COMPREHENSIVE ANNUAL FINANCIAL REPORT

for the Fiscal Year Ended June 30, 2018

The USS New Jersey (BB-62) (“Big J” or “Black Dragon”[5]) is an Iowa-class battleship. The USS New Jersey earned more battle stars for combat actions than the other four completed Iowa-class battleships. The USS New Jersey was decommissioned for the last time in 1991 (after serving a total of 21 years in the active fleet), having earned a Navy-Unit Commendation for service in Vietnam and 19 battle and campaign stars for combat operations during World War II, the Korean War, the Vietnam War, the Lebanese Civil War, and service in the Persian Gulf. The ship was donated to the Home Port Alliance in Camden, New Jersey, and began its career as a museum ship on October 15 2001.

NJDPB
Pensions & Benefits

Explore Your Benefits

State of New Jersey

Department of the Treasury

Division of Pensions & Benefits

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.

NEW JERSEY
DIVISION OF PENSIONS & BENEFITS

63RD
COMPREHENSIVE
ANNUAL FINANCIAL REPORT

FOR THE FISCAL YEAR ENDED JUNE 30, 2018

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

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AON Hewitt — 400 Atrium Drive, Somerset, NJ 08873

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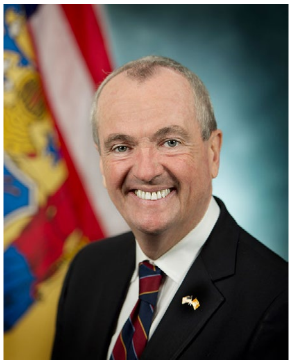

Philip D. Murphy
Governor

Elizabeth Maher Muoio
State Treasurer

John Megariotis
Acting Director
Division of Pensions & Benefits

State of New Jersey
Department of the Treasury
Division of Pensions & Benefits
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Location:
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Trenton, New Jersey

Letter of Transmittal

June 2019

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 63rd Comprehensive Annual Financial Report (CAFR) of the New Jersey State-administered retirement systems and related benefit programs for the fiscal year ended June 30, 2018. 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. A second pilot is currently in discussion for the active Health Benefits Applications with Judiciary locations.

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 37 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, 2018. 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 2018, investment returns on pension funds were +9.06 percent. When combined with the returns for previous years, the annualized returns over the past three- and five-year periods were +6.90 percent and +8.23 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.

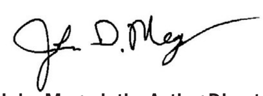
Professional Services

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 97 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

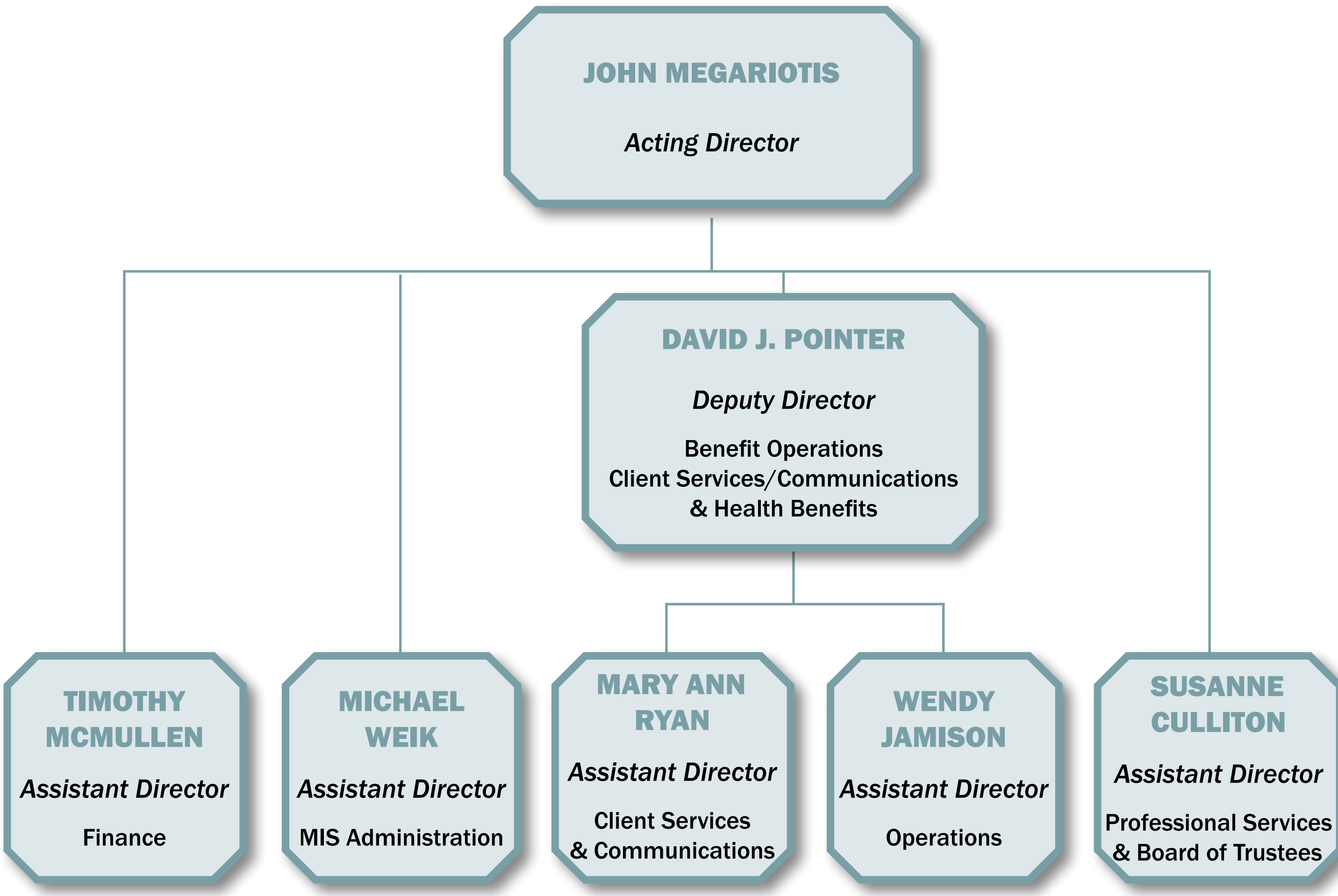
All in a Year's Work...

- There are **534,150 active members** in the defined benefit and defined contribution retirement systems.
- A total of **337,021 retirees and beneficiaries** received monthly pensions totaling in excess of **$10.4 billion** annually.
- There are **1,856 participating employers** in the combined retirement systems; **31 new employers** began participating this year.
- Over **19,077 beneficiary claims** were processed. Premiums in excess of **$152 million** were paid to the insurance carrier on behalf of active and retired members.
- Over **793,551 inbound calls** were received by the Division. Over **558,268** callers selected a phone representative and over **139,170** were handled by the Interactive Voice Response system (IVR) during business hours.
- **15,124 personal interviews** were conducted by pension counselors.
- **585 seminars** and **webinars** were conducted for over **13,692 members.**
- **11,355 service purchase requests** were processed.
- **34,943 new enrollments or transfers** were processed in our retirement systems.
- There were **8,524 paid withdrawals** from the retirement systems.
- **15,674** members retired.
- Over **83,982 pension loans** totaling **$550,502,500** were processed.
- State and local membership in the State Health Benefits Program and School Employees' Health Benefits Program was **390,067 members** with **805,164 lives covered.**
- A total of over **$4.0 billion in premiums** was collected from State and local State Health Benefits Program employers, School Employees' Health Benefits Program employers, and combined employees. **1,049 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 $86.4 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, 2018)

ORGANIZATION — BOARDS OF TRUSTEES

Chapter 28, P.L. 2018

Effective Date: May 16, 2018.

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

Description: This law requires health insurance coverage for substance use disorders and regulates opioids and certain other prescription drugs in several ways. It requires health insurers, the State Health Benefits Program (SHBP), and the School Employees' Health Benefits Program (SEHBP), to adhere to certain coverage requirements for treatment of substance use disorders. It also places certain restrictions on the prescription of opioids, and requires certain notifications when prescribing Schedule II controlled dangerous substances used to treat chronic or acute pain. The law also requires certain health care professionals to receive training on topics related to prescription opioid drugs and repeals certain sections of law that are obviated by this new law's provisions.

Sections 9, 10 and 11 of this law deal specifically with the SHBP and SEHBP.

Chapter 98, P.L. 2017

Effective Date: July 4, 2017.

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

Description: This law is cited as the "Lottery Enterprise Contribution Act." This law contributes the State Lottery Enterprise to the Teachers' Pension and Annuity Fund (TPAF), the Public Employees' Retirement System (PERS), and the Police and Firemen's Retirement System (PFRS) for a term of 30 years. Under the law, the TPAF, PERS, and PFRS receive a portion of the proceeds of the Lottery Enterprise, based upon their members' past or present employment in schools and institutions in the State.

The entirety of the Lottery Enterprise will be contributed to newly created Common Pension Fund L, but there will be no material change in the operation and management of the Lottery Enterprise. The law directs that operation of the State lottery remain with the Division of the State Lottery, which will continue in its current form as a division within the Department of the Treasury. The State Lottery Commission will continue to have seven members, but the law will add the Director of the Division of Investment as a member of the Commission and remove one public member. The State Lottery Commission will continue to exercise regulatory oversight over the State Lottery by adopting lottery rules and approving all games.

During the term of the lottery contribution, the gross proceeds of the State Lottery will be paid into an operating account within Common Pension Fund L for payment of operational and administrative costs. The Division of the State Lottery will manage the operating account. The law requires the Division of the State Lottery to transfer into a second account, the investment account, State lottery proceeds net of operating and administrative expenses on a periodic basis. Administrative expenses include prize payments and advertising costs.

Consistent with current State law, annual lottery net proceeds must be at least 30 percent of gross proceeds. The net proceeds may be used by each retirement system for payment of benefits to members of the retirement systems or may be invested on behalf of the retirement systems by the Director of the Division of Investment. The lottery contribution given to the retirement systems will increase the funded ratio of such systems with respect to members of the retirement systems who are employed, or were employed, in schools and institutions in this State.

Pursuant to Section 5, this law allocates the lottery contribution to the retirement systems in allocable percentages. The lottery contribution and all proceeds of the Lottery Enterprise are allocated among the retirement systems in the allocable percentages as follows: 77.78 percent for TPAF; 21.02 percent for PERS; and 1.20 percent for PFRS.

Chapter 117, P.L. 2017

Effective Date: July 21, 2017.

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

Description: This law authorizes health care providers, including, but not limited to, licensed physicians, nurses, nurse practitioners, psychologists, psychiatrists, psychoanalysts, clinical social workers, physician assistants, professional counselors, respiratory therapists, speech pathologists, audiologists, and optometrists, to remotely provide health care services to patients through the use of telemedicine and telehealth.

It specifies that Medicaid, NJ FamilyCare, and certain health insurance providers, including the carriers of health benefits plans, the State Health Benefits Commission (SHBC), and the School Employees' Health Benefits Commission (SEHBC), are each to provide coverage and payment for services provided through telemedicine and telehealth on the same basis as, and at a provider reimbursement rate that does not exceed the provider reimbursement rate that is applicable, when the services are delivered in-person in New Jersey.

SIGNIFICANT LEGISLATION

Chapter 176, P.L. 2017

Effective Date: November 1, 2017.

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

Description: This law prohibits health insurers and health maintenance organizations, as well as health benefits plans or contracts which are issued or purchased pursuant to the New Jersey Individual Health Coverage Program, New Jersey Small Employer Health Benefits Program, SHBP, the SEHBP, and the Medicaid Program from discriminating in the provision of coverage on the basis of gender identity or expression. The prohibited discrimination relates to covered persons and prospective covered persons. It also prohibits contracts between certain health care providers who provide health care services to the State's inmate population, such as University Correctional Health Care, and the New Jersey Department of Corrections, the Juvenile Justice Commission, the State Parole Board, or any other State or local entity from discriminating in the provision of coverage on the basis of gender identity or expression.

Chapter 220, P.L. 2017

Effective Date: October 5, 2017.

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

Description: This law requires health insurance carriers, the SHBP, and the SEHBP to inform covered persons about organ and tissue donation.

Chapter 344, P.L. 2017

Effective Date: January 16, 2018.

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

Description: This law changes PERS membership eligibility for certain elected public officials and provides for PERS enrollment.

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.

SCOPE OF OPERATIONS

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 (CPFPF)

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.

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).

Active Membership

Retirement System	2018	2017
Public Employees' Retirement System	256,538	258,874
Teachers' Pension and Annuity Fund	157,213	156,973
Police and Firemen's Retirement System	43,613	42,764
State Police Retirement System	2,894	2,831
Judicial Retirement System	451	432
Alternate Benefit Program	25,646	24,750
Defined Contribution Retirement Program	47,795	43,516
Prison Officers' Pension Fund	0	0
Consolidated Police and Firemen's Pension Fun	0	0
Central Pension Fund	NA	NA
Total	534,150	530,140

* Both the 2017 and 2018 figures represent the total number of Active and Inactive accounts. The 2018 Inactive (noncontributing) accounts are as follows: PERS Inactive – 52,287, TPAF Inactive – 15,237, PFRS Inactive – 2,796, SPRS Inactive – 222.

Retired Membership & Beneficiaries

Retirement System	2018	2017
Public Employees' Retirement System	179,563	175,728
Teachers' Pension and Annuity Fund	105,662	103,523
Police and Firemen's Retirement System	47,319	46,428
State Police Retirement System	3,660	3,584
Judicial Retirement System	670	657
Alternate Benefit Program	NA	NA
Prison Officers' Pension Fund	70	76
Consolidated Police and Firemen's Pension Fund	61	75
Central Pension Fund	16	13
Total	337,021	330,084

* 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	2018	2017
State Health Benefits Program and School Employees' Health Benefits Program	390,067	398,347
Prescription Drug Plans	345,099	353,136
Dental Expense Program	203,030	199,254

MEMBERSHIP

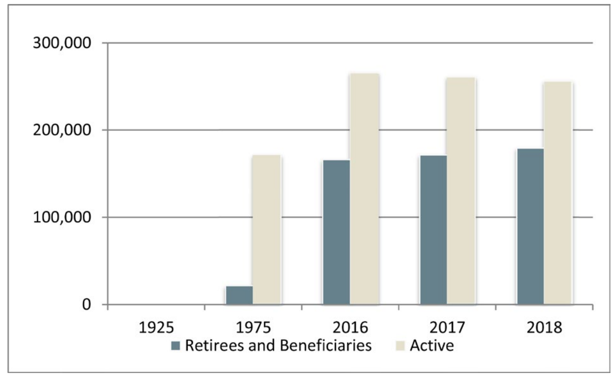
Public Employees' Retirement System

As of June 30, 2018, the active membership of the system totaled 256,538. There were 179,563 retirees and beneficiaries receiving annual pensions totaling $3,741,505,365.

Beneficiaries of deceased active and retired members received lump sum death benefits in the amount of $72,207,064.

The system's assets totaled $30,240,734,264 at the close of fiscal year 2018.

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



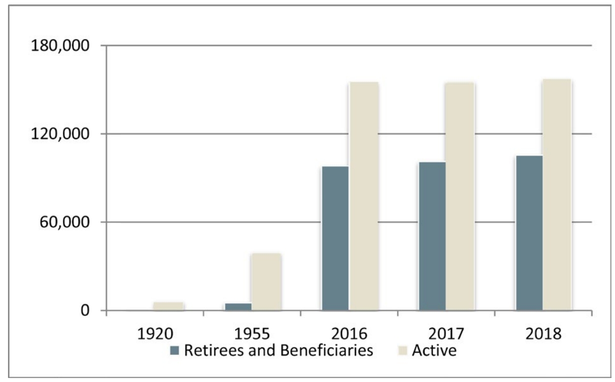
Teachers' Pension and Annuity Fund

As of June 30, 2018, the active membership of the fund totaled 157,213. There were 105,662 retirees and beneficiaries receiving annual pensions totaling $4,309,529,034.

Beneficiaries of deceased active and retired members received lump sum death benefits in the amount of $35,766,941.

The fund's assets totaled $23,704,268,932 at the close of fiscal year 2018.

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



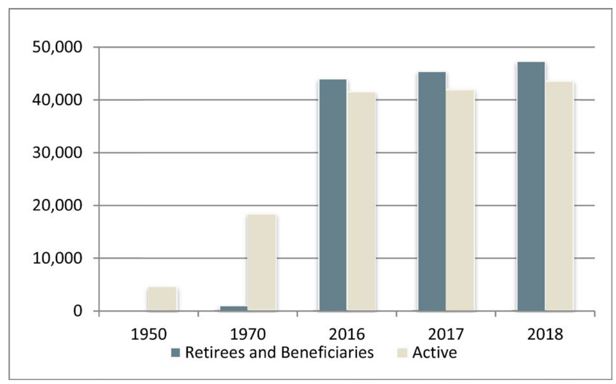
Police and Firemen's Retirement System

As of June 30, 2018, the active membership of the system totaled 43,613. There were 47,319 retirees and beneficiaries receiving annual pensions totaling $2,470,096,547.

Beneficiaries of deceased active and retired members received lump sum death benefits in the amount of $43,309,987.

The system's assets totaled $27,586,140,573 at the close of fiscal year 2018.

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



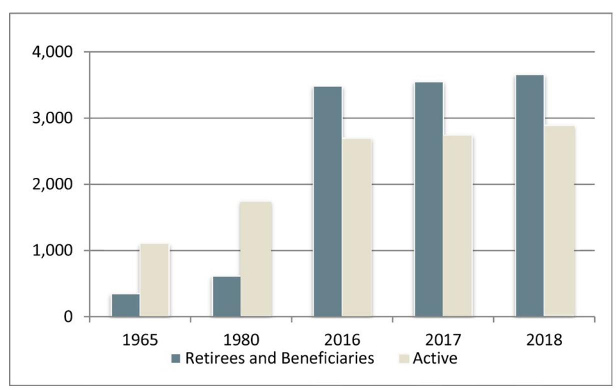
State Police Retirement System

As of June 30, 2018, the active membership of the system totaled 2,894. There were 3,660 retirees and beneficiaries receiving annual pensions totaling $219,617,869.

Beneficiaries of deceased active and retired members received lump sum death benefits in the amount of $2,499,780.

The system's assets totaled $1,828,286,468 at the close of fiscal year 2018.

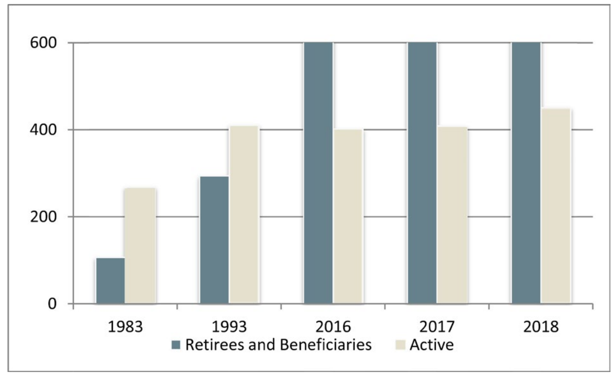
* *Includes cost-of-living adjustments paid under the provisions of the Pension Adjustment Act.*



Judicial Retirement System

As of June 30, 2018, the active membership of the system totaled 451. There were 670 retirees and beneficiaries receiving annual pensions totaling $57,250,188.

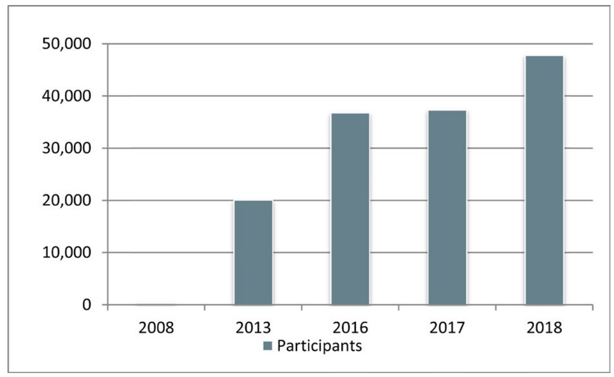
The system's assets totaled $174,268,277 at the close of fiscal year 2018.



Defined Contribution Retirement Plan

As of June 30, 2018, the active membership of the Defined Contribution Retirement Plan totaled 47,795.

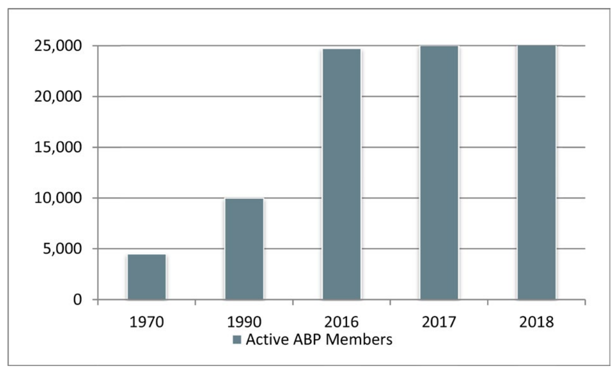
The plan's net assets (participants' balances) were $11,664,195 at the close of fiscal year 2018.



Alternate Benefit Program

As of June 30, 2018, the State paid $178,619,253 on behalf of 25,646 participants to the carries underwriting this program.

Beneficiaries of deceased active and retired members received 20,009,844 in the lump sum death benefits.



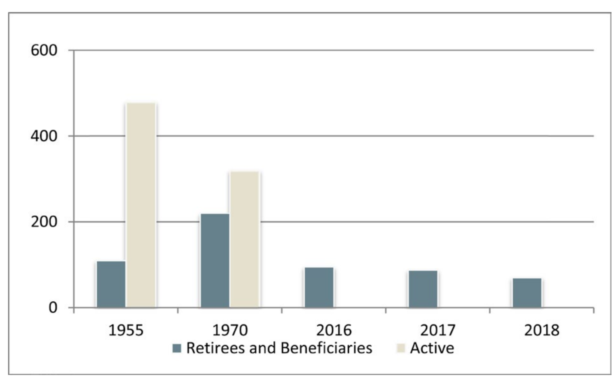
Prison Officers' Pension Fund

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, 2018, the active membership of the fund totaled zero. There were 70 retirees and beneficiaries receiving annual pensions totaling $947,877.

The fund's assets totaled $5,303,892 at the close of fiscal year 2018.



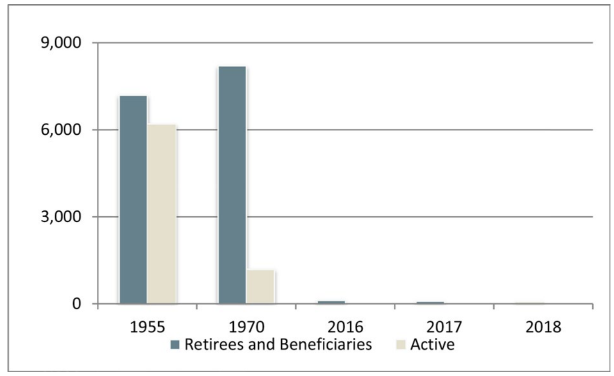
MEMBERSHIP

Consolidated Police and Firemen's Pension Fund

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

As of June 30, 2018, the active membership of the fund totaled zero. There were 61 retirees and beneficiaries receiving annual pensions totaling $1,289,899.

The fund's assets totaled $1,892,932 at the close of fiscal year 2018.

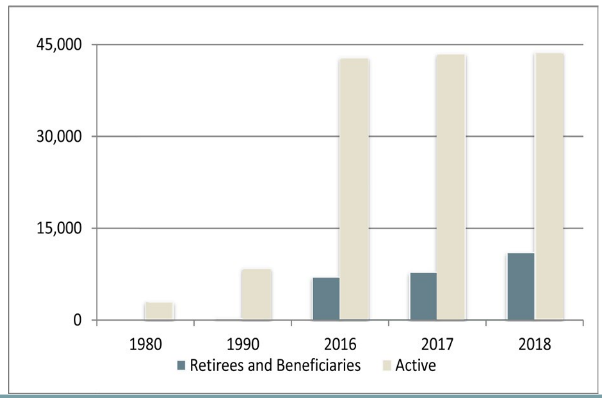


N.J. State Employees' Deferred Compensation Plan

Fiscal year 2018 continues to show a marked increase in active participation due to membership campaigns conducted by the Division of Pensions & Benefits.

As of June 30, 2018, the active membership of the New Jersey State Employees Deferred Compensation Plan totaled 43,810 There were 11,080 members receiving monthly installment payments.

The plan's net assets (participants' balances) were $4,317,120,346 at the close of fiscal year 2018.

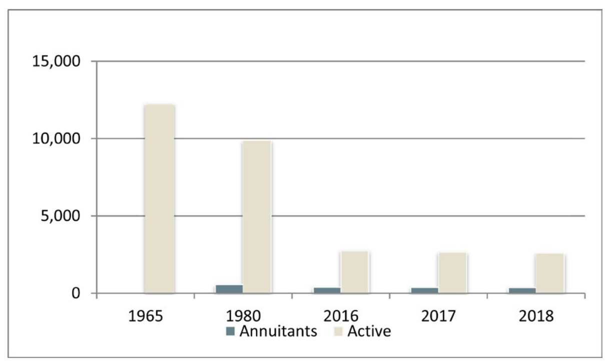


Supplemental Annuity Collective Trust

As of June 30, 2018, the active membership of the trust totaled 2,626. The unit value was $107.8672, an increase of 6.3389 from the June 30, 2017, value of $101.5283

There were 377 annuitants.

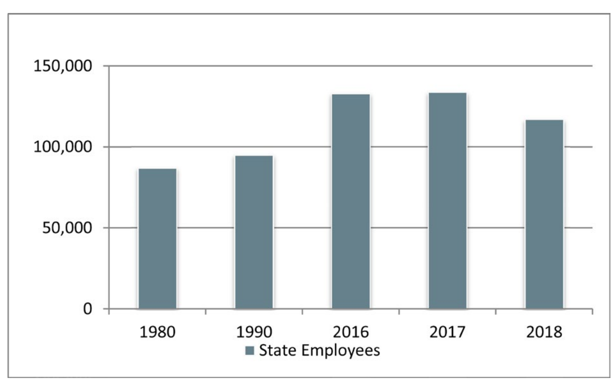
The trust's assets totaled $236,670,521 at the close of fiscal year 2018.



Unemployment Compensation and Temporary Disability Insurance

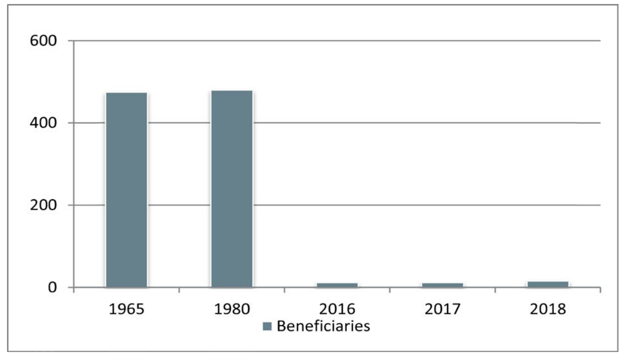
As of June 30, 2018, the Unemployment Compensation Program for State employees covered as many as 116,952 persons, and the Division remitted $4,639,077.44 on behalf of the State. There were 7,521 requests for unemployment benefits filed, and $14,853,496.00 was paid to the employees found eligible.

During the same time period, the Temporary Disability Insurance Program covered 135,676 employees, and the Division remitted $35,775,419.30 on behalf of the State. Claims paid totaled $27,356,974.



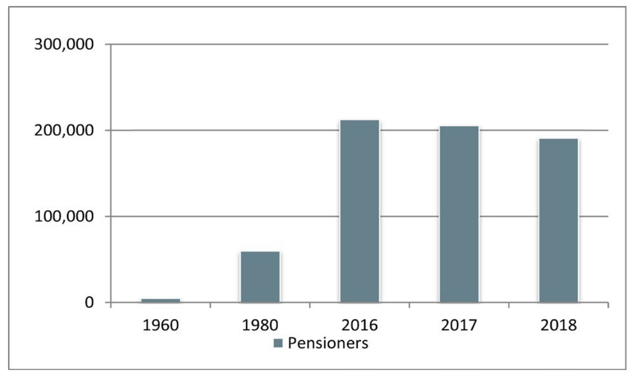
Central Pension Fund

As of June 30, 2018, there were 16 beneficiaries receiving annual pensions totaling $342,040.



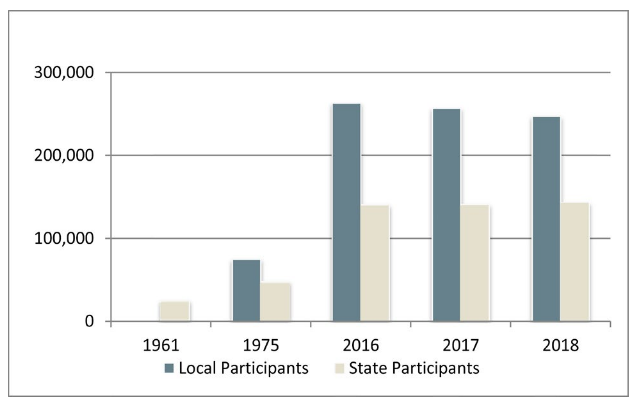
Pension Adjustment Expense

There were 191,225 pensioners who were paid $730,561,715 during fiscal year 2018.



