer, we provide no opinion on the reasonableness of the assumption and are unable to evaluate whether the investment rate of return assumption includes an appropriate adjustment for administrative expenses.

The UAL as of July 1, 1988 was amortized over a closed period of 14 years. Without additional guidance, we have assumed that any future UAL will be amortized over one year.

For actuarial valuation purposes, assets are valued at market value.

We prepared the following schedules, which we understand will be included in the Actuarial Section of the CAFR, based on the July 1, 2018 actuarial valuation. All historical information prior to the July 1, 2018 actuarial valuation shown in these schedules is based on information reported by the prior actuary, Buck Global, LLC.

- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Funding Progress
- Schedule of Funded Liabilities by Type (formerly referred to as the Solvency Test)
- Analysis of Financial Experience: Change in Unfunded Actuarial Accrued Liability

- Summary of Plan Provisions
- Summary of Current Actuarial Assumptions and Methods
- Membership Information (Active, Deferred Vested, and Retired)

The actuarial assumptions are the same as those used by the prior actuary. Cheiron has reviewed the demographic and economic assumptions. While we consider the demographic assumptions to be generally reasonable, we have not yet performed our own actuarial experience study as of the issuance of this report. The assumed investment rate of return of 5.00% appears high compared to recent Fund experience. While we continue to use this prescribed assumption, we recommend the State review this assumption in light of the Fund's asset allocation. Currently, the Fund's assets are all invested in the State of New Jersey Cash Management Fund, which holds only very short term, high quality fixed income securities, commercial paper, certificates of deposit and money market funds. Subsequent to the issuance of this valuation, we completed a draft experience study dated October 23, 2019 and approved by the Division of Pensions and Benefits (DPB) for use in the July 1, 2019 actuarial valuation.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices except as noted. In particular, the assumptions (other than the investment rate of return) and methods used for funding purposes meet the requirements of the Actuarial Standards of Practice (ASOP), in particular ASOPs Nos. 4, 27, 35 and 44.

GASB 67 Report as of June 30, 2019

The purpose of the GASB 67 Report as of June 30, 2019 is to provide accounting and financial reporting information under GASB 67 for POPF. This report is not appropriate for other purposes, including the measurement of funding requirements for POPF.

For financial reporting purposes, the Total Pension Liability is based on the July 1, 2018 actuarial valuation updated to the measurement date of June 30, 2019. As a result of the draft Experience Study dated October 23, 2019, the assumed rates of mortality were updated. Additionally, the assumed discount rate used to measure the Total Pension Liability was changed as of the measurement date, decreasing from 3.87% as of June 30, 2018 to 3.50% as of June 30, 2019. 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 changes in assumptions.

Please refer to our GASB 67 Report as of June 30, 2019 for additional information related to the financial reporting of the Fund. We prepared the following schedules for inclusion in the Financial Section of the CAFR based on the June 30, 2019 GASB 67 report:

- Change in Net Pension Liability
- Sensitivity of Net Pension Liability to Changes in Discount Rate
- Schedule of Employer Contributions
- Notes to the Schedule of Employer Contributions

The demographic and economic actuarial assumptions are based on the recommendations from the draft Experience Study dated October 23, 2019, performed by Cheiron and approved by the DPB, with one exception. The calculation of Total Pension Liability as of June 30, 2019 was based on the SOA's Scale MP-2019 mortality improvement scale upon direction from the DPB. The assumptions used in the most recent report are intended to produce results that, in the aggregate, reasonably approximate the anticipated future experience of the Plan. The next experience analysis is expected to cover the years through 2021.

The State prescribed the use of an expected long-term rate of return based on the Bond Buyer Go 20-Bond Municipal Bond Index for GASB 67 purposes in lieu of the 2.00% long-term rate of return used for funding (as recommended in the draft Experience Study dated October 23, 2019 and approved by the DPB).

We certify that the reports were performed in accordance with generally accepted actuarial principles and practices. In particular, the assumptions and methods used for disclosure purposes have been prepared in accordance with our understanding of generally accepted accounting principles as promulgated by the GASB.

Disclaimers

In preparing our reports, we relied on information (some oral and some written) supplied by the DPB. 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.

These reports are for the use of POPF, DPB and their auditor in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of these reports is not an intended user and is considered a third party.

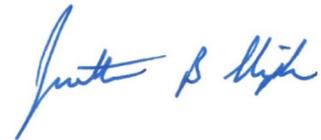
Cheiron's reports were prepared for POPF for the purposes described herein and for use by the plan auditor in completing an audit related to matters herein. Other users of these reports are not intended as users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any such party.

These reports and their 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 opinions contained in these reports. These reports do not address any contractual or legal issues. We are not attorneys, and our firm does not provide any legal services or advice.

Respectfully submitted,



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



Jonathan B. Chipko, FSA, MAAA, EA
Consulting Actuary



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of July 1, 2018. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1 and A-2: Inactive Member Data by Age and Status
- A-3: Reconciliation of Plan Membership

Table A-1 Counts by Age and Status of Inactive Members					
Attained Age	Status				Total
	Retiree	Beneficiary	Ordinary Disability	Accidental Disability	
Under 45	0	0	0	0	0
45-49	0	0	0	0	0
50-54	0	0	0	0	0
55-59	0	0	0	0	0
60-64	0	0	0	0	0
65-69	0	1	0	0	1
70-74	0	0	0	0	0
75-79	0	5	0	0	5
80-84	1	9	1	0	11
85 & Up	9	43	1	1	54
Total	10	58	2	1	71

Table A-2 Annual Retirement Allowances by Age and Status of Inactive Members					
Attained Age	Status				Total
	Retiree	Beneficiary	Ordinary Disability	Accidental Disability	
Under 45	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
45-49	0	0	0	0	0
50-54	0	0	0	0	0
55-59	0	0	0	0	0
60-64	0	0	0	0	0
65-69	0	5,174	0	0	5,174
70-74	0	0	0	0	0
75-79	0	32,363	0	0	32,363
80-84	25,660	52,430	7,701	0	85,791
85 & Up	112,859	197,550	7,655	7,258	325,322
Total	\$ 138,519	\$ 287,517	\$ 15,356	\$ 7,258	\$ 448,650

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
PRISON OFFICERS' PENSION FUND

MEMBERSHIP INFORMATION, *continued*

Table A-3				
Reconciliation of Plan Membership from July 1, 2017 to July 1, 2018				
	Retired	Disabled	Beneficiaries	Total
1. July 1,2017	12	4	61	77
2. Reductions				
a. Died without beneficiary			(6)	(6)
3. Changes in Status				
a. Died with beneficiary	(2)	(1)	3	0
4. July 1, 2018	10	3	58	71

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- | | |
|--|--|
| 1. Investment Rate of Return | 5.00% compounded annually. |
| 2. Administrative Expenses | No explicit assumption is made for administrative expenses for funding purposes per the funding methodology prescribed by NJ State Statute. |
| 3. Mortality | RP-2000 Combined Healthy Mortality Tables projected on a generational basis from the base year of 2000 to 2014 using Projection scale BB as the base tables and the tables will be further projected beyond the valuation date using the Buck Modified 2014 projection scale.

RP-2000 disabled retiree mortality table is used for the period after disability retirement for disability retirements. |
| 4. Family Composition Assumptions | Males are assumed to be 3 years older than females. No assumption was made for children. |
| 5. Rationale for Assumptions | The actuarial assumptions were adopted by the Division of Pensions and Benefits with the demographic assumptions based on recommendations from the prior actuary. Cheiron has not yet performed our own experience study. |
| 6. Changes in Actuarial Assumption since Last Valuation | None. |

B. Actuarial Methods

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 allocated to periods prior to the valuation year. The unfunded actuarial liability is the actuarial liability on the valuation date less the actuarial value of assets.

The unfunded actuarial liability as of July 1, 1988 was amortized over a closed period of 14 years. Without additional guidance, we assumed that if there is an unfunded actuarial liability in the future it will be amortized over one year.

2. Asset Valuation Method

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

3. Changes in Actuarial Methods since Last Valuation

None.

SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the POPF used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 43, Chapter 7, 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

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

2. Plan Year

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

3. Service Credit

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

4. Average Final Compensation (AFC)

Average annual compensation for the three years immediately preceding retirement, (Effective June 30, 1996, Chapter 113, P.L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the program cannot exceed the compensation limitation of Section 401 (a) (17) of the Internal Revenue Code.)

5. Accumulated Deductions

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

6. Benefits

a) Service Retirements

25 years of service, or age 55 and 20 years of service. The benefit is a life annuity equal to the greater of (1), (2), and (3) below:

- (1) 2% of AFC up to 30 years of service plus 1% for each year in excess of 30 and prior to age 65;
- (2) 50% of final pay; and
- (3) For a member with 25 years of service, 2% of AFC up to 30 years of service plus 1 % for each year in excess of 30.

b) Vested Retirements

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

- (1) Termination with 10 or more years of service: Benefit is a deferred life annuity payable at age 55 equal to 2% of AFC for service up to 30 years plus 1 % for service over 30 years.
- (2) Termination with less than 10 years of service: Refund of accumulated deductions.

c) Ordinary Disability Retirement

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

SUMMARY OF PLAN PROVISIONS, *continued*

d) Accidental Disability Retirement

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

e) Death Benefits

Spouse must be either married to the member prior to retirement, or at least five years before the member's death. Benefit is an annuity equal to 25% of member's AFC, plus an additional 15% for one surviving dependent child or 25% for at least two surviving dependent children.

If there is no surviving spouse or spouse remarries, an annuity equal to 20% of member's AFC will be given to one surviving dependent child, or 35% of the member's AFC to two surviving dependent children, or 50% of the member's AFC to three or more surviving dependent children.

If there is no surviving spouse or child, an annuity equal to 25% of member's AFC will be given to one dependent parent or 40% to two dependent parents, provided the member has not retired.

Minimum spousal annuity is \$1,600 per annum. If no other benefit is payable prior to retirement, the member's beneficiary will receive the accumulated deductions.

f) Cost-of- Living Adjustments

Cost-of-living increases are granted to retired members and their eligible survivors in accordance with the Pension Adjustment Act. The additional liability due to the pension adjustment is paid by the Pension Adjustment Fund, which was established pursuant to Chapter 143, P.L. 1958. Chapter 78, P.L. 2011 suspended the cost of living adjustments for current and future retirees and beneficiaries until reactivated as permitted by law.

7. Employee Contributions

Each member contributes 6% of compensation.

8. Changes in Plan Provisions Since Last Valuation

None.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), we prepared the following schedules for the Fund. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability used elsewhere in this report.

Table D-1
Schedule of Retirees and Beneficiaries Added to and Removed from Rolls

Valuation Date JULY 1,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance	% Increase (Decrease) in Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance		
2018	3	\$ 14,633	9	\$ 54,505	71	\$ 448,650	\$ 6,319	(0.39%)
2017	1	5,776	14	96,732	77	488,522	6,344	(1.48%)
2016	1	10,055	9	82,458	90	579,478	6,439	(3.20%)
2015	2	11,794	14	152,980	98	651,881	6,652	(7.74%)
2014	1	7,671	12	71,652	110	793,067	7,210	1.79%
2013	1	2,856	15	82,854	121	857,048	7,083	2.05%

Table D-2
Schedule of Funding Progress

Valuation Date JULY 1,	Actuarial Value of Assets ¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$ 5,223,456	\$ 2,595,221	\$ (2,628,235)	201.27%	\$ 0	N/A
2017	5,620,868	2,849,732	(2,771,136)	197.24%	0	N/A
2016	6,111,233	3,461,099	(2,650,134)	176.57%	0	N/A
2015	6,704,568	3,889,524	(2,815,044)	172.38%	0	N/A
2014	7,383,201	4,301,307	(3,081,894)	171.65%	0	N/A
2013	8,171,920	4,748,938	(3,422,982)	172.08%	0	N/A

¹Includes receivable amounts.

HISTORICAL DATA AND REQUIRED CAFR EXHIBITS, *continued*

Table D-3
Schedule of Funded Liabilities by Type (Solvency Test)

Valuation Date JULY 1,	Actuarial Accrued Liabilities For			Actuarial Value of Assets ¹	Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Contributing & Non-Contributing Active Member Contributions (1)	Retirees, Beneficiaries & Deferred Vesteds (2)	Contributing & Non-Contributing Active Member Benefits Financed by Employer (3)		(1)	(2)	(3)
2018	\$ 0	\$ 2,595,221	\$ 0	\$ 5,223,456	N/A	100.00%	N/A
2017	0	2,849,732	0	5,620,868	N/A	100.00%	N/A
2016	0	3,461,099	0	6,111,233	N/A	100.00%	N/A
2015	0	3,889,524	0	6,704,568	N/A	100.00%	N/A
2014	0	4,301,307	0	7,383,201	N/A	100.00%	N/A
2013	0	4,748,938	0	8,171,920	N/A	100.00%	N/A

¹ Includes receivable amounts.

Table D-4
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Valuation Date JULY 1,	Actuarial Value of Assets Investment (Gain)/(Loss)	Actuarial Accrued Liability (Gain)/(Loss)	Assumption & Method Changes	Plan Changes	Contributions ¹	Change in Unfunded Actuarial Accrued Liability
2018	\$ 199,280	\$ 78,644	\$ (888)	\$ 0	\$ (134,135)	\$ 142,901
2017	261,844	(254,575)	0	0	(128,271)	(121,002)
2016	302,063	(1,843)	0	0	(135,310)	164,910
2015	345,889	(281,392)	350,461	0	(148,108)	266,850
2014	381,569	124,670	0	0	(165,151)	341,088
2013	421,375	(20,326)	0	0	(175,300)	225,749

¹ Change due to contributions (greater)/less than normal cost plus interest on the Unfunded Actuarial Accrued Liability.



Classic Values, Innovative Advice

October 15, 2020

Board of Trustees

Supplemental Annuity Collective Trust of New Jersey

Re: Actuary's Certification Letter

Dear Council Members:

This is the Actuary's Certification Letter for the Actuarial Section of the Comprehensive Annual Financial Report (CAFR) for the Supplemental Annuity Collective Trust of New Jersey (SACT or Trust) as of June 30, 2019. This letter includes references to a document produced by Cheiron for the Trust: the Actuarial Valuation Report as of July 1, 2018 (transmitted October 15, 2020).

Actuarial Valuation Report as of July 1, 2018

The purpose of the annual Actuarial Valuation Report as of July 1, 2018 is to determine the actuarial funding status of SACT on that date. The prior review was conducted as of July 1, 2015. N.J. State Statute 52:18A provides for an actuarial review at least once in every three-year period. Active members of the following State-administered retirement systems make voluntary additional contributions through their retirement systems to purchase retirement annuities to supplement the benefits provided by their retirement system:

1. Public Employees' Retirement System
2. Teachers' Pension and Annuity Fund
3. Police and Firemen's Retirement System
4. State Police Retirement System
5. Judicial Retirement System

N.J. State Statutes allow for both variable and fixed annuities; however, only the variable annuity program is in operation.

N.J. State Statute 52:18A provides for the following accounts under the Variable Division:

The Variable Accumulation Account is the account to which participant contributions are credited. An individual account is maintained for each participant.

The Variable Benefit Account is the account from which the variable benefits are paid. Upon retirement, a participant's account in the Variable Accumulation Account is transferred to the Variable Benefit Account.

The Variable Reserve Account is the account to which all investment earnings or losses of the Variable Division are credited or charged. The balance of this account is distributed to the Variable Benefit Account and to the individual accounts in the Variable Accumulation Account in accordance with the rules and regulations of the council.

The actuarial liability is used for determining the funded status of the Variable Benefit Account and what levels (if any) of mortality adjustments are needed to properly maintain the funded status. The actuarial liability of the Variable Benefit Account is calculated as the actuarial present value of the projected benefits. The actuarial liability of the Variable Accumulation Account is equal to the Variable Accumulation Reserve.

For actuarial valuation purposes, assets are valued at market value.

We prepared the following schedules, which we understand will be included in the Actuarial Section of the CAFR, based on the July 1, 2018 actuarial valuation. All historical information prior to the July 1, 2018 actuarial valuation shown in these schedules is based on information reported by the

prior actuary, Buck Global, LLC.

- Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
- Schedule of Active Member Valuation Data
- Schedule of Funding Progress
- Schedule of Funded Liabilities by Type (formerly referred to as the Solvency Test)
- Analysis of Financial Experience: Change in Unfunded Actuarial Accrued Liability
- Summary of Plan Provisions
- Summary of Current Actuarial Assumptions and Methods
- Membership Information (Active, Suspended, and Retired)

The actuarial assumptions are based on the mortality experience review covering the period from July 1, 2015 through June 30, 2018 contained in Appendix E of the report and a 4.00% discount rate. The discount rate is based on administrative practice.

We certify that the valuation was performed in accordance with generally accepted actuarial principles and practices except as noted. In particular, the assumptions (other than the investment rate of return) and methods used for funding purposes meet the requirements of the Actuarial Standards of Practice (ASOP), in particular ASOPs Nos. 4, 27, 35 and 44.

Disclaimers

In preparing our report, we relied on information (some oral and some written) supplied by the DPB. 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.

This report is for the use of SACT, DPB and their auditor in preparing financial reports in accordance with applicable law and accounting requirements. Any other user of this report is not an intended user and is considered a third party.

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

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 opinions 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.