State Health Benefits and School Employees' Health Benefits Program

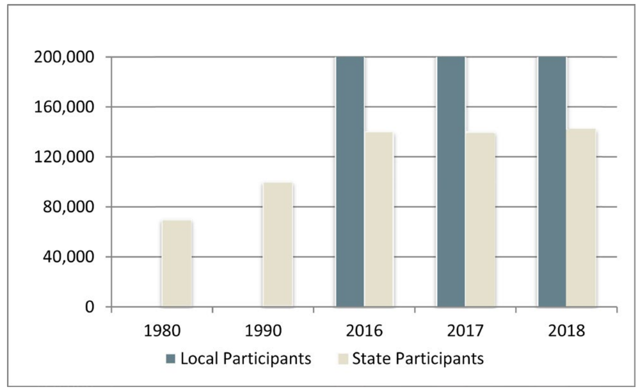
As of June 30, 2018, there were 390,067 participants (active and retired) consisting of 142,908 State participants and 247,159 participants of 1,049 local participating employers.



MEMBERSHIP

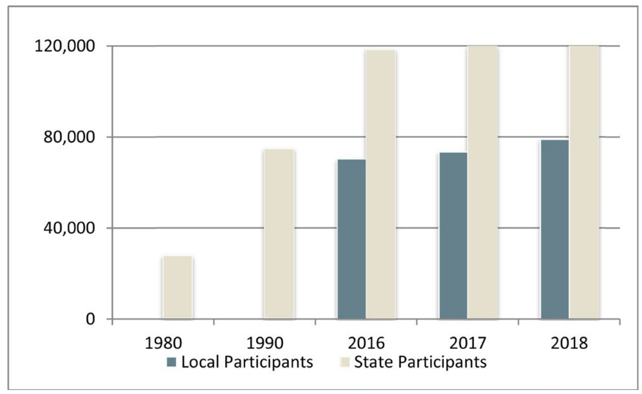
Prescription Drug Plans

The Prescription Drug plan covered as many as 142,201 State participants and 202,898 local participants during the fiscal year 2018.



Dental Expense Program

The Dental Expense Program covered as many as 124,088 eligible State participants and 78,942 local participants during fiscal year 2018. The State of New Jersey as the employer expended $32,416,810 for active participants while payment made by local (including education) employers was $4,906,724.



FINANCIAL SECTION

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Index

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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, 2018, 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, 2018, 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, 2018 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 GASB 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
April 16, 2019

Management's Discussion and Analysis
(Unaudited)
June 30, 2018

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, 2018. Please read it in conjunction with the basic financial statements and financial statement footnotes, which follow this discussion.

Financial Highlights

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

- Fiduciary net position increased by $2.7 billion as a result of this year's operations from $83.7 billion to $86.4 billion.
- Additions for the year are $14.5 billion, which are comprised of member, employer, nonemployer, and employer specific and other pension contributions of $7.4 billion and net investment income of $7.1 billion.
- Deductions for the year are $11.9 billion, which are comprised of benefit and refund payments of $11.8 billion and administrative expenses of $48.3 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 for the pension trust funds and other postemployment benefit plan and the agency funds 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 for the pension trust funds and other postemployment benefit plan 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.

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.

Management's Discussion and Analysis (Unaudited) — June 30, 2018, *continued*

Financial Analysis

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

		2018	2017	Increase/ (Decrease)
Assets:				
Cash and cash equivalents	$	923,522,162	883,450,234	40,071,928
Receivables		2,592,511,428	2,377,510,013	215,001,415
Investments		81,792,443,010	79,262,467,350	2,529,975,660
Securities lending collateral		839,926,356	958,403,742	(118,477,386)
Members' loans and mortgages		2,308,198,797	2,381,008,709	(72,809,912)
Total assets		88,456,601,753	85,862,840,048	2,593,761,705
Liabilities:				
Accounts payable and accrued expenses		269,894,272	252,706,110	17,188,162
Retirement benefits payable		930,488,730	883,776,543	46,712,187
Noncontributory group life insurance premiums payable		20,186,135	15,310,176	4,875,959
Administrative expense payable		3,922,068	13,229,786	(9,307,718)
Securities lending collateral and rebates payable		839,902,523	958,120,840	(118,218,317)
Total liabilities		2,064,393,728	2,123,143,455	(58,749,727)
Net position	$	86,392,208,025	83,739,696,593	2,652,511,432

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 2017 and 2018, total assets increased by $2.6 billion or 3%. This is primarily attributable to an increase of $2.5 billion in investments due to strong returns from public equities, real estate, and private equity as explained more thoroughly below and a $0.2 billion increase in various receivables, offset by a decrease of $0.2 billion in securities lending collateral and members' loans and mortgages.

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 decreased by $58.7 million or 2.8%. This decrease is mainly due to a decrease in securities lending collateral and rebates payable of $118.2 million and a decrease in administrative expense payable of $9.3 million, offset by an increase by $68.8 in all other payables.

Net position restricted for pension and other postemployment benefits increased by $2.7 billion or 3.2%.

Management's Discussion and Analysis (Unaudited) — June 30, 2018, *continued*

Financial Analysis

Summary of Fiduciary Net Position

Agency Funds

		2018	2017	Increase
Assets	$	92,435,481	92,091,661	343,820
Liabilities		92,435,481	92,091,661	343,820
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 2017 and 2018, total assets increased by $0.3 million or 0.4%. This is attributable to the increased amount invested in the Cash Management Fund (CMF) of $1.1 million and an increase of receivables of $0.3 million, offset by a decrease of $1.1 million in cash and cash equivalents.

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 2017 and 2018, total liabilities increased by $0.3 million or 0.4%. This was comprised of a $0.8 million decrease in accounts payable and a $1.1 million increase in amounts due to the State of New Jersey.

Management's Discussion and Analysis (Unaudited) — June 30, 2018, *continued*

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

		2018	2017*	Increase/ (Decrease)
Additions:				
Member contributions	$	2,342,536,213	2,301,658,885	40,877,328
Employer contributions		3,330,118,429	2,925,363,922	404,754,507
Nonemployer contributions		1,677,137,908	1,265,145,499	411,992,409
Employer specific and other contributions		13,948,732	30,162,523	(16,213,791)
Net investment income		7,129,937,947	9,393,632,217	(2,263,694,270)
Transfers		26,977,641	24,649,892	2,327,749
Total additions		14,520,656,870	15,940,612,938	(1,419,956,068)
Deductions:				
Benefits		11,602,782,838	11,212,724,712	390,058,126
Refund of contributions		189,053,148	193,448,262	(4,395,114)
Transfers		28,034,716	26,065,189	1,969,527
Administrative expenses		48,274,736	45,489,693	2,785,043
Total deductions		11,868,145,438	11,477,727,856	390,417,582
Change in net position	$	2,652,511,432	4,462,885,082	(1,810,373,650)

*2017 balances adjusted for transfers which are now presented separately.

Additions of 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 $1.4 billion or 8.9% in total additions attributable to a decrease in net investment income of $2.3 billion and a net increase of $0.9 billion in member, employer, nonemployer, employer specific and other contributions and transfers in State fiscal year 2018 as compared to State fiscal year 2017.

Member contributions increased by $40.9 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 $2,479.2 million to the pension trust funds in State fiscal year 2018. It was composed of $323.1 million of normal cost and $2,156.1 million of accrued liability. The contributions were as follows: $1,476 million to TPAF, $656.4 million to PERS, $251.1 million to the Police & Firemen's Retirement System (PFRS), $23.3 million to JRS, $72.1 million to the State Police Retirement System (SPRS), and $325 thousand to the Consolidated Police and Firemen's Pension Fund (CPFPF).

Management's Discussion and Analysis (Unaudited) — June 30, 2018, *continued*

State NCGI contributions for the State fiscal year totaling $75 million were as follows: $35.8 million for TPAF, $28.4 million for PERS, $7.6 million for PFRS, $0.7 million for JRS, and $2.5 million for SPRS. Between State fiscal years 2017 and 2018, the State's contribution toward NCGI decreased by $7.3 million due to lower 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.

The annual local employer pension appropriation billings increased per the actuarial valuation as of July 1, 2016. For PERS, the amount accrued in State fiscal year 2017 for normal contribution, accrued liability, and NCGI was $926.4 million and was due on April 1, 2018. For State fiscal year 2018, the total amount accrued was $994.7 million and is due April 1, 2019. For PFRS, the total amount accrued in State fiscal year 2017 for normal contributions, accrued liability, and NCGI was $885.1 million and was due April 1, 2018. For State fiscal year 2018, the total amount accrued was $977.7 million and is due April 1, 2019.

For the OPEB plan, employer contributions increased by $39.4 million primarily attributable to rate increases effective January 1, 2017.

The pension trust funds and the OPEB plan earned net investment income of $7.1 billion in fiscal year 2018, which is a decrease of $2.3 billion from the prior year.

During State fiscal year 2018, global capital market returns were strong, led by public equity, private equity, and real estate. Fixed income securities were the notable exception, with generally negative returns in a rising interest rate environment.

The U.S. equity market outperformed as a nearly decade-long bull market persisted. An investment in U.S. equities held from March 2009 through June 2018 has quadrupled in value, representing an annualized return of nearly 19% over the same horizon. Strong equity market performance has coincided with a relatively modest economic recovery, with returns fueled by extraordinarily accommodative monetary policy, low volatility, and near-zero interest rates that drove valuations higher. More recently, U.S. equity investors in 2018 were supported by accelerating earnings growth and fiscal stimulus in the form of tax cuts that allowed for favorable returns even as multiples contracted to more sustainable levels.

International equities realized favorable returns, on balance, during State fiscal year 2018, but lagged the U.S. market. Within the global marketplace, the MSCI Emerging Market (EM) Index outperformed Non-U.S. Developed Markets. Performance for international equity markets varied sharply from the first half to the second half of the State fiscal year, with strong returns from July 2017 through December 2017 partly offset by weakness from January 2018 through June 2018.

For the first time in history, the broad fixed income market realized two consecutive fiscal years of negative returns, as the Bloomberg Barclays U.S. Aggregate Bond Index returned -0.40% during State fiscal year 2018. Treasury yields rose as the Federal Reserve increased its targeted Fed Funds Rate by 0.25% on three occasions (from 1.25% to 2.0%).

Private Equity was the best performing asset class of the State fiscal year 2018 as the Cambridge Associates Global Private Equity & Venture Capital Index had its best one year return since 2014. Private equity markets benefited from a continued robust exit environment, driven by low interest rates, high multiples, and strong demand for acquisitions. Real Estate also realized favorable returns with State fiscal year 2018 marking the ninth consecutive fiscal year of positive returns supported by a constructive fundamental backdrop.

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 2018 rate was 9.11% compared to 13.01% in the prior year. 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 of the pension trust funds and OPEB plan are mainly comprised of pension benefit payments to retirees and beneficiaries, refunds of contributions to former members, transfer, 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. Between State fiscal years 2017 and 2018, benefit payments increased by $390.1 million or 3.5% due to an increase in the number of retirees receiving retirement and other benefits.

The change in net position was mainly attributable to the decrease in net investment income of $2.3 billion and an increase in benefit expense of $0.4 billion offset by an increase of $0.8 billion in employer and nonemployer contributions.

Management's Discussion and Analysis (Unaudited) — June 30, 2018, *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, CPFPF, TPAF, PFRS, and PERS, collectively, the Pension Funds, and various market indices are as follows:

	Year ended June 30	
	2018	2017
Risk Mitigation	**5.04**	**2.33**
T-Bill + 300 BP	4.44	3.54
Total Short Term and Cash[1]	1.81	1.08
91 Day Treasury Bill (Daily)	1.36	0.49
Governments	(0.77)	(2.69)
Custom Government Benchmark	(0.65)	(1.97)
Total Liquidity	**0.26**	**(0.95)**
Liquidity Benchmark	0.66	(0.37)
Investment Grade Credit	(0.68)	0.67
Custom Investment Grade Credit Benchmark	(0.73)	1.01
Public High Yield	2.78	12.24
BBG BARC Corp HY (Daily)	2.62	12.70
Global Diversified Credit	9.46	25.86
BBG BARC Corp HY (Daily)	2.62	12.70
Credit-Oriented Hedge Funds	6.88	10.13
50% HFRI DR 50% HFRI CA (1 month lag)	5.29	13.22
Debt Related Private Equity	14.97	9.95
BarCap Corp HY (Qtr lag) + 300 bps	6.93	19.92
Debt Related Real Estate	8.29	4.15
Barclays CMBS 2.0 Baa (Quarter lag) + 100 bps	9.16	6.14
Total Income	**4.07**	**7.28**
Income Benchmark	2.01	7.80
Real Return Private Real Assets and Commodities	12.70	6.86
Custom Cambridge Real Asset Index	5.82	22.73
Equity Related Real Estate	12.59	8.80
Real Estate Index	7.11	7.36
Total Real Return	**12.64**	**8.23**
Real Return Benchmark	6.75	11.12
US Equity	12.78	19.80
S&P 1500 Super Composite (Daily)	14.50	18.09
Non-US Equity Developed Markets Equity	8.19	19.02
Custom International Developed Markets Benchmark[2]	6.86	19.59
Emerging Markets Equity	5.40	22.69
Custom International Emerging Markets Benchmark[2]	7.99	24.07
Equity Oriented Hedge Funds	1.34	18.48
50% HFRI EH 50% HFRI ED Activist (1 month lag)	5.93	12.40
Buy outs-Venture Capital	17.94	12.99
Custom Cambridge Blend	20.42	14.10
Total Global Growth	**11.56**	**18.80**
Global Growth Benchmark	13.14	18.51
Opportunistic Investments	11.83	15.18
Total Pension Funds	**9.06**	**13.07**
NJ Division of Investment Policy Index	8.65	13.14

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

[2] Source: 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, 2018, *continued*

Overall Financial Condition of the Funds

Based on GASB 67 and actuaries' GASB 67 disclosures for State fiscal year 2018, 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 38.41% and the net pension liability as a percentage of covered payroll was 499.78%. For the prior year, the combined state and local ratios of plan fiduciary net position as a percentage of the total pension liability was 35.79% and the net pension liability as a percentage of covered payroll was 551.39%.

For the OPEB plan, total revenues incurred exceeded total expenses recognized by $101.2 million, increasing the surplus at the beginning of the year from $213.3 million to $314.5 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, 2018

		Pension Trust Funds and Other Postemployment Benefit Plan	Agency Funds
Assets:			
Cash and cash equivalents	$	923,522,162	1,124,682
Receivables:			
Contributions:			
Members		203,413,624	–
Employers		2,308,859,253	191,300
Accrued interest and dividends		4,710,132	–
Other		75,528,419	40,742,774
Total receivables		2,592,511,428	40,934,074
Investments, at fair value:			
Cash Management Fund		536,624,104	50,376,725
Common Pension Fund D		51,553,067,864	–
Common Pension Fund E		25,161,107,808	–
Domestic equities		801,472,808	–
Fixed income mutual funds		452,415,003	–
Equity mutual funds		3,287,755,423	–
Total investments		81,792,443,010	50,376,725
Securities lending collateral		839,926,356	–
Members' loans and mortgages		2,308,198,797	–
Total assets		88,456,601,753	92,435,481
Liabilities:			
Accounts payable and accrued expenses		269,894,272	88,955,292
Retirement benefits payable		930,488,730	–
Noncontributory group life insurance premiums payable		20,186,135	–
Administrative expense payable		3,922,068	–
Assets held for local contributing employers		–	1,965,508
Pension adjustment payroll payable		–	60,025
Due to State of New Jersey		–	1,314,040
Due to other funds		–	140,616
Securities lending collateral and rebates payable		839,902,523	–
Total liabilities		2,064,393,728	92,435,481
Net position			
Restricted for pensions and other postemployment benefits	$	86,392,208,025	–

See accompanying notes to financial statements.

Combining Statement of Fiduciary Net Pension
Fiduciary Funds — Pension Trust Funds and Other Postemployment Benefit Plan
June 30, 2018

	Defined Benefit Pension Plans								Defined Contribution Pension Plans		Other Postemployment Benefit Plan	
	Judicial Retirement System	Prison Officer's Pension Fund	State Police Retirement System	Consolidated Police and Firemen's Pension Fund	Teacher's Pension and Annuity Fund	Police and Firemen's Retirement System	Public Employees' Retirement System	Central Pension Fund	New Jersey State Employees Deferred Compensation Plan	Supplemental Annuity Collective Trust	State Health Benefits Local Government Retired Employees Plan	Total
Assets:												
Cash and cash equivalents	$ 4,975,574	228,655	17,904,920	134,113	371,943,696	205,366,800	322,533,336	40,722	14,831	147,186	232,329	923,522,162
Receivables:												
Contributions:												
Members	437,097	—	1,086,870	—	82,297,872	51,866,967	66,301,621	—	—	438,929	984,268	203,413,624
Employers	—	—	385,181	—	88,600,287	1,095,444,433	1,113,337,815	—	—	—	11,091,537	2,308,859,253
Accrued interest and dividends	756	38	3,102	55	63,622	3,874,133	55,798	17	520,663	191,948	—	4,710,132
Other	834,838	—	50,580	205,783	4,396,947	9,387,201	22,619,532	—	192,818	1,120,645	36,720,075	75,528,419
Total receivables	1,272,691	38	1,525,733	205,838	175,358,728	1,160,572,734	1,202,314,766	17	713,481	1,751,522	48,795,880	2,592,511,428
Investments, at fair value:												
Cash Management Fund	5,455,618	5,075,199	17,178,875	1,552,981	68,939,752	57,568,282	58,486,184	7,415	9,161,453	1,845,135	311,353,210	536,624,104
Common Pension Fund D	108,018,095	—	1,184,272,588	—	15,175,421,815	16,421,808,549	18,663,546,817	—	—	—	—	51,553,067,864
Common Pension Fund E	52,386,040	—	574,343,332	—	7,389,928,845	8,024,631,500	9,119,818,091	—	—	—	—	25,161,107,808
Domestic equities	—	—	—	—	—	—	—	—	568,546,130	232,926,678	—	801,472,808
Fixed income mutual funds	—	—	—	—	—	—	—	—	452,415,003	—	—	452,415,003
Equity mutual funds	—	—	—	—	—	—	—	—	3,287,755,423	—	—	3,287,755,423
Total investments	165,859,753	5,075,199	1,775,794,795	1,552,981	22,634,290,412	24,504,008,331	27,841,851,092	7,415	4,317,878,009	234,771,813	311,353,210	81,792,443,010
Securities lending collateral	1,759,881	—	19,294,715	—	247,244,970	267,551,678	304,075,112	—	—	—	—	839,926,356
Members' loans and mortgages	400,378	—	13,766,305	—	275,431,126	1,448,641,030	569,959,958	—	—	—	—	2,308,198,797
Total assets	174,268,277	5,303,892	1,828,286,468	1,892,932	23,704,268,932	27,586,140,573	30,240,734,264	48,154	4,318,606,321	236,670,521	360,381,419	88,456,601,753
Liabilities:												
Accounts payable and accrued expenses	46	673	77,927	1,114	90,420,723	6,699,378	123,188,574	18,350	1,485,975	2,142,559	45,858,953	269,894,272
Retirement benefits payable	4,768,017	79,395	18,453,016	127,993	368,936,445	208,404,035	328,961,231	29,804	—	728,794	—	930,488,730
Noncontributory group life insurance premiums payable	—	—	385,181	—	5,278,892	4,499,140	10,022,922	—	—	—	—	20,186,135
Administrative expense payable	16,035	368	31,494	362	1,278,077	437,834	2,120,518	—	—	—	37,380	3,922,068
Securities lending collateral and rebates payable	1,759,831	—	19,294,168	—	247,237,955	267,544,086	304,066,483	—	—	—	—	839,902,523
Total liabilities	6,543,929	80,436	38,241,786	129,469	713,152,092	487,584,473	768,359,728	48,154	1,485,975	2,871,353	45,896,333	2,064,393,728
Net position:												
Restricted for pension and other postemployment benefits	$ 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	—	4,317,120,346	233,799,168	314,485,086	86,392,208,025

See accompanying notes to financial statements.

Statement of Fiduciary Net Position — Fiduciary Funds
June 30, 2018

		Pension Trust Funds and Other Postemployment Benefit Plan
Additions:		
Contributions:		
Members	$	2,342,536,213
Employers		3,330,118,429
Nonemployer		1,677,137,908
Employer specific and other		13,948,732
Total contributions		7,363,741,282
Investment income:		
Net increase in fair value of investments		5,462,741,580
Interest and Dividens		1,682,748,167
		7,145,489,747
Less investment expense		15,551,800
Net investment income		7,129,937,947
Transfers		26,977,641
Total additions		14,520,656,870
Deductions		
Benefits		11,602,782,838
Refunds of contributions		189,053,148
Transfer		28,034,716
Administrative and miscellaneous expenses		48,274,736
Total deductions		11,868,145,438
Change in net position		2,652,511,432
Net position restricted for pension and other postemployment benefits:		
Beginning of year		83,739,696,593
End of year	$	86,392,208,025

See accompanying notes to financial statements.

Combining Statement of Changes in Fiduciary Net Position
Fiduciary Funds — Pension Trust Funds and Other Postemployment Benefit Plan
Year ended June 30, 2018

	Defined Benefit Pension Plans								Defined Contribution Pension Plans		Other Postemployment Benefit Plan	
	Judicial Retirement System	Prison Officer's Pension Fund	State Police Retiremnt System	Consolidated Police and Firemen's Pension Fund	Teachers' Pension and Annuity Fund	Police and Firemen's Retirement System	Public Employees' Retirement System	Central Pension Fund	New Jersey State Employees Deferred Compensation Plan	Supplemental Annuity Collective Trust	State Health Benefits Local Government Retired Employees Plan	Total
Additions:												
Contributions:												
Members	$ 9,177,453	—	22,416,571	—	810,899,751	395,604,883	854,178,790	—	190,196,996	6,074,603	53,987,166	2,342,536,213
Employers	24,023,637	—	74,603,780	—	1,723,827	1,127,617,114	1,680,631,409	324,000	—	—	421,194,662	3,330,118,429
Nonemployer	—	—	—	325,000	1,514,407,623	108,857,000	—	—	—	—	53,548,285	1,677,137,908
Employer specific and other	—	484,565	—	806,330	345,897	3,822,741	8,466,985	22,214	—	—	—	13,948,732
Total contributions	33,201,090	484,565	97,020,351	1,131,330	2,327,377,098	1,635,901,738	2,543,277,184	346,214	190,196,996	6,074,603	528,730,113	7,363,741,282
Investment income												
Net increase in fair value of investments	11,626,472	—	118,766,237	—	1,549,694,540	1,592,956,386	1,838,398,729	—	331,796,817	19,502,399	—	5,462,741,580
Interest and Dividends	3,204,540	71,686	35,387,318	22,998	471,677,008	548,256,412	605,751,230	1,069	11,310,243	4,745,241	2,320,422	1,682,748,167
	14,831,012	71,686	154,153,555	22,998	2,021,371,548	2,141,212,798	2,444,149,959	1,069	343,107,060	24,247,640	2,320,422	7,145,489,747
Less investment expense	21,143	1,471	124,546	1,456	5,054,619	1,731,572	8,386,400	—	230,593	—	—	15,551,800
Net investment income	14,809,869	70,215	154,029,009	21,542	2,016,316,929	2,139,481,226	2,435,763,559	1,069	342,876,467	24,247,640	2,320,422	7,129,937,947
Transfers	2,859,841	—	248,479	—	13,092,464	3,605,472	7,171,385	—	—	—	—	26,977,641
Total additions	50,870,800	554,780	251,297,839	1,152,872	4,356,786,491	3,778,988,436	4,986,212,128	347,283	533,073,463	30,322,243	531,050,535	14,520,656,870
Deductions:												
Benefits	58,007,824	947,877	222,117,649	1,289,899	4,345,295,975	2,513,406,534	3,813,712,429	342,040	203,425,764	22,615,594	421,621,253	11,602,782,838
Refunds of contributions	278,597	—	198,074	—	55,907,156	10,055,932	122,608,146	5,243	—	—	—	189,053,148
Transfers	—	—	57,576	—	7,406,171	182,584	20,388,385	—	—	—	—	28,034,716
Administrative and miscellaneous expenses	185,364	4,315	377,193	4,006	13,222,178	4,505,685	21,368,150	—	407,732	—	8,200,113	48,274,736
Total deductions	58,471,785	952,192	222,750,492	1,293,905	4,421,831,480	2,528,150,735	3,978,077,110	347,283	203,833,496	22,615,594	429,821,366	11,868,145,438
Change in net position	(7,600,985)	(397,412)	28,547,347	(141,033)	(65,044,989)	1,250,837,701	1,008,135,018	—	329,239,967	7,706,649	101,229,169	2,652,511,432
Net position restricted for pension and other postemploement benefits:												
Beginning of year	175,325,333	5,620,868	1,761,497,335	1,904,496	23,056,161,829	25,847,718,399	28,464,239,518	—	3,987,880,379	226,092,519	213,255,917	83,739,696,593
End 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	—	4,317,120,346	233,799,168	314,485,086	86,392,208,025

See accompanying notes to financial statements.

Notes to Financial Statements
June 30, 2018

(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 an 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 (CPFPF)	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, 2018, *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, 2018, *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, 2018:

	JRS	POPF	SPRS	CPFPF	TPAF*	PFRS	PERS	CPF
Inactive plan members or beneficiaries currently receiving benefits	607	77	3,337	77	102,573	43,755	174,904	16
Inactive plan members entitled to but not yet receiving benefits	4	—	—	—	197	39	589	—
Active plan members	428	—	2,812	—	154,889	41,517	254,780	—
Total	1,039	77	6,149	77	257,659	85,311	430,273	16
Contributing employers	1	1	1	35	24	586	1,708	1
Contributing nonemployers	—	—	—	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, 2018, *continued*

Pension Plan's 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

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. 2017, c. 98 ("LECA"), the net proceeds from the New Jersey State Lottery are contributed to the PERS, TPAF and PFRS 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 the Act 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. 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 2018, $976,002,197 was contributed to Common Pension Fund L and has been included as employer contributions in PERS, TPAF and PFRS 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 Chapter 78, P.L. 2011, the active member contribution rate is being increased from 3% to 12%, phased-in over seven years for members hired or reappointed after June 28, 2011. In October 2011, the member contribution rate for new members increased. The phase-in of the additional incremental member contribution rate takes place in July of each subsequent State fiscal year. The member contribution rate was 12% in State fiscal year 2018. The State's contribution is based on an actuarially determined amount, which includes the normal cost and unfunded accrued liability.

Notes to Financial Statements — June 30, 2018, *continued*

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 accrued liability contribution required by the State for the fiscal year ended June 30, 2018. 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 2018. 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), of (c), as follows: (a) 50% of final compensation; (b) for members retiring with 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 years of service.

CPFPF

There are no active members in CPFPF. Additionally, based on the recent actuarial valuation, the State made a $325,000 contribution towards the unfunded accrued liability during the fiscal year ended June 30, 2018. The vesting and benefit provisions were set by N.J.S.A. 43:16.

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 active member contribution rate increased from 5.5% of annual compensation to 6.5% plus an additional 1% phased-in over 7 years beginning in July 2012. The member contribution rate was 7.34% in State fiscal year 2018. The phase-in of the additional incremental member contribution rate takes place in July of each subsequent State fiscal year. 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, except for medical benefits, which vest after 25 years of service or under the disability provisions of TPAF. 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.

Notes to Financial Statements — June 30, 2018, *continued*

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 2018. 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, 2018, *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 active member contribution rate increased from 5.5% of annual compensation to 6.5% plus an additional 1% phased-in over 7 years beginning in July 2012. The member contribution rate was 7.34% in State fiscal year 2018. The phase-in of the additional incremental member contribution rate takes place in July of each subsequent State fiscal year. 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 2018. 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, except for medical benefits, which vest after 25 years of service or under the disability provisions of PERS.

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, 2018, *continued*

(c) Defined Contribution Pension Plans

The Division administers the following defined contribution plans to certain members as further discussion 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, 2018, membership in the defined contribution pension plans consisted of the following based on the information within the Division's database:

Plan	Members
NJSEDCP	54,890
SACT	3,003

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 $18,500 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, 2018, *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 N.J.S.A. 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 of the defined benefit OPEB plan consisted of the following at June 30, 2018:

Inactive plan members or beneficiaries currently receiving benefits	26,277
Inactive plan members entitled to but not yet receiving benefits	–
Active plan members	61,789
Total	88,066
Contributing employers	587
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 $421.2 million and the State of New Jersey, as the nonemployer contributing entity, contributed $53.5 million for fiscal year 2018.

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.

Partially funded benefits are also available to 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. Upon retirement, these individuals must enroll in the OPEB plan.