Respectfully submitted,



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



Anu Patel, FSA, MAAA, EA
Principal Consulting Actuary



Jonathan B. Chipko, FSA, MAAA, EA
Consulting Actuary



MEMBERSHIP INFORMATION

The data for this valuation was provided by the New Jersey Division of Pensions and Benefits as of June 30, 2018. Cheiron did not audit any of the data. However, we did perform an informal examination of the obvious characteristics of the data for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23. The following is a list of data charts contained in this section:

- A-1: Active Member Data by Retirement System and Plan
- A-2: Suspended Member Data by Retirement System and Plan
- A-3: Active and Suspended Member Data
- A-4: Inactive Member Data by Status
- A-5: Reconciliation of Plan Membership

MEMBERSHIP INFORMATION, continued

Table A-1			
Counts by Retirement System and Plan of Active Members¹			
	Number	Total Equity Units	Dollar Value
Public Employees' Retirement System			
Regular Plan	954	501,426.9514	\$ 54,087,521
Tax Sheltered Plan	134	90,089.1829	9,717,668
QVEC Plan	6	3,560.8594	384,100
Total	1,094	595,076.9937	\$ 64,189,289
Police and Firemen's Retirement System			
Regular Plan	881	630,683.5789	\$ 68,030,072
Total	881	630,683.5789	\$ 68,030,072
Teachers' Pension and Annuity Plan			
Regular Plan	34	17,517.1306	\$ 1,889,524
Tax Sheltered	205	198,063.0466	21,364,506
QVEC Plan	1	1,400.2619	151,042
Total	240	216,980.43991	\$ 23,405,072
State Police Retirement System			
Regular Plan	5	4,652.3359	\$ 501,834
Total	5	4,652.3359	\$ 501,834
Judicial Retirement System			
Regular Plan	2	1,676.8298	\$ 180,875
Total	2	1,676.8298	\$ 180,875
Legislative Retirement System			
Regular Plan	1	975.3346	\$ 105,207
Total	1	975.3346	\$ 105,207
Total			
Regular Plan	1,877	1,156,932.1612	\$ 124,795,033
Tax Sheltered Plan	339	288,152.2295	31,082,174
QVEC Plan	7	4,961.1213	535,142
Grand Total	2,223	1,450,045.5120	\$ 156,412,349

¹ Units for the quarter ended June 30, 2018 were distributed after that date and are not reflected in this data.

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
SUPPLEMENTAL ANNUITY COLLECTIVE TRUST

MEMBERSHIP INFORMATION, *continued*

Table A-2			
Counts by Retirement System and Plan of Suspended Members¹			
	Number	Equity Units	Dollar Value
Public Employees' Retirement System			
Regular Plan	82	6,890.1934	\$ 743,226
Tax Sheltered Plan	24	2,782.3950	300,129
Total	106	9,672.5884	\$ 1,043,355
Police and Firemen's Retirement System			
Regular Plan	13	1,538.9014	\$ 165,997
Total	13	1,538.9014	\$ 165,997
Teachers' Pension and Annuity Plan			
Regular Plan	38	4,249.3788	\$ 458,369
Tax Sheltered Plan	20	4,034.9009	435,233
Total	58	8,284.2797	\$ 893,602
State Police Retirement System			
Regular Plan	0	0	\$ 0
Total	0	0	\$ 0
Judicial Retirement System			
Regular Plan	0	0	\$ 0
Total	0	0	\$ 0
Legislative Retirement System			
Regular Plan	1	0	\$ 0
Total	1	0	\$ 0
Total			
Regular Plan	134	12,678.4736	\$ 1,367,592
Tax Sheltered Plan	44	6,817.2959	735,362
Grand Total	178	19,495.7695	\$ 2,102,954

¹ Units for the quarter ended June 30, 2018 were distributed after that date and are not reflected in this data.

MEMBERSHIP INFORMATION, *continued*

Table A-3			
Active and Suspended Member Data			
	June 30, 2018	June 30, 2015	% Change
Actives¹			
Count	2,223	2,402	-7.5%
Average Age	48.9	N/A	N/A
Equity Units	1,450,045.5120	1,673,916.6458	-13.4%
Average Equity Units	652.2922	696.8845	-6.4%
Dollar Value of Average Equity Units	\$ 70,361	\$ 62,757	12.1%
Suspended¹			
Count	178	190	-6.3%
Average Age	65.8	N/A	N/A
Equity Units	19,495.7695	18,254.4520	6.8%
Average Equity Units	109.5268	96.0761	14.0%
Dollar Value of Average Equity Units	\$ 11,814	\$ 8,652	36.5%

¹ Units for the quarter ended June 30, 2018 were distributed after that date and are not reflected in this data.

Active members are still working and contributing to the Trust and have not retired or terminated employment. Suspended members are members who are no longer contributing to the Trust, whether by choice or because of termination of employment, and have not begun collecting benefits. They may also include members who the DPB has not been able to locate.

Table A-4			
Inactive Member Data by Status			
	June 30, 2018	June 30, 2015	% Change
Retirees			
Count	324	346	-6.4%
Annual Equity Units	26,315.4276	87,5521	-13.1%
Average Annual Equity Units	81.2205	\$ 7,884	-7.2%
Dollar Value of Average Annual Equity Units	\$ 8,761		11.1%
Beneficiaries			
Count	49	50	-2.0%
Annual Equity Units	4,457.8392	4,232.3352	5.3%
Average Annual Equity Units	90.9763	84.6467	7.5%
Dollar Value of Average Annual Equity Units	\$ 9,813	\$ 7,623	28.7%
Disabled			
Count	4	5	-20.0%
Annual Equity Units	289.0248	351.6084	-17.8%
Average Annual Equity Units	72.2562	70.3217	2.8%
Dollar Value of Average Annual Equity Units	\$ 7,794	\$ 6,333	23.1%
In-Pay Total			
Count	377	401	-6.0%
Annual Equity Units	31,062.2916	34,876.9704	-10.9%
Average Annual Equity Units	82.3933	86.9750	-5.3%
Dollar Value of Average Annual Equity Units	\$ 8,888	\$ 7,832	13.5%

ACTUARIAL INFORMATION

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
SUPPLEMENTAL ANNUITY COLLECTIVE TRUST

MEMBERSHIP INFORMATION, continued

Table A-5					
Reconciliation of Plan Membership from June 30, 2015 to June 2018					
	Active & Suspended	Retired	Disabled	Beneficiaries	Total
1. June 30, 2015	2,592	346	5	50	2,993
2. Additions					
a. New entrants	338				338
b. Data correction	1	3		3	7
c. Total	<u>339</u>	<u>3</u>	<u>0</u>	<u>3</u>	<u>345</u>
3. Reductions					
a. Withdrawal	(496)				(496)
b. Died without beneficiary		(56)	(1)	(6)	(63)
c. Total	<u>(496)</u>	<u>(56)</u>	<u>(1)</u>	<u>(6)</u>	<u>(539)</u>
4. Changes in Status					
a. Retired	(34)	33			(1)
b. Disabled		(2)		2	0
c. Died without beneficiary		<u>31</u>	<u>0</u>	<u>2</u>	<u>0</u>
d. Total	<u>(34)</u>	<u>31</u>	<u>0</u>	<u>2</u>	<u>(1)</u>
5. June 30, 2018	2,401	324	4	49	2,778

SUMMARY OF ACTUARIAL ASSUMPTIONS AND METHODS

A. Actuarial Assumptions

- 1. Discount Rate** 4.00% compounded annually.
- 2. Administrative Expenses** No explicit assumption is made for administrative expenses for funding purposes.
- 3. Mortality**

Healthy Retirees and Beneficiaries (Healthy Annuitants): The Pub-2010 General Healthy Retiree mortality table [*PubG-2010 Healthy Retiree*] as published by the Society of Actuaries (SOA), unadjusted, and with future improvement from the base year of 2010 on a generational basis using the SOA's Scale MP-2018.

Disabled Retirees (Disabled Annuitants): The Pub-2010 Non-Safety Disabled Retiree mortality table [*PubNS-2010 Disabled Retiree*] as published by the SOA, unadjusted, and with future improvement from the base year of 2010 on a generational basis using the SOA's Scale MP-2018.
- 4. Missing Data**

Suspended status was assumed for members who were reported with the same number of Equity Units in this valuation and the prior valuation.

The 100% Joint & Survivor payment form was assumed for retirees who were reported with a spouse date of birth and no certain period.

A single life annuity payment form was assumed for beneficiaries who were reported with no certain period or a certain period that expired prior to the valuation date.
- 5. Rationale for Assumptions**

The discount rate is based on administrative practice as indicated by the DPB. Investment returns greater or less than the discount rate will be reflected equally in the Variable Benefit Account's actuarial liability and reserve resulting in no impact on the unfunded actuarial liability or surplus.

The mortality assumptions are based on the experience analysis shown in Appendix E.
- 6. Changes in Actuarial Assumptions since Last Valuation** The mortality assumptions were updated to use the Pub-2010 mortality tables and Scale MP-2018. For a detailed description of each of the assumptions before and after the changes reflected in this valuation, please reference Appendix E.

B. Actuarial Methods

The actuarial methods used for determining the funded status is described as follows.

- 1. Actuarial Cost Method**

The actuarial liability of the Variable Benefit Account is calculated as the actuarial present value of the projected benefits. The actuarial liability of the Variable Accumulation Account is equal to the Variable Accumulation Reserve.
- 2. Asset Valuation Method**

Assets are valued at market value.
- 3. Changes in Actuarial Methods since Last Valuation**

None.

SUMMARY OF PLAN PROVISIONS

This summary of Plan provisions provides an overview of the major provisions of the SACT used in the actuarial valuation. It is not intended to replace the more precise language of the NJ State Statutes, Title 52, Chapter 18A, 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. This valuation is prepared based on the plan provisions in effect as of June 30, 2018 and does not reflect the impact of any changes in the benefits that may have been approved after the valuation date.

1. Eligibility of Membership

Member of a State-administered retirement system who has elected to make voluntary additional contributions to the SACT or for whom an employer has agreed to purchase an annuity from the SACT.

2. Participant Accounts

NJ State Statute allows for both variable and fixed annuities; however, only the variable annuity program is in operation.

a) Participants can have accounts under three plans:

(1) SACT Regular Plan

- i. Available to all eligible employees
- ii. Contributions do not reduce participant's taxable compensation

(2) SACT Tax-Sheltered Plan

- i. Available to eligible employees of public education institutions
- ii. Contributions reduce a participant's taxable compensation

(3) Qualified Voluntary Employee Contribution Plan (QVEC)

- i. Contributions treated as IRA contributions for tax purposes
- ii. Eliminated as of January 1, 1987

b) Account values are expressed in terms of equity units. The total number of equity units in a variable account at the end of each month is determined as follows:

- (1) Number of equity units at beginning of month; plus
- (2) Number of equity units credited as of the first of the month for participant's contributions received during the preceding quarter, if any; less
- (3) Number of equity units paid out in the current month on account of terminations for death or withdrawal during the preceding month; less
- (4) Number of equity units transferred as of the first of the month for retirement during the preceding month; plus
- (5) One third of one percent of the balance so obtained.

3. Equity Units

Dollar value initially set at \$10 and recomputed at the end of each month. The dollar value varies with the investment experience of the entire variable annuity program.

4. Contributions

a) Participants

Participants may voluntarily contribute between 1% and 100% of base salary through payroll deductions. Contributions to the SACT are subject to applicable limits. Contributions may be changed or suspended at the beginning of a quarter.

SUMMARY OF PLAN PROVISIONS, *continued*

b) Employers

Employees may enter into an agreement with the employees' employer whereby the employee agrees to a reduction in salary in return for the employer's agreement to use the amount of such reduction in salary to purchase on behalf of such employee from SACT an annuity, provided that any such annuity qualifies under section 403(b) of the Internal Revenue Code of 1986, as amended.

Currently, no employers are contributing to the Trust.

5. Investments

All investments are pooled and managed by the Division of Investment, Department of Treasury, State of New Jersey.

6. Vesting

Participants are fully vested in their account values.

7. Benefits

a) Retirement

Upon retirement from a State administered retirement system. The benefit is a single cash payment equal to the participant's account value as of the close of the month in which the retirement becomes effective or a variable benefit. The variable benefit is a life annuity, expressed as a fixed number of equity units, with the payment amount determined as the actuarial equivalent of the number of equity units in the participant's account as of the close of the month in which the retirement becomes effective, multiplied by the value of the units for the prior month end.

In the event that the initial monthly payment of the variable benefit is less than \$10, the benefit is paid in a single cash payment.

b) Death Before Retirement

Upon death prior to retirement. The benefit is a single cash payment equal to the participant's account value as of the last day of the month in which death occurs. The beneficiary may elect, in lieu of a single cash payment, a life annuity under any forms of payment available to the participant.

c) Withdrawal

Upon termination from a State administered retirement system without qualifying and applying for other benefits from the Trust. The benefit is a single cash payment equal to the participant's account value as of the last day of the month in which membership in a State administered retirement system ceases.

8. Optional Forms of Payment

The member, and the beneficiary of a member who dies prior to retirement, may elect the following forms of payment.

- a) 5-year certain and life annuity.
- b) 10-year certain and life annuity.
- c) 100% joint and survivor annuity.
- d) 50% joint and survivor annuity.

9. Changes in Plan Provisions Since Last Valuation

None.

REQUIRED CAFR EXHIBITS

In accordance with the Government Finance Officers Association (GFOA) and their recommended checklist for Comprehensive Annual Financial Reports (CAFRs), we prepared the following schedules for the Trust. The GFOA checklist uses the term Actuarial Accrued Liability, which is the same as the Actuarial Liability/Present Value of Benefits used elsewhere in this report.

Table D-1
Schedule of Active Member Valuation Data

Valuation Date June 30,	Number of Active Members¹	Total Variable Equity Units¹	Average Variable Equity Units¹	% Increase (Decrease) in Average Variable Equity Units¹
2018	2,223	1,450,045.5120	652.2922	(6.40%)
2015	2,402	1,673,916.6458	696.8845	2.92%
2012	2,279	1,847,879.8189	677.1271	14.52%
2009	3,317	1,961,173.8340	591.2493	11.41%
2006	3,576	1,897,693.2350	530.6748	9.09%
2003	3,910	1,902,053.0982	486.4586	(9.34%)

¹Excludes suspended members

Units for the quarter preceding the valuation date were distributed after that date and are not reflected in data

Table D-2
Schedule of Retirees and Beneficiaries Added to and Removed from Rolls
(Allowance in Variable Equity Units)

Valuation Date June 30,	Added to Rolls		Removed from Rolls		Rolls at End of Year		Average Annual Allowance	% Increase (Decrease) in Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance		
2018	41	3,384.5208	65	7,131.7872	377	31,062.2916	82.3933	(5.27%)
2015	41	3,786.0852	94	9,951.7512	401	34,876.9704	86.9750	(3.79%)
2012	25	2,353.8420	97	9,841.6716	454	41,042.6364	90.4023	(2.02%)
2009	36	3,512.0064	113	11,157.3420	526	48,530.4660	92.2632	(0.96%)
2006	35	2,435.0580	100	9,824.2776	603	56,175.8016	93.1605	(2.10%)
2003	47	6,040.8276	118	10,755.7560	668	63,565.0212	95.1572	2.99%

REQUIRED CAFR EXHIBITS, *continued*

Table D-3
Schedule of Funding Progress

Valuation Date June 30,	Actuarial Value of Assets¹ (a)	Actuarial Accrued Liability (b)	(Surplus)/Unfunded Actuarial Accrued Liability (c) = (b) - (a)	Funded Ratio (a) / (b)	Covered Payroll (d)	(Surplus)/Unfunded Actuarial Accrued Liability as % of Covered Payroll (c) / (d)
2018	\$ 229,942,681	\$ 216,358,053	\$ (13,584,628)	106.28%	N/A	N/A
2015	206,729,868	196,810,185	(9,919,683)	105.04%	N/A	N/A
2012	149,840,256	146,132,680	(3,707,576)	102.54%	N/A	N/A
2009	120,414,735	116,870,615	(3,544,120)	103.03%	N/A	N/A
2006	159,612,705	162,490,488	2,877,783	98.23%	N/A	N/A
2003	127,186,109	127,349,554	163,445	99.87%	N/A	N/A

¹Equals fund Balance.

Table D-4
Schedule of Funded Liabilities by Type (Solvency Test)

Valuation Date June 30,	Actuarial Accrued Liability for				Portion of Actuarial Accrued Liabilities Covered by Actuarial Value of Assets		
	Active & Suspended Member Contributions (1)	Retirees & Beneficiaries (2)	Active & Suspended Member Benefits Financed by Employer (3)	Actuarial Value of Assets¹	(1)	(2)	(3)
2018	\$ 186,116,019	\$ 30,242,034	\$ 0	\$ 229,942,681	100.00%	100.00%	N/A
2015	169,950,687	26,859,498	0	206,729,868	100.00%	100.00%	N/A
2012	123,893,449	22,239,231	0	149,840,256	100.00%	100.00%	N/A
2009	98,576,297	18,294,318	0	120,414,735	100.00%	100.00%	N/A
2006	131,801,641	30,688,847	0	159,612,705	100.00%	90.62%	N/A
2003	100,766,629	26,582,925	0	127,186,109	100.00%	99.39%	N/A

¹Equals fund Balance.

REQUIRED CAFR EXHIBITS, continued

Table D-5
Analysis of Financial Experience
Change in Unfunded Actuarial Accrued Liability

Valuation Date June 30,	Retiree Experience¹	Assumptions & Method Changes	Change in Unfunded Actuarial Accrued Liability
2018	\$ (4,126,763)	\$ 461,818	\$ (3,664,945)
2015	(4,347,567)	(1,684,539)	(6,032,106)
2012	(947,053)	783,596	(163,457)
2009	(6,421,903)	0	(6,421,903)
2006	1,128,877	1,585,451	2,714,328
2003	1,232,795	0	1,232,795

¹ Includes mortality experience, census data updates, investment experience and interest on any Unfunded Actuarial Accrued Liability after transfers to the Variable Reserve Account.

STATISTICAL SECTION

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Schedule of Retired Members by Type of Benefit (Based on the most recent actuarial valuation prepared as of 6/30/18)										
Group	PERS (State)	PERS (Local)	TPAF	PFRS	SPRS	JRS	CPFPPF	POPF	Total	
Service Retirements										
Number	48,977	100,497	94,434	31,227	2,694	444	2	10	278,285	
Annual Allowance	\$1,423,009,992	\$1,858,895,467	\$4,011,000,750	\$2,005,819,879	\$191,956,729	\$47,161,286	\$43,143	\$138,519	\$9,538,025,765	
Average Annual Allowance	\$29,055	\$18,497	\$42,474	\$64,234	\$71,253	\$106,219	\$21,572	\$13,852	\$34,274	
Ordinary Disability Retirements										
Number	4,631	8,103	3,372	2,940	125	9	—	2	19,182	
Annual Allowance	\$93,021,193	\$137,416,595	\$95,893,508	\$86,478,265	\$5,058,044	\$1,049,214	—	\$15,356	\$418,932,175	
Average Annual Allowance	\$20,087	\$16,959	\$28,438	\$29,414	\$40,464	\$116,579	—	\$7,678	\$21,840	
Accidental Disability Retirements										
Number	511	853	269	2,964	153	—	—	1	4,751	
Annual Allowance	\$15,455,362	\$23,996,718	\$12,090,936	\$153,946,916	\$9,048,918	—	—	\$7,258	\$214,546,108	
Average Annual Allowance	\$30,245	\$28,132	\$44,948	\$51,939	\$59,143	—	—	\$7,258	\$45,158	
Members' Death Benefits										
Number	4,437	10,739	6,628	7,436	432	161	60	58	29,951	
Annual Allowance	\$76,247,249	\$137,597,453	\$176,461,487	\$244,043,608	\$16,133,043	\$8,953,548	\$400,935	\$287,517	\$660,124,840	
Average Annual Allowance	\$17,184	\$12,813	\$26,624	\$32,819	\$37,345	\$55,612	\$6,682	\$4,957	\$22,040	
Deferred Terminated Vested										
Number	169	440	219	42	—	4	—	—	874	
Annual Allowance	\$2,522,196	\$4,454,100	\$3,570,312	\$770,640	—	\$183,500	—	—	\$11,500,748	
Average Annual Allowance	\$14,924	\$10,123	\$16,303	\$18,349	—	\$45,875	—	—	\$13,159	

Note: See "Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls" in Actuarial Section for Average Annual Allowance for the last five fiscal years.

Schedule of Revenues by Source
(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Member Contributions ⁽¹⁾	Employer/ Nonemployer Contributions ⁽²⁾	Pension Adjustment Contributions ⁽³⁾	Other ⁽⁴⁾	Percentage of Annual Covered Compensation ⁽⁵⁾	Transfer from Other Systems ⁽⁶⁾	Investment Income ⁽⁷⁾	Total
PUBLIC EMPLOYEES' RETIREMENT SYSTEM	2009	741,911,166	774,672,945	—	—	6.56	—	(3,787,350,299)	(2,270,766,188)
	2010	743,486,792	919,999,429	—	—	7.67	—	2,696,305,650	4,359,791,871
	2011	728,602,461	925,626,097	—	—	7.73	—	3,813,641,343	5,467,869,901
	2012	793,993,077	997,437,885	—	—	8.59	—	628,573,598	2,420,004,560
	2013	790,456,229	1,141,876,707	—	55,543,296	9.99	—	2,687,826,583	4,675,702,815
	2014	797,818,225	917,689,000	—	55,641,713	8.02	—	4,103,472,982	5,874,621,920
	2015	805,232,235	1,085,237,214	—	10,496,496	9.49	—	1,117,827,113	3,018,793,058
	2016	821,305,787	1,273,425,342	—	3,926,053	11.25	—	(237,215,643)	1,861,441,539
	2017	842,049,135	1,464,931,579	—	15,448,547	12.98	6,813,217	3,202,393,837	5,532,636,315
	2018	854,178,790	1,680,631,409	—	8,466,985	14.79	7,171,385	2,435,763,559	4,986,212,128
	2019	909,191,554	1,869,535,783	—	7,163,363	16.34	8,589,133	1,741,296,887	4,535,776,720
TEACHERS' PENSION AND ANNUITY FUND	2009	616,222,799	102,472,305	—	—	1.09	—	(5,071,848,719)	(4,353,153,615)
	2010	615,862,621	42,850,384	—	—	0.44	—	3,277,424,465	3,936,137,470
	2011	593,587,972	36,117,717	—	—	0.36	—	4,364,388,191	4,994,093,880
	2012	685,608,357	323,100,685	—	—	3.34	—	640,982,289	1,649,691,331
	2013	686,872,383	653,704,602	—	39,651,455	6.68	—	2,865,390,916	4,245,619,356
	2014	716,183,306	427,700,146	—	40,469,573	4.26	—	4,100,453,466	5,284,806,491
	2015	740,296,265	540,603,535	—	4,476,040	5.32	—	1,066,062,926	2,351,438,766
	2016	761,711,695	800,069,277	—	1,807,662	7.76	—	(267,684,353)	1,295,904,281
	2017	781,256,291	1,127,018,480	—	357,659	10.80	10,870,173	2,736,988,791	4,656,491,394
	2018	810,899,751	1,516,131,450	—	345,897	14.25	13,092,464	2,016,316,929	4,356,786,491
	2019	846,166,328	2,015,496,648	—	300,112	18.62	15,148,965	1,361,781,295	4,238,893,348
POLICE AND FIREMEN'S RETIREMENT SYSTEM	2009	326,491,066	913,302,011	—	—	25.40	—	(2,735,834,439)	(1,496,041,362)
	2010	330,951,798	1,001,223,223	—	—	27.25	—	2,008,239,281	3,340,414,302
	2011	327,357,244	(216,914,092)	—	—	(5.83)	—	3,071,480,855	3,181,924,007
	2012	374,688,168	842,084,854	—	—	23.07	—	371,496,172	1,588,269,194
	2013	387,775,184	898,531,390	—	—	24.58	—	2,191,780,555	3,478,087,129
	2014	385,660,096	858,047,628	—	—	23.32	—	3,381,553,869	4,625,261,593
	2015	386,991,641	959,814,917	—	26,963,211	26.06	—	922,598,676	2,296,368,44
	2016	388,681,408	961,499,567	—	6,848,771	26.02	—	(150,693,159)	1,206,336,587
	2017	393,078,137	1,088,510,734	—	12,817,692	29.21	3,090,206	2,791,104,860	4,288,601,629
	2018	395,604,883	1,236,474,114	—	3,822,741	32.51	3,605,472	2,139,481,226	3,778,988,436
	2019	410,943,242	1,336,737,544	—	7,868,386	34.53	3,765,634	1,549,138,833	3,308,453,639
STATE POLICE RETIREMENT SYSTEM	2009	18,652,049	—	—	—	2.01	—	(298,475,097)	(274,178,989)
	2010	18,825,131	—	—	—	0.43	—	214,479,134	234,539,845
	2011	18,164,837	—	—	—	0.76	—	280,447,557	300,820,734
	2012	23,233,207	—	—	—	4.93	—	48,915,745	85,727,280
	2013	21,875,233	—	—	—	9.81	—	191,873,254	241,530,381
	2014	24,034,496	—	—	—	13.90	—	287,098,217	347,569,636
	2015	22,315,431	—	—	222,557	14.68	—	75,532,779	136,598,064
	2016	22,818,295	—	—	54,00	13.59	—	(19,284,054)	41,023,782
	2017	23,560,509	53,006,614	—	—	19.08	165,201	207,401,590	284,133,914
	2018	22,416,571	74,603,780	—	—	26.20	248,479	154,029,009	251,297,839
	2019	24,183,990	98,182,956	—	—	35.60	110,843	105,696,140	228,173,929

Schedule of Revenues by Source
(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Member Contributions ⁽¹⁾	Employer/ Nonemployer Contributions ⁽²⁾	Pension Adjustment Contributions ⁽³⁾	Other ⁽⁴⁾	Percentage of Annual Covered Compensation ⁽⁵⁾	Transfer from Other Systems ⁽⁶⁾	Investment Income ⁽⁷⁾	Total
JUDICIAL RETIREMENT SYSTEM	2009	3,032,945	1,696,891	–	–	2.53	–	(56,230,261)	(51,500,425)
	2010	3,054,881	2,308,854	–	–	3.29	–	37,131,556	42,495,291
	2011	2,575,318	1,693,412	–	–	2.36	–	42,358,462	46,627,192
	2012	2,476,205	6,061,953	–	–	8.99	–	4,954,214	13,492,372
	2013	3,402,807	12,308,419	–	–	18.24	–	25,932,027	41,643,253
	2014	5,096,577	15,874,857	–	–	23.41	–	34,448,036	55,419,470
	2015	6,310,124	17,031,026	–	2,081,523	25.79	–	8,475,641	33,898,314
	2016	9,271,869	14,794,774	–	726,284	22.05	–	(2,721,949)	22,070,978
	2017	7,758,193	20,341,379	–	–	29.89	3,711,095	20,031,152	51,841,819
	2018	9,177,453	24,023,637	–	–	34.71	2,859,841	14,809,869	50,870,800
	2019	9,688,270	29,702,700	–	–	38.20	1,310,118	9,230,701	49,931,789
CONSOLIDATED POLICE AND FIREMEN'S PENSION FUND	2009	–	1,276,151	5,641,890	–	–	–	142,184	7,060,225
	2010	–	13,236	4,830,461	–	–	–	35,223	4,878,920
	2011	–	8,199	4,033,257	–	–	–	17,256	4,058,712
	2012	–	193,183	3,234,585	–	–	–	210	3,427,978
	2013	–	911,150	2,477,987	–	–	–	217	3,389,354
	2014	–	–	1,889,091	11,740	–	–	585	1,889,676
	2015	–	–	1,568,185	9,566	–	–	198	1,577,949
	2016	–	148,000	1,196,017	–	–	–	10,856	1,354,873
	2017	–	575,000	964,280	–	–	–	10,099	1,549,379
	2018	–	325,000	806,330	–	–	–	21,542	1,152,872
	2019	–	–	631,757	–	–	–	28,518	660,275
PRISON OFFICER'S PENSION FUND	2009	–	–	1,088,687	–	–	–	197,755	1,286,442
	2010	–	–	1,046,590	–	–	–	53,572	1,100,162
	2011	–	–	1,064,245	–	–	–	32,429	1,096,674
	2012	–	–	994,367	–	–	–	9,945	1,004,312
	2013	–	–	889,542	–	–	–	9,070	898,612
	2014	–	–	793,175	–	–	–	7,368	800,543
	2015	–	–	698,360	–	–	–	6,355	704,715
	2016	–	–	634,217	–	–	–	18,067	652,284
	2017	–	–	552,131	–	–	–	30,847	582,978
	2018	–	–	484,565	–	–	–	70,215	554,780
	2019	–	–	412,250	–	–	–	111,413	523,663
CENTRAL PENSION FUND	2009	–	376,688	21,861	–	–	–	3,642	402,191
	2010	–	179,863	22,018	–	–	–	484	202,365
	2011	–	199,451	21,677	–	–	–	211	221,339
	2012	–	168,000	22,155	–	–	–	119	190,274
	2013	–	168,000	22,214	–	–	–	98	190,312
	2014	–	204,750	22,214	–	–	–	89	227,053
	2015	–	231,150	22,214	–	–	–	97	253,461
	2016	–	280,500	22,214	–	–	–	176	302,890
	2017	–	248,000	22,214	–	–	–	612	270,826
	2018	–	324,000	22,214	–	–	–	1,069	347,283
	2019	–	272,660	22,214	–	–	–	2,481	297,355

Schedule of Revenues by Source
(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Member Contributions ⁽¹⁾	Employer/ Nonemployer Contributions ⁽²⁾	Pension Adjustment Contributions ⁽³⁾	Other ⁽⁴⁾	Percentage of Annual Covered Compensation ⁽⁵⁾	Transfer from Other Systems ⁽⁶⁾	Investment Income ⁽⁷⁾	Total
SUPPLEMENTAL ANNUITY COLLECTIVE TRUST	2009	7,866,241	—	—	—	—	—	(33,470,754)	(25,604,513)
	2010	7,119,188	—	—	—	—	—	16,061,568	23,180,756
	2011	5,882,012	—	—	—	—	—	34,723,580	40,605,592
	2012	6,346,823	—	—	—	—	—	5,941,424	12,288,247
	2013	6,635,320	—	—	—	—	—	30,989,256	37,624,576
	2014	5,907,412	—	—	—	—	—	42,222,601	48,130,013
	2015	6,003,908	—	—	—	—	—	16,456,041	22,459,949
	2016	5,814,213	—	—	—	—	—	5,329,922	11,144,135
	2017	5,882,431	—	—	—	—	—	35,425,977	41,308,408
	2018	6,074,603	—	—	—	—	—	24,247,640	30,322,243
	2019	6,025,497	—	—	—	—	—	12,045,593	18,071,090
DEFERRED COMPENSATION PLAN	2009	172,895,622	—	—	—	—	—	(334,762,381)	(161,866,759)
	2010	171,382,135	—	—	—	—	—	169,072,944	340,455,079
	2011	185,334,980	—	—	—	—	—	383,783,797	569,118,777
	2012	178,243,724	—	—	—	—	—	19,834,685	198,078,409
	2013	177,296,365	—	—	—	—	—	302,069,484	479,365,849
	2014	181,051,805	—	—	—	—	—	424,147,776	605,199,581
	2015	186,999,797	—	—	—	—	—	133,142,031	320,141,828
	2016	180,268,889	—	—	—	—	—	20,757,799	201,026,688
	2017	194,488,684	—	—	—	—	—	399,453,403	593,942,087
	2018	190,196,996	—	—	—	—	—	342,876,467	533,073,463
	2019	199,862,898	—	—	—	—	—	225,144,674	425,007,572
DEFINED CONTRIBUTION RETIREMENT PROGRAM⁽¹⁰⁾	2009	—	—	—	—	—	—	—	—
	2010	—	—	—	—	—	—	—	—
	2011	—	289,483	—	—	—	—	110	289,593
	2012	—	487,559	—	—	—	—	765	488,324
	2013	—	1,482,976	—	—	—	—	1,761	1,484,737
	2014	—	1,409,544	—	—	—	—	2,250	1,411,794
	2015	—	2,046,770	—	—	—	—	3,497	2,050,267
	2016	—	—	—	—	—	—	—	—
	2017	—	—	—	—	—	—	—	—
	2018	—	—	—	—	—	—	—	—
	2019	—	—	—	—	—	—	—	—
ALTERNATE BENEFIT LONG-TERM DISABILITY FUND⁽¹⁰⁾	2009	—	2,685,591	—	—	—	—	42,876	2,728,467
	2010	—	2,766,031	—	—	—	—	12,970	2,779,001
	2011	—	2,885,119	—	—	—	—	8,175	2,893,294
	2012	—	3,323,165	—	—	—	—	4,132	3,327,297
	2013	—	3,037,116	—	—	—	—	2,875	3,039,991
	2014	—	1,382,696	—	—	—	—	1,622	1,384,318
	2015	—	1,550,000	—	—	—	—	1,631	1,551,631
	2016	—	—	—	—	—	—	—	—
	2017	—	—	—	—	—	—	—	—
	2018	—	—	—	—	—	—	—	—
	2019	—	—	—	—	—	—	—	—

Schedule of Revenues by Source
(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Member Contributions ⁽¹⁾	Employer/ Nonemployer Contributions ⁽²⁾	Pension Adjustment Contributions ⁽³⁾	Other ⁽⁴⁾	Percentage of Annual Covered Compensation ⁽⁵⁾	Transfer from Other Systems ⁽⁶⁾	Investment Income ⁽⁷⁾	Total
STATE	2009	198,176,549	3,474,413,647	—	—	—	—	16,370,148	3,688,960,344
HEALTH	2010	217,154,537	4,144,906,282	—	—	—	—	4,269,124	4,366,329,943
BENEFIT	2011	233,187,835	4,607,439,545	—	—	—	—	2,777,355	4,843,404,735
PROGRAM	2012	244,680,394	4,721,637,111	—	—	—	—	1,361,300	4,967,678,805
FUNDS⁽⁹⁾	2013	304,860,078	5,162,767,727	—	—	—	—	1,378,523	5,469,006,32
	2014	399,307,467	5,479,344,541	—	—	—	—	1,223,707	5,879,875,715
	2015	497,483,666	5,871,536,760	—	—	—	—	1,175,123	6,370,195,549
	2016	50,097,187	397,482,073	—	—	—	—	310,043	447,889,303
	2017	53,585,505	434,877,635	—	—	—	—	791,049	489,254,189
	2018	53,987,166	474,742,947	—	—	—	—	2,320,422	531,050,535
	2019	43,249,952	390,269,556	—	—	—	—	4,826,936	438,346,444
PENSION TRUST	2009	2,085,248,437	5,276,540,288	6,752,438	—	—	—	(12,301,215,345)	(4,932,674,182)
AND	2010	2,107,837,083	6,115,482,882	5,899,069	—	—	—	8,423,085,971	16,652,305,005
STATE HEALTH	2011	2,094,692,659	5,359,553,271	5,119,179	—	—	—	11,993,659,321	19,453,024,430
BENEFIT	2012	2,309,269,955	6,908,072,723	4,251,107	—	—	—	1,722,074,598	10,943,668,383
PROGRAM	2013	2,379,173,599	7,902,569,981	3,389,743	95,194,751	—	—	8,297,254,619	18,677,582,693
FUNDS TOTAL	2014	2,515,059,384	7,738,101,825	2,704,480	96,123,026	—	—	12,374,632,568	22,726,609,543 ⁽⁸⁾
	2015	2,651,633,067	8,516,578,669	2,288,759	44,249,393	—	—	3,341,282,108	14,556,031,996
	2016	2,239,969,343	3,485,135,074	1,852,448	13,362,770	—	—	(651,172,295)	5,089,147,340
	2017	2,301,658,885	4,190,509,421	1,538,625	28,623,898	—	24,649,892	9,393,632,217	15,940,612,938 ⁽⁸⁾
	2018	2,342,536,213	5,007,244,107	1,313,109	12,647,853	—	26,977,641	7,129,937,947	14,520,656,870
	2019	2,449,311,731	5,740,197,847	1,066,221	15,331,861	—	28,924,693	5,009,303,471	13,244,135,824

⁽¹⁾ Indicates contributions from active members.