Notes to Financial Statements — June 30, 2018, *continued*

(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 the cost of living adjustment (COLA) benefits to retirees and beneficiaries of POPF, CPFP, 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 and other postemployment benefit plan. 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, CPFPF, 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, 2018, *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, CPFPF, 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 Division of Pensions and Benefits report are: Common Pension Fund D and Common Pension Fund E (collectively known as the Common Pension Funds), and other investments owned directly by the seven defined benefit pension plans. 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/cmf/FinancialStatementsFiscal2018.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 or decrease 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 2018, the interest rate was 7.00%. 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, 2018, *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, 2018, Common Pension Fund E had unfunded commitments totaling approximately $9.9 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 — Defined Benefit Plans

Components of Net Pension Liability

The components of the net pension liability of the participating employers for the defined benefit plans at June 30, 2018, are as follows:

		JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS
Total pension liability	$	922,019,220	5,263,321	4,849,714,240	5,695,602	86,797,467,286	46,797,559,654	72,866,174,168
Plan fiduciary net position		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
Net pension liability	$	754,294,872	39,865	3,059,669,558	3,932,139	63,806,350,446	19,699,003,554	43,393,799,632
Plan fiduciary net position as a percentage of the total pension liability		18.19%	99.24%	36.91%	30.96%	26.49%	57.91%	40.45%

The total pension liability was determined by actuarial valuations as of July 1, 2017, which was rolled forward to June 30, 2018, using the following actuarial assumptions, applied to all periods in the measurement:

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS
Inflation rate	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%	2.25%
Salary increases:							
Initial fiscal year applied through	2025	N/A	2025	N/A	2026	2026	2026
Rate	2.00%	N/A	2.95%	N/A	1.55 - 4.55	2.10 - 8.98% based on age	1.65 to 4.15% based on age
Thereafter	3.00%	N/A	3.95%	N/A	2.00 - 5.45	3.10 - 9.98% based on age	2.65 - 5.15% based on age
Long-term expected rate of return	7.00%	1.00%	7.00%	1.00%	7.00%	7.00%	7.00%
Period of actuarial experience study upon which actuarial assumptions were based	July 1, 2011 - June 30, 2014	N/A	July 1, 2011 - June 30, 2014	N/A	July 1, 2012 - June 30, 2015	July 1, 2010 - June 30, 2013	July 1, 2011 - June 30, 2014

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

Notes to Financial Statements — June 30, 2018, *continued*

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

Plan	Post-retirement mortality	Post-retirement mortality	Disability
JRS	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 Conduent Modified 2014 Projection scale thereafter.	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 Conduent Modified 2014 Projection scale thereafter.	RP-2000 Disability Mortality Tables (set forward 2 years for males and females) without projection.
POPF	Not applicable as there are no active members.	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 Conduent Modified 2014 projection scale.	RP-2000 disabled retiree mortality table.
SPRS	RP-2000 Combined Healthy Mortality Table, set back 3 years for males, projected on a generational basis using scale BB from the base year of 2000 to 2013 and the Conduent Modified 2014 projection scale thereafter.	RP-2000 Combined Healthy Mortality Table, set back 3 years for males, projected on a generational basis using scale BB from the base year of 2000 to 2013 and the Conduent Modified 2014 projection scale thereafter.	RP-2000 Combined Healthy Mortality Table, set forward 5 years for both males and females.
CPFPF	Not applicable as there are no active members.	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 Conduent Modified 2014 projection scale.	Not applicable as there are no disabled retirees.
TPAF	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.	RP-2006 Healthy Annuitant White Collar Mortality 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.	RP-2006 Disabled Retiree Mortality Tables with rates adjusted by 90%. No mortality improvement is assumed for disabled retiree mortality.
PFRS	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 Conduent Modified 2014 Projection Scale thereafter. Pre-Retirement Accidental Mortality: Custom table with representative rates are used. No mortality improvement is assumed for pre-retirement accidental mortality.	Healthy Female Retirees and Beneficiaries: 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 Conduent Modified 2014 Projection Scale thereafter. Healthy Male Retirees: 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 Conduent Modified 2014 Projection Scale thereafter.	Custom table with representative rates are used. No mortality improvement is assumed for disabled retiree mortality.
PERS	Pre-Retirement Ordinary Mortality: RP-2000 Employee Mortality Tables . For State, the tables are set back four years for males and females. For Local employers, the tables are set back two years for males and seven years for females. The tables are projected on a generational basis from the base year of 2013 using the Conduent Modified 2014 Projection Scale. Pre-Retirement Accidental Mortality: 0.001% at all ages. No mortality improvement is assumed.	RP-2000 Combined Healthy Mortality Tables set back one year for males and females, projected on a generational bases using Projection Scale AA from the base year of 2012 to 2013 and the Conduent Modified 2014 Projection Scale thereafter.	RP-2000 Disabled Mortality Tables, set back three years for males and set forward one year for females. No mortality improvement is assumed.

Notes to Financial Statements — June 30, 2018, *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, 2018 are summarized in the following table:

Asset Class	JRS, SPRS, TPAF, PFRS and PERS	POPF & CPFPF
Risk Mitigation Strategies	5.51%	–
Cash Equivalents	1.00%	1.00%
U.S. Treasuries	1.87%	–
Investment Grade Credit	3.78%	–
High Yield	6.82%	–
Global Diversified Credit	7.10%	–
Credit Oriented Hedge Funds	6.60%	–
Debt Related Private Equity	10.63%	–
Debt Related Real Estate	6.61%	–
Private Real Asset	11.83%	–
Equity Related Real Estate	9.23%	–
U.S. Equity	8.19%	–
Non-U.S. Developed Markets Equity	9.00%	–
Emerging Markets Equity	11.64%	–
Buyouts/Venture Capital	13.08%	–

Discount Rate

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

Plan	Discount Rate
JRS	4.09%
POPF	3.87%
SPRS	4.97%
CPFPF	3.87%
TPAF	4.86%
PFRS	6.51%
PERS	5.66%

Notes to Financial Statements — June 30, 2018, *continued*

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

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS
Period of projected benefit payments for which the following rates were applied:							
Long-term expected rate of return	Through June 30, 2024	Not applicable	Through June 30, 2041	Not applicable	Through June 30, 2040	Through June 30, 2062	Through June 30, 2046
Municipal Bond rate*	From July 1, 2024 and thereafter	All periods	From July 1, 2041 and thereafter	All periods	From July 1, 2040 and thereafter	From July 1, 2062 and thereafter	From July 1, 2046 and thereafter

* The municipal bond return rate used is 3.87%. 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:

Pension Plan (rates used)	At 1% decrease	At current discount rate	At 1% increase
JRS (3.09%, 4.09%, 5.09%)	$ 848,589,906	754,294,872	673,698,696
POPF (2.87%, 3.87%, 4.87%)	303,389	39,865	(198,429)
SPRS (3.97%, 4.97%, 5.97%)	3,786,698,342	3,059,669,558	2,475,545,273
CPFPF (2.87%, 3.87%, 4.87%)	4,184,073	3,932,139	3,703,466
TPAF (3.86%, 4.86%, 5.86%)	75,417,894,537	63,806,350,446	54,180,663,328
PFRS (5.51%, 6.51%, 7.51%)	25,660,737,948	19,699,003,554	14,782,645,355
PERS (4.66%, 5.66%, 6.66%)	52,170,323,599	43,393,799,632	36,035,282,132

(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, 2018, are as follows:

Total OPEB liability	$	15,981,103,227
Plan fiduciary net position		314,485,086
Net OPEB liability	$	15,666,618,141
Plan fiduciary net position as a percentage of the total OPEB liability		1.97%

Notes to Financial Statements — June 30, 2018, *continued*

The total OPEB liability was determined by an actuarial valuation as of July 1, 2017, which was rolled forward to June 30, 2018, using the following actuarial assumptions, applied to all periods in the measurement:

Inflation rate	2.50%
Salary Increases*	
Initial fiscal year applied through	2026
Rate	1.65% to 8.98%
Rate thereafter	2.65% to 9.98%
Mortality	RP-2006 Headcount-Weighted Healthy Employee Male/Female Mortality Table with fully generational mortality improvement projections from the central year using Scale MP-2017
Long-term rate of return	1.00%

***Salary increases are based on the defined benefit plan that the individual is enrolled in and his or her age.*

Actuarial assumptions used in the July 1, 2017 valuation were based on the results of the PFRS and PERS experience studies prepared for July 1, 2010 to June 30, 2013 and July 1, 2011 to June 30, 2014, respectively.

For pre-Medicare preferred provider organization (PPO) medical benefits, this amount initially is 5.8% and decreases to a 5.0% long-term trend rate after eight years. For self-insured post-65 PPO medical benefits, the trend rate is 4.5%. For health maintenance organization (HMO) medical benefits, the trend rate is initially 5.8% and decreases to a 5.0% long-term trend rate after eight years. For prescription drug benefits, the initial trend rate is 8.0% and decreases to a 5.0% long-term trend rate after seven years. The Medicare Advantage trend rate is 4.5% and will continue in all future 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 1.00%.

The discount rate for the OPEB plan was 3.87%. 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 (2.87%)	At current discount rate (3.87%)	At 1% increase (4.87%)
$18,381,085,096	$15,666,618,141	$13,498,373,388

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

1% Decrease	Healthcare Cost Trend Rate	1% Increase
$13,068,471,450	15,666,618,141	$19,029,006,023

Notes to Financial Statements — June 30, 2018, *continued*

(5) Investments

The Plan's investments (including investments held directly by the Common Pension Funds) as of June 30, 2018 are as follows:

Common Pension Fund D:		
Cash	$	159,325,952
Cash Management Fund		1,122,228,425
Domestic equities		24,600,475,585
International equities		14,238,388,603
Domestic fixed income		9,188,894,082
International fixed income		2,037,463,375
Other[1]		206,291,842
		51,553,067,864
Common Pension Fund E:		
Cash		26,083,597
Cash Management Fund		724,943,984
Private equity funds		8,709,999,926
Absolute return strategy funds		4,953,526,473
Global diversified credit funds		4,365,663,181
Real estate funds		3,817,372,883
Real assets		2,094,110,314
Opportunistic private equity investments		431,962,894
Other[1]		37,444,556
		25,161,107,808
All Other Investments:		
Cash Management Fund		587,000,829
Domestic equities		801,472,808
Fixed income mutual funds		452,415,003
Equity mutual funds		3,287,755,423
		5,128,644,063
Total	$	81,842,819,735

[1]Includes assets (other than investments) and liabilities included in the net position of the Common Pension Funds. 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, 2018, *continued*

The asset allocation policy as of June 30, 2018 for the Pension Funds, is as follows:

Asset Class	Target
Absolute return/risk mitigation	5.00%
Total risk mitigation	5.00%
Total Cash and Short Term	5.50%
Governments	3.00%
Total liquidity	8.50%
Investment grade credit	10.00%
Public high yield	2.50%
Global diversified credit	5.00%
Credit oriented hedge funds	1.00%
Debt related private equity	2.00%
Debt related real estate	1.00%
Total income	21.50%
Real Assets	2.50%
Equity related real estate	6.25%
Total real return	8.75%
U.S. equity	30.00%
Non-U.S. developed markets equity	11.50%
Emerging markets equity	6.50%
Buyouts/venture capital	8.25%
Total global growth	56.25%
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, POPF, CPFPF and the OPEB plan were 9.11%, 1.36%, 1.36% and 1.28%, 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, 2018, *continued*

The credit ratings and limits for the Pension Funds as of June 30, 2018 are as follows:

Category	Minimum rating (1)			Limitation of issuer's outstanding debt/stock	Limitation of issue	Other limitations
	Moody's	S&P	Fitch			
Certificates of deposit 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. 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 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.

Notes to Financial Statements — June 30, 2018, *continued*

Category	Minimum rating [1]			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						Not more than 10% of pension fund assets can be invested in mortgage backed securities.
Pass-through securities	A3	A-	A-	–	–	
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.

[1] *Short-term ratings (e.g. P-1, A-1, F-1) are used for commercial paper and certificates of deposit.*

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, 2018, *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 fair 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 fair 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, 2018 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									
	Aaa	Aa	A	Baa	Ba	B	Caa	Ca	P-1	Totals
Corporate obligations	$651,028	773,511	3,664,169	369,477	212,760	380,992	146,672	3,534	–	6,202,143
U.S. Treasury bonds	1,231,499	–	–	–	–	–	–	–	–	1,231,499
Commercial paper	–	–	–	–	–	–	–	–	631,432	631,432
Foreign government obligations	200,882	845,093	34,624	–	726	–	–	–	–	1,081,325
Foreign agency obligations	399,532	–	99,953	–	–	–	–	–	–	499,485
International corporate obligations	14,860	49,681	243,492	23,889	45,609	64,496	25,818	511	–	468,356
Certificates of deposit	–	–	–	–	–	–	–	–	785,000	785,000
Municipal obligations	–	128,831	33,732	–	–	–	–	–	–	162,563
Mortgages (FHLMC/FNMA/GNMA)	15,340	–	–	–	–	–	–	–	–	15,340
Other	108	–	–	–	707	1,808	–	–	–	2,623
	$2,513,249	1,797,116	4,075,970	393,366	259,802	447,296	172,490	4,045	1,416,432	11,079,766

Notes to Financial Statements — June 30, 2018, *continued*

	Standard and Poor's rating							Fitch's rating	
	AAA	AA	A	BBB	BB	B	CCC	AA	Totals
Corporate obligations	$ –	–	14,076	14,914	2,866	5,613	2,522	–	39,991
Foreign government obligations	–	–	38,626	–	–	–	–	–	38,626
International corporate obligations	–	–	4,366	4,863	21,037	4,881	–	416	35,563
Municipal obligations	11,765	8,647	–	–	–	–	–	–	20,412
	$ 11,765	8,647	57,068	19,777	23,903	10,494	2,522	416	134,592

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 $464,413,733, 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 $2,434,173,238, 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, 2018 (in thousands).

	Maturities in years				
Fixed income investment type	Less than 1	1 - 5	6 - 10	More than 10	Total fair value
Corporate obligations	$ 68,943	1,949,900	3,099,390	1,127,441	6,245,674
U.S. Treasury bonds	–	709,840	319,206	202,453	1,231,499
Commercial paper	631,432	–	–	–	631,432
Foreign government obligations	96,466	594,997	226,443	202,045	1,119,951
International corporate obligations	66,176	75,243	304,425	62,398	508,242
Federal agency obligations	99,953	203,889	195,643	–	499,485
Certificates of deposit	785,000	–	–	–	785,000
Municipal obligations	–	44,884	–	138,091	182,975
Mortgages (FHLMC/FNMA/GNMA)	–	211	4,039	11,090	15,340
Asset backed securities	–	–	–	3,314	3,314
Bank loans	–	1,857	–	–	1,857
SBA pass through certificates	108	–	–	–	108
	$ 1,748,078	3,580,821	4,149,146	1,746,832	11,224,877

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, 2018, were $1,480,392 and $452,415,003, respectively. These funds have a weighted average duration of 3.87 and 6.07 years, respectively.

Notes to Financial Statements — June 30, 2018, *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, 2017 (expressed in U.S. dollars):

Currency	Equities	Fixed Income	Alternative Investments	Total fair value
Australian dollar	$ 544,695	–	–	544,695
Brazilian real	264,260	–	–	264,260
Canadian dollar	801,752	56,135	–	857,887
Chilean peso	36,104	–	–	36,104
Columbian peso	–	1,282	–	1,282
Czech koruna	25,512	–	–	25,512
Danish krone	142,791	–	–	142,791
Euro	2,436,572	28,468	782,457	3,247,497
Hong Kong dollar	1,383,324	–	–	1,383,324
Hungarian forint	47,173	–	–	47,173
Indonesian rupiah	108,009	–	–	108,009
Japanese yen	2,019,122	–	–	2,019,122
Malaysian ringgit	97,404	–	–	97,404
Mexican peso	111,266	–	–	111,266
Moroccan dirham	3,327	–	–	3,327
New Israeli sheqel	14,978	–	–	14,978
New Taiwan dollar	12,458	–	–	12,458
New Zealand dollar	1,078	–	–	1,078
Norwegian krone	61,472	–	–	61,472
Pakistan rupee	21,291	–	–	21,291
Philippine peso	43,641	–	–	43,641
Polish zloty	79,694	–	–	79,694
Pound sterling (U.K.)	1,460,411	2,627	138,106	1,601,144
Qatari rial	21,470	–	–	21,470
Singapore dollar	94,288	–	–	94,288
South African rand	329,964	–	–	329,964
South Korean won	676,128	–	–	676,128
Swedish krona	217,715	–	–	217,715
Swiss franc	629,790	–	–	629,790
Thailand baht	99,514	–	–	99,514
Turkish lira	69,143	–	–	69,143
Uae dirham	30,620	–	–	30,620
	$ 11,884,966	88,512	920,563	12,894,041

Notes to Financial Statements — June 30, 2018, *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 fair 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 fair 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. These investments cannot comprise more than 20% of any one investment managers' total assets.

As of June 30, 2018, the net position of Common Pension Fund E includes receivables of $39 million related to the secondary sale of real estate funds and 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 Pension Funds have rights to the collateral received. All of the publicly traded securities held in Common Pension Funds, and certain securities held directly by the pension plans, 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, 2018, 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, 2018, *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, 2018 (in thousands):

	Rating		
	Aaa/AAA	Not rated	Totals
Repurchase agreements	$ 722,000	—	722,000
State Street Navigator Securities Lending Money Market Portfolio	—	118,143	118,143
	$ 722,000	118,143	840,143

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, 2018, the Pension Funds had outstanding loaned investment securities with an aggregate fair value of $814,270,812 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 (JRS, SPRS, TPAF, PFRS, and PERS) 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. The Common Pension Funds had no investments in futures at June 30, 2018.

Foreign currency forward contracts are used as a means to hedge against currency risks in the Common Pension Fund. 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, 2018, *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 it writes (or sells) call options on underlying stocks held by the Common Pension Funds or stock indices. The Common Pension Funds enter into covered put options when it purchases put options on underlying stocks held by the Common Pension Funds or stock indices. The Common Pension Fund enters into put spreads when it purchases 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, 2018, the Common Pension Fund's derivative investments included foreign currency forward contracts:

	Notional value (local currency)	Receivable	Payable	Change in fair value
Foreign currency forward contracts:				
Buy:				
Euro	747,548	$ 873,737	872,330	1,407
Pound sterling	19,000	25,116	25,283	(167)
Sell:				
Euro	25,528,125	$ 29,837,710	29,851,830	(14,120)
Pound sterling	2,068,516	2,775,000	2,734,787	40,213
Total Forward contracts		$ 33,511,563	33,484,230	27,333

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, 2018, *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 following chart.
- 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 2in the following chart.
- Options 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 following chart.
- 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, 2018, 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 following chart.

Notes to Financial Statements — June 30, 2018, *continued*

The following table summarizes the fair value hierarchy of the investment portfolio as of June 30, 2018 (in thousands):

	Total	Level 1	Level 2
Investments at fair value			
Equity securities			
Domestic equities	$ 25,158,893	25,147,378	11,515
International equities	13,584,639	13,583,920	719
Equity mutual funds	3,287,755	3,287,755	–
Exchange traded funds	896,805	896,805	–
Total equity securities	42,928,092	42,915,858	12,234
Debt securities			
Corporate obligations	6,245,674	–	6,245,674
U. S. Treasury bonds	1,231,499	–	1,231,499
Commercial Paper	631,432		631,432
Foreign government obligations	1,119,951	–	1,119,951
International corporate obligations	508,242	–	508,242
Federal agency obligations	499,485	–	499,485
Fixed income mutual funds	452,415	452,415	–
Municipal obligations	182,975	–	182,975
Mortgages (FHLMC/FNMA/GNMA)	15,340	–	15,340
Asset backed securities	3,314	–	3,314
Bank loans	1,857	–	1,857
Exchanged traded funds	1,480	1,480	–
SBA pass through certificates	108	–	108
Total debt securities	10,893,772	453,895	10,439,877
Total investments by fair value level	53,821,864	43,369,753	10,452,111
Investment at cost			
Certificates of deposit	785,000		
Investments measured at the net asset value (NAV)			
Buyout private equity funds	7,211,723		
Global diversified credit funds	4,365,663		
Real estate funds - equity	3,401,887		

Notes to Financial Statements — June 30, 2018, *continued*

Investments measured at the net asset value (NAV) *continued*	Total	Level 1	Level 2
Multi-strategy hedge funds	2,131,053		
Real assets	2,094,110		
Opportunistic hedge funds	1,115,390		
Debt related private equity funds	967,820		
Credit oriented hedge funds	867,913		
Equity oriented hedge funds	839,171		
Venture capital private equity funds	491,899		
Opportunistic private equity investments	431,963		
Real estate funds - debt	415,486		
Secondary private equity funds	38,558		
Total investments measured at NAV	24,372,636		
Local Government Investment Pool			
Cash Management Fund	2,434,173		
Total investments	$ 81,413,673		
Investments derivative instruments			
Foreign currency forward contracts (assets)	33,512	33,512	
Foreign currency forward contracts (liabilities)	(33,484)	(33,484)	
Total investment derivative instruments	$ 28	28	–

Notes to Financial Statements — June 30, 2018, *continued*

The following table represents the unfunded commitments, redemptions frequency and redemption notice period for investments measured at NAV as of June 30, 2018, (in thousands).

	Fair Value	Unfunded Commitments	Redemption Frequency (if currently Eligible)	Redemption Notice Period
Buyout private equity funds[1]	$ 7,211,723	3,107,552	None	N/A
Global diversified credit funds[2]	4,365,663	1,978,183	Quarterly, Semi- annual	45 and 90 days
Real estate funds - equity[3]	3,401,887	1,775,681	Quarterly	15 and 90 days
Multi-strategy hedge funds [4]	2,131,053	232,626	Quarterly, Semi-annual	None
Real assets[5]	2,094,110	1,006,317	None	None
Opportunistic hedge funds [6]	1,115,390	125,000	Monthly, Quarterly	2-90 days
Debt related private equity funds [7]	967,820	819,136	None	N/A
Credit oriented hedge funds [8]	867,913	–	Monthly, Quarterly, Semi-annual, Annually	45-60 days
Equity oriented hedge funds [9]	839,171	50,000	Quarterly, Semi-annual, Annually	45-92 days
Venture capital private equity funds [10]	491,899	89,395	None	N/A
Opportunistic private equity funds [11]	431,963	341,618	None	N/A
Real estate funds - debt[12]	415,486	346,178	None	N/A
Secondary private equity funds [13]	38,558	27,823	None	N/A
Total investments measured at NAV	$ 24,372,636	9,899,509		

1. Buyout private equity funds include investments in 76 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 six 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. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

2. Global diversified credit funds include investments in 17 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, 2018, 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 8 years. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

3. Real estate funds - equity include investments in 47 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 71% of real estate equity investments can never be redeemed. Thirty six 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 16 years. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

Notes to Financial Statements — June 30, 2018, *continued*

4. Multi-strategy hedge funds include investments in 12 hedge funds that pursue multiple strategies to diversify risks and reduce volatility. Investments representing approximately 58% of the value of the investments cannot be redeemed because the investment includes restrictions that do not allow for redemptions. As of June 30, 2018, the remaining redemption restriction periods range from 6 to 7 months. The fair values of the investments in this type have been determined using the NAV per share (or its equivalent) of the investments.

5. Real asset funds includes investments in 18 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. Seventeen 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 15 years. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

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, 2018, this remaining redemption restriction period is 15 months. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

7. Debt related private equity funds include investments in 24 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 14 years. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment

8. Credit oriented hedge funds include investments in 8 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 97% of the value of the investments cannot be redeemed because the investment includes restrictions that do not allow for redemptions. As of June 30, 2018, these remaining redemption restriction periods range from 3 to 18 months. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

9. Equity oriented hedge funds include investments in 7 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 46% of the value of the investments cannot be redeemed because the investment includes restrictions that do not allow for redemptions. As of June 30, 2018, these remaining redemption restriction periods range from 3 to 36 months. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

Notes to Financial Statements — June 30, 2018, *continued*

10. 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 6 years. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

11. 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. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

12. 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. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

13. Secondary private equity funds include investments in 4 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 5 years. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the investment.

(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, 2018, the remaining receivable balances related to P.L. 2009, C. 19 were $102.1 million and $34.2 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 ($81,706,889); SPRS ($220,907,335); TPAF ($13,354,276,513); PFRS ($3,887,361,606); PERS ($15,193,195,465)

The Members' Annuity Savings Reserve (New Jersey Statutes Annotated (N.J.S.A.): 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 ($-88,570,942); SPRS ($957,480,914); TPAF ($-29,844,595,183); PERS ($-18,666,339,307)

The Contingent Reserve (N.J.S.A.: 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.

Notes to Financial Statements — June 30, 2018, *continued*

Retirement Reserve – JRS ($174,588,401); SPRS ($611,656,433); TPAF ($39,481,435,510); PFRS ($26,470,969,567); PERS ($32,746,022,070)

The Retirement Reserve (N.J.S.A.: 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 2018) is credited to the Retirement Reserve.

Retirement Reserve – POPF ($5,223,456)

The Retirement Reserve (N.J.S.A. 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 ($38,672,685); PERS – Local ($70,726,865)

The Non-Contributory Group Insurance Premium Reserve (N.J.S.A.: 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 a zero balance as these premium expenses are funded on a monthly basis.

Pension Accumulation Reserve – PFRS ($-3,298,447,758)

The Pension Accumulation Reserve (N.J.S.A.: 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 – CPFPF ($1,763,463)

The Pension Reserve (N.J.S.A.: CPFPF 43:16-5) is credited with State of New Jersey contributions and investment income.

Benefit Enhancement Reserve – PERS – Local ($128,769,443)

The Benefit Enhancement Reserve (N.J.S.A.: 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 ($314,485,086)

The net position of SHBP–Local (N.J.S.A.: 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 ($4,317,120,346); SACT ($189,972,506)

The Variable Accumulation Reserve (N.J.S.A.: 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 ($43,826,662)

The Variable Benefits Reserve (N.J.S.A.: 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, 2018, *continued*

Various reserve balances as of June 30, 2018, are as follows:

		Pension Reserves	Other Postemployment Benefit Plan Reserves
Members' Annuity Savings Reserve and Accumulated Interest Reserve	$	32,737,447,808	–
Contingent Reserve		(47,642,024,518)	–
Retirement Reserve		99,489,895,437	–
Non-Contributory Group Insurance Premium Reserve		109,399,550	–
Pension Accumulation Reserve		(3,298,447,758)	–
Pension Reserve		1,763,463	–
SHBP Reserve		–	314,485,086
Benefit Enhancement Reserve		128,769,443	–
Variable Accumulation Reserve		4,507,092,852	–
Variable Benefits Reserve		43,826,662	–
Total	$	86,077,722,939	314,485,086

(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.

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, 2018

	2018	2017	2016	2015	2014
Total pension liability:					
Service cost	$ 35,477,981	37,224,230	33,333,864	30,702,986	32,123,341
Interest on total pension liability	36,209,627	30,788,977	36,471,524	41,473,055	40,332,123
Effect of economic/demographic (gains) or losses	(8,553,096)	14,120,673	254,822	(1,733,197)	–
Effect of assumptions changes or inputs	(23,084,707)	(70,235,370)	85,677,552	(41,873,530)	26,907,821
Transfers from other systems	2,859,841	1,121,097	726,284	2,081,523	–
Benefit payments	(58,286,421)	(56,365,718)	(54,686,521)	(52,430,016)	(49,604,080)
Net change in total pension liability	(15,376,775)	(43,346,111)	101,777,525	(21,779,179)	49,759,205
Total pension liability-beginning	937,395,995	980,742,106	878,964,581	900,743,760	850,984,555
Total pension liability-ending (a)	$ 922,019,220	937,395,995	980,742,106	878,964,581	900,743,760
Plan fiduciary net position:					
Contributions-employer	$ 4,023,637	20,341,379	14,794,774	17,031,026	15,874,857
Contributions-employee	9,177,453	10,348,191	9,271,869	6,310,124	5,096,577
Net investment (loss) income	14,809,869	20,031,152	(2,721,949)	8,475,641	34,448,036
Transfers from other systems	2,859,841	1,121,097	726,284	2,081,523	–
Benefit payments, including refunds of employee contributions	(58,286,421)	(56,365,718)	(54,686,521)	(52,430,016)	(49,604,080)
Administrative expense	(185,364)	(150,588)	(168,008)	(168,762)	(162,372)
Net change in Plan fiduciary net position	(7,600,985)	(4,674,487)	(32,783,551)	(18,700,464)	5,653,018
Plan fiduciary net position-beginning	175,325,333	179,999,820	212,783,371	231,483,835	225,830,817
Plan fiduciary net position-ending (b)	167,724,348	175,325,333	179,999,820	212,783,371	231,483,835
Plan's net pension liability-ending (a)-(b)	$ 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	18.19%	18.70%	18.35%	24.21%	25.70%
Covered-employee payroll	$ 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	1089.76%	1119.66%	1193.41%	1008.93%	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	*4.09%*	*3.83%*	*3.11%*	*4.12%*	4.58%
Long-term expected rate of return	*7.00%*	*7.00%*	*7.65%*	*7.90%*	7.90%

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 auditor's report.