⁽²⁾ Includes contributions both from State and local employers (also both employer and nonemployer contributions).

⁽³⁾ Indicates State contribution to POPF, CPFPPF, and CPF as pension adjustment.

⁽⁴⁾ Previously, indicated Contributory Group Insurance (CGI) member contributions; however, now, indicates other employer contribution items, such as Delayed Enrollments/Appropriations, Retro billing, CPFPPF Admin. fees, etc. Starting FY 2015, based on GASB No. 67, we are taking out CGI items from our financial statements.

⁽⁵⁾ Indicates percentage of Employer Contributions over Annual Covered Compensation.

⁽⁶⁾ Indicates transfers of member/employer contributions from other pension plans/systems.

⁽⁷⁾ Indicates net appreciation/depreciation of fair value, dividends, and interest.

⁽⁸⁾ GASB No. 67 became implemented in fiscal year 2014. Fiscal years before 2014 other than the restated 2013 were presented otherwise.

⁽⁹⁾ GASB No. 74 became implemented in fiscal year 2017, which is presenting State Health Benefit Program - Local - Retired only. Fiscal years before 2017 other than the restated 2016 were presented otherwise.

⁽¹⁰⁾ Both DCRP and ABPLTD moved from NJ DP&B to NJ OMB (State) in fiscal year 2017. The 2016 was restated accordingly.

Schedule of Expenses by Type
(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Retirement Benefits ⁽¹⁾	Cost-of-Living Adjustments ⁽²⁾	Death Benefits ⁽³⁾	Withdrawal ⁽⁴⁾	Other Refunds ⁽⁵⁾	Admin & Misc. ⁽⁶⁾	Transfer to Other Retirement Systems ⁽⁷⁾	Total
PUBLIC EMPLOYEES' RETIREMENT SYSTEM	2009	1,936,521,198	270,085,565	100,487,729	77,747,624	—	20,195,796	18,340,013	2,423,377,925
	2010	2,058,292,073	286,355,823	110,078,829	82,566,955	—	17,212,705	15,384,771	2,569,891,156
	2011	2,273,677,650	283,610,268	115,035,218	66,423,856	—	55,475,327	11,926,661	2,806,148,980
	2012	2,510,170,979	281,708,154	108,660,771	97,076,504	—	21,841,723	11,541,759	3,030,999,890
	2013	2,646,551,098	269,362,021	138,033,827	102,381,327	—	22,814,654	15,603,908	3,194,746,835
	2014	2,806,343,114	256,307,998	127,100,559	111,909,794	—	21,756,019	13,778,475	3,337,195,959
	2015	2,986,839,116	242,890,285	73,430,329	116,431,242	—	23,761,859	21,455,094	3,464,807,925
	2016	3,186,588,835	229,541,844	77,192,795	117,027,599	—	23,285,920	19,300,842	3,652,937,835
	2017	3,370,538,479	216,676,990	80,002,130	125,005,841	—	19,648,715	18,595,252	3,830,467,407
	2018	3,537,483,365	204,022,000	72,207,064	122,608,146	—	21,368,150	20,388,385	3,978,077,110
	2019	3,705,013,463	191,673,351	86,793,757	134,890,851	—	21,257,441	20,544,727	4,160,173,590
TEACHERS' PENSION AND ANNUITY FUND	2009	2,453,071,751	352,668,308	63,825,481	37,139,492	—	12,746,751	4,057,851	2,923,509,634
	2010	2,573,053,407	378,442,120	76,697,906	39,543,649	—	12,323,809	2,401,574	3,082,462,465
	2011	2,897,547,945	381,128,401	64,782,346	39,769,526	—	12,321,344	4,842,890	3,400,392,452
	2012	3,089,099,919	381,473,106	68,044,466	38,031,439	—	11,523,396	2,880,016	3,591,052,342
	2013	3,230,673,226	370,347,130	73,132,997	42,299,299	—	12,482,060	4,926,204	3,733,860,916
	2014	3,397,559,391	357,451,129	74,929,067	43,101,723	—	12,170,972	5,467,788	3,890,680,070
	2015	3,576,672,146	344,252,116	36,283,535	51,161,238	—	13,890,080	6,634,552	4,028,893,667
	2016	3,744,665,145	330,897,322	35,580,277	51,526,638	—	13,768,112	6,401,380	4,182,838,874
	2017	3,881,732,050	317,245,237	39,099,480	60,938,382	—	11,923,787	7,253,596	4,318,192,532
	2018	4,005,287,888	304,241,146	35,766,941	55,907,156	—	13,222,178	7,406,171	4,421,831,480
	2019	4,118,411,040	289,851,559	41,107,648	61,489,992	—	13,922,385	8,493,288	4,533,275,912
POLICE AND FIREMEN'S RETIREMENT SYSTEM	2009	1,216,141,979	215,793,951	31,484,481	5,768,703	—	6,526,511	531,253	1,476,246,878
	2010	1,310,546,315	230,715,014	32,249,526	5,238,615	—	6,080,087	376,544	1,585,206,101
	2011	1,454,083,372	232,362,028	35,107,319	7,467,889	—	4,115,476	237,855	1,733,373,939
	2012	1,593,941,123	234,401,519	34,058,970	7,197,736	—	3,919,438	353,727	1,873,872,513
	2013	1,706,252,607	229,131,950	34,084,179	6,735,054	—	3,881,457	148,902	1,980,234,149
	2014	1,831,032,076	223,111,212	42,612,105	8,652,971	—	3,884,342	420,647	2,109,713,353
	2015	1,945,006,485	216,641,361	35,424,340	7,789,561	—	4,531,012	602,550	2,209,995,309
	2016	2,067,836,471	209,926,511	38,372,031	7,712,880	—	4,292,891	328,060	2,328,468,844
	2017	2,171,405,313	203,553,759	38,969,665	7,340,359	—	4,124,457	216,341	2,425,609,894
	2018	2,273,247,266	196,849,281	43,309,987	10,055,932	—	4,505,685	182,584	2,528,150,735
	2019	2,373,888,854	189,805,322	35,769,359	7,400,176	—	7,199,218	525,865	2,614,588,794
STATE POLICE RETIREMENT SYSTEM	2009	107,778,693	21,999,191	2,196,860	158,163	—	585,686	—	132,718,593
	2010	114,055,702	23,448,600	1,018,200	194,956	—	527,871	—	139,245,329
	2011	122,990,229	23,741,072	2,201,604	153,756	—	300,802	—	149,387,463
	2012	138,282,207	24,047,555	735,607	143,316	—	298,961	4	163,507,650
	2013	156,528,482	23,695,185	2,195,047	38,884	—	294,886	—	182,752,484
	2014	173,264,302	23,198,162	1,148,273	348,201	—	280,026	—	198,238,964
	2015	182,540,341	22,700,036	1,169,297	83,950	—	351,724	—	206,845,348
	2016	189,392,434	22,058,752	1,855,541	129,423	—	334,630	—	213,770,780
	2017	193,774,056	21,469,397	1,968,614	91,879	—	294,745	—	217,598,691
	2018	198,710,925	20,906,944	2,499,780	255,650	—	377,193	—	222,750,492
	2019	203,065,592	20,251,885	2,182,956	181,797	—	596,137	150,677	226,429,044

Schedule of Expenses by Type

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Retirement Benefits ⁽¹⁾	Cost-of-Living Adjustments ⁽²⁾	Death Benefits ⁽³⁾	Withdrawal ⁽⁴⁾	Other Refunds ⁽⁵⁾	Admin & Misc. ⁽⁶⁾	Transfer to Other Retirement Systems ⁽⁷⁾	Total
JUDICIAL RETIREMENT SYSTEM	2009	32,742,280	4,382,884	539,843	—	—	202,022	—	37,867,029
	2010	35,634,276	4,565,378	1,032,857	174,362	—	192,762	—	41,599,635
	2011	38,075,562	4,470,753	651,718	91,258	—	157,525	—	43,446,816
	2012	41,022,857	4,441,976	490,713	45,641	—	159,888	—	46,161,075
	2013	42,972,345	4,047,296	665,227	—	—	163,233	—	47,848,101
	2014	45,079,634	3,930,547	540,681	53,218	—	162,372	—	49,766,452
	2015	48,077,475	3,827,515	525,026	—	—	168,762	—	52,598,778
	2016	50,226,767	3,615,980	843,774	—	—	168,008	—	54,854,529
	2017	52,257,756	3,384,318	664,379	59,265	—	150,588	—	56,516,306
	2018	54,020,953	3,229,235	757,636	278,597	—	185,364	—	58,471,785
	2019	55,841,702	3,005,477	702,700	41,727	—	200,338	—	59,791,944
CONSOLIDATED POLICE AND FIREMEN'S PENSION FUND	2009	3,202,401	5,641,890	—	—	—	13,234	—	8,857,525
	2010	2,664,607	4,830,461	—	—	—	8,200	—	7,503,268
	2011	2,275,329	4,033,256	—	—	—	19,182	—	6,327,767
	2012	1,812,059	3,234,585	—	—	—	14,153	—	5,060,797
	2013	1,404,672	2,477,987	—	—	—	11,739	—	3,894,398
	2014	1,052,944	1,889,091	—	—	—	9,566	—	2,951,601
	2015	877,442	1,568,185	—	—	—	8,003	—	2,453,630
	2016	685,235	1,196,017	—	—	—	6,643	—	1,887,895
	2017	571,343	964,280	—	—	—	4,188	—	1,539,811
	2018	483,569	806,330	—	—	—	4,006	—	1,293,905
	2019	401,418	631,757	—	—	—	3,013	—	1,036,188
PRISON OFFICERS' PENSION FUND	2009	1,092,935	1,088,687	—	—	—	8,341	—	2,189,963
	2010	1,016,533	1,046,590	—	—	—	5,591	—	2,068,714
	2011	1,045,770	1,064,245	—	—	—	7,377	—	2,117,392
	2012	956,437	994,367	—	—	—	6,922	—	1,957,726
	2013	874,422	889,542	—	—	—	6,965	—	1,770,929
	2014	790,234	793,174	—	—	—	5,853	—	1,589,261
	2015	679,145	698,360	—	—	—	5,843	—	1,383,348
	2016	606,090	634,217	—	—	—	5,312	—	1,245,619
	2017	517,078	552,131	—	—	—	4,134	—	1,073,343
	2018	463,312	484,565	—	—	—	4,315	—	952,192
	2019	404,722	412,250	—	—	—	4,215	—	821,187
CENTRAL PENSION FUND	2009	365,368	21,862	—	—	14,961	—	—	402,191
	2010	177,276	22,018	—	—	3,071	—	—	202,365
	2011	166,990	21,677	—	—	32,673	—	—	221,340
	2012	167,326	22,155	—	—	793	—	—	190,274
	2013	167,326	22,214	—	—	772	—	—	190,312
	2014	189,826	22,214	—	—	15,013	—	—	227,053
	2015	211,076	22,214	—	—	20,171	—	—	253,461
	2016	274,633	22,214	—	—	6,043	—	—	302,890
	2017	236,076	22,214	—	—	12,536	—	—	270,826
	2018	319,826	22,214	—	—	5,243	—	—	347,283
	2019	279,490	22,214	—	—	(4,349)	—	—	297,355

Schedule of Expenses by Type
(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Retirement Benefits ⁽¹⁾	Cost-of-Living Adjustments ⁽²⁾	Death Benefits ⁽³⁾	Withdrawal ⁽⁴⁾	Other Refunds ⁽⁵⁾	Admin & Misc. ⁽⁶⁾	Transfer to Other Retirement Systems ⁽⁷⁾	Total
SUPPLEMENTAL ANNUITY COLLECTIVE TRUST	2009	10,330,455	-	-	-	-	-	-	10,330,455
	2010	9,955,917	-	-	-	-	-	-	9,955,917
	2011	18,312,488	-	-	-	-	-	-	18,312,488
	2012	17,890,338	-	-	-	-	-	-	17,890,338
	2013	12,238,930	-	-	-	-	-	-	12,238,930
	2014	17,638,584	-	-	-	-	-	-	17,638,584
	2015	20,710,344	-	-	-	-	-	-	20,710,344
	2016	20,342,949	-	-	-	-	-	-	20,342,949
	2017	16,520,123	-	-	-	-	-	-	16,520,123
	2018	22,615,594	-	-	-	-	-	-	22,615,594
	2019	20,973,004	-	-	-	-	-	-	20,973,004
DEFERRED COMPENSATION PLAN	2009	75,870,854	-	-	-	-	511,311	-	76,382,165
	2010	70,838,765	-	-	-	-	456,124	-	71,294,889
	2011	110,598,362	-	-	-	-	460,327	-	111,058,689
	2012	118,211,742	-	-	-	-	465,127	-	118,676,869
	2013	124,062,368	-	-	-	-	454,350	-	124,516,718
	2014	149,393,111	-	-	-	-	482,277	-	149,875,388
	2015	175,989,352	-	-	-	-	464,130	-	176,453,482
	2016	163,247,570	-	-	-	-	190,880	-	163,438,450
	2017	183,110,996	-	-	-	-	444,503	-	183,555,499
	2018	203,425,764	-	-	-	-	407,732	-	203,833,496
	2019	233,812,585	-	-	-	-	432,105	-	234,244,690
DEFINED CONTRIBUTION RETIREMENT PROGRAM⁽¹⁰⁾	2009	-	-	-	-	-	-	-	-
	2010	-	-	-	-	-	-	-	-
	2011	-	-	-	-	-	-	-	-
	2012	85,280	-	-	-	-	-	-	85,280
	2013	1,207,760	-	-	-	-	-	-	1,207,760
	2014	359,385	-	-	-	-	-	-	359,385
	2015	844,050	-	-	-	-	-	-	844,050
	2016	-	-	-	-	-	-	-	-
	2017	-	-	-	-	-	-	-	-
	2018	-	-	-	-	-	-	-	-
	2019	-	-	-	-	-	-	-	-
ALTERNATE BENEFIT LONG-TERM DISABILITY FUND⁽¹⁰⁾	2009	2,685,591	-	-	-	-	-	-	2,685,591
	2010	2,766,031	-	-	-	-	-	-	2,766,031
	2011	2,885,114	-	-	-	-	-	-	2,885,114
	2012	3,323,165	-	-	-	-	-	-	3,323,165
	2013	2,949,360	-	-	-	-	-	-	2,949,360
	2014	1,400,000	-	-	-	-	-	-	1,400,000
	2015	1,550,000	-	-	-	-	-	-	1,550,000
	2016	-	-	-	-	-	-	-	-
	2017	-	-	-	-	-	-	-	-
	2018	-	-	-	-	-	-	-	-
	2019	-	-	-	-	-	-	-	-

Schedule of Expenses by Type

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Retirement Benefits ⁽¹⁾	Cost-of-Living Adjustments ⁽²⁾	Death Benefits ⁽³⁾	Withdrawal ⁽⁴⁾	Other Refunds ⁽⁵⁾	Admin & Misc. ⁽⁶⁾	Transfer to Other Retirement Systems ⁽⁷⁾	Total
STATE HEALTH BENEFIT PROGRAM FUNDS⁽⁹⁾	2009	3,895,577,809	—	—	—	—	10,036,535	—	3,905,614,344
	2010	4,382,156,209	—	—	—	—	13,697,892	—	4,395,854,101
	2011	4,750,880,105	—	—	—	—	9,030,035	—	4,759,910,140
	2012	5,266,242,035	—	—	—	—	8,268,671	—	5,274,510,706
	2013	5,395,752,981	—	—	—	—	9,361,600	—	5,405,114,581
	2014	5,918,951,153	—	—	—	—	9,359,616	—	5,928,310,769
	2015	6,290,847,391	—	—	—	—	9,142,428	—	6,299,989,819
	2016	425,946,495	—	—	—	—	10,516,251	—	436,462,746
	2017	417,488,848	—	—	—	—	8,894,576	—	426,383,424
	2018	421,621,253	—	—	—	—	8,200,113	—	429,821,366
	2019	470,179,613	—	—	—	—	9,478,435	—	479,658,048
PENSION TRUST AND STATE HEALTH BENEFIT PROGRAM FUNDS TOTAL	2009	9,735,381,314	871,682,338	198,534,394	120,813,982	14,961	50,826,187	22,929,117	11,000,182,293
	2010	10,561,157,111	929,426,004	221,077,318	127,718,537	3,071	50,505,041	18,162,889	11,908,049,971
	2011	11,672,538,916	930,431,700	217,778,205	113,906,285	32,673	81,887,395	17,007,406	13,033,582,580
	2012	12,781,205,467	930,323,417	211,990,527	142,494,636	793	46,498,279	14,775,506	14,127,288,625
	2013	13,321,635,577	899,973,325	248,111,277	151,454,564	772	49,470,944	20,679,014	14,691,325,473
	2014	14,343,053,754	866,703,527	246,330,685	164,065,907	15,013	48,111,043	19,666,910	15,687,946,839 ⁽⁸⁾
	2015	15,230,844,363	832,600,072	146,832,527	175,465,991	20,171	52,323,841	28,692,196	16,466,779,161
	2016	9,849,812,624	797,892,857	153,844,418	176,396,540	6,043	52,568,647	26,030,282	11,056,551,411
	2017	10,288,152,118	763,868,326	160,704,268	193,435,726	12,536	45,489,693	26,065,189	11,477,727,856 ⁽⁹⁾
	2018	10,717,679,715	730,561,715	154,541,408	189,105,481	5,243	48,274,736	27,977,140	11,868,145,438
	2019	11,182,271,483	695,653,815	166,556,420	204,004,543	(4,349)	53,093,287	29,714,557	12,331,289,756

- (1) Indicates benefits from retirement (regular, early, or disability) other than death.
- (2) Indicates supplement benefit as cost of living adjustment (pension adjustment) benefit.
- (3) Previously, indicated both Contributory Group Insurance (CGI) and Noncontributory (NCGI) benefits; however, now, indicates only NCGI. Starting FY 2015, based on GASB No. 67, we are taking out CGI items from our financial statements.
- (4) Indicates members' withdrawal of their contributions; that is, a type of refund.
- (5) Indicates refund to State with excess of revenues and expenses.
- (6) Indicates administration expenses of pension plans/systems plus petty misc adjustment items.
- (7) Indicates transfers of member/employer contributions to other pension plans/systems.
- (8) GASB No. 67 became implemented in fiscal year 2014. Fiscal years before 2014 other than the restated 2013 were presented otherwise.
- (9) GASB No. 74 became implemented in fiscal year 2017, which is presenting State Health Benefit Program - Local - Retired only. Fiscal years before 2017 other than the restated 2016 were presented otherwise.
- (10) Both DCRP and ABPLTD moved from NJ DP&B to NJ OMB (State) in fiscal year 2017. The 2016 was restated accordingly.

Schedule of Changes in Net Position

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Additions ⁽¹⁾	Deductions ⁽²⁾	Total Change in Net Position	Net Position	
					Beginning of Year	End of Year
PUBLIC EMPLOYEES' RETIREMENT SYSTEM	2009	(2,270,766,187)	2,423,377,925	(4,694,144,112)	27,236,955,803	22,542,811,691
	2010	4,359,791,871	2,569,891,156	1,789,900,715	22,542,811,691	24,332,712,406
	2011	5,467,869,901	2,806,148,979	2,661,720,922	24,332,712,406	26,994,433,328
	2012	2,420,004,560	3,030,999,890	(610,995,330)	26,994,433,328	26,383,437,998
	2013	4,675,702,815	3,194,746,835	1,480,955,980	24,981,199,832	26,462,155,812
	2014	5,874,621,920	3,337,195,959	2,537,425,961	26,462,155,812	28,999,581,773
	2015	3,018,793,058	3,464,807,925	(446,014,867)	28,999,581,773	28,553,566,906
	2016	1,861,441,539	3,652,937,835	(1,791,496,296)	28,553,566,906	26,762,070,610
	2017	5,532,636,315	3,830,467,407	1,702,168,908	26,762,070,610	28,464,239,518
	2018	4,986,212,128	3,978,077,110	1,008,135,018	28,464,239,518	29,472,374,536
	2019	4,535,776,720	4,160,173,590	375,603,130	29,472,374,536	29,847,977,666
TEACHERS' PENSION AND ANNUITY FUND	2009	(4,353,153,615)	2,923,509,634	(7,276,663,249)	32,315,484,077	25,038,820,828
	2010	3,936,137,470	3,082,462,465	853,675,005	25,038,820,828	25,892,495,833
	2011	4,994,093,881	3,400,392,453	1,593,701,428	25,892,495,833	27,486,197,261
	2012	1,649,691,331	3,591,052,342	(1,941,361,011)	27,486,197,261	25,544,836,250
	2013	4,245,619,356	3,733,860,915	511,758,441	25,376,367,599	25,888,126,040
	2014	5,284,806,491	3,890,680,070	1,394,126,421	25,888,126,040	27,282,252,461
	2015	2,351,438,766	4,028,893,667	(1,677,454,901)	27,282,252,461	25,604,797,560
	2016	1,295,904,281	4,182,838,874	(2,886,934,593)	25,604,797,560	22,717,862,967
	2017	4,656,491,394	4,318,192,532	338,298,862	22,717,862,967	23,056,161,829
	2018	4,356,786,491	4,421,831,480	(65,044,989)	23,056,161,829	22,991,116,840
	2019	4,238,893,348	4,533,275,912	(294,382,564)	22,991,116,840	22,696,734,276
POLICE AND FIREMEN'S RETIREMENT SYSTEM	2009	(1,496,041,362)	1,476,246,878	(2,972,288,240)	21,061,217,855	18,088,929,615
	2010	3,340,414,302	1,585,206,101	1,755,208,201	18,088,929,615	19,844,137,816
	2011	3,181,924,007	1,733,373,939	1,448,550,068	19,844,137,816	21,292,687,884
	2012	1,588,269,194	1,873,872,513	(285,603,319)	21,292,687,884	21,007,084,565
	2013	3,478,087,129	1,980,234,149	1,497,852,980	21,007,084,565	22,504,937,545
	2014	4,625,261,593	2,109,713,353	2,515,548,240	22,504,937,545	25,020,485,785
	2015	2,296,368,445	2,209,995,309	86,373,136	25,020,485,785	25,106,858,921
	2016	1,206,336,587	2,328,468,844	(1,122,132,257)	25,106,858,921	23,984,726,664
	2017	4,288,601,629	2,425,609,894	1,862,991,735	23,984,726,664	25,847,718,399
	2018	3,778,988,436	2,528,150,735	1,250,837,701	25,847,718,399	27,098,556,100
	2019	3,308,453,639	2,614,588,794	693,864,845	27,098,556,100	27,792,420,945

Schedule of Changes in Net Position

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Additions ⁽¹⁾	Deductions ⁽²⁾	Total Change in Net Position	Net Position	
					Beginning of Year	End of Year
STATE	2009	(274,178,989)	132,718,593	(406,897,582)	1,967,797,990	1,560,900,408
POLICE	2010	234,539,845	139,245,329	95,294,516	1,560,900,408	1,656,194,924
RETIREMENT	2011	300,820,734	149,387,463	151,433,271	1,656,194,924	1,807,628,195
SYSTEM	2012	85,727,280	163,507,650	(77,780,370)	1,807,628,195	1,729,847,825
	2013	241,530,381	182,752,484	58,777,897	1,729,847,825	1,788,625,722
	2014	347,569,636	198,238,964	149,330,672	1,788,625,722	1,937,956,394
	2015	136,598,064	206,845,348	(70,247,284)	1,937,956,394	1,867,709,110
	2016	41,023,782	213,770,780	(172,746,998)	1,867,709,110	1,694,962,112
	2017	284,133,914	217,598,691	66,535,223	1,694,962,112	1,761,497,335
	2018	251,297,839	222,750,492	28,547,347	1,761,497,335	1,790,044,682
	2019	228,173,929	226,429,044	1,744,885	1,790,044,682	1,791,789,567
JUDICIAL	2009	(51,500,425)	37,867,029	(89,367,454)	349,995,790	260,628,336
RETIREMENT	2010	42,495,291	41,599,635	895,656	260,628,336	261,523,992
SYSTEM	2011	46,627,192	43,446,816	3,180,376	261,523,992	264,704,368
	2012	13,492,372	46,161,075	(32,668,703)	264,704,368	232,035,665
	2013	41,643,253	47,848,101	(6,204,848)	232,035,665	225,830,817
	2014	55,419,470	49,766,452	5,653,018	225,830,817	231,483,835
	2015	33,898,314	52,598,778	(18,700,464)	231,483,835	212,783,371
	2016	22,070,978	54,854,529	(32,783,551)	212,783,371	179,999,820
	2017	51,841,819	56,516,306	(4,674,487)	179,999,820	175,325,333
	2018	50,870,800	58,471,785	(7,600,985)	175,325,333	167,724,348
	2019	49,931,789	59,791,944	(9,860,155)	167,724,348	157,864,193
CONSOLIDATED	2009	7,060,225	8,857,525	(1,797,300)	13,182,383	11,385,083
POLICE AND	2010	4,878,920	7,503,268	(2,624,348)	11,385,083	8,760,735
FIREMEN'S	2011	4,058,712	6,327,768	(2,269,056)	8,760,735	6,491,679
PENSION FUND	2012	3,427,978	5,060,797	(1,632,819)	6,491,679	4,858,860
	2013	3,389,354	3,894,398	(505,044)	4,858,860	4,353,816
	2014	1,901,416	2,951,601	(1,050,185)	4,353,816	3,303,631
	2015	1,577,949	2,453,630	(875,681)	3,303,631	2,427,950
	2016	1,354,873	1,887,895	(533,022)	2,427,950	1,894,928
	2017	1,549,379	1,539,811	9,568	1,894,928	1,904,496
	2018	1,152,872	1,293,905	(141,033)	1,904,496	1,763,463
	2019	660,275	1,036,188	(375,913)	1,763,463	1,387,550

Schedule of Changes in Net Position
(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Additions ⁽¹⁾	Deductions ⁽²⁾	Total Change in Net Position	Net Position	
					Beginning of Year	End of Year
PRISON OFFICERS' PENSION FUND	2009	1,286,442	2,189,963	(903,521)	12,890,441	11,986,920
	2010	1,100,162	2,068,714	(968,552)	11,986,920	11,018,368
	2011	1,096,674	2,117,392	(1,020,718)	11,018,368	9,997,650
	2012	1,004,312	1,957,726	(953,414)	9,997,650	9,044,236
	2013	898,612	1,770,929	(872,317)	9,044,236	8,171,919
	2014	800,543	1,589,261	(788,718)	8,171,919	7,383,201
	2015	704,715	1,383,348	(678,633)	7,383,201	6,704,568
	2016	652,284	1,245,619	(593,335)	6,704,568	6,111,233
	2017	582,978	1,073,343	(490,365)	6,111,233	5,620,868
	2018	554,780	952,192	(397,412)	5,620,868	5,223,456
	2019	523,663	821,187	(297,524)	5,223,456	4,925,932
CENTRAL PENSION FUND	2009	402,191	402,191	—	—	—
	2010	202,365	202,365	—	—	—
	2011	221,340	221,340	—	—	—
	2012	190,274	190,274	—	—	—
	2013	190,312	190,312	—	—	—
	2014	227,053	227,053	—	—	—
	2015	253,461	253,461	—	—	—
	2016	302,890	302,890	—	—	—
	2017	270,826	270,826	—	—	—
	2018	347,283	347,283	—	—	—
	2019	297,355	297,355	—	—	—
SUPPLEMENTAL ANNUITY COLLECTIVE TRUST	2009	(25,604,513)	10,330,455	(35,934,968)	158,895,484	122,960,516
	2010	23,180,756	9,955,917	13,224,839	122,960,516	136,185,355
	2011	40,605,592	18,312,488	22,293,104	136,185,355	158,478,459
	2012	12,288,247	17,890,338	(5,602,091)	158,478,459	152,876,368
	2013	37,624,576	12,238,930	25,385,646	152,876,368	178,262,014
	2014	48,130,013	17,638,584	30,491,429	178,262,014	208,753,443
	2015	22,459,949	20,710,344	1,749,605	208,753,443	210,503,048
	2016	11,144,135	20,342,949	(9,198,814)	210,503,048	201,304,234
	2017	41,308,408	16,520,123	24,788,285	201,304,234	226,092,519
	2018	30,322,243	22,615,594	7,706,649	226,092,519	233,799,168
	2019	18,071,090	20,973,004	(2,901,914)	233,799,168	230,897,254

Schedule of Changes in Net Position

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Additions ⁽¹⁾	Deductions ⁽²⁾	Total Change in Net Position	Net Position	
					Beginning of Year	End of Year
DEFERRED COMPENSATION PLAN	2009	(161,866,759)	76,382,165	(238,248,924)	2,017,670,989	1,779,422,065
	2010	340,455,079	71,294,889	269,160,190	1,779,422,065	2,048,582,255
	2011	569,118,777	111,058,689	458,060,088	2,048,582,255	2,506,642,343
	2012	198,078,409	118,676,869	79,401,540	2,506,642,343	2,586,043,883
	2013	479,365,849	124,516,718	354,849,131	2,586,043,883	2,940,893,014
	2014	605,199,581	149,875,388	455,324,193	2,940,893,014	3,396,217,207
	2015	320,141,828	176,453,482	143,688,346	3,396,217,207	3,539,905,553
	2016	201,026,688	163,438,450	37,588,238	3,539,905,553	3,577,493,791
	2017	593,942,087	183,555,499	410,386,588	3,577,493,791	3,987,880,379
	2018	533,073,463	203,833,496	329,239,967	3,987,880,379	4,317,120,346
	2019	425,007,572	234,244,690	190,762,882	4,317,120,346	4,507,883,228
DEFINED CONTRIBUTION RETIREMENT PROGRAM⁽⁵⁾	2009	–	–	–	–	–
	2010	–	–	–	–	–
	2011	289,593	–	289,593	–	289,593
	2012	488,324	85,280	403,044	289,593	692,637
	2013	1,484,737	1,207,760	276,977	692,637	969,614
	2014	1,411,794	359,385	1,052,409	969,614	2,022,023
	2015	2,050,267	844,050	1,206,217	2,022,023	3,228,240
	2016	–	–	–	–	–
	2017	–	–	–	–	–
	2018	–	–	–	–	–
	2019	–	–	–	–	–
ALTERNATE BENEFIT LONG-TERM DISABILITY FUND⁽⁵⁾	2009	2,728,467	2,685,591	42,876	1,487,907	1,530,783
	2010	2,779,001	2,766,031	12,970	1,530,783	1,543,753
	2011	2,893,294	2,885,114	8,180	1,543,753	1,551,933
	2012	3,327,297	3,323,165	4,132	1,551,933	1,556,065
	2013	3,039,991	2,949,360	90,631	1,556,065	1,646,696
	2014	1,384,318	1,400,000	(15,682)	1,646,696	1,631,014
	2015	1,551,631	1,550,000	1,631	1,631,014	1,632,645
	2016	–	–	–	–	–
	2017	–	–	–	–	–
	2018	–	–	–	–	–
	2019	–	–	–	–	–

Schedule of Changes in Net Position

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Additions ⁽¹⁾	Deductions ⁽²⁾	Total Change in Net Position	Net Position	
					Beginning of Year	End of Year
STATE	2009	3,688,960,344	3,905,614,344	(216,654,000)	701,191,152	484,537,152
HEALTH BENEFIT PROGRAM FUNDS⁽⁴⁾	2010	4,366,329,943	4,395,854,101	(29,524,158)	484,537,152	455,012,994
	2011	4,843,404,735	4,759,910,140	83,494,595	455,012,994	538,507,589
	2012	4,967,678,805	5,274,510,706	(306,831,901)	538,507,589	231,675,688
	2013	5,469,006,328	5,405,114,581	63,891,747	231,675,688	295,567,435
	2014	5,879,875,715	5,928,310,769	(48,435,054)	295,567,435	247,132,381
	2015	6,370,195,549	6,299,989,819	70,205,730	247,132,381	317,338,111
	2016	447,889,303	436,462,746	11,426,557	138,958,595	150,385,152
	2017	489,254,189	426,383,424	62,870,765	150,385,152	213,255,917
	2018	531,050,535	429,821,366	101,229,169	213,255,917	314,485,086
	2019	438,346,444	479,658,048	(41,311,604)	314,485,086	273,173,482
PENSION TRUST AND STATE HEALTH BENEFIT PROGRAM FUNDS TOTAL	2009	(4,932,674,181)	11,000,182,293	(15,932,856,474)	85,836,769,871	69,903,913,397
	2010	16,652,305,005	11,908,049,971	4,744,255,034	69,903,913,397	74,648,168,431
	2011	19,453,024,432	13,033,582,581	6,419,441,851	74,648,168,431	81,067,610,282
	2012	10,943,668,383	14,127,288,625	(3,183,620,242)	81,067,610,282	77,883,990,040
	2013	18,677,582,693	14,691,325,472	3,986,257,221	76,313,283,223	80,299,540,444
	2014	22,726,609,543	15,687,946,839	7,038,662,704	80,299,540,444	87,338,203,148 ⁽³⁾
	2015	14,556,031,996	16,466,779,161	(1,910,747,165)	87,338,203,148	85,427,455,983
	2016	5,089,147,340	11,056,551,411	(5,967,404,071)	85,244,215,582	79,276,811,511
	2017	15,940,612,938	11,477,727,856	4,462,885,082	79,276,811,511	83,739,696,593 ⁽⁴⁾
	2018	14,520,656,870	11,868,145,438	2,652,511,432	83,739,696,593	86,392,208,025
	2019	13,244,135,824	12,331,289,756	912,846,068	86,392,208,025	87,305,054,093

(1) See Schedule of Revenues by Source.

(2) See Schedule of Expenses by Type.

(3) GASB No. 67 became implemented in fiscal year 2014. Fiscal years before 2014 other than the restated 2013 were presented otherwise.

(4) GASB No. 74 became implemented in fiscal year 2017, which is presenting State Health Benefits Program - Local - Retired only. Fiscal years before 2017 other than the restated 2016 were presented otherwise.

(5) Both DCRP and ABPLTD moved from NJ DP&B to NJ OMB (State) in fiscal year 2017. The 2016 was restated accordingly.