SCHEDULE 1

Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios
Defined Benefit Pension Plans
Prison Officers' Pension Fund (Unaudited)
June 30, 2018

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

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

Notes to Schedule:

	2018	2017	2016	2015	2014
Changes in benefit terms:			None		
Changes in assumptions:					
Discount rate	*3.87%*	*3.58%*	*2.85%*	*3.80%*	*4.29%*

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, 2018

	2018	2017	2016	2015	2014
Total pension liability:					
Service cost	$ 119,718,797	139,506,057	113,546,510	93,740,921	93,623,020
Interest on total pension liability	226,928,605	202,545,532	221,675,495	216,980,562	209,010,706
Effect of economic/demographic (gains) or losses	(19,592,172)	23,786,696	(17,580,385)	35,245,543	–
Effect of assumptions changes or inputs	(379,490,284)	(697,970,471)	747,941,075	435,691,094	92,686,900
Transfers from other systems	190,903	3,925	54,000	222,557	–
Benefit payments	(222,315,723)	(217,303,946)	(213,436,150)	(206,493,624)	(197,958,938)
Net change in total pension liability	(274,559,874)	(549,432,207)	852,200,545	575,387,053	197,361,688
Total pension liability-beginning	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)	$ 4,849,714,240	5,124,274,114	5,673,706,321	4,821,505,776	4,246,118,723
Plan fiduciary net position:					
Contributions-employer	$ 74,603,780	53,006,614	37,435,541	38,527,297	36,436,923
Contributions-employee	22,416,571	23,721,785	22,818,295	22,315,431	24,034,496
Net investment (loss) income	154,029,009	207,401,590	(19,284,054)	75,532,779	287,098,217
Transfers from other system	190,903	3,925	54,000	222,557	–
Benefit payments, including refunds of employee contributions	(222,315,723)	(217,303,946)	(213,436,150)	(206,493,624)	(197,958,938)
Administrative expense	(377,193)	(294,745)	(334,630)	(351,724)	(280,026)
Net change in Plan fiduciary net position	28,547,347	66,535,223	(172,746,998)	(70,247,284)	149,330,672
Plan fiduciary net position-beginning	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)	1,790,044,682	1,761,497,335	1,694,962,112	1,867,709,110	1,937,956,394
Plan's net pension liability-ending (a)-(b)	$ 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	36.91%	34.38%	29.87%	38.74%	45.64%
Covered-employee payroll	$ 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	1074.67%	1210.63%	1444.31%	1125.27%	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:

	2018	2017	2016	2015	2014
Discount rate	*4.97%*	*4.42%*	*3.55%*	*4.59%*	*5.12%*
Long-term expected rate of return	*7.00%*	*7.00%*	*7.65%*	*7.90%*	*7.90%*

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 discount rate changed to 4.59% and the demographic assumptions were revised to reflect those recommended on the basis of the July 1, 2011 - June 30, 2014 experience study. In addition, the social security wage base was set at $118,500 for 2015, increasing 4.00% per annum, compounded annually and the 401(a)(17) pay limit was set at $265,000 for 2015, increasing 3.00% per annum, compounded annually.

See accompanying independent auditor's report.

SCHEDULE 1

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, 2018

	2018	2017	2016	2015	2014
Total pension liability:					
Service cost	$ –	–	–	–	–
Interest on total pension liability	241,913	260,211	352,889	504,066	632,080
Effect of economic/demographic (gains) or losses	(582,507)	(984,588)	(71,313)	(993,528)	–
Effect of assumptions changes or inputs	(70,518)	(236,022)	1,273,909	193,719	163,528
Benefit payments	(1,289,899)	(1,535,623)	(1,881,252)	(2,445,627)	(2,942,035)
Net change in total pension liability	(1,701,011)	(2,496,022)	(325,767)	(2,741,370)	(2,146,427)
Total pension liability-beginning	7,396,613	9,892,635	10,218,402	12,959,772	15,106,199
Total pension liability-ending (a)	$ 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	21,542	10,099	10,856	198	585
Contributions-other	806,330	964,280	1,196,017	1,577,751	1,889,091
Benefit payments, including refunds of employee contributions	(1,289,899)	(1,535,623)	(1,881,252)	(2,445,627)	(2,942,035)
Administrative expense	(4,006)	(4,188)	(6,643)	(8,003)	(9,566)
Net change in Plan fiduciary net position	(141,033)	9,568	(533,022)	(875,681)	(1,050,185)
Plan fiduciary net position-beginning	1,904,496	1,894,928	2,427,950	3,303,631	4,353,816
Plan fiduciary net position-ending (b)	1,763,463	1,904,496	1,894,928	2,427,950	3,303,631
Plan's net pension liability-ending (a)-(b)	$ 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	30.96%	25.75%	19.15%	23.76%	25.49%
Covered-employee payroll	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

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

Notes to Schedule:

	2018	2017	2016	2015	2014
Changes in benefit terms:			*None*		
Changes in assumptions:					
Discount rate	*3.87%*	*3.58%*	*2.85%*	*3.80%*	*4.29%*

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 auditor's 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, 2018

	2018	2017	2016	2015	2014
Total pension liability:					
Service cost	$ 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	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	1,195,858,381	236,377,556	(134,644,168)	365,228,279	(24,898,221)
Effect of assumptions changes or inputs	(6,816,855,725)	(13,285,524,000)	10,827,093,000	5,913,556,000	2,614,173,709
Transfers from other systems	5,686,293	1,338,431	1,564,002	4,117,141	–
Benefit payments	(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	(3,928,903,714)	(11,020,399,000)	12,564,108,000	8,087,342,000	4,416,680,330
Total pension liability-beginning	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)	$ 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	$ 1,723,827	1,404,292	1,105,810	807,246	4,688,045
Contributions-nonemployer	1,514,407,623	1,125,614,188	798,963,467	539,796,289	423,012,101
Contributions-employee	810,899,751	790,788,033	761,711,695	740,296,265	716,183,306
Net investment (loss) income	2,016,316,929	2,736,988,791	(267,684,353)	1,066,062,926	4,100,273,453
Transfers from other systems	5,686,293	1,338,431	1,564,002	4,117,141	–
Employer specific contributions-delayed appropriation and delayed enrollments	345,897	357,659	243,660	358,899	–
Benefit payments, including refunds of employee contributions	(4,401,203,131)	(4,306,268,745)	(4,169,070,762)	(4,015,003,587)	(3,837,859,513)
Administrative expense	(13,222,178)	(11,923,787)	(13,768,112)	(13,890,080)	(12,170,971)
Net change in Plan fiduciary net position:	(65,044,989)	338,298,862	(2,886,934,593)	(1,677,454,901)	1,394,126,421
Plan fiduciary net position-beginning	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)	22,991,116,840	23,056,161,829	22,717,862,967	25,604,797,560	27,282,252,461
Plan's net pension liability-ending (a)-(b)	$ 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	26.49%	25.41%	22.33%	28.71%	33.64%
Covered-employee payroll	$ 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	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:

	2018	2017	2016	2015	2014
Changes in benefit terms:		*None*			
Changes in assumptions:					
Discount rate	*4.86%*	*4.25%*	*3.22%*	*4.13%*	*4.68%*
Long-term expected rate of return	*7.00%*	*7.00%*	*7.65%*	*7.90%*	*7.90%*

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 auditor's report.

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, 2018

	2018	2017	2016	2015	2014
Total pension liability:					
Service cost	$ 1,030,735,624	1,136,338,028	1,148,613,712	994,248,683	1,079,166,175
Interest on total pension liability	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	47,676,088	89,364,940	(34,916,637)	(215,122,438)	–
Effect of assumptions changes or inputs	(2,069,626,924)	(3,534,553,975)	343,078,737	3,755,474,472	649,814,155
Transfers from other systems	3,422,888	289,960	358,929	800,782	–
Benefit payments	(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	(613,162,084)	(1,991,448,175)	1,884,404,008	5,010,601,502	2,158,770,858
Total pension liability-beginning	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)	$ 46,797,559,654	47,410,721,738	49,402,169,913	47,517,765,905	42,507,164,403
Plan fiduciary net position:					
Contributions-employer	$ 1,127,617,114	1,002,043,734	900,033,567	883,776,917	858,047,628
Contributions-nonemployer	108,857,000	86,467,000	61,466,000	76,038,000	–
Contributions-employee	395,604,883	395,878,384	388,681,408	386,991,641	385,660,096
Net investment (loss) income	2,139,481,226	2,791,104,860	(150,693,159)	922,598,676	3,381,553,869
Transfers from other systems	3,422,888	289,960	358,929	800,782	–
Employer specific contributions-additional contribution	173,554	268,910	1,923,531	535,424	–
Employer specific contributions-delayed appropriation	450,244	892,514	763,176	865,936	–
Employer specific contributions-delayed enrollments	90,933	179,386	142,034	224,629	–
Employer specific contributions-retroactive	3,120,240	11,476,881	3,661,101	24,536,440	–
Contributions-other	(12,230)	–	–	–	–
Benefit payments, including refunds of employee contributions	(2,523,462,466)	(2,421,485,437)	(2,324,175,953)	(2,205,464,297)	(2,105,829,011)
Administrative expense	(4,505,685)	(4,124,457)	(4,292,891)	(4,531,012)	(3,884,342)
Net change in Plan fiduciary net position	1,250,837,701	1,862,991,735	(1,122,132,257)	86,373,136	2,515,548,240
Plan fiduciary net position-beginning	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)	27,098,556,100	25,847,718,399	23,984,726,664	25,106,858,921	25,020,485,785
Plan's net pension liability-ending (a)-(b)	$ 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	57.91%	54.52%	48.55%	52.84%	58.86%
Covered-employee payroll	$ 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	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:

Discount rate	*6.51%*	*6.14%*	*5.55%*	*5.79%*	*6.32%*
Long-term expected rate of return	*7.00%*	*7.00%*	*7.65%*	*7.90%*	*7.90%*

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 auditor's report.

SCHEDULE 1

Required Supplementary Information

Schedule of Changes in Net Pension Liability and Related Ratios — Defined Benefit Pension Plans — Public Employees' Retirement System (Unaudited) June 30, 2018

	2018	2017	2016	2015	2014
Total pension liability:					
Service cost	$ 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	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	(363,908,216)	306,941,390	600,806,505	1,050,795,158	–
Effect of assumptions changes or inputs	(5,613,718,254)	(10,156,789,076)	8,792,817,065	4,091,557,460	1,222,437,554
Transfers from other systems	(13,217,000)	854,976	778,753	1,651,542	–
Benefit payments	(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	(4,522,089,735)	(8,381,624,171)	11,046,189,512	6,874,277,835	3,061,848,496
Total pension liability-beginning	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)	$ 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	$ 1,680,631,409	1,465,931,579	1,273,425,342	1,085,237,214	917,689,000
Contributions-employee	854,178,790	847,952,137	821,305,787	805,232,235	797,818,225
Net investment (loss) income	2,435,763,559	3,202,393,837	(237,215,643)	1,117,827,113	4,102,964,869
Transfers from other systems	(13,217,000)	854,976	778,753	1,651,542	–
Employer specific contributions-additional contribution	28,566	25,676	257,850	111,824	–
Employer specific contributions-delayed appropriation	2,687,967	3,224,612	1,721,199	1,664,415	–
Employer specific contributions-delayed enrollments	931,611	1,030,774	532,612	594,843	–
Employer specific contributions-retroactive	4,818,841	11,230,521	687,225	6,504,878	–
Other	–	(7,797)	(51,586)	(31,006)	–
Benefit payments, including refunds of employee contributions	(3,936,320,575)	(3,810,818,692)	(3,629,651,915)	(3,441,046,065)	(3,259,290,114)
Administrative expense	(21,368,150)	(19,648,715)	(23,285,920)	(23,761,860)	(21,756,019)
Net change in Plan fiduciary net position	1,008,135,018	1,702,168,908	(1,791,496,296)	(446,014,867)	2,537,425,961
Plan fiduciary net position-beginning	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)	29,472,374,536	28,464,239,518	26,762,070,610	28,553,566,906	28,999,581,773
Plan's net pension liability-ending (a)-(b)	$ 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	40.45%	36.78%	31.20%	38.21%	42.74%
Covered-employee payroll	$ 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	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:

	2018	2017	2016	2015	2014
Changes in benefit terms:			*None*		
Changes in assumptions:					
Discount rate	*5.66%*	*5.00%*	*3.98%*	*4.90%*	*5.39%*
Long-term expected rate of return	*7.00%*	*7.00%*	*7.65%*	*7.90%*	*7.90%*

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. For 2015, the social security wage base was set at $118,500 for 2015, increasing 4.00% per annum, compounded annually and the 401(a)(17) pay limit was set at $265,000 for 2015, increasing 3.00% per annum, compounded annually.

See accompanying independent auditor's report.

SCHEDULE 2

Required Supplementary Information

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

Year ended June 30:	Actuarially determined contribution	Actual employer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
	Judicial Retirement System				
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
2009	29,809,782	1,696,843	(28,112,939)	67,159,516	2.53

Year ended June 30:	Prison Officers' Pension Fund				
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
2009	–	–	–	N/A	N/A

SCHEDULE 2

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

Year ended June 30:	Actuarially determined contribution	Actual employer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
	State Police Retirement System				
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)	283,219,927	9.81
2012	98,869,662	13,545,607	(85,324,055)	275,219,752	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
2009	86,385,254	5,574,860	(80,810,394)	281,087,566	1.98

Year ended June 30:	Consolidated Police and Firemen's Pension Fund				
2018	$ 325,191	1,131,330	806,139	N/A	N/A
2017	884,680	1,539,280	654,600	N/A	N/A
2016	491,683	1,344,017	852,334	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	1,678,690	—	(1,678,690)	N/A	N/A
2009	1,824,798	1,256,000	(568,798)	N/A	N/A

SCHEDULE 2

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

Teachers' Pension and Annuity Fund

Year ended June 30:	Actuarially determined contribution	Actual employer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
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	2,158,287,358	427,700,146	(1,730,587,212)	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)	9,747,020,060	–
2009	1,601,478,508	95,863,972	(1,505,614,536)	9,419,083,203	1.02

Police and Firemen's Retirement System

Year ended June 30:	Actuarially determined contribution	Actual employer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
2018	$ 1,424,767,509	1,171,681,149	(253,086,360)	3,803,348,329	30.81%
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
2009	1,048,234,663	716,491,044	(331,743,619)	3,596,254,177	19.92

SCHEDULE 2

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

Year ended June 30:	Actuarially determined contribution	Actual employer contribution	Contribution excess (deficiency)	Covered payroll	Contribution as a percentage of covered payroll
	Public Employees' Retirement System				
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
2009	1,285,791,399	627,989,949	(657,801,450)	11,815,800,825	5.31

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, open	Level Dollar, open	Level Dollar, open	Level Dollar, open	Level Dollar, open	Level Dollar, open
Remaining amortization period	30 years	1 year	30 years	30 years	30 years	30 years	30 years
Asset valuation method	Five-year average of market values	Market value	Five-year average of market values	Five-year average of market values	20% of the difference between the expected Actuarial Value and market value is recognized each year	Five-year average of market values	Five-year average of market values
Inflation	2.25%	2.25%	2.25%	2.25%	2.3% until June 30, 2026 / 3.6% thereafter	2.25%	2.25%
Projected salary increase 2017 and 2016							
Initial fiscal year applied through	2025	N/A^	2025	N/A^	N/A	2026	2026
Rate	2.00%	N/A^	2.95%	N/A^	Varies based on experience	2.10 - 8.98% based on age	1.65% - 4.15% based on age
Thereafter	3.00%	N/A^	3.95%	N/A^	Varies based on experience	3.10 - 9.98% based on age	2.65% - 5.15% based on age
2015 and 2014 Through fiscal year 2021	2.50%	N/A^	3.45%	N/A^	Varies based on experience	2.60 - 9.48% based on age	2.15% - 4.40% based on age
Thereafter	3.50%	N/A^	4.45%	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							
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.

SCHEDULE 3

Required Supplementary Information

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

	JRS, SPRS, TPAF, PERS and PFRS*	POPF	CPFPF
Year ended June 30:			
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, 2018

		2018	2017
Total OPEB liability:			
Service cost	$	896,235,148	1,064,525,862
Interest on total OPEB liability		764,082,232	648,423,508
Difference between expected and actual experience		(3,626,384,047)	–
Effect of changes of assumptions		(2,314,240,675)	(2,587,850,974)
Contributions - employee		53,987,166	53,585,505
Benefit payments		(421,621,253)	(417,488,848)
Net change in total OPEB liability		(4,647,941,429)	(1,238,804,947)
Total OPEB liability-beginning		20,629,044,656	21,867,849,603
Total OPEB liability-ending (a)	$	15,981,103,227	20,629,044,656
Plan fiduciary net position:			
Contributions-employer	$	421,194,662	381,813,324
Contributions-nonemployer contributing entity		53,548,285	53,064,311
Contributions-retiree		53,987,166	53,585,505
Net investment income		2,320,422	791,049
Benefit payments		(421,621,253)	(417,488,848)
Administrative expense		(8,200,113)	(8,894,576)
Net change in Plan fiduciary net position		101,229,169	62,870,765
Plan fiduciary net position-beginning		213,255,917	150,385,152
Plan fiduciary net position-ending (b)		314,485,086	213,255,917
Plan's net OPEB liability-ending (a)-(b)	$	15,666,618,141	20,415,788,739
Plan fiduciary net position as a percentage of the total OPEB liability		1.97%	1.03%
Covered-employee payroll	$	4,646,915,753	4,336,016,376
Net OPEB liability as a percentage of covered-employee payroll		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:

	2018	2017
Changes in benefit terms:	None	None

Changes in assumptions:
In 2017, the discount rate changed to 3.58% from 2.85%. 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.
Adjustments to June 30, 2017 reported amounts:
The categories composing the changes in total OPEB liability were changed from previously reported amounts in the Division's 2017 CAFR to include certain active plan members that were improperly excluded from the measurement of the total OPEB liability in the prior year.

See accompanying independent auditors' report.

SCHEDULE 5

Required Supplementary Information

Schedule of Investment Returns — OPEB Plan
Annual Money-Weighted Rate of Return, Net of Investment Expense
(Unaudited)

Year ended June 30:

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 6

Schedule to Administrative Expenses
Year ended June 30, 2018

Personnel Services	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS	NJSEDCP	TOTAL
Salaries and Wages	$ 102,650	1,588	108,116	1,684	5,712,234	1,416,974	9,345,405	241,802	16,930,453
Employee benefits	54,235	839	57,123	889	3,018,0645	748,660	4,937,653	122,544	8,940,007
Total personnel services	156,885	2,427	165,239	2,573	8,730,298	2,165,634	14,283,058	364,346	25,870,460
Professional services:									
Actuarial services	6,546	409	38,271	356	197,474	530,976	430,039	–	1,204,071
Data processing	4,561	285	26,668	248	1,151,295	370,005	1,763,778	27,481	3,344,321
Information systems	4,744	296	27,737	258	1,111,919	384,830	1,834,446	54	3,364,284
Other professional [(1)]	1,173	73	7,096	64	276,823	98,357	456,148	51	839,785
Medical reviews (exams/hearings)	3,450	–	24,935	–	314,515	437,617	799,139	–	1,579,656
Elections	–	–	–	–	–	40,889	10,000	–	50,889
Internal audit and legal	3,402	212	19,893	185	797,455	275,995	1,315,643	–	2,412,785
Total professional services	23,876	1,275	144,600	1,111	3,849,481	2,138,669	6,609,193	27,586	12,795,791
Communication:									
Travel	6	–	30	–	4,309	4,776	7,408	–	16,529
Telephone	363	23	2,120	20	84,987	29,413	140,211	2,800	259,937
Postage	1,290	81	7,544	70	302,449	104,676	498,982	1,000	916,092
Motor pool	12	1	69	1	2,777	961	4,581	–	8,402
Printing and office	268	17	1,567	15	69,099	21,836	103,753	–	196,555
Total communication	1,939	122	11,330	106	463,621	161,662	754,935	3,800	1,397,515
Miscellaneous:									
Office space	2,749	172	16,073	150	644,347	223,005	1,063,045	–	1,949,541
Maintenance	52	3	304	3	12,188	4,218	20,107	–	36,875
Equipment	32	2	184	1	7,374	2,552	12,166	–	22,311
Other services and charges	–	–	–	–	–	–	–	12,000	12,000
Total miscellaneous	2,833	177	16,561	154	663,909	229,775	1,095,318	12,000	2,020,727
Total administrative expenses	$ 185,533	4,001	337,730	3,944	13,707,309	4,695,740	22,742,504	407,732	42,084,493

(1) Portion of consulting

See accompanying independent auditors' report.

SCHEDULE 7

Schedule to Investment Expenses
Year ended June 30, 2018

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS	NJSEDCP	Total
Investment expense $	21,143	1,471	124,546	1,456	5,054,619	1,731,572	8,386,400	230,593	15,551,800

See accompanying independent auditors' report.

SCHEDULE 8

Schedule of Expenses for Consultants
Year ended June 30, 2018

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS	Total
Actuarial:								
Conduent	$ 6,546	409	38,271	356	–	530,976	430,039	1,006,597
Millman	–	–	–	–	197,474	–	–	197,474
Medical reviews (exams/hearings)	3,450	–	24,935	–	314,515	437,617	799,139	1,579,656
Board elections:								
Election America	–	–	–	–	–	40,889	10,000	50,889
Total expenses for consultants	$ 9,996	409	63,206	356	511,989	1,009,482	1,239,178	2,834,616

See accompanying independent auditors' report.

SCHEDULE 9

Combining Schedule of Fiduciary Net Position Information
Fiduciary Funds — Select Pension Trust Funds
June 30, 2018

	JRS	POPF	SPRS	CPFRS	TPAF	PFRS	PERS	Total
Assets:								
Cash and cash equivalent	$ 4,975,574	228,655	17,904,920	134,113	371,943,696	205,366,800	322,533,336	923,087,094
Receivables:								
Contributions:								
Members	437,097	–	1,086,870	–	82,297,872	51,866,967	66,301,621	201,990,427
Employers	–	–	385,181	–	88,600,287	1,095,444,433	1,113,337,815	2,297,767,716
Accrued interest and dividends	756	38	3,102	55	63,622	3,874,133	55,798	3,997,504
Other	834,838	–	50,580	205,783	4,396,947	9,387,201	22,619,532	37,494,881
Total receivables	1,272,691	38	1,525,733	205,838	175,358,728	1,160,572,734	1,202,314,766	2,541,250,528
Investments, at fair value:								
Cash Management Fund	5,455,618	5,075,199	17,178,875	1,552,981	68,939,752	57,568,282	58,486,184	214,256,891
Common Pension Fund D	108,018,095	–	1,184,272,588	–	15,175,421,815	16,421,808,549	18,663,546,817	51,553,067,864
Common Pension Fund E	52,386,040	–	574,343,332	–	7,389,928,845	8,024,631,500	9,119,818,091	25,161,107,808
Total investments	165,859,753	5,075,199	1,775,794,795	1,552,981	22,634,290,412	24,504,008,331	27,841,851,092	76,928,432,563
Securities lending collateral	1,759,881	–	19,294,715	–	247,244,970	267,551,678	304,075,112	839,926,356
Members' loans and mortgages	400,378	–	13,766,305	–	275,431,126	1,448,641,030	569,959,958	2,308,198,797
Total assets	174,268,277	5,303,892	1,828,286,468	1,892,932	23,704,268,932	27,586,140,573	30,240,734,264	83,540,895,338
Liabilities:								
Accounts payable and accrued expenses	46	673	77,927	1,114	90,420,723	6,699,378	123,188,574	220,388,435
Retirement benefits payable	4,768,017	79,395	18,453,016	127,993	368,936,445	208,404,035	328,961,231	929,730,132
Noncontributory group life insurance premiums payable	–	–	385,181	–	5,278,892	4,499,140	10,022,922	20,186,135
Administrative expense payable	16,035	368	31,494	362	1,278,077	437,834	2,120,518	3,884,688
Securities lending collateral and rebates payable	1,759,831	–	19,294,168	–	247,237,955	267,544,086	304,066,483	839,902,523
Total liabilities	6,543,929	80,436	38,241,786	129,469	713,152,092	487,584,473	768,359,728	2,014,091,913
Net position restricted for pensions	$ 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

See accompanying independent auditors' report.

SCHEDULE 10

Combining Schedule of Changes in Fiduciary Net Position Information
Fiduciary Funds — Select Pension Trust Funds
Year ended June 30, 2018

	JRS	POPF	SPRS	CPFPF	TPAF	PFRS	PERS	Total
Additions:								
Contributions:								
Members								
State	$ 9,177,453	–	22,416,571	–	810,899,751	49,052,970	320,487,632	1,212,034,377
Local	–	–	–	–	–	346,551,913	533,691,158	880,243,071
Employers:								
State	24,023,637	–	74,603,780	–	1,723,827	149,867,604	685,954,490	936,173,338
Local	–	–	–	–	–	977,749,510	994,676,919	1,972,426,429
Nonemployer	–	–	–	325,000	1,514,407,623	108,857,000	–	1,623,589,623
Employer specific and other	–	484,565	–	806,330	345,897	3,822,741	8,466,985	13,926,518
Total contributions	33,201,090	484,565	97,020,351	1,131,330	2,327,377,098	1,635,901,738	2,543,277,184	6,638,393,356
Investment income:								
Net increase in fair value of investments	11,626,472	–	118,766,237	–	1,549,694,540	1,592,956,386	1,838,398,729	5,111,442,364
Interest	3,204,540	71,686	35,387,318	22,998	471,677,008	548,256,412	605,751,230	1,664,371,192
	14,831,012	71,686	154,153,555	22,998	2,021,371,548	2,141,212,798	2,444,149,959	6,775,813,556
Less investment expense	21,143	1,471	124,546	1,456	5,054,619	1,731,572	8,386,400	15,321,207
Net investment income	14,809,869	70,215	154,029,009	21,542	2,016,316,929	2,139,481,226	2,435,763,559	6,760,492,349
Transfers	2,859,841	–	248,479	–	13,092,464	3,605,472	7,171,385	26,977,641
Total additions	50,870,800	554,780	251,297,839	1,152,872	4,356,786,491	3,778,988,436	4,986,212,128	13,425,863,346
Deductions:								
Benefits:								
Benefit expense-retirement allowances	57,250,187	947,877	219,617,869	1,289,899	4,309,529,034	2,470,096,547	3,741,505,365	10,800,236,778
Non-contributory group insurance expense	757,637	–	2,499,780	–	35,766,941	43,309,987	72,207,064	154,541,409
Refunds of contributions	278,597	–	198,074	–	55,907,156	10,055,932	122,608,146	189,047,905
Transfers	–	–	57,576	–	7,406,171	182,584	20,388,385	28,034,716
Administrative and miscellaneous expenses	185,364	4,315	377,193	4,006	13,222,178	4,505,685	21,368,150	39,666,891
Total deductions	58,471,785	952,192	222,750,492	1,293,905	4,421,831,480	2,528,150,735	3,978,077,110	11,211,527,699
Change in net position	(7,600,985)	(397,412)	28,547,347	(141,033)	(65,044,989)	1,250,837,701	1,008,135,018	2,214,335,647
Net position restricted for pensions:								
Beginning of year	175,325,333	5,620,868	1,761,497,335	1,904,496	23,056,161,829	25,847,718,399	28,464,239,518	79,312,467,778
End 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

See accompanying independent auditors' report.

SCHEDULE 11

Combining Schedule of Balance Sheet Information
Fiduciary Funds — Agency Funds
June 30, 2018

		Alternate Benefit Program Fund	Pension Adjustment Fund	Dental Expense Program Fund	Total Agency Funds
Assets:					
Cash and cash equivalents	$	804,731	124,795	195,156	1,124,682
Receivables:					
State related employer contributions		–	191,300	–	191,300
Other		40,385,204	1,787	355,783	40,742,774
Total receivables		40,385,204	193,087	355,783	40,742,774
Investments, at fair value:					
Cash Management Fund		576,602	1,890,381	47,909,742	50,376,725
Total investments		576,602	1,890,381	47,909,742	50,376,725
Total assets	$	41,766,537	2,208,263	48,460,681	92,435,481
Liabilities:					
Accounts payable and accrued expenses	$	40,494,611	–	48,460,681	88,955,292
Assets held for local contributing employers		–	1,965,508	–	1,965,508
Pension adjustment payroll payable		–	60,025	–	60,025
Due to State of New Jersey		1,271,926	42,114	–	1,314,040
Due to other funds		–	140,616	–	140,616
Total liabilities	$	41,766,537	2,208,263	48,460,681	92,435,481

See accompanying independent auditors' report.

SCHEDULE 12

Combining Schedule of Changes in Fiduciary Net Position Information
Fiduciary Funds — Agency Funds
Year ended June 30, 2018

		Alternate Benefit Program Fund	Pension Adjustment Fund	Dental Expense Program Fund	Total Agency Funds
Additions:					
Contributions:					
Members	$	833,121	–	109,947,440	110,780,561
Employers		198,747,704	1,271,182	37,396,066	237,414,952
Total contributions		199,580,825	1,271,182	147,343,506	348,195,513
Investment income					
Interest		51,587	27,866	680,470	759,923
Total investment income		51,587	27,866	680,470	759,923
Total additions		199,632,412	1,299,048	148,023,976	348,955,436
Deductions:					
Benefits		199,467,955	1,359,078	143,368,103	344,195,736
Refunds of contributions		164,457	(60,030)	4,655,873	4,760,300
Total deductions		199,632,412	1,299,048	148,023,976	348,955,436
Change in net position		–	–	–	–
Net position - beginning of year		–	–	–	–
Net position - end of year	$	–	–	–	–

See accompanying independent auditors' report.

SCHEDULE 13

Combining Schedule of Balance Sheet Information
Agency Fund — Dental Expense Program Fund
June 30, 2018

		State	Local	Total Agency Fund – Dental Expense Program Fund
Assets:				
Cash and cash equivalents	$	181,496	13,660	195,156
Receivables				
Other		192,196	163,587	355,783
Total receivables		192,196	163,587	355,783
Investments at fair value:				
Cash Management fund		37,044,423	10,865,319	47,909,742
Total investments		37,044,423	10,865,319	47,909,742
Total assets	$	37,418,115	11,042,566	48,460,681
Liabilities:				
Accounts payable and accrued expenses	$	37,418,115	11,042,566	48,460,681
Total liabilities	$	37,418,115	11,042,566	48,460,681

See accompanying independent auditors' report.

SCHEDULE 14

Combining Schedule of Changes in Fiduciary Net Position Information
Agency Funds — Dental Expense Program Fund
Year ended June 30, 2018

		State	Local	Total Agency Fund – Dental Expense Program Fund
Additions:				
Contributions:				
Members	$	59,182,176	50,765,264	109,947,440
Employers		32,485,916	4,910,150	37,396,066
Total contributions		91,668,092	55,675,414	147,343,506
Investment income				
Net decrease in fair value of investments		–	–	–
Interest		519,820	160,650	680,470
Total investment income		519,820	160,650	680,470
Total additions		92,187,912	55,836,064	148,023,976
Deductions:				
Benefits		88,219,501	55,148,602	143,368,103
Refunds of contributions		3,968,411	687,462	4,655,873
Total deductions		92,187,912	55,836,064	148,023,976
Change in net position		–	–	–
Net position - beginning of year		–	–	–
Net position - end of year	$	–	–	–

See accompanying independent auditors' report.

SCHEDULE 15

Schedule of Changes in Assets and Liabilities Information
Agency Fund — Alternative Benefit Program Fund
June 30, 2018

		Balance June 30, 2017	Additions	Deductions	Balance June 30, 2018
Assets:					
Cash and cash equivalents	$	950,247	176,867,509	177,013,025	804,731
Receivables:					
Other		38,879,816	40,385,204	38,879,816	40,385,204
Investments, at fair value:					
Cash Management Fund		896,915	205,037,800	205,358,113	576,602
Total assets	$	40,726,978	422,290,513	421,250,954	41,766,537
Liabilities:					
Accounts payable and accrued expenses	$	40,644,958	41,115,694	41,266,041	40,494,611
Due to State of New Jersey		82,020	1,271,926	82,020	1,271,926
Total liabilities	$	40,726,978	42,387,620	41,348,061	41,766,537

See accompanying independent auditors' report.

SCHEDULE 16

Schedule of Changes in Assets and Liabilities Information
Agency Fund — Pension Adjustment Fund
June 30, 2018

		Balance June 30, 2017	Additions	Deductions	Balance June 30, 2018
Assets:					
Cash and cash equivalents	$	1,028,528	938,293	1,842,026	124,795
Receivables:					
State related employer contributions		258,955	1,166,759	1,234,414	191,300
Other		3,457	7,738	9,408	1,787
Investments, at fair value:					
Cash Management Fund		1,009,611	2,362,310	1,481,540	1,890,381
Total assets	$	2,300,551	4,475,100	4,567,388	2,208,263
Liabilities:					
Assets held for local contributing employers	$	2,023,233	–	57,725	1,965,508
Pension adjustment payroll payable		72,370	881,743	894,088	60,025
Due to State of New Jersey		44,420	42,114	44,420	42,114
Due to other funds		160,528	895,387	915,299	140,616
Total liabilities	$	2,300,551	1,819,244	1,911,532	2,208,263

See accompanying independent auditors' report.

SCHEDULE 17

Schedule of Changes in Assets and Liabilities Information
Agency Fund — Dental Expense Program Fund — Total
June 30, 2018

		Balance June 30, 2017	Additions	Deductions	Balance June 30, 2018
Assets:					
Cash and cash equivalents	$	225,496	37,589,956	37,620,296	195,156
Receivables:					
Other		1,476,104	141,954,094	143,074,415	355,783
Investments, at fair value:					
Cash Management Fund		47,362,532	203,787,819	203,240,609	47,909,742
Total assets	$	49,064,132	383,331,869	383,935,320	48,460,681
Liabilities:					
Accounts payable and accrued expenses	$	49,064,132	42,964,892	43,568,343	48,460,681
Total liabilities	$	49,064,132	42,964,892	43,568,343	48,460,681

See accompanying independent auditors' report.

SCHEDULE 18

Schedule of Changes in Assets and Liabilities Information
Agency Fund — Dental Expense Program Fund — State
June 30, 2018

		Balance June 30, 2017	Additions	Deductions	Balance June 30, 2018
Assets:					
Cash and cash equivalents	$	217,316	31,450,777	31,486,597	181,496
Receivables:					
Other		1,388,124	90,095,911	91,291,839	192,196
Investments, at fair value:					
Cash Management Fund		33,094,127	146,887,227	142,936,931	37,044,423
Total assets	$	34,699,567	268,433,915	265,715,367	37,418,115
Liabilities:					
Accounts payable and accrued expenses	$	34,699,567	34,647,803	31,929,255	37,418,115
Total liabilities	$	34,699,567	34,647,803	31,929,255	37,418,115

See accompanying independent auditors' report.

SCHEDULE 19

Schedule of Changes in Assets and Liabilities Information
Agency Fund — Dental Expense Program Fund — Local
June 30, 2018

		Balance June 30, 2017	Additions	Deductions	Balance June 30, 2018
Assets:					
Cash and cash equivalents	$	8,180	6,139,179	6,133,699	13,660
Receivables:					
Other		87,980	51,858,183	51,782,576	163,587
Investments, at fair value:					
Cash Management Fund		14,268,405	56,900,592	60,303,678	10,865,319
Total assets	$	14,364,565	114,897,954	118,219,953	11,042,566
Liabilities:					
Accounts payable and accrued expenses	$	14,364,565	8,317,089	11,639,088	11,042,566
Total liabilities	$	14,364,565	8,317,089	11,639,088	11,042,566

See accompanying independent auditors' report.

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
P. O. BOX 290
TRENTON, NEW JERSEY 08625-0290
TELEPHONE (609) 292-5106
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ELIZABETH MAHER MUOIO
State Treasurer

COREY AMON
Director

The Division of Investment ("Division"), under the jurisdiction of the State Investment Council (the "Council"), 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 Council to formulate investment procedures and policies to be followed by the Director. The statute vests investment authority in 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.

The Council is comprised of 16 members, appointed to fixed terms. 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, with at least one appointed member being a member of a union representing police officers or firefighters. 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. Three 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, the Police & Firemen's Pension Fund Board, 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 (P.L. 1997, c.26). 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.

Corey Amon

Corey Amon
Director
Division of Investment

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State Investment Council
Policies Regarding the Investment of Pension Fund Assets
(at June 30, 2018)

- 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 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, 2018

	Annualized		
	1 Year	3 Year	5 Year
Risk Mitigation	**5.04**	**2.03**	**2.28**
T-Bill + 300 BP	*4.44*	*3.74*	*3.47*
Total Short Term and Cash [1]	1.81	1.31	1.12
91 Day Treasury Bill (Daily)	*1.36*	*0.68*	*0.42*
Governments	(0.77)	0.28	0.53
Custom Gov Benchmark	*(0.65)*	*0.88*	*1.81*
Total Liquidity	**0.26**	**0.66**	**0.56**
Liquidity Benchmark	*0.66*	*0.80*	*1.44*
Investment Grade Credit	(0.68)	2.14	3.12
Custom Investment Grade Credit Benchmark	*(0.73)*	*2.55*	*2.90*
Public High Yield	2.78	5.60	5.64
BBG BARC Corp HY (Dly)	*2.62*	*5.53*	*5.51*
Global Diversified Credit	9.46	9.62	10.31
BBG BARC Corp HY (Dly)	*2.62*	*5.53*	*5.51*
Credit-Oriented Hedge Funds	6.88	5.22	5.62
50 HFRI DR 50 HFRI CA (1M Lag)	*5.29*	*3.93*	*4.04*
Debt Related Private Equity	14.97	8.84	10.07
BarCap Corp HY + 300 bps (1 Qtr Lag)	*6.93*	*8.37*	*8.18*
Debt Related Real Estate	8.29	4.45	6.91
Barclays CMBS 2.0Baa + 100 bps (Qtr Lag)	*9.16*	*4.32*	*6.50*
Total Income	**4.07**	**4.99**	**5.55**
Income Benchmark	*2.01*	*3.99*	*4.21*
Real Return Private Real Assets and Commodities	12.70	4.89	NA
CA Energy Upst & Royalties & PE Lagged D	*5.82*	*1.58*	*0.70*
Equity Related Real Estate	12.59	11.11	12.94
Real Estate Index	*7.11*	*9.00*	*10.41*
Total Real Return	**12.64**	**9.03**	**9.08**
Real Return Benchmark	*6.75*	*6.57*	*6.67*
US Equity	12.78	9.97	12.53
S&P 1500 Super Composite (Daily)	*14.50*	*11.90*	*13.40*
Non-US Equity Developed Markets Equity	8.19	5.20	6.67
Custom International Developed Markets Benchmark [2]	*6.86*	*4.79*	*6.24*
Emerging Markets Equity	5.40	4.87	3.83
Custom International Emerging Markets Benchmark [2]	*7.99*	*5.74*	*5.13*
Equity-Oriented Hedge Funds	1.34	1.44	4.76
50 HFRI EH 50 HFRI ED ACTIVIST (1 M Lag)	*5.93*	*4.10*	*5.73*
Buyouts-Venture Capital	17.94	12.46	16.32
Custom Cambridge Blend	*20.42*	*12.28*	*13.35*
Total Global Growth	**11.56**	**8.50**	**10.52**
Global Growth Benchmark	*13.14*	*9.67*	*10.73*
Opportunistic Investments	11.83	8.47	**NA**
Total Pension Fund	**9.06**	**6.90**	**8.23**
NJDOI Policy Index	*8.65*	*7.21*	*8.00*

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

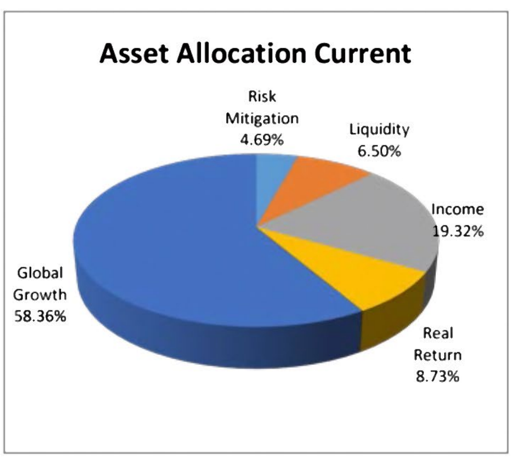
[2] Source: MSCI. Each benchmark is a custom index calculated by MSCI for, and as requested by the Division, based on screening criteria defined by the Division. These benchmarks exclude those securities deemed ineligible for investment under the State statutes governing investments in Iran, Sudan and 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.

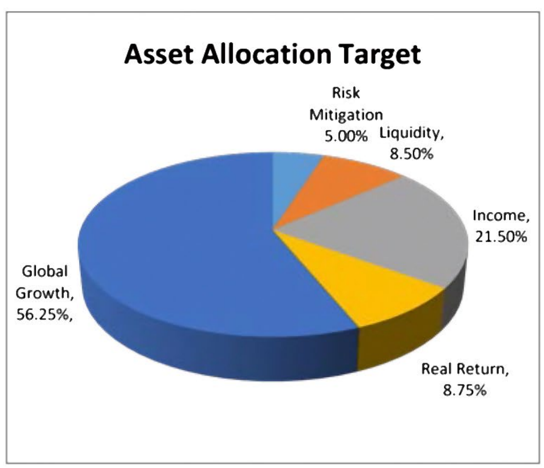
Pension Fund Asset Allocation — June 30, 2018

	Actual Allocation %	Target %	Difference %	Allocation $ (millions)
Absolute Return/Risk Mitigation	4.69%	5.00%	(0.31%)	3,663.98
Risk Mitigation	**4.69%**	**5.00%**	**(0.31%)**	**3,663.98**
Total Cash Equivalents[1]	4.92%	5.50%	(0.58%)	3,848.32
Governments	1.58%	3.00%	(1.42)%	1,236.80
Total Liquidity	**6.50%**	**8.50%**	**(2.00%)**	**5,085.12**
Investment Grade Credit	9.43%	10.00%	(0.57%)	7,370.93
Public High Yield	1.27%	2.50%	(1.23%)	995.34
Global Diversified Credit	5.73%	5.00%	(0.73%)	4,477.64
Credit Oriented Hedge Funds	1.12%	1.00%	0.12%	875.93
Debt Related Private Equity	1.24%	2.00%	(0.76%)	973.39
Debt Related Real Estate	0.53%	1.00%	(0.47%)	415.49
Total Income	**19.32%**	**21.50%**	**(2.18%)**	**15,108.72**
Private Real Assets	3.11%	2.50%	(0.03%)	2,428.12
Equity Related Real Estate	5.62%	6.25%	(0.85%)	4,396.46
Total Real Return	**8.73%**	**8.75%**	**(0.02)%**	**6,824.58**
US Equity	30.08%	30.00%	0.08%	23,520.45
Non-US Developed Markets Equity	11.39%	11.50%	(0.11%)	8,905.72
Emerging Markets Equity	6.43%	6.50%	(0.07%)	5,028.59
Equity Oriented Hedge Funds	0.56%	0.00%	0.56%	440.70
Buyouts/Venture Capital	9.90%	8.25%	1.65%	7,736.60
Total Global Growth	**58.36%**	**56.25%**	**2.11%**	**45,632.06**
Opportunistic Private Equity	**0.55%**	0.00%	0.55%	431.96
Police and Fire Mortgage Program[2]	1.51%	0.00%	1.51%	1,180.45
Other Cash and Receivables	0.34%	0.00%	0.34%	259.49
Total Pension Fund	**100.00%**	**100.00%**	**0.00%**	**78,186.36**

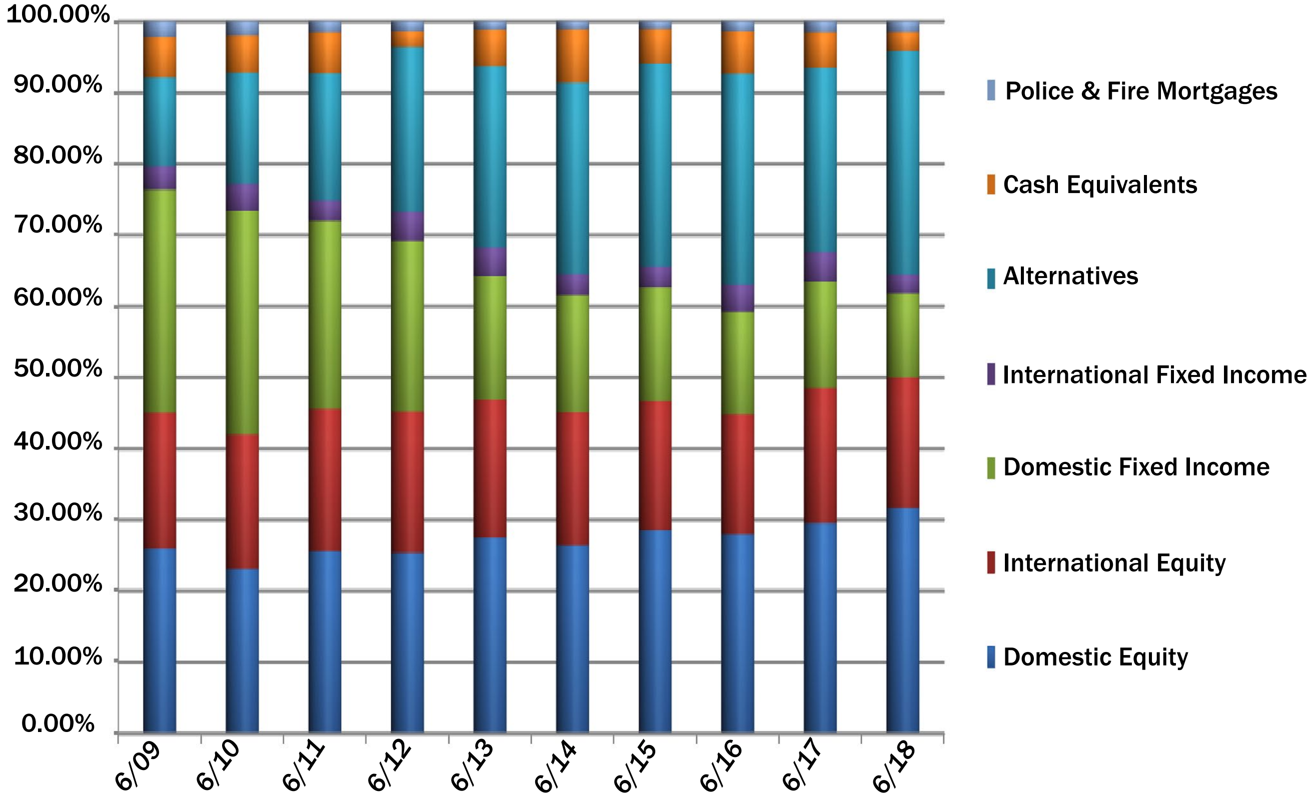
[1] *The cash aggregate comprises the two common pension fund cash accounts, in addition to seven plan cash accounts.*

[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.*

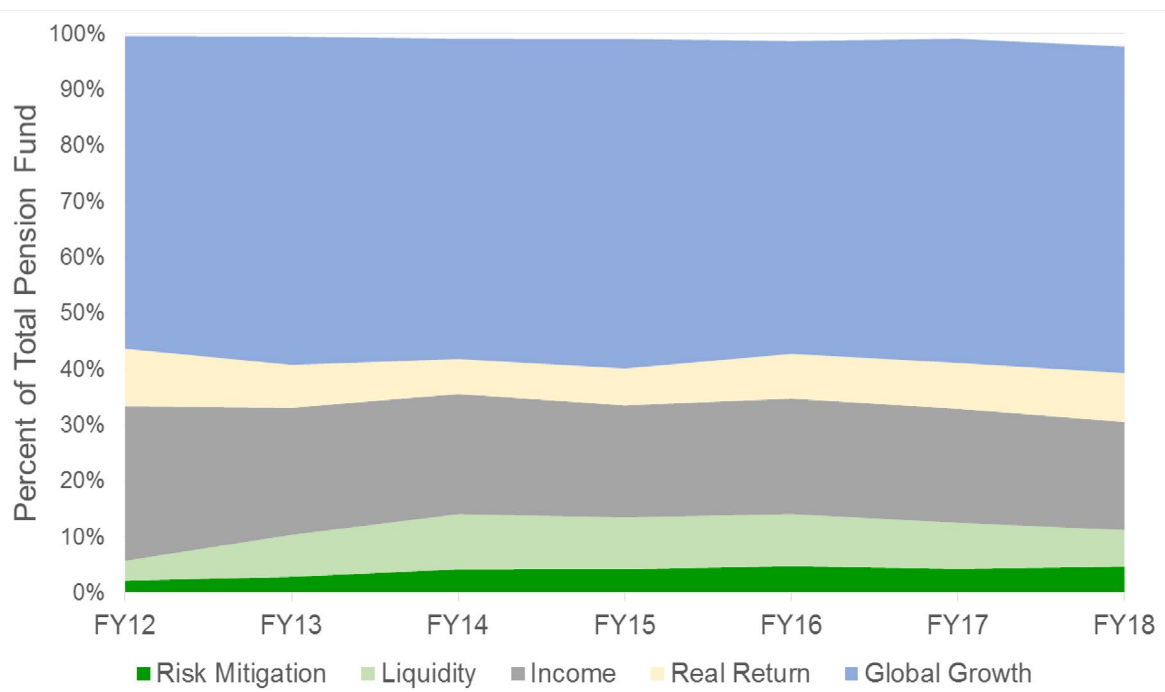




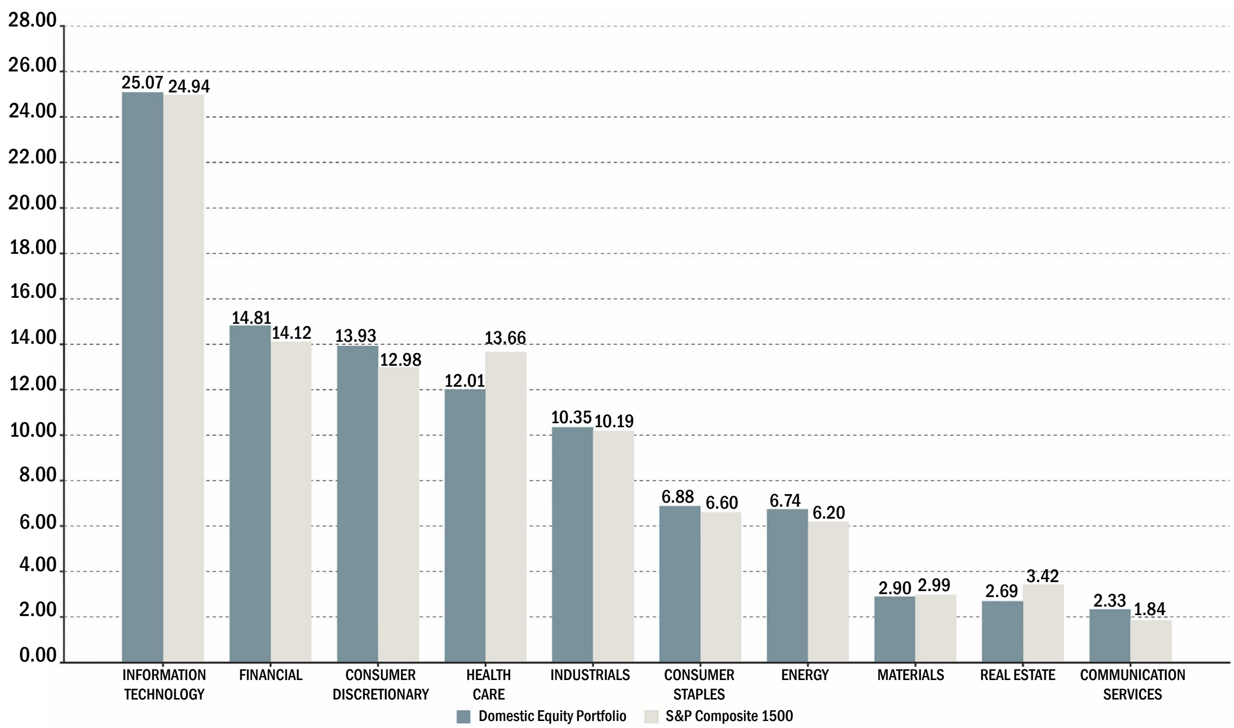
Pension Fund Composite Asset Allocation History



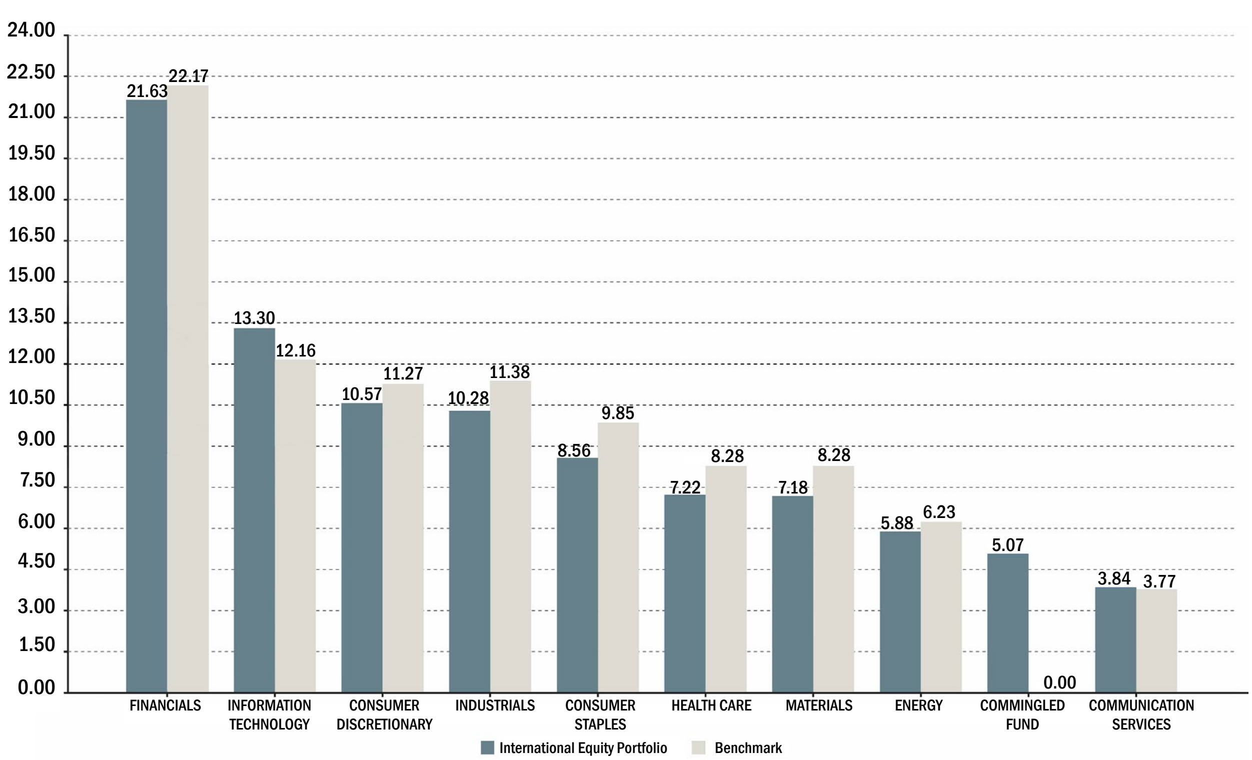
Pension Fund Asset Allocation History



U.S. Equities Market — Portfolio Sector Weightings June 30, 2018



International Equities Markets — Portfolio Sector Weightings June 30, 2018



List of Largest Assets Held by the Pension Fund

Largest Domestic Stock Holdings (by Fair Value)
June 30, 2018

Shares	Stock	Fair Value (USD)
530,000	AMAZON.COM	900,894,000
8,520,900	MICROSOFT CORP.	840,245,949
4,290,000	APPLE INC.	794,121,900
626,000	ALPHABET INC.	698,396,900
2,950,000	FACEBOOK INC.	573,244,000
4,263,000	JPMORGAN CHASE	444,204,600
4,445,500	EXXON MOBIL	367,776,215
12,634,000	BANK OF AMERICA	356,152,460
2,935,000	JOHNSON & JOHNSON	356,132,900
2,335,600	VISA INC	309,350,220

Largest Domestic Bond Holdings (by Fair Value)
June 30, 2018

Par	Bonds	Coupon	Due	Fair Value (USD)
145,925,000	US TREASURY NOTES	1.38%	09/30/2019	144,026,835
130,000,000	INTEL CORP	2.35%	05/11/2022	126,390,011
116,725,000	US TREASURY NOTES	1.88%	05/31/2022	113,195,892
100,000,000	GOLDMAN SACHS GROUP INC	4.22%	05/01/2029	98,491,014
100,000,000	INTER AMERICAN DEVEL BK	2.50%	01/18/2023	98,460,100
100,000,000	BANK OF AMERICA CORP	3.97%	03/05/2029	98,423,251
100,000,000	RFCSP STRIP PRINCIPAL	0.00%	10/15/2019	96,796,913
90,000,000	PECO ENERGY CO	3.90%	03/01/2048	87,182,113
84,527,000	US TREASURY NOTES	2.13%	08/15/2021	83,219,473
85,000,000	JPMORGAN CHASE	3.30%	04/01/2026	81,327,478

List of Largest Assets Held

Largest International Stock Holdings (by Fair Value)
June 30, 2018

Shares	Stock	Fair Value (USD)
7,341,346	ISHARES MSCI TAIWAN	290,140,000
4,858,784	TENCENT HOLDINGS LTD	214,282,967
6,223,756	ISHARES MSCI INDIA ETF	196,828,855
4,452,537	SAMSUNG ELECTRONICS CO LTD	181,846,404
896,409	ALIBABA GROUP HOLDING	174,159,112
4,005,966	TAIWAN SEMICONDUCTOR SP ADR	148,030,114
1,577,668	NESTLE SA	143,161,911
119,490,441	CHINA CONSTRUCTION BANK H	131,984,535
605,702	ALLERGAN PLC	126,385,901
424,700	ROCHE HOLDING AG	116,654,210

Largest International Bond Holdings (by Fair Value)
June 30, 2018

Par	Bonds	Coupon	Due	Fair Value (USD)
100,000,000	JPN BANK FOR INT'L COOP	1.75%	07/31/2018	99,953,000
69,000,000	HYDRO QUEBEC	8.50%	12/01/2029	99,728,601
100,000,000	SIEMENS FINANCIERINGSMAT	2.00%	09/15/2023	92,880,451
60,000,000	PROVINCE OF QUEBEC	7.50%	09/15/2029	82,284,837
85,000,000	SIEMENS FINANCIERINGSMAT	2.35%	10/15/2026	76,490,341
75,000,000	PROVINCE OF NEW BRUNSWICK	2.50%	12/12/2022	72,980,130
63,000,000	AID ISRAEL	5.50%	04/26/2024	71,582,988
60,000,000	AID ISRAEL	5.50%	09/18/2023	67,539,928
60,000,000	PROVINCE OF MANITOBA	9.63%	12/01/2018	61,620,504
50,000,000	AID ISRAEL	5.50%	12/04/2023	56,519,883

Fiscal Year 2018 Commissions on Global Securities[1]

Broker	Shares[2]	Total Commissions	Commissions per Share
Abel/Noser LLC.	1,500,000	$ 75,000	$ 0.050
B. Riley FBR, Inc.	2,978,397	104,244	0.035
Barclays Capital Inc.	26,726,460	758,796	0.028
BMO Capital Markets Corp.	18,825,140	187,976	0.010
BTIG LLC	2,275,800	76,519	0.034
Buckingham Research Group Inc. (The)	2,511,700	87,910	0.035
Canaccord Genuity Inc.	3,275,250	114,634	0.035
Capital Institutional Services, Inc.	29,230,875	1,461,544	0.050
Citigroup Global Markets, Inc.	16,639,472	582,382	0.035
Cowen and Company, LLC	10,260,426	359,115	0.035
Craig-Hallum Capital Group LLC	10,610,190	371,357	0.035
Credit Suisse Securities (USA) LLC	21,827,099	943,225	0.043
DBS Vickers Securities (USA) Inc.	4,170,966	17,045	0.004
Deutsche Bank Securities Inc.	7,285,427	254,990	0.035
Evercore Group L.L.C	5,095,675	178,349	0.035
FBN Securities, Inc.	26,319,910	158,138	0.006
Goldman, Sachs & Co. LLC	12,735,759	275,012	0.022
Gordon, Haskett Capital Corp.	10,843,406	542,170	0.050
Instinet, LLC	73,381,720	1,708,266	0.023
J.P. Morgan Securities LLC	33,043,697	1,136,329	0.034
Jane Street Execution Services LLC	6,557,607	65,576	0.010
Jefferies LLC	24,014,883	163,385	0.007
JMP Securities LLC	1,536,200	53,767	0.035
Kepler Capital Markets Inc.	21,942,396	56,183	0.003
Leerink Partners LLC	4,660,948	163,133	0.035
Loop Capital Markets LLC	5,775,372	57,754	0.010
Macquarie Capital (USA) Inc.	59,569,827	205,015	0.003
Meridian Equity Partners, Inc.	21,938,429	219,390	0.010
Merrill Lynch, Pierce, Fenner & Smith, Inc.	9,933,592	347,676	0.035
Morgan Stanley & Co. LLC	11,784,092	410,943	0.035
Raymond James & Associcates Inc.	2,476,450	86,676	0.035
RBC Capital Markets LLC	4,845,702	169,364	0.035
Sanford C. Bernstein & Co. LLC	20,474,623	302,796	0.015
Stifel, Nicolaus & Co., Inc.	5,295,930	185,358	0.035
SunTrust Robinson Humphrey Inc.	1,817,350	63,607	0.035
Themis Trading LLC	23,775,912	238,398	0.010
UBS Securities LLC	8,923,300	312,316	0.035
WallachBeth Capital, LLC	13,309,569	123,647	0.009
Wells Fargo Securities LLC	10,586,805	370,538	0.035
Williams Capital Group, L.P.	18,191,880	181,769	0.010
	596,948,236	$ 13,170,290	$ 0.022
Trades executed through advisers with various brokers	1,391,572,776	$ 4,124,731	$ 0.003

[1] Includes commissions for all funds under Division of Investment Management.
[2] Excludes $231,119 in commissions related to options on approximately 23.1 million shares

Schedule of Fees
Year ending June 30 2018

(000's)	Pension Fund Net Assets under Management	Fees (a)	Basis Points
Investment Advisers' fees:			
Fixed Income advisers	$ 798,594	$ 4,589	
International small cap advisers	749,413	5,167	
Emerging Market advisers	5,028,588	23,199	
	$ 6,576,594	32,955	50.110
Alternative Investment, opportunistic and global diversified credit funds	$ 24,372,636	363,146	148.997
Other investment service fees:			
Custodian		1,752	
Security Lending Fees		8,061	
Investment consultants		2,028	
		11,841	
Total	$ 78,186,356	$ 407,942	52.176

(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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BUCK
500 Plaza Drive
Secaucus, NJ 07096

February 1, 2019

The Board of Trustees
Public Employees' Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the Public Employees' Retirement System of New Jersey ("PERS") is performed annually to measure the ongoing costs of the System (with required contributions determined separately for the State and Local employers) and the progress towards the funding goals of the System over time. In general, the financial goals of the PERS are a pattern of contributions, which is sufficient to cover the normal cost of the System plus the contribution towards the unfunded accrued liability. The information contained in this certification letter is based on the July 1, 2017 valuation of PERS.