Participating County and Municipal Employers

Aberdeen Township	Branchville Borough *	Deal Borough *	Fort Lee Borough
Absecon City *	Brick Township	Deerfield Township *	Frankford Township *
Alexandria Township *	Bridgeton City	Delanco Township *	Franklin Borough *
Allamuchy Township *	Bridgewater Township	Delaware Township *	Franklin Lakes Borough *
Allendale Borough	Brielle Borough	Delran Township	Franklin Township (Gloucester)
Allenhurst Borough *	Brigantine City	Demarest Borough *	Franklin Township (Hunterdon)
Allentown Borough	Brooklawn Borough	Dennis Township *	Franklin Township (Somerset)
Alloway Township	Buena Borough *	Denville Township *	Franklin Township (Warren)
Alpha Borough *	Buena Vista Township *	Deptford Township *	Fredon Township
Alpine Borough	Burlington Co Board of Social Services *	Dover Town	Freehold Borough *
Andover Borough	Burlington County/Payroll Dept	Downe Township	Freehold Township
Andover Township *	Burlington City *	Dumont Borough *	Frelinghuysen Twp *
Asbury Park City	Burlington Township	Dunellen Borough *	Frenchtown Borough *
Atlantic City	Butler Borough	Eagleswood Township *	Galloway Township
Atlantic Highlands *	Byram Township *	East Amwell Township *	Garfield City
Atlantic County *	Caldwell Borough	East Brunswick Township	Garwood Borough *
Atlantic County Welfare Board *	Califon Borough *	East Brunswick Township Fire Dist *	Gibbsboro Borough
Audubon Borough *	Camden City	East Greenwich Township	Glassboro Borough
Audubon Park Borough *	Camden Co Board of Chosen Freeholders	East Hanover Township	Glen Gardner Borough *
Avalon Borough	Camden Co Board of Social Services *	East Newark Borough	Glen Ridge Borough *
Avon By The Sea	Cape May City *	East Orange City	Glen Rock Borough *
Barnegat Light Borough *	Cape May County	East Rutherford Borough *	Gloucester City
Barnegat Township *	Cape May Co Board Social Services	East Windsor Township	Gloucester County
Barrington Borough	Cape May Point Borough *	Eastampton Township *	Gloucester Co Board of Social Services
Bass River Twp Municipal Bldg	Carlstadt Borough	Eatontown Borough	Gloucester Township
Bay Head Borough *	Carneys Point Township	Edgewater Borough	Green Brook Township *
Bayonne City *	Carteret Borough	Edgewater Park Township *	Green Township *
Beach Haven Borough *	Casino Reinvestment Dev Auth/A	Edison Township	Greenwich Township (Cumberland)
Beachwood Borough	Cedar Grove Township *	Egg Harbor City	Greenwich Township (Gloucester)
Bedminster Township *	Chatham Borough	Egg Harbor Township *	Greenwich Township (Warren) *
Belleville Township	Chatham Township	Elizabeth City *	Guttenberg Town
Bellmawr Borough	Cherry Hill Township	Elk Township *	Hackensack City
Belmar Borough *	Chesilhurst Borough	Elmer Borough	Hackettstown Town *
Belvidere Town *	Chester Borough *	Elmwood Park Borough *	Haddon Heights Borough *
Bergen County	Chester Township *	Elsinboro Township	Haddon Township
Bergen Co Board of Social Services	Chesterfield Township *	Emerson Borough	Haddonfield Borough
Bergenfield Borough *	Cinnaminson Township	Englewood City *	Hainesport Township *
Berkeley Heights Township	Clark Township *	Englewood Cliffs Borough *	Haledon Borough *
Berkeley Twp Municipal Bldg *	Clayton Borough *	Englishtown Borough	Hamburg Borough *
Berlin Borough *	Clementon Borough *	Essex County	Hamilton Township (Atlantic) *
Berlin Township *	Cliffside Park Borough *	Essex Fells Borough *	Hamilton Township (Mercer)
Bernards Township *	Clifton City	Estell Manor City *	Hammonton Town *
Bernardsville Boro *	Clinton Town *	Evesham Township	Hampton Borough *
Bethlehem Township *	Clinton Township *	Ewing Township *	Hampton Township *
Beverly City Municipal Bldg *	Closter Borough *	Fair Haven Borough *	Hanover Township
Blairstown Township *	Collingswood Borough *	Fair Lawn Borough	Harding Township
Bloomfield Township	Colts Neck Township	Fairfield Township (Cumberland)	Hardwick Township *
Bloomington Borough *	Commercial Township *	Fairfield Township (Essex)	Hardyston Township
Bloomsbury Borough *	Comm Workers of America # 1034	Fairview Borough *	Harmony Township *
Bogota Borough	Comm Workers of America #1037	Fanwood Borough	Harrington Park Borough *
Boonton Town *	Comm Workers of America # 1033	Far Hills Borough *	Harrison Township *
Boonton Township *	Corbin City *	Farmingdale Borough *	Harrison Town (Hudson)
Bordentown City *	Cranbury Township *	Fieldsboro Borough	Harrison Twp Fire Dist 1*
Bordentown Township	Cranford Township	Flemington Borough *	Harrison Township (Gloucester) *
Bound Brook Borough *	Cresskill Borough *	Florence Township *	Harvey Cedars Borough *
Bradley Beach Borough *	Cumberland County	Florham Park Borough	Hasbrouck Heights Borough *
Branchburg Township	Cumberland Co Board Social Services *	Folsom Borough *	Haworth Borough *

* In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program

Participating County and Municipal Employers, *continued*

Hawthorne Borough	Lindenwold Borough *	Millstone Township *	Ocean City *
Hazlet Township *	Linwood City	Milltown Borough *	Ocean County *
Helmetta Borough *	Little Egg Harbor Township	Millville City	Ocean County Board of Social Services *
High Bridge Borough	Little Falls Township *	Mine Hill Township *	Ocean Gate Borough *
Highland Park Borough *	Little Ferry Borough *	Monmouth Beach Borough *	Ocean Township (Monmouth) *
Highlands Borough	Little Silver Borough *	Monmouth County Division of Social Services	Ocean Township (Ocean)
Hightstown Borough	Livingston Township *	Monmouth County/Hall of Records	Oceanport Borough
Hillsborough Township *	Loch Arbour Village	Monroe Township (Gloucester)	Ogdensburg Borough *
Hillsdale Borough	Lodi Borough	Monroe Township (Middlesex)	Old Bridge Township
Hillside Township	Logan Township	Montague Township *	Old Bridge Twp Fire District 3 *
Hi-Nella Borough	Long Beach Township *	Montclair Township *	Old Tappan Borough
Hoboken City	Long Branch City	Montgomery Township *	Oldmans Township
Ho-Ho-Kus Borough *	Long Hill Township *	Montvale Borough	Oradell Borough *
Holland Township *	Longport Borough *	Montville Township *	Orange City
Holmdel Township	Lopatcong Township	Moonachie Borough	Oxford Township *
Hopatcong Borough	Lower Alloways Creek Township	Moorestown Township	Palisades Park Borough
Hope Township *	Lower Township	Morris County	Palmyra Borough *
Hopewell Borough *	Lumberton Township *	Morris Plains Borough *	Paramus Borough *
Hopewell Township (Cumberland)	Lyndhurst Township	Morris Township *	Park Ridge Borough
Hopewell Township (Mercer)	Madison Borough	Morristown Town	Parsippany Troy Hills Township
Howell Township	Magnolia Borough	Mount Arlington Borough *	Passaic City *
Hudson County *	Mahwah Township	Mount Ephraim Borough	Passaic County
Hunterdon County	Manalapan Township *	Mount Holly Township *	Passaic County Board of Social Services
Hunterdon Co Board Social Services	Manasquan Borough	Mount Laurel Township *	Passaic Valley Water Comm
Independence Township / Municipal. Bldg *	Manchester Township	Mount Olive Township	Paterson City *
Interlaken Borough *	Mannington Township *	Mountain Lakes Borough *	Paulsboro Borough
Irvington Township Dept Of Rev & Finance	Mansfield Township *	Mountainside Borough *	Peapack Gladstone Borough *
Island Heights Borough *	Mansfield Township Mansfield Township (Burlington)	Mullica Township *	Pemberton Borough *
Jackson Township *	Mansfield Township (Warren)	National Park Borough	Pemberton Township
Jamesburg Borough *	Mantoloking Borough *	Neptune City Borough	Pennington Borough *
Jefferson Township *	Mantua Township *	Neptune Township	Penns Grove Borough
Jersey City	Manville Borough *	Netcong Borough *	Pennsauken Township
Keansburg Borough	Maple Shade Township	New Brunswick City	Pennsville Township
Kearny Town *	Maplewood Township *	New Jersey Association of Counties *	Pequannock Township
Kenilworth Borough *	Margate City	New Jersey School Boards Association *	Perth Amboy City
Keypoint Borough	Marlboro Township *	New Jersey State League of Municipalities *	Phillipsburg Town
Kingwood Township *	Matawan Borough	New Hanover Township *	Pilesgrove Township *
Kinnelon Borough	Maurice River Township *	New Milford Borough	Pine Beach Borough *
Knowlton Township *	Maywood Borough	New Providence Borough	Pine Hill Borough
Lacey Township *	Medford Lakes Borough *	Newark City *	Pine Hill Borough Fire Dist 1 *
Lafayette Township *	Medford Township *	Newfield Borough *	Pine Valley Borough *
Lake Como Borough *	Mendham Borough *	Newton Town *	Piscataway Township
Lakehurst Borough *	Mendham Township *	North Arlington Borough	Pitman Borough
Lakewood Township	Merchantville Borough	North Bergen Township	Pittsgrove Township *
Lakewood Twp Fire District #1 *	Mercer County *	North Brunswick Township *	Plainfield City *
Lambertville City *	Mercer Co Board of Social Service *	North Caldwell Borough *	Plainsboro Township
Laurel Springs Borough *	Metuchen Borough	North Haledon Borough *	Pleasantville City *
Lavallette Borough *	Middle Township *	North Hanover Township *	Plumsted Township
Lawnside Borough	Middlesex Borough *	North Hunterdon Municipal Court *	Pohatcong Township
Lawrence Township (Cumberland) *	Middlesex County	North Plainfield Borough *	Point Pleasant Beach Borough
Lawrence Township (Mercer) *	Middlesex Co Board of Social Services	North Wildwood City	Point Pleasant Borough
Lebanon Borough *	Middletown Township	Northfield City *	Pompton Lakes Borough *
Lebanon Township *	Midland Park Borough *	Northvale Borough *	Port Republic City *
Leonia Borough *	Milford Borough *	Norwood Borough *	Princeton Borough *
Liberty Township *	Millburn Township *	Nutley Township *	Princeton Township
Lincoln Park Borough	Millstone Borough	Oakland Borough	Prospect Park Borough *
Linden City *		Oaklyn Borough	Quinton Township

** In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program*

Participating County and Municipal Employers, *continued*

Rahway City *	Seaside Park Borough *	Tabernacle Township *	Washington Township (Warren)
Ramsey Borough	Secaucus Town	Tavistock Borough	Watchung Borough *
Randolph Township	Shamong Township *	Teaneck Township *	Waterford Township *
Raritan Borough *	Shiloh Borough	Tenaflly Borough *	Wayne Township
Raritan Township	Ship Bottom Borough	Teterboro Borough *	Weehawken Township *
Readington Township *	Shrewsbury Borough	Tewksbury Township *	Wenonah Borough
Red Bank Borough	Shrewsbury Township	Tinton Falls Borough	West Amwell Township *
Ridgefield Borough *	Somerdale Borough *	Toms River Township	West Caldwell Township
Ridgefield Park Village	Somers Point City	Totowa Borough *	West Cape May Borough *
Ridgewood Village *	Somerset County Finance Office	Trenton City *	West Deptford Township
Ringwood Borough	Somerville Borough *	Trenton City Library *	West Long Branch Borough
River Edge Borough *	South Amboy City	Tuckerton Borough *	West Milford Township
River Vale Township *	South Bergen JT Const. Code Office	Union Beach Borough *	West New York Town
Riverdale Borough *	South Bound Brook Borough *	Union City	West Orange Township *
Riverside Township	South Brunswick Township *	Union County	West Paterson Borough
Riverton Borough *	South Hackensack Township	Union County Board of Social Services	West Wildwood Borough *
Robbinsville Township	South Harrison Township *	Union Township (Hunterdon) *	West Windsor Township
Rochelle Park Public Library	South Orange Village *	Union Township (Union)	Westampton Township *
Rochelle Park Township *	South Plainfield Borough	Upper Deerfield Township *	Westfield Town
Rockaway Borough **	South River Borough *	Upper Freehold Township *	Westville Borough
Rockaway Township *	South Toms River Borough *	Upper Pittsgrove Township *	Westwood Borough
Rockleigh Borough *	Southampton Township *	Upper Saddle River Boro *	Weymouth Township *
Rocky Hill Borough	Sparta Township	Upper Township	Wharton Borough *
Roosevelt Borough *	Spotswood Borough *	Ventnor City	White Township *
Roseland Borough *	Spring Lake Borough *	Vernon Township *	Wildwood City *
Roselle Borough	Spring Lake Heights Borough *	Verona Township *	Wildwood Crest Borough *
Roselle Park Borough	Springfield Township (Union)	Victory Gardens Borough	Willingboro Township
Roxbury Township	Springfield Twp (Burlington) *	Vineland City	Winfield Township *
Rumson Borough *	Stafford Township	Voorhees Township *	Winslow Township
Runnemede Borough	Stanhope Borough *	Waldwick Borough *	Woodbine Borough *
Rutherford Borough	Stillwater Township *	Wall Township	Woodbridge Township
Saddle Brook Township	Stockton Borough	Wall Township Fire Dist 3 *	Woodbury City
Saddle River Borough	Stone Harbor Borough	Wallington Borough	Woodbury Heights Borough *
Salem City *	Stow Creek Township	Wallpack Township	Woodcliff Lake Borough *
Salem County *	Stratford Borough *	Wanaque Borough	Woodland Township *
Salem County Board of Social Services *	Summit City *	Wantage Township	Woodlynne Borough *
Sandyston Township *	Summit Housing Authority *	Warren County Bd of Chosen Freeholders	Wood-Ridge Borough
Sayreville Borough	Surf City Borough	Warren Township *	Woodstown Borough *
Scotch Plains Township	Sussex Borough *	Washington Borough *	Woolwich Township
Sea Bright Boro *	Sussex County	Washington Township (Bergen) *	Wrightstown Borough *
Sea Girt Borough *	Sussex County Health & Public *	Washington Township (Burlington)	Wyckoff Township *
Sea Isle City	Sussex County Social Services *	Washington Township (Gloucester)	
Seaside Heights Borough *	Swedesboro Borough	Washington Township (Morris)	

* In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program

Participating Education Employers

Absecon Board of Education	Branchville Board of Education	College Achieve Paterson C/S *	Essex County College *
Academy Charter High School	Brick Twp Board of Education	Collingswood Borough Board of Education	Essex Co Educational Service Commission
Academy For Urban Leadership	Bridgeton Board of Education	Colts Neck Twp Board of Education	Essex Co Vocational School
Adelaide Sanford Charter School	Bridgeton Public Charter School	Commercial Twp Board of Education	Essex Fells Board of Education
Alexandria Twp Board of Education	Bridgewater-Raritan Regional School Dist	Communications Workers of America	Estell Manor Board of Education *
Allamuchy Board of Education	Brielle Boro Board of Education	Community Charter School of Paterson	Ethical Comm Charter School Jersey City
Allendale Boro Board of Education	Brigantine City Board of Education *	Corbin City Board of Education *	Evesham Twp Board of Education
Allenhurst Board of Education *	Brookdale Community College *	Cranbury Township Board of Education	Ewing Township Board of Education *
Alloway Twp Board of Education	Brooklawn Boro Board of Education	Cranford Twp Board of Education *	Fair Haven Borough Board of Education
Alpha Board of Education *	Buena Regional School District	Cresskill Board of Education	Fair Lawn Board of Education
Alpine Board of Education *	Burch Charter School For Excellence	Cresthaven Academy Charter School	Fairfield Twp Bd of Ed (Cumberland) *
Andover Regional Board of Education *	Burlington City Board of Education	Cumberland County Board of Voc Ed	Fairfield Twp Board of Education (Essex)
Asbury Park Board of Education *	Burlington Co Audio Visual Aids Comm *	Cumberland County College *	Fairview Boro Board of Education *
Atlantic Cape Community College *	Burlington Co Board Special Services	Cumberland Regional School Dist	Farmingdale Board of Education *
Atlantic City Board of Education *	Burlington Co College *	Deal Boro Board of Education *	Flemington Raritan Board of Education
Atlantic Co Audio Visual Aids Comm *	Burlington Co Institute of Tech	Deerfield Township Board of Education	Florence Township Board of Education
Atlantic County Special Services *	Burlington Township Board of Education	Delanco Twp Board of Education	Forsham Park Board of Education
Atlantic Highlands Board of Education *	Butler Boro Board of Education	Delaware Twp Board of Education	Folsom Borough Board of Education *
Atlantic Co Vocational Schools *	Byram Twp Board of Education	Delaware Valley Regional High School Dist.	Fort Lee Board of Education
Audubon Borough Board of Education	Caldwell West Caldwell Board of Education *	Delsea Regional High School District	Frankford Township Board of Education
Avalon Borough Board of Education	Califon Boro Board of Education *	Demarest Boro Board of Education *	Franklin Boro Board of Education *
Avon By The Sea Boro Board of Education *	Camden Academy Charter High School	Dennis Twp Board of Education	Franklin Lakes Board of Education
Barack Obama Green Charter High School	Camden City Board of Education *	Denville Twp Board of Education	Franklin Twp Board of Ed (Gloucester)
Barneгат Twp Board of Education	Camden County College *	Deptford Twp Board of Education	Franklin Twp Board of Ed (Somerset)
Bass River Twp Board of Education *	Camden County Ed Services Commission	Dover Board of Education	Franklin Twp Board of Education (Warren)
Bay Head Board of Education	Camden County Technical Schools *	Downe Twp Board of Education	Franklin Twp Board of Ed Hunterdon)
Bayonne Board of Education	Camden Promise Charter School	Dr. Lena Edwards Academy Charter School	Freedom Academy Charter School
Beach Haven Borough Board of Education *	Camden's Pride Charter School	Dumont Borough Board Of Education	Freehold Boro Board of Education *
Bedminster Twp Board of Education	Cape May City Board of Education *	Dunellen Board of Education	Freehold Regional High School District
Belleville Board of Education	Cape May County Special Services *	Eagleswood Twp Board of Education *	Freehold Twp Board of Education
Bellmawr Borough Board of Education *	Cape May County Technical School Dist	East Amwell Township Board of Education	Frelinghuysen Twp Board of Education
Belmar Boro Board of Education	Cape May Pt Boro Board of Education	East Brunswick Twp Board of Education	Frenchtown Borough Board of Education *
Belvidere Town Board of Education	Carlstadt Borough Board of Education	East Hanover Twp Board of Education *	Galloway Township Board of Education
Bergen Arts And Science Charter School	Carlstadt East Rutherford Board of Education	East Newark Borough Board of Education *	Garfield City Board of Education *
Bergen Co Board Of Special Services	Carteret Board of Education	East Orange City Board of Education *	Garwood Borough Board of Education
Bergen Community College *	Cedar Grove Twp Board of Education	East Orange Community Charter School	Gateway Regional High School
Bergen County Vocational School	Central Jersey Arts Charter School *	East Rutherford Boro Board of Education	Gibbsboro Borough Board of Education
Bergenfield Board of Education *	Central Jersey College Prep Charter	East Windsor Regional School Dist *	Glassboro Board of Education
Berkeley Heights Board of Education	Central Regional High School District	Eastampton Township Board of Education	Glen Ridge Board of Education
Berkeley Twp Board of Education	Charter Tech *	Eastern Camden Co Regional School Dist	Glen Rock Borough Board of Education *
Berlin Borough Board of Education	Chatham's School District	Eatontown Board of Education *	Gloucester City Board of Education *
Berlin Township Board of Education	Cherry Hill Twp Board of Education	Eco Charter School	Gloucester County Audio Visual Aid Comm *
Bernards Twp Board of Education	Chesilhurst Boro Board of Education *	Edgewater Boro Board of Education	Gloucester County College *
Bethlehem Twp Board of Education	Chester Twp Board of Education	Edgewater Park Twp Board of Education *	Gloucester County Sp Services School District
Beverly City Board of Education *	Chesterfield Twp Board of Education *	Edison Twp Board of Education	Gloucester County Vo-Tech School Dist
Black Horse Pike Regional School District	Cinnaminson Twp Board of Education	Egg Harbor City Board of Education *	Granville Charter Middle School
Blairstown Twp Board of Education	Clark Twp Board of Education	Egg Harbor Twp Board of Education	Gray Charter School *
Bloomfield Twp Board of Education	Classical Academy Charter School *	Elizabeth Board of Education *	Great Meadows Regional Board of Education
Bloomington Board of Education	Clayton Borough Board of Education	Elk Twp Board of Education	Great Oaks Charter School
Bloomsbury Borough Board of Education *	Clearview Regional Board of Education	Elmer Board of Education	Greater Brunswick Charter School *
Bogota Boro Board of Education *	Clementon Board of Education	Elmwood Park Borough Board of Ed *	Greater Egg Harbor Regional
Boonton Town Board of Education	Cliffside Park Board of Education	Elsinboro Township Board of Education *	Green Brook Board of Education
Boonton Twp Board of Education	Clifton City Board of Education	Elysian Charter School of Hoboken *	Green Township Board of Education
Bordentown Regional School District *	Clinton Town Board of Education	Emerson Borough Board of Education *	Greenwich Twp Bd of Ed (Cumberland) *
Bound Brook Boro Board of Education	Clinton Twp Board of Education	Englewood City Board of Education *	Greenwich Twp Board of Ed (Gloucester)
Bradley Beach Board of Education	Closter Board of Education *	Englewood Cliffs Board of Education *	Greenwich Twp Board of Ed (Warren)
Branchburg Twp Board of Education	College Achieve Greater Asbury *	Englewood On The Palisades Charter School *	Guttenberg Boro Board of Education