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

The final Appropriation Act of fiscal year 2017 reduced the recommended State Pension contribution of $1,263,740,460 to $506,499,652. This amount excludes the Workers Compensation Judges Part contribution of $633,589, which is payable by fund transfer from the Second Injury Fund and the Non-Contributory Group Insurance Premium of $32,405,149. Accordingly, a fiscal year 2017 employer contribution of $507,133,241 ($506,499,652 plus Workers Compensation Judges Part transfers of $633,589) was recognized for purposes of this valuation.

In addition, the valuation reflects the provisions of the Appropriations Act of 2018 for fiscal year 2018. The fiscal year 2018 actuarially determined State Pension contribution has been reduced from $1,324,313,829 to $662,156,915, discounted from the expected payable dates of September 30, 2017, December 31, 2017, March 31, 2018 and June 30, 2018 to the valuation date. This amount excludes the Worker Compensation Judges Part contribution of $628,229, which is payable by fund transfer from the Second Injury Fund, and the estimated Non-Contributory Group Insurance Premium of $34,413,000. Accordingly, a fiscal year 2018 employer contribution of $662,785,144 ($662,156,915 plus Workers Compensation Judges Part transfers of $628,229) was recognized as a receivable contribution for purposes of this valuation. This amount may be subject to change per the requirements of the State's fiscal year 2018 spending plan.

The State's actuarially determined contribution for the fiscal year beginning July 1, 2018 is $1,406,859,836. This amount is comprised of an unfunded accrued liability payment of $1,289,718,727 plus a normal contribution of $117,141,109. This amount excludes the Worker Compensation Judges Part contribution of $622,116, which is payable by fund transfer from the Second Injury Fund, and the estimated Non-Contributory Group Insurance Premium of $34,943,000. This amount may be subject to change per the requirements of the State's fiscal year 2019 spending plan.

The valuation reflects Chapter 98, P.L. 2017 – Lottery Enterprise Contribution Act. Under this Act, PERS receives 21.02% of the proceeds of the Lottery Enterprise for a term of 30 years. Revenues for the Lottery Enterprise are assumed to be contributed to the trust on a monthly basis. For the 2018 fiscal year the contribution from the Lottery Enterprise is estimated to be $210,405,339. Discounted to the valuation date, the receivable contribution from the Lottery Enterprise is $$202,932,929. For the 2018 fiscal year, the State's pension contribution is reduced by the expected Lottery Enterprise contribution so that the State's net pension contribution is $452,379,805 which includes the Workers Compensation Judges Part transfers of $628,229.

The valuation reflects Chapter 83, P.L. 2016 which requires the State to make pension contributions on a quarterly basis at least 25 percent by September 30th, at least 50% by December 31st, at least 75% by March 31st, and at least 100 percent by June 30th. Therefore, assuming the anticipated fiscal year 2018 State pension contribution of $452,379,805 is paid in equal quarterly amounts; a discounted receivable contribution of $432,475,634 is recognized for purposes of the July 1, 2017 valuation.

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

The valuation reflects Chapter 19, P.L. 2009, which allowed the State Treasurer to reduce Local employers' normal and accrued liability contributions to 50% of the amount certified for the State fiscal year 2009. In addition, certain Local employers who were eligible under Chapter 19, P.L. 2009 to defer 50% of their fiscal year 2009 pension contribution but did not were permitted to defer 50% of their fiscal year 2010 pension contribution. This unfunded liability will be paid by the Local employers in level annual payments over a period of 15 years with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets. The legislation also provides that a Local employer may pay 100% of the actuarially determined contributions for State fiscal years 2009 and 2010. Such an employer will be credited with the full payments and any such amounts will not be included in their unfunded liability.

The underlying demographic data is maintained and provided by the New Jersey Division of Pensions and Benefits. You should ask Buck Global, LLC (Buck), formerly Conduent HR Consulting, LLC (Conduent), to review any statement you wish to make on the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck. The data is analyzed by Buck for internal completeness and consistency and compared with the prior valuation data to again ensure consistency.

As required under Chapter 84, P.L. 1954, an actuarial investigation of the demographic experience of the members and beneficiaries of PERS is made once in every three-year period. The contributions for the fiscal year beginning July 1, 2016 were based on the actuarial assumptions that were determined from the July 1, 2011 to June 30, 2014 Experience Study and approved by the Board of Trustees at the October 14, 2015 Board meeting.

The Treasurer has recommended a change in the economic assumptions used for the valuation. The rate of investment return has been revised from 7.65% per annum to 7.50% per annum. As a result of the revised economic assumptions, the accrued liability increased $328,696,298 for the State and $439,168,994 for the Local Employers while the gross normal cost was increased by $8,423,165 for the State and by $13,750,490 for the Local Employers. The net employer contribution increased by $18,148,143 for the State and by $38,249,821 for the Local Employers. These assumptions will remain in effect for valuation purposes until such time the Board or Treasurer recommends revised assumptions.

The valuation cost method used is the projected unit credit method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. The asset valuation method used was a five-year average of market values with write-up. This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis.

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

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

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

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience
- Reconciliation of Employer Contribution Rates
- Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck prepared the "Schedule of Assets and Liabilities" and the "Schedule of Employer Pension Contributions" in the Financial Section which can be found in the July 1, 2017 valuation report for PERS. The Schedule of Assets and Liabilities and the Schedule of Employer Pension Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 were effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

To the best of our knowledge, this information is complete and accurate. The valuation was performed by, and under the supervision of, independent qualified actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems.

The valuation was prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board and generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Retirement System, and on actuarial assumptions that are individually and in the aggregate internally consistent and reasonable based on the actual experience of the Retirement System.

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA
Principal, Consulting Actuary
Buck Global, LLC

Summary of Actuarial Assumptions and Methods

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

The demographic assumptions used for the July 1, 2017 actuarial valuation of the PERS were based on the results of the experience study, which covered the period from July 1, 2011 to June 30, 2014, which were approved by the Board of Trustees, and the revised economic assumptions, which were established for the July 1, 2017 valuation.

An outline of the actuarial assumptions and methods used for the July 1, 2017 valuation is as follows:

Valuation Interest Rate: 7.50% per annum, compounded annually.

Employee Contribution Interest Rate: 7.50% per annum.

COLA: No future COLA is assumed.

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

Separations from Service and Salary Increases: Representative values of the assumed annual rates of separation and annual rates of salary increases are as follows:

	Annual Rate of									
	Select Withdrawal						Ultimate Withdrawal[1]			
	1st Year		2nd Year		3rd Year		Prior to Eligibility For Benefit		After Eligibility For Benefit	
Age	State	Local	State	Local	State	Local	State	Local	State	Local
20	28.90%	40.19%	13.53%	15.12%	9.52%	12.19%	4.48%	6.31%	–	–
25	36.12	40.19	13.53	15.12	9.52	12.19	4.69	6.31	–	–
30	36.12	38.84	13.53	14.67	9.52	13.32	3.82	6.11	–	0.03%
35	26.14	33.51	10.83	11.74	7.99	10.77	2.86	3.99	0.05%	0.03
40	21.66	32.05	8.86	10.52	6.37	10.66	1.80	2.91	0.05	0.05
45	20.41	31.01	8.26	10.08	5.79	10.36	1.22	2.46	0.24	0.16
50	20.41	28.39	7.65	9.58	5.21	9.57	0.90	1.94	1.10	0.64
55	20.41	27.96	7.65	9.40	5.21	9.08	0.88	1.60	1.43	0.77
60	20.41	22.37	7.65	9.40	5.21	6.84	0.88	1.52	0.90	0.77

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

Summary of Actuarial Assumptions and Methods, *continued*

Age	Annual Rate of									
	Ordinary Death[2]				Accidental Death		Ordinary Death		Accidental Disability	
	State		Local							
	Male	Female	Male	Female	State	Local	State	Local	State	Local
20	0.03%	0.02%	0.03%	0.02%	0.001%	0.001%	0.005%	–	0.001%	0.001%
25	0.04	0.02	0.04	0.02	0.001	0.001	0.006	–	0.001	0.002
30	0.04	0.02	0.04	0.02	0.001	0.001	0.097	0.060%	0.004	0.004
35	0.05	0.03	0.06	0.02	0.001	0.001	0.216	0.189	0.011	0.005
40	0.08	0.05	0.10	0.04	0.001	0.001	0.304	0.269	0.020	0.012
45	0.11	0.08	0.13	0.06	0.001	0.001	0.410	0.363	0.023	0.017
50	0.16	0.12	0.19	0.09	0.001	0.001	0.462	0.434	0.035	0.021
55	0.23	0.18	0.26	0.14	0.001	0.001	0.559	0.587	0.047	0.026
60	0.33	0.28	0.40	0.21	0.001	0.001	0.987	0.759	0.041	0.030
65	0.54	0.43	0.65	0.33	0.001	0.001	1.190	0.932	0.061	0.027
69	0.76	0.58	0.86	0.47	0.001	0.001	1.417	1.110	0.062	0.027

[2]RP-2000 Employee Pre-retirement Mortality Table for male and female active participants. For State, mortality tables are set back 4 years for males and 4 years for females. For Employees of Local employers, mortality tables are set back 2 years for males and 7 years for females. In addition, the tables provide for future improvements in mortality from the base year of 2013 using a generational approach based on Buck Modified MP-2014. Rates shown above are unadjusted for Buck Modified MP-2014.

Age	Annual Rate of			
	Service Retirement		Salary Increases Effective as of July 1, 2016	
	State	Local	FY2016 to FY 2026	FY2026 and thereafter
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	17.50%	11.70%	2.40	3.40
60	9.00	7.80	2.15	3.15
65	16.20	16.54	1.65	2.65
69	15.00	11.55	1.65	2.65

Summary of Actuarial Assumptions and Methods, *continued*

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

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

Age	Annual Rates of Retirement					
	Less than 20 Years		20 Years	21 to 24 Years	25 or More Years	
	State	Local			State	Local
40	0.00%	0.00%	2.50%	0.00%	23.10%	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	28.48
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
69	2.63	3.06	37.50	0.00	100.00	100.00

Deaths after Retirement

The RP-2000 Combined Healthy Male and Female Mortality Tables (set back 1 year for males and females) for service retirement and beneficiaries of former members and a one year static projection based on mortality improvement scale AA. The RP-2000 Disabled Mortality Tables (set back 3 years for males and set forward 1 year for females) are used to value disabled retirees. In addition, the tables for service retirement and beneficiaries of former members provide for future improvements in mortality from the base year of 2013 using a generational approach based on the Buck Modified 2014 projection scale. Illustrative rates of mortality unadjusted for the Buck Modified 2014 projection scale are shown below:

Age	Service Retirements		Age	Disability Retirements	
	Men	Women		Men	Women
55	0.31%	0.24%	35	2.26%	0.75%
60	0.59	0.44	40	2.26	0.75
65	1.11	0.86	45	2.26	0.82
70	1.95	1.48	50	2.51	1.25
75	3.34	2.53	55	3.16	1.76
80	5.73	4.12	60	3.80	2.29
85	9.91	6.90	65	4.50	2.96

Summary of Actuarial Assumptions and Methods, *continued*

Marriage

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

Valuation Method

Projected Unit Credit Method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains or losses are recognized in future accrued liability contributions. In accordance with Chapter 78, P.L. 2011, beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation, the amortization period shall decrease by one year). Beginning with the July 1, 2029 actuarial valuation when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

Receivable Contributions

Prior to July 1, 2017, it is assumed the State will make pension contributions the June 30th following the valuation date. Effective with the July 1, 2017 valuation, Chapter 83, P.L. 2016 requires the State to make pension contributions on a quarterly basis: at least 25% by September 30th, at least 50% by December 31st, at least 75% by March 31st, and at least 100% by June 30th. In addition, revenues from Chapter 98, P.L. 2017 – Lottery Enterprise Contribution Act are assumed to be contributed to the trust on a monthly basis. Contributions are discounted from the assumed payable date to the valuation date by the valuation interest rate of 7.50%

Local contributions expected to be paid the April 1st, following the valuation are discounted by the valuation interest rate of 7.50% to the valuation date.

Asset Valuation Method

A five year average of market values with write-up was used. This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis.

Summary of Changes from the July 1, 2016 Valuation

The rate of investment return has been revised from 7.65% per annum to 7.50% per annum. The impact of the assumption change is shown on the second page of the cover letter.

Schedule of Retirement Members and Beneficiaries Added to and Removed from Rolls

State

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/17	3,267	$104,489,121	1,479	$29,655,761	57,174	$1,550,464,743	5.12%	$27,118
7/1/16	3,515	109,122,538	2,203	40,303,068	55,386	1,474,917,885	4.93	26,630
7/1/15	4,114	124,446,887	1,754	32,905,541	54,074	1,405,596,194	6.99	25,994
7/1/14	3,183	93,940,693	1,696	30,809,304	51,714	1,313,713,988	5.09	25,403
7/1/13	2,864	82,357,835	1,685	29,723,562	50,227	1,250,142,686	4.41	24,890
7/1/12	3,192	92,356,665	1,734	29,433,960	49,048	1,197,305,307	5.66	24,411

Local Employers

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allow-ance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/17	7,444	$155,525,527	3,725	$50,460,932	118,457	$2,081,607,680	5.35%	$17,573
7/1/16	7,856	159,065,854	5,681	72,658,490	114,738	1,975,865,848	4.63	17,221
7/1/15	7,870	149,903,333	4,309	54,707,095	112,563	1,888,507,678	5.35	16,777
7/1/14	7,003	137,416,194	4,288	52,540,322	109,002	1,792,563,653	5.02	16,445
7/1/13	6,911	123,953,479	4,169	49,483,971	106,287	1,706,902,310	4.60	16,059
7/1/12	7,334	137,596,316	4,284	49,626,477	103,545	1,631,782,901	5.83	15,759

Total System

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/17	10,711	$260,014,648	5,204	$80,116,693	175,631	$3,632,072,423	5.25%	$20,680
7/1/16	11,371	268,188,392	7,884	112,961,558	170,124	3,450,783,733	4.76	20,284
7/1/15	11,984	274,350,220	6,063	87,612,636	166,637	3,294,103,872	6.05	19,768
7/1/14	10,186	231,356,887	5,984	83,349,626	160,716	3,106,277,641	5.05	19,328
7/1/13	9,775	206,311,314	5,854	79,207,533	156,514	2,957,044,996	4.52	18,893
7/1/12	10,526	229,952,981	6,018	79,060,437	152,593	2,829,088,208	5.75	18,540

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

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

Schedule of Active Members Valuation Data

State

Valuation Date	Number of Active Contributing Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/17	68,156	$4,325,784,579	$63,469	(0.49%)
7/1/16	68,502	4,369,066,658	63,780	0.02
7/1/15	69,687	4,443,605,376	63,765	2.39
7/1/14	72,952	4,543,384,095	62,279	1.64
7/1/13	74,365	4,556,719,103	61,275	1.02
7/1/12	75,355	4,570,958,470	60,659	1.48

Local Employers

Valuation Date	Number of Active Contributing Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/17	147,283	$7,022,322,604	$47,679	2.61%
7/1/16	149,077	6,927,278,654	46,468	2.76
7/1/15	152,070	6,876,593,371	45,220	2.33
7/1/14	156,101	6,898,049,131	44,190	2.75
7/1/13	160,253	6,891,812,162	43,006	2.78
7/1/12	164,005	6,862,133,165	41,841	2.74

Total System

Valuation Date	Number of Active Contributing Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/17	215,439	$11,348,107,183	$52,674	1.46%
7/1/16	217,579	11,296,345,312	51,918	1.70
7/1/15	221,757	11,320,198,747	51,048	2.20
7/1/14	229,053	11,441,433,226	49,951	2.37
7/1/13	234,618	11,448,531,265	48,796	2.16
7/1/12	239,360	11,433,091,635	47,765	2.45

Solvency Test

State

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members		(1)	(2)	(3)
7/1/17	$5,727,517,176	$14,487,785,677	$3,109,558,532	$8,208,333,488	100.00%	17.12%	0.00%
7/1/16	5,504,706,131	13,686,116,692	3,220,928,301	8,466,901,791	100.00	21.64	0.00
7/1/15	5,302,732,138	12,797,013,628	3,535,761,532	8,868,254,006	100.00	27.86	0.00
7/1/14	5,169,631,309	11,857,858,226	3,815,201,383	9,128,235,998	100.00	33.38	0.00
7/1/13	4,885,643,785	11,293,634,256	3,814,679,391	9,614,698,050	100.00	41.87	0.00
7/1/12	4,562,712,648	10,849,987,028	3,970,884,963	9,774,698,097	100.00	48.04	0.00

Local Employers

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members		(1)	(2)	(3)
7/1/17	$8,542,088,646	$18,737,855,865	$4,958,471,769	$22,522,697,150	100.00%	74.61%	0.00%
7/1/16	8,168,141,804	17,622,616,344	4,883,177,456	21,900,421,798	100.00	77.92	0.00
7/1/15	7,829,248,004	16,502,540,582	5,100,106,614	21,495,828,937	100.00	82.82	0.00
7/1/14	7,477,372,802	15,523,266,419	5,254,437,999	20,766,663,796	100.00	85.61	0.00
7/1/13	7,060,416,742	14,775,793,049	5,169,572,726	19,978,598,632	100.00	87.43	0.00
7/1/12	6,614,992,298	14,150,003,241	5,244,042,802	19,376,646,934	100.00	90.19	0.00

Total System

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members		(1)	(2)	(3)
7/1/17	$14,269,605,822	$33,225,641,542	$8,068,030,301	$30,731,030,638	100.00%	49.54%	0.00%
7/1/16	13,672,847,935	31,308,733,036	8,104,105,757	30,367,323,589	100.00	53.32	0.00
7/1/15	13,131,980,142	29,299,554,210	8,635,868,146	30,364,082,943	100.00	58.81	0.00
7/1/14	12,647,004,111	27,381,124,645	9,069,639,382	29,894,899,794	100.00	62.99	0.00
7/1/13	11,946,060,527	26,069,427,305	8,984,252,117	29,593,296,682	100.00	67.69	0.00
7/1/12	11,177,704,946	24,999,990,269	9,214,927,765	29,151,345,031	100.00	71.89	0.00

[1] *Actuarial Value including receivable amounts.*

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

State

Valuation Year	July 1, 2017	July 1, 2016	July 1, 2015	July 1, 2014	July 1, 2013	July 1, 2012
Prior Year Contribution Rate	30.02%[3]	28.16%[3]	25.77%[3]	22.99%[3]	22.97%[3]	20.06%[3]
Adjustment for Full Member Contributions to Offset Normal Cost	N/A	N/A	N/A	N/A	(1.45)	N/A
Revised Prior Year Contribution Rate	N/A	N/A	N/A	N/A	21.52%	N/A
Net Change Due to:						
Current New Entrants	(0.06)	(0.05)	(0.04)	(0.04)	(0.03)	0.02
Excess Salary Increases	(0.24)	(0.29)	0.06	(0.10)	(0.23)	(0.14)
Assumption/Method Changes	0.42	0.29	0.05	0.04	0.00	0.80
COLA Increases and Phase-In	0.00	0.00	0.00	0.00	0.00	0.02
Active Experience	0.34	0.24	0.15	(0.01)	(0.19)	0.07
Other Experience	0.05	(0.37)	0.18	0.32	0.35	0.19
Investment Loss/(Gain)	0.34	0.54	0.32	0.17	0.47	0.67
Chapter 133 Benefit Improvements[2]	0.00	0.00	0.00	0.00	0.00	0.00
Net Effect of Chapter 133[1]	0.00	0.00	0.00	0.00	0.00	0.00
Chapter 366 Benefit Improvement	0.01	0.00	0.00	0.01	0.00	(0.01)
Net Effect of Chapter 366	0.02	0.01	0.03	0.02	0.00	0.01
Appropriation Act[4]	1.30	1.49	1.64	2.37	1.10	1.28
Chapter 21, P.L. 2008	N/A	N/A	N/A	N/A	N/A	N/A
Chapter 103, P.L. 2007	N/A	N/A	N/A	N/A	N/A	N/A
Chapter 78, P.L. 2011	N/A	N/A	N/A	N/A	N/A	N/A
Recommended Contribution Rate:						
• Prior to reflecting Chapter 1, P.L. 2010	32.20%[3]	30.02%[3]	28.16%[3]	25.77%[3]	22.99%[3]	22.97%[3]
• After reflecting Chapter 1, P.L. 2010	N/A	N/A	N/A	N/A	13.14%[3]	9.85%[3]

1. *The additional annual employer normal contribution for the increase in benefits is funded by assets accumulated in the Benefit Enhancement Fund.*
2. *Includes the effect of additional cost due to Chapter 353, P.L. 2000.*
3. *Excludes contribution rates payable to the Non-Contributing Group Insurance Premium Fund. The contribution rates are .81% for 2017, 0.79% for 2016, 0.78% for 2015, 0.76% for 2014, 0.75% for 2013 and 0.73% for 2012.*
4. *Net change for July 1, 2012, and July 1, 2013 are due to the provisions of Chapter 1, P.L. 2010.*

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates, *continued*

Local

Valuation Year	July 1, 2017	July 1, 2016	July 1, 2015	July 1, 2014	July 1, 2013	July 1, 2012
Prior Year Contribution Rate[4]	13.32%[3]	12.94%[3]	12.49%[3]	11.85%[3]	12.68%[3]	11.29%[3]
Adjustment for full member contributions to offset normal cost	N/A	N/A	N/A	N/A	(1.24)	N/A
Revised Prior Year Contribution Rate	N/A	N/A	N/A	N/A	11.44%	N/A
Net Change Due to:						
Current New Entrants	(0.06)	(0.05)	(0.04)	(0.03)	(0.02)	0.02
Excess Salary Increases	0.16	0.06	0.01	0.05	0.02	(0.02)
Assumption/Method Changes	0.54	0.18	0.18	0.06	0.00	0.38
COLA Increases and Phase-In	0.00	0.00	0.00	0.00	0.00	0.02
Active Experience	0.01	(0.05)	(0.05)	(0.02)	(0.36)	0.04
Other Experience	(0.19)	(0.41)	0.04	0.43	0.19	0.13
Investment Loss/(Gain)	0.32	0.66	0.30	0.16	0.59	0.83
Chapter 133 Benefit Improvements[2]	0.00	0.00	0.00	0.00	0.00	0.00
Net Effect of Chapter 133[1]	(0.57)	(0.58)	(0.62)	(0.64)	(0.67)	(0.68)
Chapter 366 Benefit Improvement	0.01	(0.01)	0.01	(0.01)	(0.01)	(0.01)
Net Effect of Chapter 366	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Chapter 108, P.L. 2003	0.00	0.00	0.00	0.00	0.00	0.00
Chapter 103, P.L. 2007	0.00	0.00	0.00	0.00	0.00	0.00
Chapter 78, P.L. 2011	N/A	N/A	N/A	N/A	N/A	N/A
Recommended Contribution Rate[5]	13.52%[3]	12.72%[3]	12.30%[3]	11.83%[3]	11.16%[3]	11.98%[3]

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

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

[3] *Excludes contribution rates payable to the Non-Contributing Group Insurance Premium Fund. The contribution rates are .64% for 2017, 0.65% for 2016, 0.61% for 2015, 0.63% for 2014, 0.76% for 2013 and 0.18% for 2012.*

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

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

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

1. Definitions

Final Compensation (FC)

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

Accumulated Deductions

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

Class B Member

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

Class D Member

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

Class E Member

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

Class F Member

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

Class G Member

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

2. Benefits[1]

Service Retirement

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

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

Ordinary Disability Retirement

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

Accidental Disability

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

Lump Sum Withdrawal

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

Vested Retirement

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

Early Retirement

Eligible after 25 years of service (30 years of service for Class G members). Benefit equals the lump sum benefit described above or the vested benefit reduced by 1/4 percent for each month the retirement date precedes age 55. Chapter 103, P.L. 2007 provides that for Class D members, the reduction shall be 1/12 percent for

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

each month (up to 60 months) the retirement date precedes age 60 plus 1/4 percent for each month the retirement date precedes age 55. Chapter 89, P.L. 2008 and Chapter 1, P.L. 2010 provides that for Class E and Class F members, the reduction shall be 1/12 percent for each month (up to 84 months) the retirement date precedes age 62 plus 1/4 percent for each month the retirement date precedes age 55. Chapter 78, P.L. 2011 provides that for Class G members, the reduction shall be 1/4 percent for each month the retirement date precedes age 65.

Ordinary Death (Insured)

Before Retirement

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

After Retirement - Before Age 60

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

After Retirement - After Age 60 or Early Retirement

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

Voluntary Death Benefit

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

Accidental Death

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

Widow(er)

50% of contributory compensation paid as pension.

Child(ren)

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

Surviving dependent parent

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

No relation above

Accumulated deductions paid to other beneficiary or estate.

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

Optional Benefits

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

Special Benefits

Veterans

Service Retirement

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

Chapter 220 Benefit

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

Law Enforcement

Service Retirement

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

Chapter 4, P.L. 2001 Special Retirement

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

Ordinary Disability

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

Death After Retirement

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

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

Legislators

Service Retirement

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

Vested Retirement

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

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

Eligibility means age 55 or 20 years of credited service. Mandatory retirement at age 70. Benefit is an annual retirement allowance equal to a member annuity plus an employer pension, which together equals the greater of:

i. 1/60th of FC for each year service; or

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

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

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

Special Retirement

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

Vested Termination

Eligible upon termination of service prior to age 55 and after 10 years of Service (but less than 20 years). The benefit is a deferred retirement benefit, commencing at age 55, equal to a member annuity plus an employer pension which together provide a retirement allowance equal to 2% of final contributory compensation multiplied by service up to 30 plus 1% of final contributory compensation multiplied by years of service in excess of 30.

Death Benefits

Ordinary Death Benefit – Lump Sum

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

i. For death while a Disabled Retiree the benefit is equal to 1 ½ times Compensation.

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

iii. For death while a Retiree who has completed 20 years of Service, the benefit is equal to ½ times final contributory compensation.

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

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

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

Service Retirement

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

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

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

iii. Age 60 and 20 years of as of judge of compensation ser vice. Benefit is an annual retirement allowance equal to the greater of 75% of final salary or the regular service retire ment benefit above.

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

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

Benefit is an annual retirement allowance equal to the great er of 50% of final salary or the regular service retirement ben efit above.

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

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

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

Early Retirement

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

Vested Termination

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

Death Benefits (Insured)

Before Retirement

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

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

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

After Retirement

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

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

3. Contributions

By Members

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

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

By Employers

Normal Contribution

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

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

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

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

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

Chapter 19, P.L. 2009 provides that the State Treasurer will reduce for Local employers the normal contribution to 50% of the amount certified for fiscal year 2009. This unfunded liability will be paid by the Local employers in level annual payments over a period of 15 years with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets. The legislation also provides that a Local employer may pay 100% of the actuarially determined contribution for fiscal year 2009. Local employers who were eligible but did not elect to take advantage of Chapter 19, P.L. 2009 were permitted to elect to defer 50% of the 2010 fiscal year required contribution with the first payment due in the fiscal year ending June 30, 2012.

Accrued Liability Contributions

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

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

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

Chapter 19, P.L. 2009 provides that the State Treasurer will reduce for Local employers the accrued liability contribution to 50% of the amount certified for fiscal year 2009. This unfunded liability will be paid by the Local employers in level annual payments over a period of 15 years with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets. The legislation also provides that a Local employer may pay 100% of the actuarially determined contribution for fiscal year 2009. Local employers who were eligible but did not elect to defer 50% of the 2009 fiscal year contribution were permitted to elect to defer 50% of the 2010 fiscal year contribution with the first payment due in the fiscal year ending June 30, 2012.

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April 6, 2018

The Board of Trustees

Teachers' Pension and Annuity Fund
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

This revised report presents the results of the actuarial valuation of Teachers' Pension and Annuity Fund of New Jersey as of June 30, 2017. The report has been revised to reflect a change in the investment return assumption, which is set by the State Treasurer, from 7% to 7.5% for this valuation. The State Treasurer has indicated that the assumption will be subsequently reduced to 7.3% in the June 30, 2019 actuarial valuation and further reduced to 7% in the June 30, 2021 actuarial valuation. The assumption used in the prior year was 7.65%. Section I contains highlights of the valuation including a general discussion and comments on the various schedules included in the report. The subsequent Sections contain schedules summarizing the underlying calculations, asset information, participant data, plan benefits and actuarial assumptions.

Purpose

The main purposes of this report are:

- to provide the annual state contribution in accordance with N.J. Statutes to be made in the Fiscal Year ending June 30, 2019 which represents the contribution for the valuation year beginning July 1, 2017;
- to determine the Target Funded Ratio as of July 1, 2017 in accordance with N.J. Statutes to potentially provide for the formation of a special pension committee;
- to review the experience under the plan for the valuation year ending June 30, 2017.

Actuarial computations presented in this report are for purposes of determining the statutory contribution amounts and Target Funded Ratio for TPAF. Actuarial computations under GASB Statements No. 67 and No. 68 are provided in a separate report and are for purposes of assisting TPAF and participating employers in fulfilling their financial accounting requirements. The computations prepared for these two purposes may differ. The calculations in the enclosed report have been made on a basis consistent with our understanding of the N.J. statutes. Determinations for purposes other than these requirements may be significantly different from the results contained in this report. Accordingly, additional determinations may be needed for other purposes.

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

- The System may provide a copy of Milliman's work, in its entirety, to the System's professional service advisors who are subject to a duty of confidentiality and who agree to not use Milliman's work for any purpose other than to benefit the System.

No third party recipient of Milliman's work product should rely upon Milliman's work product. Such recipients should engage qualified professionals for advice appropriate to their own specific needs.

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

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

Data Reliance

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

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

Future Measurements

This valuation report is only an estimate of TPAF's financial condition as of a single date. It can neither predict the System's future condition nor guarantee future financial soundness. Actuarial valuations do not affect the ultimate cost of TPAF benefits, only the timing of TPAF contributions. While the valuation is based on an array of individually reasonable assumptions, other assumption sets may also be reasonable and valuation results based on those assumptions would be different. No one set of assumptions is uniquely correct. Determining results using alternative assumptions is outside the scope of our engagement.

Future actuarial measurements may differ significantly from the current measurements presented in this report 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; changes in actuarial methods; and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The Board and State Treasurer have the final decision regarding the appropriateness of the assumptions and actuarial cost methods.

Certification

We hereby certify that, to the best of our knowledge, this report, including all costs and liabilities based on actuarial assumptions and methods adopted by the Board or mandated by statute, is complete and accurate and determined in conformance with generally recognized and accepted actuarial principles and practices, which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions and supporting Recommendations of the American Academy of Actuaries.

In compliance with New Jersey statute, this actuarial valuation is based on an investment return assumption of 7.5%. This rate is 15 basis points lower than the assumption of 7.65% used in the July 1, 2016 valuation and 40 basis points lower than the assumption used in the July 1, 2015 valuation. The investment return assumption is specified by the State Treasurer and is considered a *prescribed assumption* as defined by Actuarial Standard of Practice No. 27 (ASOP 27). The State Treasurer has further indicated that the assumption will be reduced to 7.3% in the July 1, 2019 actuarial valuation and reduced to 7% in the July 1, 2021 actuarial valuation. Based on information provided by the Division of Investment and its team of outside consultants, the development of the ultimate 7% assumption appears to be in accordance with ASOP 27. The 5-year select period for the reduction to the ultimate assumption is to allow contributing employers to all the State retirement systems the ability to budget for the anticipated increase in contribution requirements due to the decrease in the interest rate assumption.

Using Milliman's capital market outlook model as of June 30, 2017 and the State's asset allocation for fiscal year 2018, the ultimate assumption of 7% is anticipated to be achieved approximately 45% of the time based on projected 30-year annualized returns. The reduction in the investment return assumption over the prior two actuarial valuations and reductions indicated by the State Treasurer in future valuations significantly increases the expectation that the assumed rate of return will be earned over time. For comparison purposes, the Milliman capital market outlook model would anticipate a 7.5% assumption investment return assumption be achieved approximately 1/3rd of the time, a 7.65% investment return assumption be achieved slightly less than 1/3rd of the time and a 7.90% investment return assumption be achieved approximately 1/4th of the time. It is important to keep in mind that capital market models are updated no less than annually as financial markets evolve and/or the asset allocation is modified. There is no guarantee that a 7% assumption to be used in the July 1, 2021 actuarial valuation would reflect a reasonable assumption in accordance with actuarial standards of practice at that time. This assumption should continue to be monitored and modified at future valuation dates as warranted.

This actuarial valuation is based on the asset valuation method in compliance with New Jersey Statute. This method recognizes 20% of the difference between the market value of assets and the actuarial value of assets. Per Actuarial Standards of Practice (ASOP) No. 44, a reasonable asset valuation method produces values within a sufficiently narrow range around market value or recognizes differences from market value in a sufficiently short period. As of June 30, 2017, the Actuarial Value of Assets is 108.4% of market value. Investment losses have occurred each year since the July 1, 2000 actuarial valuation on an actuarial value of asset basis. Since the actuarial value of assets exceeds the market value of assets and the asset smoothing method recognizes investment losses slowly over time, this will continue to result in upward pressure on the statutory contribution requirements in future years.

We are members of the American Academy of Actuaries and meet its Qualification Standard to render this actuarial opinion.

Respectfully submitted,

Richard L. Gordon, F.S.A.
Member American Academy of Actuaries

Scott F. Porter, F.S.A.
Member American Academy of Actuaries

Summary of Actuarial Assumptions and Methods

This summary of actuarial assumptions is based on the Experience Study covering the period July 1, 2012 through June 30, 2015, unless noted otherwise.

A. Actuarial Assumptions

Interest: 7.5% per annum, compounded annually (as prescribed by the State Treasurer).

Salary Scale: Salary increases vary by years of employment and time period averaging 3.40% for periods prior to June 30, 2026, and averaging 4.21% thereafter. Average percentages based on 2015 Experience Study.

Schedule of Annual Rates are shown below.

Years of Employment	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

Increases in Compensation Limits: The IRC Section 401(a)(17) limit is assumed to increase 2.3% per annum through June 30, 2026, and 2.6% thereafter, compounded annually. The Social Security Taxable Wage Base is assumed to increase 3.3% per annum through June 30, 2026, and 3.6% thereafter. The actual amount of $128,400 is used for the 2018 plan year.

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

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

Years of Employment	Less Than 10 Years of Employment		
	Male	Female <40	Female 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

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

Age	Annual Rates for Those With Deferred Annuity Benefits*					
	10-14 Years of Employment		15-19 Years of Employment		20-24 Years of Employment	
	Male	Female	Male	Female	Male	Female
30	0.67%	2.30%	0.47%	2.08%	0.27%	0.55%
35	0.63	1.88	0.42	1.40	0.27	0.55
40	0.60	1.17	0.38	0.70	0.26	0.43
45	0.63	0.74	0.36	0.46	0.25	0.27
50	0.77	0.22	0.50	0.48	0.31	0.28
55	1.10	1.20	0.83	0.80	0.54	0.53

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

Age	Annual Rates for Those Receiving Return of Contributions					
	10-14 Years of Employment		15-19 Years of Employment		20-24 Years of Employment	
	Male	Female	Male	Female	Male	Female
30	0.45%	0.77%	0.31%	0.69%	0.18%	0.19%
35	0.42	0.62	0.28	0.47	0.18	0.19
40	0.39	0.39	0.25	0.24	0.18	0.14
45	0.42	0.25	0.25	0.15	0.16	0.09
50	0.33	0.24	0.22	0.16	0.13	0.09
55	0.28	0.21	0.21	0.14	0.13	0.09

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

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

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

	Less Than Age 55 or Less Than 25 Years of Service		Attainment of Age 55 and 25 Years of Service			
			First Eligibility		After First Eligibility	
Age	Male	Female	Male	Female	Male	Female
<47	1.2%	1.2%	N/A	N/A	N/A	N/A
48	1.5	1.5	N/A	N/A	N/A	N/A
49	1.7	1.7	N/A	N/A	N/A	N/A
50	2.0	2.0	N/A	N/A	N/A	N/A
51	2.4	2.4	N/A	N/A	N/A	N/A
52	2.8	2.8	N/A	N/A	N/A	N/A
53	3.8	3.8	N/A	N/A	N/A	N/A
54	4.8	4.8	N/A	N/A	N/A	N/A
55	N/A	N/A	15.0%	17.0%	N/A	N/A
56	N/A	N/A	22.0	19.0	12.0%	13.0%
57	N/A	N/A	22.0	19.0	13.0	14.0
58	N/A	N/A	28.0	27.0	14.0	15.0
59	N/A	N/A	28.0	27.0	16.0	17.0
60	7.0	5.0	35.0	33.0	20.0	21.0
61	6.5	5.0	32.0	38.0	22.5	23.0
62	8.0	7.5	45.0	50.0	35.0	32.0
63	9.0	7.5	45.0	50.0	30.0	29.0
64	9.0	7.5	45.0	50.0	30.0	29.0
65	14.0	12.0	50.0	55.0	33.0	33.0
66-70	18.0	15.0	55.0	55.0	30.0	30.0
71+	19.0	16.0	55.0	55.0	27.0	30.0

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

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

	Less Than Age 60 or Less Than 25 Years of Service		Attainment of Age 60 and 25 Years of Service			
			First Eligibility		After First Eligibility	
Age	Male	Female	Male	Female	Male	Female
<47	0.6%	0.6%	N/A	N/A	N/A	N/A
48	0.8	0.8	N/A	N/A	N/A	N/A
49	0.9	0.9	N/A	N/A	N/A	N/A
50	1.0	1.0	N/A	N/A	N/A	N/A
51	1.2	1.2	N/A	N/A	N/A	N/A
52	1.4	1.4	N/A	N/A	N/A	N/A
53	1.9	1.9	N/A	N/A	N/A	N/A
54	2.4	2.4	N/A	N/A	N/A	N/A
55	11.5	11.5	N/A	N/A	N/A	N/A
56	12.0	12.0	N/A	N/A	N/A	N/A
57	12.5	12.5	N/A	N/A	N/A	N/A
58	13.5	13.5	N/A	N/A	N/A	N/A
59	14.0	14.0	N/A	N/A	N/A	N/A
60	7.0	5.0	32.0%	31.0%	N/A	N/A
61	6.5	5.0	32.0	38.0	22.5%	23.0%
62	8.0	7.5	45.0	50.0	35.0	32.0
63	9.0	7.5	45.0	50.0	30.0	29.0
64	9.0	7.5	45.0	50.0	30.0	29.0
65	14.0	12.0	50.0	55.0	33.0	33.0
66-70	18.0	15.0	55.0	55.0	30.0	30.0
71+	19.0	16.0	55.0	55.0	27.0	30.0

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

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

	Less Than Age 62 or Less Than 25 Years of Service		Attainment of Age 62 and 25 Years of Service			
			First Eligibility		After First Eligibility	
Age	Male	Female	Male	Female	Male	Female
<47	0.6%	0.6%	N/A	N/A	N/A	N/A
48	0.7	0.7	N/A	N/A	N/A	N/A
49	0.8	0.8	N/A	N/A	N/A	N/A
50	0.9	0.9	N/A	N/A	N/A	N/A
51	1.1	1.1	N/A	N/A	N/A	N/A
52	1.3	1.3	N/A	N/A	N/A	N/A
53	1.7	1.7	N/A	N/A	N/A	N/A
54	2.2	2.2	N/A	N/A	N/A	N/A
55	10.5	10.5	N/A	N/A	N/A	N/A
56	10.8	10.8	N/A	N/A	N/A	N/A
57	11.0	11.0	N/A	N/A	N/A	N/A
58	12.0	12.0	N/A	N/A	N/A	N/A
59	12.5	12.5	N/A	N/A	N/A	N/A
60	20.0	20.0	N/A	N/A	N/A	N/A
61	22.0	22.0	N/A	N/A	N/A	N/A
62	30.0	24.0	50.0%	46.0%	N/A	N/A
63	9.0	7.5	45.0	50.0	30.0%	29.0%
64	9.0	7.5	45.0	50.0	30.0	29.0
65	14.0	12.0	50.0	55.0	33.0	33.0
66-70	18.0	15.0	55.0	55.0	30.0	30.0
71+	19.0	16.0	55.0	55.0	27.0	30.0

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

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

	Less Than Age 65 or Less Than 30 Years of Service		Attainment of Age 65 and 30 Years of Service			
			First Eligibility		After First Eligibility	
Age	Male	Female	Male	Female	Male	Female
<47	0.3%	0.3%	N/A	N/A	N/A	N/A
48	0.4	0.4	N/A	N/A	N/A	N/A
49	0.4	0.4	N/A	N/A	N/A	N/A
50	0.5	0.5	N/A	N/A	N/A	N/A
51	0.6	0.6	N/A	N/A	N/A	N/A
52	0.7	0.7	N/A	N/A	N/A	N/A
53	0.9	0.9	N/A	N/A	N/A	N/A
54	1.1	1.1	N/A	N/A	N/A	N/A
55	5.0	5.0	N/A	N/A	N/A	N/A
56	6.0	6.0	N/A	N/A	N/A	N/A
57	7.0	7.0	N/A	N/A	N/A	N/A
58	8.0	8.0	N/A	N/A	N/A	N/A
59	9.0	9.0	N/A	N/A	N/A	N/A
60	15.0	15.0	N/A	N/A	N/A	N/A
61	16.0	16.0	N/A	N/A	N/A	N/A
62	36.0	32.0	N/A	N/A	N/A	N/A
63	28.0	28.0	N/A	N/A	N/A	N/A
64	28.0	28.0	N/A	N/A	N/A	N/A
65	40.0	40.0	50.0%	55.0%	N/A	N/A
66-70	18.0	15.0	55.0	55.0	30.0%	30.0%
71+	19.0	16.0	55.0	55.0	27.0	30.0

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

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

Illustrative rates are shown below:

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

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

Pre-retirement Mortality: RP-2006 employee mortality table with white collar adjustments setback 5 years for females and 3 years for males. Mortality improvements are projected using a 60-year average of rates of improvement using Social Security data from 1953 to 2013. Illustrative rates for the base year are shown on following page. No accidental deaths are assumed.

	Ordinary		Mortality Improvement	
Age	Male	Female	Male	Female
25	0.0412%	0.0171%	0.82%	0.82%
30	0.0341	0.0157	0.76	0.76
35	0.0348	0.0176	0.91	0.91
40	0.0428	0.0253	1.18	1.18
45	0.0624	0.0398	1.18	1.18
50	0.1043	0.0640	1.19	1.19
55	0.1649	0.0971	1.17	1.17
60	0.2488	0.1464	1.24	1.24
65	0.4482	0.2358	1.25	1.25
70	0.8588	0.3783	1.22	1.22

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

Post-retirement Mortality: Rates of mortality vary by age, gender and type of retirement. For service retirees and beneficiaries, rates are based on RP-2006 white collar mortality table for males and females, with adjustments. For disabled annuitants, rates are equal to 90% of the mortality rates of the RP-2006 disability annuitant table for males and females. For non-disabled annuitants, mortality improvements are projected using a 60-year average of rates of improvement using Social Security data from 1953 to 2013. Illustrative rates are shown below:

Age	Service Retirements and Beneficiaries		Mortality Improvement		Disability Retirement	
	Male	Female	Male	Female	Male	Female
45	0.0787%	0.0512%	1.18%	1.18%	1.9031%	0.9402%
50	0.3018	0.1735	1.19	1.19	2.1547	1.1194
55	0.3867	0.2253	1.17	1.17	2.2379	1.3512
60	0.5135	0.3563	1.24	1.24	2.5300	1.7513
65	0.8079	0.6354	1.25	1.25	3.2681	2.2769
70	1.3954	1.0254	1.22	1.22	4.3931	3.0828
75	2.4953	1.7459	1.16	1.16	6.0309	4.4208
80	4.5899	3.1836	1.10	1.10	8.4835	6.5331
85	8.6900	6.0945	0.79	0.79	12.3392	9.7648

Summary of Actuarial Assumptions and Methods, *continued*

A. Actuarial Assumptions *(continued)*

Non-contributory Active Members: Unit Credit cost method.

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

Form of Payment: Modified Cash Refund Annuity.

Member Annuity: Valuation mortality and interest are assumed to be the basis for determining the member annuity in future years.

Special Data Adjustments:

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

B. Actuarial Valuation Method

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

C. Asset Valuation Method

The actuarial value is equal to the prior years' actuarial value increased with interest and cash flows plus 20% of the difference between it and the market value of assets. Cash flows are based on an accrual accounting approach. This method is prescribed by statute.

D. Changes in Actuarial Assumptions

This valuation reflects a reduction in the investment return assumption from 7.65% to 7.5% as prescribed by the State Treasurer.

Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Average Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance		
6/30/08	5,188	N/A	1,772	N/A	75,413	$2,627,478,324	3.33%	$34,841
6/30/09	4,684	N/A	1,883	N/A	78,214	2,842,667,672	4.32	36,345
6/30/10	4,147	N/A	2,124	N/A	80,237	2,957,518,144	1.42	36,860
6/30/11	7,744	N/A	2,069	N/A	85,912	3,285,419,699	3.75	38,242
6/30/12	5,496	N/A	2,100	N/A	89,308	3,462,975,740	1.40	38,776
6/30/13	4,614	N/A	2,193	N/A	91,729	3,591,007,462	0.96	39,148
6/30/14	5,284	N/A	2,191	N/A	94,822	3,750,680,254	1.04	39,555
6/30/15	5,789	N/A	2,381	N/A	98,230	3,916,956,144	0.81	39,875
6/30/16	5,460	N/A	2,444	N/A	101,246	4,067,574,984	0.75	40,175
6/30/17	4,792	N/A	2,510	N/A	103,528	4,184,662,175	0.61	40,421

Schedule of Active Member Valuation Data

Valuation Date	Number of Active Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
	(a)	(b)	(b/a)	
6/30/08	156,087	10,040,685,465	64,327	3.11
6/30/09	157,109	10,353,262,361	65,899	2.44
6/30/10	157,023	10,659,241,596	67,883	3.01
6/30/11	151,115	10,416,454,800	68,931	1.54
6/30/12	150,200	10,488,890,840	69,833	1.31
6/30/13	151,318	10,710,424,746	70,781	1.36
6/30/14	141,874[1]	10,325,972,743	72,783	2.83
6/30/15	142,454[1]	10,453,176,648	73,379	0.82
6/30/16	142,845[1]	10,588,493,706	74,126	1.02
6/30/17	143,092[1]	10,775,872,458	75,307	1.59

[1] Excludes non-contributory members no longer provided on active data.

Solvency Test

Valuation Date	Accrued Liabilities [1] For			Net Assets[2] Available for Benefits	Percentage of Accrued Liabilities Covered by Net Assets		
	(1) Active Member Contributions	(2) Retirees & Deferred Vested	(3) Active Members (Employer Financed)		(1)	(2)	(3)
6/30/08	7,914,403,491	28,072,978,525	14,670,896,258	36,541,083,946	100	100	4
6/30/09	8,450,026,966	30,276,614,675	14,691,686,935	34,708,001,341	100	87	0
6/30/10	9,077,370,573	27,435,656,099	11,904,905,673	33,136,475,630	100	88	0
6/30/11	8,987,300,905	30,765,265,431	10,470,122,414	32,156,229,300	100	75	0
6/30/12	9,432,073,781	32,411,855,950	9,350,180,856	31,079,212,983	100	67	0
6/30/13	10,079,938,128	33,312,970,535	8,973,746,392	30,469,857,304	100	61	0
6/30/14	10,624,778,098	34,587,834,921	8,537,363,622	29,044,777,902	100	53	0
6/30/15	11,129,745,608	36,128,130,029	8,101,501,434	28,301,404,184	100	48	0
6/30/16	11,709,150,079	38,027,977,392	8,128,843,692	27,169,758,348	100	41	0
6/30/17	12,466,587,057	39,224,970,512	8,262,991,131	26,549,410,215	100	36	0

1. *Determined under the projected unit credit actuarial cost method and other actuarial assumptions as described in each respective actuarial valuation for determining Statutory Contribution.*

2. *The above table is based on Valuation Assets. As of June 30, 2017, the solvency percentages would be 1) 100%, 2) 31% and 3) 0%, respectively, if based on the market value of assets of $24,495.3 million.*

Analysis of Financial Experience Gains and Losses in Unfunded Accrued Liabilities Resulting from Differences between Assumed Experience and Actual Experience

Type of Activity	For Valuation Period Ending (Amounts in Millions)		
	June 30, 2017	June 30, 2016	June 30, 2015
Economic Factors:			
Investment Return	($513.5)	($859.3)	($495.2)
Salary Increases	(27.4)	22.7	50.0
Expenses	(12.4)	(14.3)	(14.3)
Demographic Factors:			
Active Members	(40.8)	(69.2)	(22.8)
New Entrants	(51.3)	(55.5)	(48.1)
Non-Contributing Members	(33.4)	(39.6)	(32.7)
Retirees and Beneficiaries	26.3	23.2	5.0
Year of Mortality Improvement*	0.0	(55.3)	(54.1)
Other**	0.0	0.0	(295.9)
Total:	(652.5)	(1,047.3)	(908.1)

* *For 2015 and 2016, reflects impact on both actives and retirees. For 2017, generational assumption is used and thus, mortality improvement is anticipated in the calculation.*

** *Includes changes in method to determine gain/loss and valuation system to determine liabilities.*

Summary of Principal Plan Provisions

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

1. Type of Plan:

The Plan is a contributory, defined benefit plan. Effective October 1, 2011, contributions by Members are 6.5% and increase by 1/7 of 1% each July thereafter until an ultimate rate of 7.5% is attained on July 1, 2018. As of July 1, 2017, the contribution rate is 7.34%. For members hired on or after July 1, 2007, compensation for contributions is capped at the Social Security Taxable Wage Base ($127,200 for 2017 and $128,400 for 2018). For compensation in excess of the Social Security Taxable Wage Base, contributions on the excess compensation are made to the Defined Contribution Retirement Program.

2. Effective Date

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

3. Eligibility for Membership

Employees appointed to positions requiring certification as members of a regular teaching or professional staff of a public school 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.

4. Definitions

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

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

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

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

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

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

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

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

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

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

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

5. Cost-of-Living Adjustment

The Pension Adjustment Program provides a cost-of-living adjustment (COLA) to retirees and their survivors who receive a monthly retirement allowance from the TPAF. The first adjustment is received in the 25th month after the member's retirement. Subsequent cost-of-living adjustments are computed annually and are first reflected in February.

Summary of Principal Plan Provisions, *continued*

The rate of increase is equal to 60 percent of the percentage change between the average CPI for the 12 month period ending December 31 in the year of retirement and the August 31 preceding the February adjustment Pension adjustments to be paid on or after July 1, 2011, have been eliminated for all members unless the Target Funded Ratio is met as of the valuation date and for each of the subsequent 30 years on a projected basis.

6. Retirement Benefits

a. Service Retirement

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

Service Retirement Benefit:

An employee's annual service retirement allowance is equal to a member annuity plus an employer pension which together equals 1/64th of Final Compensation for each year of service for Class A members, 1/55th of Final Compensation for each year of service for Class B, D and E members and 1/60th of Final Compensation for each year of service for Class F and G members. The member annuity is based on the member contributions credited at the valuation interest rate.

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

b. Early Retirement

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

Early Retirement Benefit: The benefit may be either:

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

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

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

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

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

c. Deferred Retirement

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

Deferred Retirement Benefit: The benefit may be either:

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

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

7. Termination Benefits

a. Lump Sum Withdrawal

Eligibility: A Member is eligible upon termination of service.

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

Summary of Principal Plan Provisions, *continued*

8. Death Benefits

a. Ordinary Death (Insured) Benefit - Lump Sum (Non-Contributory)

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

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

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

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

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

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

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

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

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

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

c. Pre-retirement Accidental Death Benefit:

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

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

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

(i) The annuity benefit to a widow or widower is equal to 50% of Compensation, payable for life or until remarriage.

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

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

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

Summary of Principal Plan Provisions, *continued*

9. Disability Benefits

a. Ordinary Disability Retirement

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

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

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

(ii) 43.6% of Final Compensation.

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

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

b. Accidental Disability Retirement for Class A, B, D, and E members

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

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

10. Additional Old-Plan Benefit:

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

11. Special Minimum Benefit:

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

12. Special Benefits for Veterans:

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

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

13. Benefit and Compensation Limits:

The provisions of IRC Section 415 and IRC Section 401(a)(17), which limit benefits paid and limit compensation used in deter mining benefits, has been reflected in this report. The IRC Section 415 limit is $215,000 and the 401(a)(17) compensation cap is $270,000 for 2017 and is applied on a calendar year basis.

14. Forms of Payment

a. **Maximum Option –** Single life annuity.

b. **Option 1 –** Single life annuity with return of reserve option.

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.

15. Contributions

a. **Member Contributions:** Each member becoming a member on or after January 1, 1956, and prior to July 1, 2007, contributes at the rate of contribution applicable to Class B members. Any members hired after June 30, 2007, and prior to November 2, 2008, are Class D members.

Summary of Principal Plan Provisions, *continued*

Members hired after November 1, 2008, and prior to May 22, 2010, are Class E members. Members hired after May 21, 2010, are Class F members and members hired after June 28, 2011, are Class G members.

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

(ii) Class B Membership: Any member on December 31, 1955, may elect to be classified as a Class B member and contribute at the rate of contribution applicable to Class B members at his age at membership. Any such member may elect to increase his accumulated deductions by the amount required by the Board to receive credit as a Class B member for all or part of his service prior to such election.

(iii) Class A Membership: Any member who is not a veteran and does not elect to be classified as a Class B member continues to contribute at the rate of contribution applicable to his age at membership which was payable prior to the establishment of the integrated system, except that if he became a member subsequent to June 30, 1946, he will pay after January 1, 1955, at the rate of contribu tion in effect on June 30, 1946, applicable to his age at membership. Prior to July 1, 1979, different contribu tion rates were established for men and women. Effec tive on that date members contribute at rates intermediate between the rates previously applicable to male and female members, computed to provide the same present value of future employee contributions at each entry age on the basis of the membership as constituted on the effective date.

b. Local Employer Contributions

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

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

c. Lottery Enterprise Contributions: Actual revenue generated by the Lottery Enterprise will be deposited into three retirement systems on a monthly basis based on the allocatable percentages specified in Statute for a term of 30 years from fiscal year 2018 to fiscal year 2047. The allocable percentages are 77.78% to TPAF, 21.02% to PERS and 1.20% to PFRS.

16. Changes in Plan Provisions Since Prior Valuation:

Reflects adoption of Chapter 98, P.L. 2017 contributing the Lottery Enterprise to three retirement systems over a term of 30 years.

BUCK
500 Plaza Drive
Secaucus, NJ 07096

February 1, 2019

The Board of Trustees

The Police and Firemen's Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the Police and Firemen's Retirement System (PFRS or System) is performed annually to measure the ongoing costs of the System (with required contributions determined separately for the State and Local employers) and the progress towards the funding goals of the System over time. In general, the financial goal of the Police and Firemen's Retirement System is a pattern of contributions, which is sufficient to cover the normal cost of the System plus the contribution towards the unfunded accrued liability. The information contained in this certification letter is based on the July 1, 2017 valuation of PFRS.