* In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program

Participating Education Employers, *continued*

Hackensack City Board of Education *	Island Heights Boro Board of Education *	Lumberton Township Board of Education	Montvale Borough Board of Education *
Hackettstown Board of Education	Jackson Township Board of Education	Lyndhurst Township Board of Education	Montville Township Board of Education
Haddon Heights Board of Education	Jamesburg Borough Board of Education *	Madison Boro Board of Education	Moonachie Borough Board of Education
Haddon Township Board of Education	Jefferson Township Board of Education	Magnolia Borough Board of Education	Moorestown Township Board of Education *
Haddonfield Board of Education	Jersey City Board of Education	Mahwah Board of Education	Morris County College *
Hainesport Township Board of Education	Jersey City Public Schools *	Mahwah Township Board of Education	Morris County Vocational School District *
Haledon Borough Board of Education *	Jersey City Comm Charter School *	Mainland Regional High School Dist *	Morris Hills Regional District
Hamburg Borough Board of Education	Jersey City Golden Door Charter	Manalapan Englishtown Regional Schools *	Morris Plains Board of Education
Hamilton Twp Board of Education (Atlantic)	John P Holland Charter School	Manasquan Borough Board of Education	Morris Audio Visual Commission
Hamilton Twp Board of Education (Mercer)	Kean University *	Manchester Township Board of Education	Morris County Ed Services Commission
Hammonon Town Board of Education	Keansburg Board v Education	Mannington Township Board of Education	Morris School District
Hampton Borough Board of Education *	Keamy Town Board of Education	Mansfield Township Board of Ed (Burlington)	Mount Arlington Board of Education
Hampton Township Board of Education *	Kenilworth Borough Board of Education	Mansfield Township Board of Ed (Warren)	Mount Ephraim Board of Education
Hanover Park Regional High School Dist *	Keypoint Borough Board of Education	Mantoloking Boro Board of Education	Mount Holly Township Board of Education
Hanover Township Board of Education	Kingsway Regional School District	Manville Borough Board of Education	Mount Laurel Township Board of Education
Harding Township Board of Education	Kingwood Township Board of Education	Maple Shade Board of Education	Mount Olive Township Board of Education
Hardwick Twp Board of Education	Kinnelon Borough Board of Education	Margate City Board of Education *	Mountain Lakes Boro Board of Ed *
Hardyston Township Board of Education	Kittatiny Regional High School	María L. Varisco-Rogers Charter *	Mountainside Boro Board of Education *
Harmony Township Board of Education *	Knowlton Twp Board of Education	Marion P. Thomas Charter School *	Mullica Township Board of Education *
Harrington Park Board of Education	Lacey Township Board of Education *	Marlboro Township Board of Education	National Park Borough Board of Education
Harrison Town Board of Education (Hudson)	Lafayette Twp Board of Education	Maurice River Township Board of Education	Neptune City Board of Education *
Harrison Twp Board of Education (Gloucester)	Lakehurst Borough Board of Education	Maywood Board of Education	Neptune Township Board of Education
Hasbrouck Heights Board of Education	Lakeland Regional High School District	Medford Lakes Boro Board of Education	Netcong Borough Board of Education
Haworth Borough Board of Education *	Lakewood Twp Board of Education *	Medford Township Board of Education	New Brunswick Board of Education
Hawthorne Board of Education	Lambertville City Board of Education *	Mendham Boro Board of Education *	New Hanover Township Board of Education
Hatikvah International Academy C S	Laurel Springs Borough Board of Education	Mendham Township Board of Education	New Horizon Community Charter School
Hazlet Twp Board of Education	Lavallette Borough Board of Education	Merchandiseville Boro Board of Education *	New Jersey City University *
Helmetta Boro Board of Education *	Lawnside Borough Board of Education	Mercer County Community College *	New Jersey Institute Of Technology *
Henry Hudson Regional School District	Lawrence Twp Board of Ed (Cumberland)	Mercer County Special Ser School District	New Jersey State Federation of Teachers NJEA
High Bridge Borough Board of Education	Lawrence Twp Board of Education (Mercer)	Mercer County Vocational Schools	New Milford Board of Education
High Point Regional High School	Lead Charter School *	Mets Chater School	New Providence Board of Education
Highland Park Board of Education	Leap Academy Charter School	Metuchen Boro Board of Education	Newark Educators' Comm Charter School
Highlands Boro Board of Education	Learning Comm. Charter School *	Middle Township Board of Education *	Newark Legacy Charter School
Hillsdale Borough Board of Education *	Lebanon Borough Board of Education *	Middlesex Board of Education	Newark Public Schools *
Hillside Board of Education	Lebanon Township Board of Education	Middlesex County College	Newark Teachers' Union
Hoboken Board of Education	Lenape Regional High School District	Middlesex County Ed Services Commission	New Lisbon Developmental Center
Hoboken Charter School	Lenape Valley Regional High School Dist	Middlesex County Vocational School *	Newton Board of Education
Hoboken Dual Language Charter School	Leonia Borough Board of Education	Middletown Township Board of Education	North Arlington Board of Education
Ho-Ho-Kus Board of Education *	Lincoln Park Boro Board Of Education	Midland Park Boro Board of Education *	North Bergen Board of Education *
Holland Township Board of Education	Linden City Board of Education	Milford Borough Board of Education *	North Brunswick Board of Education
Holmdel Township Board of Education *	Lindenwold Borough Board of Education	Millburn Township Public Schools	North Caldwell Board of Education
Hopatcong Board of Education	Linwood Board of Education *	Millstone Borough Board of Education	North Haledon Boro Board of Education *
Hope Academy Charter School	Little Egg Harbor Twp Board of Education	Millstone Township Board of Education	North Hanover Township Board of Education
Hope Township Board of Education	Little Falls Board of Education	Milltown Borough Board Of Education	North Hunterdon-Voorhees
Hopewell Township Board v Ed (Cumberland)	Little Ferry Board of Education *	Millville Board of Education	North Plainfield Board of Education
Hopewell Valley Regional School District	Little Silver Board of Education	Millville Public Charter School	North Star Academy Charter School
Howell Township Board of Education	Livingston Board of Education	Mine Hill Township Board of Education *	North Warren Regional High School
Hudson Arts & Sciences Charter School	Lodi Board of Education	Monmouth Beach Board of Education *	North Wildwood Board of Education *
Hudson County Community College *	Logan Township Board of Education	Monmouth County Vocational Schools	Northern Burlington Co Regional
Hudson County Schools of Technology	Long Beach Island Board of Education *	Monmouth Ocean Ed Service Commission	Northern Highlands Reg High School *
Hunterdon Central High School	Long Branch Board of Education	Monmouth Regional School	Northern Valley Regional High School District
Hunterdon County Ed Services Commission	Long Hill Township Board of Education	Monroe Township Board of Ed (Gloucester)	Northfield Board of Education
Hunterdon County Vocational *	Longport Borough Board of Education *	Monroe Township Board of Ed (Middlesex)	Northvale Board of Education *
Interlaken Borough Board of Education	Lopatcong Township Board of Education	Montague Board of Education *	Norwood Board of Education *
International Charter School	Lower Alloways Creek Board of Education *	Montclair Board of Education	Nutley Board of Education
Irvington Board of Education	Lower Cape May Regional School District *	Montclair State University *	Oakland Board of Education
Irvington Town Board of Education	Lower Township Board of Education *	Montgomery Township Board of Education	Oaklyn Borough Board of Education

* In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program

Participating Education Employers, *continued*

Ocean Academy Charter School *	Princeton Regional School	Scotch Plains Fanwood Board of Education	Tenafly Board of Education *
Ocean City Board of Education	Prospect Park Board of Education *	Sea Bright Boro Board of Education *	Tewksbury Twp Board of Education
Ocean Gate Board of Education *	Queen City Academy Charter School	Sea Girt Board of Education *	The College of New Jersey *
Ocean Co Audio Visual Aids Commission *	Quinton Township Board of Education *	Sea Isle City Board of Education *	Thomas Edison State University *
Ocean County College *	Ramapo College of New Jersey *	Seaside Heights Board of Education	Tinton Falls Board of Education *
Ocean Township Board of Ed (Monmouth)	Ramapo Indian Hills Reg High School Dist	Seaside Park Board of Education *	Toms River School District
Ocean Township Board of Education (Ocean) *	Ramsey Borough Board of Education	Secaucus Town Board of Education	Totowa Borough Board of Education *
Oceanport Schools	Rancocas Valley Regional High School	Shamong Twp Board of Education	Trenton City Board of Education
Old Bridge Board of Education	Randolph Township Board of Education	Shiloh Borough Board of Education	Trenton Community Charter School *
Old Tappan Board of Education	Raritan Valley Community College *	Shore Regional High School District	Trenton Education Association
Oldmans Township Board of Education	Readington Twp Board of Education	Shrewsbury Borough Board of Education	Union Beach Boro Board of Education
Oradell Board of Education	Red Bank Board of Education *	Soaring Heights Charter School *	Union City Board of Education
Oxford Twp Board of Education	Red Bank Charter School	Somerdale Boro Board of Education	Union County College *
Pace Charter School of Hamilton *	Red Bank Regional High School District	Somers Point City Board of Education	Union County Ed Services Commission *
Palisades Park Board of Education	Redkey Stockton College of New Jersey *	Somerset County Ed Services Commission *	Union County Teams Charter School
Palmyra Borough Board of Education	Ridge And Valley Charter School	Somerset County Vocational School	Ocean County Vocational Schools *
Paramus Board of Education	Ridgefield Boro Board of Education *	Somerset Hills Board of Education	Union Township of Ed (Hunterdon)
Parsippany Troy Hills Board of Education	Ridgefield Park Board of Education *	Somerville Board of Education	Unity Charter School
Pascack Valley Regional High School District *	Ridgewood Twp Board of Education	South Amboy Board of Education	University Academy Charter High School
Passaic Board of Education *	Ringwood Boro Board of Education *	South Belmar Board of Education	University Heights Charter School *
Passaic County Community College *	Riverbank Charter School of Excellence	South Bound Brook Board of Education	Univ. Of Med & Dentistry New Brunswick *
Passaic Co. Ed Services Commission *	River Dell Regional School District *	South Brunswick Board of Education *	Univ. Of Medicine & Dentistry - Newark *
Passaic Co Manchester Regional High *	River Edge Boro Board of Education	South Hackensack Board of Education *	Univ. Of Medicine & Dentistry - Stratford *
Passaic Co Regional High School District 1 *	River Vale Twp Board of Education	South Harrison Twp Board of Education	Upper Deerfield Twp Board of Education
Passaic County Vocational School	Riverdale Borough Board of Education *	South Hunterdon Regional Bd of Ed *	Upper Freehold Regional
Paterson Board of Education *	Riverside Township Board of Education	South Orange-Maplewood Board of Ed *	Upper Pittsgrove Twp Board of Education
Paterson Chart School - Science/Tech	Riverton Boro School Board	South Plainfield Board of Education	Upper Saddle River Board of Education *
Paterson City Bd Of Ed	Robert Treat Academy Charter School	South River Boro Board of Education	Upper Township Board of Education
Paul Robeson Charter School	Robbinsville Twp Board of Education	Southampton Twp Board of Education	Ventnor City Board of Education
Paulsboro Boro Board of Education	Rochelle Park Twp Board of Education *	Southern Regional High School District	Vernon Township Board of Education
Pemberton Borough Board of Education	Rockaway Borough Board of Education	Sparta Board of Education	Verona Board of Education
Pemberton Township Board of Education	Rockaway Township Board of Education	Spotswood Board of Education	Victory Gardens Boro Board of Education *
Penns Grove Carneys Point Regional	Rockleigh Borough Board of Education	Spring Lake Boro Board of Education	Village Charter School *
Pennsauken Twp Board of Education	Rocky Hill Board of Education	Spring Lake Heights Board of Education	Vineland City Board of Education
Pennsville Twp Board of Education	Rosevelt Borough Board of Education *	Springfield Twp Board of Ed (Union)	Vineland Developmental Center
Peoples Preparatory Charter School	Roseland Board of Education	Springfield Twp Board of Ed (Burlington)	Vineland Public Charter School
Pequannock Twp Board of Education	Roselle Boro Board of Education	Stafford Township Board of Education	Visions Academy Charter High School
Perth Amboy Board of Education	Roselle Park Boro Board of Education	Stanhope Borough Board of Education	Voorhees Twp Board of Education
Phillips Academy Chart. Schl of Paterson	Roseville Community Charter School	State Library Affiliated W/TESC *	Waldwick Boro Board of Education *
Phillipsburg Town Board of Education	Rowan University *	Sterling High School District	Wall Township Board of Education
Pine Hill Borough Board of Education	Rowan University-Rutgers Camden	Stillwater Township Board of Education *	Wallington Borough Board of Education *
Pinelands Regional School District	Roxbury Twp Board of Education	Stockton Affiliated Services Inc	Walkkill Valley Regional High School
Piscataway Board of Education Admn Bldg	Rumson Boro Board of Education	Stockton Borough Board of Education *	Wanaque Board of Education
Piscataway Township Ed Association	Rumson Fair Haven Regional High School	Stone Harbor Board of Education *	Warren Co Audio Visual Aids
Pitman Board of Education	Runnemede Borough Board of Education	Stow Creek Township Board of Education	Warren County Community College *
Plainfield Board of Education	Rutgers University *	Stratford Board of Education	Warren Co Sp Services School District *
Pleasantville Board of Education	Rutherford Boro Board of Education	Summit Board of Education	Warren Hills Regional Schools
Pleasantech Academy Charter School	Saddle Brook Board of Education *	Sussex County Charter School	Warren Township Board of Education
Plumsted Twp Board of Education	Saddle River Board of Education *	Sussex Co Ed Services Comm Board of Ed *	Washington Boro Board of Education
Pohatcong Twp Board of Education	Salem City Board of Education	Sussex County Vocational	Washington Twp Board of Ed (Morris)
Point Pleasant Beach Borough B	Salem Community College *	Sussex-Wantage Regional School District	Washington Twp Board of Ed (Warren)
Point Pleasant Boro Board of Education	Sussex County Comm. College *	Swedesboro Woolwich Board of Education	Washington Twp Board of Ed (Gloucester)
Pompton Lakes Board of Education	Salem Co Special Services School District *	Team Academy Charter School	Watchung Borough Board of Education
Port Republic City Board of Education *	Salem County Vocational School	Tabernacle Twp Board of Education	Watchung Hills Regional High School
Pride Academy Charter School	Sandyston Walpack School District	Teaneck Board of Education *	Waterford Twp Board of Education
Princeton Charter School	Sayreville Board of Education Selover Elm	Teaneck Community Charter School *	Wayne Board of Education

* In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program

Participating Education Employers, *continued*

Weehawken Twp Board of Education *	William Paterson University Of NJ *
Wenonah Borough Board of Education	Willingboro Twp Board of Education *
West Amwell Twp Board of Education *	Winfield Township Board of Education *
West Cape May Boro Board of Education *	Winslow Township Board of Education
West Essex Regional School District *	Woodbine Borough Board of Education
West Long Branch Board of Education	Woodbine Developmental Center
West Milford Township Board of Education	Woodbridge Township Board of Education
West Morris Regional High School District *	Woodbridge Township Ed Association
West New York Board of Education *	Woodbury City Board of Education
West Orange Township Board of Education	Woodbury Heights Board of Education *
West Paterson Boro Board of Education *	Woodcliff Lake Board of Education *
West Windsor-Plainsboro Regional School Dist	Woodland Twp Board of Education
Westampton Township Board of Education	Woodlynne Board of Education *
Westfield Town Board of Education	Wood-Ridge Board of Education *
Westville Board of Education *	Woodstown-Pilesgrove Regional School
Westwood Regional School District *	Wyckoff Township Board of Education *
Weymouth Township Board of Education *	
Wharton Borough Board of Education *	
White Township Board of Education	
Wildwood Crest Board of Education *	

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Participating Agencies and Authorities

Aberdeen Twp Fire Dist 2	Millstone Township Fire District #1 *	Camden City Housing Authority *	Perth Amboy Housing Authority
Aberdeen Twp Fire District 1 *	Monroe Twp Fire District 1 *	Cape May City Housing Authority *	Phillipsburg Housing Authority
Bordentown Fire District #1 *	Monroe Twp Fire District 2 *	Carteret Housing Authority *	Plainfield Housing Authority *
Bordentown Twp Fire District 2 *	Monroe Twp Fire District 3 *	Clementon Housing Authority	Pleasantville Housing Authority *
Brick Township Fire Dist 2	Montville Twp Fire District 1 *	Cliffside Park Housing *	Princeton Housing Authority *
Brick Twp Fire District 1	Montville Twp Fire District 3 *	Collingswood Boro Housing Auth *	Rahway City Housing Authority *
Brick Twp Joint Board of Fire Commission *	Moorestown Twp Fire District 1 *	Dover Town Housing Authority	Red Bank Boro Housing Auth *
Burlington Twp Fire District 1	Moorestown Twp Fire District 2	East Orange Housing Authority *	Salem City Housing Authority *
Cherry Hill Fire District 13	Mount Laurel Fire District #1 *	Edgewater Housing Authority *	Sayreville Housing Authority *
Chesterfield-Ham. Fire District #1 *	Neptune Fire District 1 *	Edison Twp Housing Authority *	Secaucus Housing Authority
Cinnaminson Twp Fire Dist #1	North Hudson Regional Fire & Rescue	Elizabeth City Housing Authority *	South Amboy Housing Authority *
Delran Twp Fire District #1 *	Ocean Grove Board Of Fire Commission	Englewood Housing Authority *	Trenton Housing Authority *
Deptford Twp Fire District *	Ocean Twp Fire District 1 *	Florence Twp Housing Authority	Union City Housing Authority *
Dover Twp Fire District 2	Ocean Twp Fire District 2 *	Fort Lee Housing Authority *	Vineland Housing Authority
East Brunswick Twp Fire District #1	Old Bridge Twp District 1	Franklin Twp Housing Authority	Weehawken Twp Housing Authority *
Florence Twp. Fire District #1	Old Bridge Twp Fire District 2	Freehold Boro Housing Authority *	West New York Housing Authority
Gloucester Twp Fire District 2	Old Bridge Twp Fire District 3 *	Garfield Housing Authority *	Wildwood City Housing Authority *
Gloucester Twp Fire District 3 *	Old Bridge Twp Fire District 4	Glassboro Borough Housing Authority *	Woodbridge Housing Authority *
Gloucester Twp Fire District 4	Pine Hill Fire District 1	Gloucester Co Housing Authority *	Camden Co Health Services Center
Gloucester Twp Fire District 5 *	Pine Hill Fire District 1	Gloucester Twp Housing Authority *	Essex Regional Health Commission *
Gloucester Twp Fire District 6 *	Plainsboro Twp Fire District 1 *	Guttenberg Housing Authority *	Hudson Regional Health Commission *
Haddon Twp Fire District 1 *	Plumsted Fire District #1 *	Hackensack Housing Authority *	Mid Bergen Regional Health Commission *
Hamilton Twp Fire District 2 *	Riverside Twp Fire District # 1	Haddon Township Housing Authority *	Middle Brook Regional Health Comm *
Hamilton Twp Fire District 3 *	Toms River Twp Fire District 1	Harrison Town Housing Authority	Monmouth Co Health Department *
Hamilton Twp Fire District 4 *	Towaco Fire District 2	Highland Park Housing Authority *	Monmouth Co Municipal Joint Ins Comm 1
Hamilton Twp Fire District 5 *	Voorhees Fire District *	Highlands Housing Authority *	Northwest Bergen Health Commission *
Hamilton Twp Fire District 6 *	Wall Township Fire District 2	Hightstown Boro Housing Authority *	Ocean Co Board of Health
Hamilton Twp Fire District 7 *	Wall Township Fire District 3	Hoboken Housing Authority *	Middlesex Co Joint Health Insurance Fund
Hamilton Twp Fire District 8 *	Washington Twp Board of Fire Commission	Irvington Housing Authority *	Middlesex Co Municipal Joint Ins Fund *
Hamilton Twp Fire District 9 *	Washington Twp Fire District #1	Jersey City Housing Authority *	NJ School Board Association Ins Group *
Hanover Twp Fire District 2	Westville Fire District # 1	Keansburg Boro Housing Authority *	Statewide Insurance Fund
Hanover Twp Fire District 3	Winslow Twp Fire District 1 *	Lakewood Housing Authority	Bayshore Jointure Commission *
Harrison Township Fire District #1	Woodbridge Bd Of Fire Commission 9	Linden City Housing Authority *	Morris-Union Jointure Commission
Hazlet Township Fire District #1	Woodbridge Fire District 5 *	Lodi Housing Authority *	South Bergen Jointure Commission
Hopewell Twp Fire District 1 *	Woodbridge Twp Fire District 2 *	Long Branch City Housing Authority *	Burlington County Bridge Commission
Howell Twp Fire District 1	Woodbridge Twp Fire District #12	Madison Boro Housing Authority	Cape May Co Bridge Commission *
Howell Twp Fire District 2	Woodbridge Twp Fire District 1 *	Middletown Twp Housing Authority *	Essex & Union Joint Meeting *
Howell Twp Fire District 3 *	Woodbridge Twp Fire District 11	Millville Housing Authority	Madison-Chatham Joint Meeting *
Howell Twp Fire District 4	Woodbridge Twp Fire District 8	Morris County Housing Authority	Second River Joint Meeting
Jackson Bd Fire District 2 *	Woodbridge Twp Fire District 7 *	Morristown Housing Authority *	General Assembly *
Jackson Twp Fire District 3 *	Asbury Park Housing Authority *	Neptune City Housing Authority	Senate *
Jackson Twp Fire District 4	Atlantic City Housing Authority *	Neptune Twp Housing Authority *	Bedminster & Far Hills Pub Library *
Jersey City Fire Department	Bayonne Housing Authority *	New Brunswick Housing Authority *	Chatham Joint Free Public Library *
Lakewood Twp Fire District 1	Belmar Housing Authority	Newark Housing Authority *	Chester Boro/Twp Public Library *
Lambertville City Fire District #1	Bergen Co Housing Authority	Newton Town Housing Authority *	Elizabeth Public Library *
Lindenwold Twp Fire District 1 *	Berkeley Twp Housing Authority *	North Bergen Housing Authority *	Hillside Public Library
Manalapan Fire District 2	Beverly City Housing Authority *	Ocean City Housing Authority *	Linden City Free Public Library
Manalapan Twp Fire District 1	Boonton Housing Authority *	Old Bridge Housing Authority	Matawan Aberdeen Public Library *
Manasquan Boro Fire District 1	Brick Twp Housing Authority *	Orange City Housing Authority *	Montclair Library *
Marlboro Twp Fire District 1	Bridgeton City Housing Auth *	Passaic City Housing Authority *	Morristown/Morris Joint Library *
Marlboro Twp Fire District 3	Buena Boro Housing Auth *	Paterson Housing Authority *	Orange City Library
Middle Township Fire District #1 *	Burlington City Housing Auth *	Penns Grove Housing Authority *	Princeton Joint Public Library *

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Participating Agencies and Authorities, *continued*

Rahway Public Library	Atlantic Co Improvement Authority *	South Jersey Port Corporation	Franklin Twp Sewerage Authority *
Ridgewood Public Library *	Bayonne Local Redevelopment Agency *	South Jersey Transportation Authority	Gloucester Co Utilities Authority
Roselle Borough	Bergen County Improvement Authority *	Waterfront Commission Of Ny Harbor *	Gloucester Twp Municipal Utilities Auth *
Union Township Library	Bridgeton Zone Development Authority *	Joint Dispatch Authority For Spring Lake	Hackettstown Municipal Utilities Auth *
West Orange Library *	Camden City Redevelopment Agency	Bergen County Soil Conservation District *	Hamilton Twp Municipal Utilities Auth *
Atlantic City Convention Center *	Camden Co Improvement Authority	Burlington Co Soil Conservation District *	Hanover Sewerage Authority *
NJ Public Broadcasting Authority	Carteret Redevelopment Agency *	Camden Co Soil Conservation District *	Hazlet Twp Sewerage Authority *
Northwest Bergen Central Dispatch *	Cumberland Co Improvement Authority *	Cape Atlantic Soil Conservation District *	Hillsborough Twp Mun. Utilities Authority *
Trenton Downtown Association	Essex Co Improvement Authority *	Cumberland-Salem Conservation District *	Hudson-Essex Passaic *
Middlesex Co Mosquito Extern Comm	Gloucester Co Improvement Authority	Freehold Soil Conservation District *	Jackson Twp Municipal Utilities Authority *
Monmouth Co Mosquito Extern Comm *	Greater Wildwood Tourism Imp & Da *	Gloucester Co Soil Conservation District *	Jersey City Incinerator Authority
Ocean Co Mosquito Commission *	Hudson Co Economic Development Corp	Hunterdon Co Soil Conservation District *	Jersey City Municipal Utilities Authority
Camden Co Mosquito Commission *	Hudson Co Improvement Authority *	Mercer Co Soil Conservation District *	Kearny Municipal Utilities Authority *
Warren Co Mosquito Extern Commission	Jersey City Redevelopment Agency *	Morris Co Soil Conservation District *	Lacey Municipal Utilities Authority *
Camden County Park Police	Mercer Co Improvement Authority *	Ocean Co Soil Conservation District *	Lakewood Twp Municipal Utilities Auth *
Mercer County Park Commission *	Middlesex County Improvement Authority	Sussex Co Soil Conservation *	Lambertville Sewerage Authority *
Morris County Park Commission	Passaic County Improvement Authority	Warren Co Soil Conservation District *	Landis Sewerage Authority
Somerset Co Park Commission	Rahway City Redevelopment Agency	Atlantic Highlands-Highlands Regional Sewerage Authority	Lebanon Boro Sew Authority *
Bayonne City Parking Authority *	Salem Co Improvement Authority *	Atlantic City Municipal Utilities Authority *	Linden Roselle Sewerage Authority *
Bloomfield Parking Authority *	Sayreville Economic & Redev Agency *	Atlantic Co Utilities Authority *	Little Egg Harbor Mun. Utilities Authority *
Elizabeth City Parking Authority *	South Jersey Economic Development Dist *	Bayonne Municipal Utilities Authority *	Logan Twp Municipal Utilities Authority *
Dover Twp Parking Authority	Vineland-Millville Urban Enterprise Zone *	Bayshore Regional Sewerage Authority *	Long Branch Sewerage Authority *
Dunellen Parking Authority *	Wildwoods Joint Construction	Beach Haven Sewerage Authority *	Lower Twp Municipal Utilities Authority *
East Orange Parking Authority *	Casino Reinvestment Development Auth *	Beachwood Sewerage Authority	Manasquan River Reg Sewerage Auth
Elizabeth City Parking Authority *	Compensation Rating & Ins Bureau *	Bergen Co Utilities Authority	Manchester Utilities Authority
Fort Lee Parking Authority Hackettstown Parking Authority	Delaware River Basin Commission *	Berkeley Twp Sewerage Authority *	Mantua Twp Municipal Utilities Authority *
Hoboken City Parking Authority	Delaware River Joint Toll Bridge Comm	Berkeley Twp Municipal Utilities Authority *	Marlboro Twp Municipal Utilities Auth *
Jersey City Parking Authority *	Delaware River Port Authority	Bernards Twp Sewerage Authority *	Merchantville Pennsauken Water Comm
Long Branch Parking Authority *	Ed Information & Resource Center	Beverly Sewerage Authority *	Middlesex Co Utilities Authority
Metuchen Parking Authority	Fort Monmouth Planning Authority *	Bordertown Sewerage Authority *	Middletown Twp Sewerage Authority *
Montclair Parking Authority *	Interstate Environmental Commission *	Brick Twp Municipal Utilities Authority *	Monmouth Co Bayshore Outfill Authority *
Morristown Parking Authority	Lake Hopatcong Commission *	Buena Boro Municipal Utilities Authority *	Monroe Twp Mun. Ut Auth. (Gloucester) *
New Brunswick Parking Authority *	Meadowlands Conservation Trust	Camden Co Municipal Utilities Authority	Montville Twp Municipal Utilities Authority
Newark Parking Authority	NJ Building Authority *	Cape May Co Municipal Utilities Authority	Mount Holly Municipal Utilities Authority
North Bergen Parking Authority	NJ Commerce & Economic Growth Comm *	Carlstadt Sewerage Authority	Mount Laurel Twp Municipal Utilities Auth
North Plainfield Parking Authority *	NJ Economic Development Authority *	Carneys Point Twp Sewerage Authority	Musconetcong Sewerage Authority *
Paterson Parking Authority *	NJ Educational Facilities Authority *	Cinnaminson Sewerage Authority	Neptune Twp Sewerage Authority *
Perth Amboy City Parking Authority	NJ Firemens Home *	Clinton Twp Sewerage Authority *	North Bergen Municipal Utilities Authority
Rahway Parking Authority *	NJ Health Care Facilities *	Cumberland Co Utilities Authority *	North Hudson Sewerage Authority *
South Orange Twp Parking Authority *	NJ Housing & Mortgage Finance Agency *	Delanco Sewerage Authority *	Northwest Bergen Co Utility Authority *
South River Parking Authority	NJ Meadowland Commission *	Delaware Twp Municipal Utilities Authority	Ocean Co Utilities Authority *
Trenton Parking Authority *	NJ Redevelopment Authority *	Delran Sewerage Authority *	Ocean Grove Sewerage Authority
Union City Parking Authority	NJ Schools Development Authority *	Deptford Twp Municipal Utilities Auth *	Ocean Twp Municipal Utility Authority
West New York Parking Authority	NJ Sports & Exposition Authority	East Windsor Municipal Utilities Authority *	Ocean Twp Sewerage Authority *
West Windsor Parking Authority *	NJ Transit Corporation	Eatontown Sewerage Authority	Old Bridge Municipal Utility Authority
Camden Co Pollution Control Fin	NJ Turnpike Authority	Edgewater Park Sewerage Authority	Passaic County Utility Authority
Union Co Pollution Control Authority	NJ Water Supply Authority *	Egg Harbor Twp Municipal Utilities Auth *	Passaic Valley Water Commission
Warren Co Pollution Control *	North Jersey Water Supply Commission	Elk Township Municipal Utilities Authority	Pemberton Twp Municipal Utilities Auth *
Carteret Port Authority	Palisades Interstate Park Commission *	Evesham Municipal Utilities Authority *	Penns Grove Sewerage Authority
Perth Amboy Port Authority	Passaic Valley Sewerage Commission	Ewing Lawrence Sewerage Authority *	Pennsauken Sewerage Authority *
Salem City Municipal Port Authority *	Pinelands Commission *	Florham Park Sew Authority	Pennsville Sewerage Authority
	Rowan University Foundation		Pequannock, Lincoln Park & Fairfield *

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Participating Agencies and Authorities, *continued*

Pine Hill Boro Municipal Utilities Authority	Stony Brook Regional Sewerage Auth *
Plainfield Area Regional Sewer Authority *	Sussex Co Municipal Utilities Authority *
Plainfield Municipal Utilities Authority	Toms River Twp Municipal Utilities Auth *
Pompton Lakes Municipal Utilities Auth *	Two Rivers Water Reclamation Authority *
Rahway Valley Sewerage Authority *	Union Co Utilities Authority
Raritan Twp Municipal Utilities Authority *	Wanaque Borough Sewerage Authority *
Readington-Lebanon Sewerage Authority *	Wanaque Valley Reg Sewerage Authority *
Riverside Sew Authority	Warren Co Municipal Utilities Authority *
Rockaway Valley Regional Sewer Auth *	Washington Twp Mun. Ut Auth. (Mercer)
Rockleigh Boro Sewerage Authority	Washington Twp Mun. Ut Auth. (Gloucester) *
Runnemede Sewerage Authority	Washington Twp Mun. Ut Auth. (Morris) *
Secaucus Municipal Utilities Authority	Waterford Twp Municipal Utilities Auth *
Somers Point Sewerage Authority	W. Milford Twp Municipal Utilities Auth *
Somerset Raritan Valley Sewerage Auth *	Western Monmouth Utilities Authority *
Somerset Regional Animal Shelter *	Weymouth Twp Municipal Utilities Auth
South Monmouth Reg Sewerage Auth *	Willingboro Municipal Utilities Authority *
South Toms River Sewerage Authority *	Woodbine Municipal Utilities Authority *
Southeast Morris Co Muni Utilities Auth *	Woodstown Sewerage Authority
Stafford Municipal Utilities Authority	

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Participating State Departments and Pension Funds

All New Jersey State Government Departments and their Associated Divisions

The following locations participate in the State Health Benefits Program only:

Essex County Pension Fund; Hudson County Pension Fund; Jersey City Pension Fund; UMDNJ Pension Fund