In accordance with the New Jersey statutes, employers are required to make two contributions to the System, a normal contribution and an accrued liability contribution. The normal contribution for basic allowances and cost of living adjustments (COLA's) is defined under the Projected Unit Credit funding method as the present value of the benefits accruing during the current year. Prior to the July 1, 2010 valuation, the unfunded accrued liability contribution for basic allowances and COLA's was determined as a level percentage of pay required to amortize the unfunded accrued liability over 30 years in annual payments increasing by 4% per year. The funding reform provisions of Chapter 78, P.L. 2011 changed the methodology used to amortize the unfunded accrued liability. Beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2018 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent actuarial valuation, the amortization period will decrease by one year.) Beginning with the July 1, 2028 actuarial valuation when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for that valuation year using a 20 year amortization period.

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

The valuation reflects the Appropriation Act of 2017 for fiscal year 2017, which allowed the State Treasurer to reduce the State normal cost and accrued liability contributions for fiscal year 2017 of $483,877,347 to $195,221,000. This amount excludes the Non-Contributory Group Insurance Premium of $8,168,002.

In addition, the valuation reflects the potential impact of the Appropriations Act of fiscal year 2018. The fiscal year 2018 actuarially determined State Pension contribution has been reduced from $502,917,964 to $251,458,982. This amount excludes the estimated Non-Contributory Group Insurance Premium of $8,893,000.

Under Chapter 98, P.L. 2017 - Lottery Enterprise Contribution Act, the Police and Firemen's Retirement System receives 1.2% 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 – Lottery Enterprise Contribution Act are assumed to be contributed to the trust on a monthly basis. For the 2018 fiscal year the contribution from the Lottery Enterprise is estimated to be $12,011,722. Discounted to the valuation date, the receivable contribution from the Lottery Enterprise is $11,585,133. For the 2018 fiscal year, the State's pension contribution is reduced by the expected Lottery Enterprise contribution so that the State's net pension contribution is $239,447,260.

The valuation reflects Chapter 26, P.L. 2016 which increases the accidental death benefit payable to children if there is no surviving spouse to 70% of final compensation.

The valuation reflects Chapter 83, P.L. 2016 which requires the State to make pension contributions on a quarterly basis at least 25 percent by September 30th, at least 50% by December 31st, at least 75% by March 31st, and at least 100 percent by June 30th. Therefore, assuming the anticipated fiscal year 2018 State pension contribution of $239,447,260 is paid in equal quarterly amounts; a discounted receivable contribution of $ $228,911,867 is recognized for purposes of the July 1, 2017 valuation. Accordingly, a fiscal year 2018 employer contribution of $228,911,867 and an expected lottery contribution of $11,585,133 were recognized as a receivable contribution for purposes of this valuation. The 2018 State's pension contribution may be subject to change per the requirements of the State's fiscal year 2018 spending plan.

The actuarially determined State contribution for the fiscal year beginning July 1, 2018 is $529,722,755. This amount is comprised of an unfunded accrued liability payment of $406,118,361 plus a normal contribution of $123,604,394. This amount excludes the estimated Non-Contributory Group Insurance Premium of $9,463,000. This amount may be subject to change per the requirements of the State's fiscal year 2019 spending plan.

The valuation reflects Chapter 19, P.L. 2009, which allowed the State Treasurer to reduce Local employers' normal and accrued liability contributions to 50% of the amount certified for the State fiscal year 2009. In addition, certain Local employers who were eligible under Chapter 19, P.L. 2009 to defer 50% of their State fiscal year 2009 pension contribution but did not were permitted to defer 50% of their State fiscal year 2010 pension contribution. This unfunded liability will be paid by the Local employers in level annual payments over a period of 15 years with the first payment due in the fiscal year ending June 30, 2012. The unfunded liability will be adjusted by the rate of return on the actuarial value of assets. The legislation also provides that a Local employer may pay 100% of the actuarially determined contributions for State fiscal years 2009 and 2010. Such an employer will be credited with the full payments and any such amounts will not be included in their unfunded liability.

The underlying demographic data is maintained and provided by the New Jersey Division of Pensions and Benefits. The data is analyzed by Buck Global, LLC (Buck), formerly Conduent HR Consulting LLC (Conduent), for internal completeness and consistency and compared with the prior valuation data to again ensure consistency.

As required under Chapter 255, P.L. 1944, an actuarial investigation of the demographic experience of the members and beneficiaries of the Police and Firemen's Retirement System is made once in every three-year period. The July 1, 2016 valuation was based on the actuarial assumptions that were determined from the July 1, 2010 – June 30, 2013 Experience Study (which was approved by the Board of Trustees at the February 9, 2015 Board meeting).

The Treasurer has recommended a change in the economic assumptions used for the valuation. The rate of investment return has been revised from 7.65% per annum to 7.50% per annum. As a result of the revised economic assumptions, the accrued liability increased by $82,733,534 for the State and $574,896,197 for the Local Employers and the gross normal cost increased by $2,783,973 for the State and $18,372,764 for the Local Employers. The net employer contributions increased $6,298,698 for the State and increased $57,971,495 for the Local Employers. These assumptions will remain in effect for valuation purposes until such time the Board or Treasurer recommends revised assumptions.

The valuation cost method used is the projected unit credit method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. The asset valuation method used was a five-year average of market values with write-up. This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis.

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

Future actuarial measurements may differ significantly from current measurements due to System experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the Board or staff of the State of New Jersey's Division of Pensions and Benefits may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. Buck should be asked to review any statement to be made on the basis of the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

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

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

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience Reconciliation of Employer Contribution Rates
- Brief Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck prepared the "Schedule of Assets and Liabilities" and the "Schedule of Employer Contributions" in the Financial Section which can be found in the July 1, 2017 valuation report for PFRS. The Schedule of Assets and Liabilities and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 became effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

To the best of my knowledge, this information is complete and accurate. The valuation was performed by, and under the supervision of, independent qualified actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems.

The valuation was prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board and generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Retirement System, and on actuarial assumptions that are individually and in the aggregate internally consistent and reasonable based on the actual experience of the Retirement System.

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA
Principal, Consulting Actuary
Buck Global, LLC

Summary of Actuarial Assumptions and Methods

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

The July 1, 2017 actuarial valuation of the Police and Firemen's Retirement System reflects the recognition of the actuarial assumptions determined from the July 1, 2010 – June 30, 2013 Experience Study which was approved by the Board of Trustees at the February 9, 2015 Board meeting and the revised economic assumptions established in the July 1, 2017 valuation.

An outline of the actuarial assumptions and methods used for the July 1, 2017 valuation is as follows:

Valuation Interest Rate: 7.50% per annum, compounded annually.

COLA: No future COLA is assumed.

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

Separations from Service and Salary Increases: Representative values of the assumed annual rates of separation and annual rates of salary increases are as follows:

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

Summary of Actuarial Assumptions and Method, *continued*

Age	Annual Rate of				
	Death			Disability	
	Ordinary				
	Male[1]	Female[1]	Accidental	Ordinary	Accidental
25	.034%	.019%	.006%	.045%	.029%
30	.041	.025	.006	.147	.278
35	.072	.045	.008	.265	.393
40	.099	.065	.008	.362	.423
45	.136	.102	.009	.394	.396
50	.193	.155	.009	.449	.179
55	.279	.231	.014	.554	.161
60	.432	.332	.013	1.024	.161
64	.588	.440	.008	1.680	.161
65 and over	0.000	0.000	0.000	0.000	0.000

[1] RP2000 Employee Pre-Retirement mortality tables projected thirteen-years using Projection Scale BB and then projected on a generational basis using the Buck Modified 2014 Projection Scales. The above tables are representative for the 2017 valuation.

Age	Service Retirements				Salary Increases	
	Length of Service					
	Less Than 21 Years[1]	21 to 24 Years	25 Years	26 or More Years	FY2016 to FY2026	FY2026 and thereafter
25	–	–	–	–	8.98%	9.98%
30	–	–	–	–	5.97	6.97
35	–	–	–	–	4.17	5.17
40	4.00%	0.60%	45.57%	15.40%	3.33	4.33
45	4.00	0.60	54.83	15.40	2.90	3.90
50	4.30	0.60	57.62	18.48	2.75	3.75
55	6.00	0.00	64.94	24.47	2.60	3.60
60	3.20	0.00	77.49	27.34	2.35	3.35
64	37.50	0.00	85.24	51.03	2.10	3.10
65 and over	100.00	100.00	100.00	100.00	–	–

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

Summary of Actuarial Assumptions and Method, *continued*

Deaths After Retirement

RP-2000 Combined Healthy Mortality Tables projected one year using Projection Scale AA and three years using the Buck Modified 2014 Projection Scales is the base table as of the 2017 measurement date for male service retirements and will be further projected on a generational basis using the Buck Modified 2014 Projection Scales. RP-2000 Combined Healthy Mortality Tables projected thirteen-years using Projection Scale BB and then three years projected using the Buck Modified 2014 Projection Scales is the base table as of the 2017 measurement date for female service retirements and beneficiaries and will be further projected on a generational basis using the Buck Modified 2014 Projection Scales. Special mortality tables are used for the period after disability retirement. The following representative values of the assumed annual rates of mortality are effective 2017.

	Service Retirements		Beneficiaries			Disability
Age	Men	Women	Men	Women	Age	Retirements
55	0.340%	0.248%	0.334%	0.248%	35	0.598%
60	0.644	0.427	0.597	0.427	40	0.634
65	1.211	0.786	1.050	0.786	45	0.803
70	2.076	1.345	1.731	1.345	50	1.058
75	3.507	2.261	2.922	2.261	55	1.210
80	5.977	3.695	4.961	3.695	60	1.426
85	10.331	6.228	8.548	6.228	65	1.949

Marriage

Husbands are assumed to be 3 years older than wives. Among the active population, 90% of participants are assumed married. No children are assumed.

Valuation Method

Projected Unit Credit Method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. In accordance with Chapter 78, P.L. 2011, beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2018 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent valuation, the amortization period shall decrease by one year.) Beginning with the July 1, 2028 actuarial valuation, when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

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.

Summary of Actuarial Assumptions and Method, *continued*

State Contribution Payable Dates

Prior to the July 1, 2017 valuation, it is assumed the State will make pension contributions the June 30th following the valuation date. Effective with the July 1, 2017 valuation, Chapter 83, P.L. 2016 requires the State to make pension contributions on a quarterly basis: at least 25 percent by September 30, at least 50 percent by December 31, at least 75 percent by March 31, and at least 100 percent by June 30.

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

Receivable Contributions

For the July 1, 2016 valuation, State contributions are expected to be paid the June 30th following the valuation date and are discounted by the valuation interest rate of 7.65% to the valuation date. Effective with the July 1, 2017 valuation, State contributions are expected to be paid in equal quarterly amounts as of September 30th, December 31st, March 31st, and June 30th following the valuation date and are discounted by the interest rate of 7.50% to the valuation date.

Local contributions expected to be paid the April 1st, following the valuation are discounted by the valuation interest rate of 7.65% to the valuation date for the July 1, 2016 valuation and by an interest rate of 7.50% to the valuation date effective with the July 1, 2017 valuation.

Asset Valuation Method

A five year average of market values with write-up was used. This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis, over a five-year period.

Summary of Changes from the July 1, 2016 Valuation

The rate of investment return has been revised from 7.65% per annum to 7.50% per annum. The impact of this assumption change is shown on the second page of the cover letter.

Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls

State

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual[2] Allowance		
7/1/2017	372	$17,056,592	172	$5,162,512	7,007	$ 305,608,112	4.04%	$ 43,615
7/1/2016	407	17,916,150	188[3]	5,868,202[3]	6,807	293,751,067	4.19	43,154
7/1/2015	597	27,506,231	136	4,428,009	6,588	281,941,189	8.85	42,796
7/1/2014	411	18,319,747	125	3,624,098	6,127	259,008,914	6.03	42,273
7/1/2013	562	25,376,310	144	3,961,938	5,841	244,287,186	9.51	41,823
7/1/2012	483	21,936,867	83	2,596,132	5,423	223,064,017	9.57	41,133

Local Employers

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allow-ance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual[2] Allowance		
7/1/2017	1,879	$119,494,770	1,157	$41,177,074	39,540	$2,100,385,456	3.87%	$53,121
7/1/2016	2,131[3]	127,903,000[3]	977	33,478,631	38,818	2,022,136,965	4.89	52,093
7/1/2015	2,223	137,472,290	1,008	34,566,655	37,664	1,927,850,322	5.64	51,185
7/1/2014	2,157	125,562,304	1,061	37,217,915	36,449	1,824,960,208	5.17	50,069
7/1/2013	2,126	123,863,237	1,062	34,299,782	35,353	1,735,172,993	5.50	49,081
7/1/2012	2,131	119,315,514	855	29,526,388	34,289	1,644,739,476	5.88	47,967

Total System

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual[2] Allowance		
7/1/2017	2,251	$136,551,362	1,329	$46,339,586	46,547	$2,405,993,568	3.89%	$ 51,690
7/1/2016	2,538[3]	145,819,150[3]	1,165[3]	39,346,833[3]	45,625	2,315,888,032	4.80	50,759
7/1/2015	2,820	164,978,521	1,144	38,994,664	44,252	2,209,791,511	6.04	49,937
7/1/2014	2,568	143,882,051	1,186	40,842,013	42,576	2,083,969,122	5.28	48,947
7/1/2013	2,688	149,239,547	1,206	38,261,720	41,194	1,979,460,179	5.98	48,052
7/1/2012	2,614	141,252,381	938	32,122,520	39,712	1,867,803,493	6.31	47,034

1. *These values include Domestic Relations beneficiaries in receipt but exclude deferred vested terminations.*
2. *The benefit amounts shown are the annualized benefits as of the valuation date and are not the actual benefits paid during the fiscal year.*
3. *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 rolls and removed from the State rolls in 2016.*

Schedule of Active Members Valuation Data[1]

State

Valuation Date	Number of Active Members	Annual Limited Compensation	Average Compensation	% Increase in Average Compensation
7/1/17	7,072	$504,025,065	$71,271	(3.00)%
7/1/16	6,911	507,802,380	73,477	(2.38)
7/1/15	6,883	518,087,705	75,271	(0.14)
7/1/14	7,025	529,501,284	75,374	0.54
7/1/13	7,098	532,147,062	74,971	(0.65)
7/1/12	7,187	542,344,707	75,462	(0.31)

Local Employers

Valuation Date	Number of Active Members	Annual Limited Compensation	Average Compensation	% Increase in Average Compensation
7/1/17	34,447	$3,399,605,586	$98,691	0.68%
7/1/16	33,878	3,320,721,980	98,020	0.27
7/1/15	33,476	3,272,560,644	97,758	(0.38)
7/1/14	33,081	3,246,344,549	98,133	0.99
7/1/13	33,274	3,233,135,473	97,167	1.52
7/1/12	33,632	3,218,932,891	95,710	3.85

Total System

Valuation Date	Number of Active Members	Annual Limited Compensation	Average Compensation	% Increase in Average Compensation
7/1/17	41,519	$ 3,903,630,651	$ 94,020	0.17%
7/1/16	40,789	3,828,524,360	93,861	(0.07)
7/1/15	40,359	3,790,648,349	93,923	(0.24)
7/1/14	40,106	3,775,845,833	94,147	0.95
7/1/13	40,372	3,765,282,535	93,265	1.22
7/1/12	40,819	3,761,277,598	92,145	3.16

1. Includes all contributing and non-contributing active members.

Solvency Test

State

Valuation Date	Accrued Liabilities For: (1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members	Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available: (1)	(2)	(3)
7/1/17	$475,818,046	$3,424,967,760	$972,295,925	$1,887,486,318	100.00%	41.22%	0.00%
7/1/16	463,313,193	3,266,044,658	947,284,189	1,928,447,404	100.00	44.86	0.00
7/1/15	453,476,665	3,068,942,554	994,018,946	2,004,579,109	100.00	50.54	0.00
7/1/14	461,707,703	2,836,126,945	1,067,775,016	2,062,185,965	100.00	56.43	0.00
7/1/13	446,509,394	2,645,278,934	1,096,734,709	2,127,491,585	100.00	63.55	0.00
7/1/12	444,953,351	2,418,803,841	1,163,197,690	2,137,727,566	100.00	69.98	0.00

Local Employers

Valuation Date	Accrued Liabilities For: (1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members	Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available: (1)	(2)	(3)
7/1/17	$3,247,943,768	$22,521,319,267	$8,704,864,502	$25,183,776,588	100.00%	97.40%	0.00%
7/1/16	3,131,241,592	21,445,939,675	8,216,257,943	24,420,145,823	100.00	99.27	0.00
7/1/15	3,028,571,346	19,956,349,181	8,221,044,776	23,935,037,150	100.00	100.00	11.56
7/1/14	2,953,537,557	18,953,799,304	8,331,950,046	23,066,498,788	100.00	100.00	13.91
7/1/13	2,842,256,925	17,710,792,805	8,258,648,542	22,170,221,173	100.00	100.00	19.58
7/1/12	2,726,801,462	16,780,025,399	8,198,341,576	21,549,327,079	100.00	100.00	24.91

Total System

Valuation Date	Accrued Liabilities For: (1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members	Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available: (1)	(2)	(3)
7/1/17	$3,723,761,814	$25,946,287,027	$9,677,160,427	$27,071,262,916	100.00%	89.98%	0.00%
7/1/16	3,594,554,785	24,711,984,333	9,163,542,132	26,348,593,227	100.00	92.08	0.00
7/1/15	3,482,048,011	23,025,291,735	9,215,063,722	25,939,616,259	100.00	97.53	0.00
7/1/14	3,415,245,260	21,789,926,249	9,399,725,062	25,128,684,753	100.00	99.65	0.00
7/1/13	3,288,766,319	20,356,071,739	9,355,383,251	24,297,712,758	100.00	100.00	6.98
7/1/12	3,171,754,813	19,198,829,240	9,361,539,266	23,687,054,645	100.00	100.00	14.06

[1] *Actuarial Value including receivable amounts.*

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

State

Valuation Year	July 1, 2017	July 1, 2016	July 1, 2015	July 1, 2014	July 1, 2013	July 1, 2012
Prior Year Contribution Rate	103.59%[6]	97.89%[6]	90.94%[6]	81.12%[6]	76.94%[6]	74.83%[6]
Adjustment for Full Member Contributions to Offset Normal Cost	N/A	N/A	N/A	N/A	(1.61)	N/A
Revised Prior Year Contribution Rate	103.59%	97.89%	90.94%	81.12%	75.33%	74.83%
Net Change Due to:						
Current New Entrants	0.60	0.55	0.09	0.27	0.27	0.31
Excess Salary Increases	(0.64)	(1.16)	0.00	(0.12)	0.07	(0.36)
Assumption/Method Changes	2.08	(1.42)	(0.55)	0.50	0.00	(1.51)[5]
COLA Increases	0.00	0.00	0.00	0.00	0.02	0.04
Active and Other Experience	(1.19)	1.04	0.53	(0.49)	(0.71)	(1.43)
Retiree Experience	(0.09)	(0.04)	0.05	0.08	0.03	0.06
Investment Loss/(Gain)	0.92	1.28	0.77	0.48	1.00	1.32
Net Effect of Chapter 8[1]	0.41	0.57	0.31	2.98	1.27	(1.13)
Appropriation Act[2]	4.29	4.88	5.75	6.12	3.84	4.81
Recommended Contribution Rate:						
• Prior to reflecting Chapter 1, P.L. 2010	109.97%[6]	103.59%[6]	97.89%[6]	90.94%[6]	81.12%[6]	76.94%[6]
• After reflecting Chapter 1, P.L. 2010	N/A	N/A	N/A	N/A	46.35%[6]	32.98%[6]

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates, *continued*

Local Employers

Valuation Year	July 1, 2017	July 1, 2016	July 1, 2015	July 1, 2014	July 1, 2013	July 1, 2012
Prior Year Contribution Rate	26.20%[6]	24.36%[6]	24.46%[6]	23.14%[6]	23.90%[6]	24.01%[6]
Adjustment for full member contributions to offset normal cost	N/A	N/A	N/A	N/A	(1.60)	N/A
Revised Prior Year Contribution Rate	26.20%	24.36%	24.46%	23.14%	22.30%	24.01%
Net Change Due to:						
Current New Entrants	0.30	0.33	0.06	0.16	0.14	0.08
Excess Salary Increases	0.16	(0.04)	0.00	(0.15)	0.08	(0.40)
Assumption/Method Changes	2.06	0.18	(0.56)	1.18	0.00	(0.90)[5]
COLA Increases	0.00	0.00	0.00	0.00	0.02	0.04
Active and Other Experience	1.26	2.50	2.31	2.48	1.50	1.18
Retiree Experience	0.17	(0.08)	0.05	0.09	0.04	0.07
Investment Loss/(Gain)	0.54	1.32	0.40	(0.05)	1.00	1.59
Net Effect of Chapter 8[1]	(2.36)	(2.37)	(2.36)	(2.39)	(1.94)	(1.77)
Recommended Contribution Rate[3]	28.33%[6]	26.20%[6]	24.36%[6]	24.46%[6]	23.14%[6]	23.90%[6]

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

2. Net change due to Appropriation Act for July 1, 2017 includes 4.29% change due to the Fiscal Year 2018 Appropriation Act. Net change due to Appropriation Act for July 1, 2016 includes 4.88% change due to the Fiscal Year 2017 Appropriation Act. Net change due to Appropriation Act for July 1, 2015 includes 5.75% change due to the Fiscal Year 2016 Appropriation Act. Net change due to Appropriation Act for July 1, 2014 includes 0.96% change due to the Fiscal Year 2014 Appropriation Act and 5.16% change due to the Fiscal Year 2015 Appropriation Act. Net change for July 1, 2012 and July 1, 2013 are due to the provisions of Chapter 1, P.L. 2010.

3. Includes rates attributable to Chapter 204 requirement which are billed to specific locations.

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

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

6. Excludes contribution rates payable to the Non-Contributory Group Insurance Premium Fund. For State, the contribution rates are 1.97% for 2017, 1.83% for 2016, 1.79% for 2015, 2.05% for 2014, 1.51% for 2013 and 1.41% for 2012. For Local, the contribution rates are 1.83% for 2017, 1.11% for 2016, 1.11% for 2015, 1.14% for 2014, 1.09% for 2013 and .86% for 2012.

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

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

Eligibility for Membership

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

1. Definitions

Plan Year

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

Credited Service

A year of service is credited for each year an employee is a Member of the Retirement System plus service, if any, covered by a prior service liability.

Average Final Compensation (AFC)

The average annual compensation for the three consecutive years of Service immediately preceding retirement or the highest three consecutive fiscal years of Membership Service.

Compensation

Base salary upon which contributions by a Member to the Annuity Savings Fund were based in the last year of Service. For Accidental Death, benefits are computed at the annual rate of salary. In accordance with Chapter 1, P.L. 2010, for members hired on or after May 22, 2010 Compensation cannot exceed the annual maximum wage contribution base for Social Security pursuant to the Federal Insurance Contribution Act.

Final Compensation (FC)

Annual compensation received by the member in the last 12 months of Credited Service preceding his retirement. In accordance with Chapter 1, P.L. 2010, for members hired on or after May 22, 2010, FC means the average annual compensation for the three fiscal years of membership providing the largest benefit.

Accumulated Deductions

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

2. Benefits

Service Retirement

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

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

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

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

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

Special Retirement

After completion of 25 years of Credited Service. The annual retirement benefit is equal to a member annuity plus an employer pension which together equal 65% of FC plus 1% of FC for each year of Credited Service over 25. Effective for members hired after June 28, 2011, the annual retirement benefit is equal to a member annuity plus an employer pension which together equal 60% of FC plus 1% of FC for each year of Credited Service over 25. There is a

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

maximum benefit of 70% of FC (65% of FC for members hired after June 28, 2011) except for those members with 30 or more years of Credited Service on June 30, 1979.

Vested Termination

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

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

Death Benefits

Ordinary Death Benefit - Lump Sum

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

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

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

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

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

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

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

Ordinary Death Benefit - Survivor Annuity

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

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

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

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

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

Accidental Death Benefit

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

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

(ii) The benefit, when there is no spouse, or spouse is remarried, is equal to 70% of Compensation payable to surviving children in equal shares. The benefit is payable while the children are under age 18, or until age 24 if they are full-time students, or it is payable for life if they are disabled.

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

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

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

Disability Benefits

Ordinary Disability Retirement

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

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

(ii) 40% of FC.

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

Accidental Disability Retirement

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

Special Disability Retirement

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

3. Member Contributions

Each member contributes 10.0% of Compensation.

BUCK
500 Plaza Drive
Secaucus, NJ 07096

February 1, 2019

The Board of Trustees

The State Police Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the State Police Retirement System (SPRS or System) is performed annually to measure the ongoing costs of the System and the progress towards the funding goals of the System over time. In general, the financial goals of the State Police Retirement System are a pattern of contributions, which is sufficient to cover the normal cost of the System plus the contribution towards the unfunded accrued liability. The information contained in this certification letter is based on the July 1, 2017 valuation of SPRS.

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

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

The valuation reflects the actual fiscal year 2017 State pension contribution of $51,038,000. In addition, the valuation also reflects the anticipated fiscal year 2018 State pension contribution of $72,104,412. This amount may be subject to change per the requirements of the State's fiscal year 2018 spending plan.

The actuarially determined contribution for the fiscal year beginning July 1, 2018 is $159,162,729. This amount is comprised of an unfunded accrued liability payment of $120,483,372 plus a normal contribution of $38,679,357. This amount may be subject to change per the requirements of the State's fiscal year 2019 spending plan.

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

This valuation reflects Chapter 26, P.L. 2016. This law amends 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 credit hours in each semester, provided that the member died in the line of duty while in active service. This law also increases the accidental death benefit payable to children if there is no surviving spouse to 70% of final compensation.

This valuation also reflects Chapter 83, P.L. 2016 which 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 required under Section 32 of Chapter 89, P.L. 1965, experience studies are performed once in every three year period. The valuation was prepared using demographic assumptions recommended on the basis of the July 1, 2011 – June 30, 2014 Experience Study and approved by the Board of Trustees at the January 26, 2016 Board meeting. These assumptions will remain in effect for valuation purposes until such time as the Board adopts revised demographic assumptions.

The Treasurer has recommended a change in the economic assumptions used for the valuation. The rate of investment return has been revised from 7.65% per annum to 7.50% per annum. These assumptions will remain in effect for valuation purposes until such time the Board or the Treasurer recommends revised assumptions.

The valuation cost method used is the Projected Unit Credit method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. The asset valuation method used was a five-year average of market values with write-up. This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis, over a five-year period.

Future actuarial measurements may differ significantly from current measurements due to System experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in System provisions or applicable law. An analysis of the potential range of future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the Board or staff of the State of New Jersey's Division of Pensions and Benefits may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. You should ask Buck Global, LLC (Buck), formerly Conduent HR Consulting LLC (Conduent), to review any statement you wish to make on the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

The actuarial assumptions and methods used by the State Police Retirement System for financial reporting meet the requirements set forth in Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. Information necessary to comply with the reporting requirements of GASB Statement Nos. 67 and No. 68 were provided in separate Actuarial Reports, which are available on the Division of Pensions and Benefits web site. Please refer to the separate Actuarial Reports for supplementary information documentation and support for the actuarial analysis and information presented herein.

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

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

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience Reconciliation of Employer Contribution Rates
- Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck prepared the "Schedule of Assets and Liabilities" and the "Schedule of Employer Contributions" in the Financial Section which can be found in the July 1, 2017 valuation report for SPRS. The Schedule of Assets and Liabilities and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 became effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA
Principal, Consulting Actuary
Buck Global, LLC

Summary of Actuarial Assumptions and Methods

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

The demographic assumptions used for the July 1, 2017 actuarial valuation of the State Police Retirement System were based on the results of the experience study, which covered the period from July 1, 2011 to June 30, 2014, which were approved by the Board of Trustees, and the revised economic assumptions established in the July 1, 2017 valuation.

An outline of the actuarial assumptions and methods used for the July 1, 2017 valuation is as follows:

Valuation Interest Rate: 7.50% per annum, compounded annually.

COLA: No future COLA is assumed.

Salary Increases: Salaries are assumed to increase by 2.95% per year through fiscal year ending 2025 and 3.95% per year for fiscal years ending 2026 and thereafter.

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

Social Security Wage Base: $127,200 for 2017 increasing 4.00% per annum, compounded annually.

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

	Lives per Thousand	
Age	**Less Than 5 Years of Service**	**Five to Nineteen Years of Service**
25	3.8%	0.0%
30	3.8	2.0
35	8.3	1.4
40	0.0	0.8
45	0.0	1.0
50	0.0	0.0

Summary of Actuarial Assumptions and Methods, *continued*

Separations from Service

Representative mortality, disability and retirement rates are as follows:

	Annual Rates of [1]					
	Ordinary Death[2]		Accidental Death	Ordinary Disability	Accidental Disability
Age	Male	Female			
25	0.4	0.2	0.3	0.4	0.2
30	0.4	0.3	0.5	0.6	0.5
35	0.5	0.5	0.5	1.5	1.9
40	0.9	0.7	0.5	1.7	2.1
45	1.2	1.1	0.7	2.2	2.1
50	1.7	1.6	0.9	3.8	2.3

1. *Per one thousand lives.*

2. *RP-2000 Combined Healthy Male (set back 3 years) and RP-2000 Combined Healthy Female Mortality Tables projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB as the base table. The base tables will be further projected using the Buck Modified MP-2014 Projection Scale. Rates shown above are unadjusted for the Buck Modified MP-2014 Projection Scale.*

Marriage

Husbands are assumed to be 3 years older than wives. Among the active population, 83.3% of participants are assumed married. No children are assumed. Neither the percentage married nor number of children assumption is individually explicit but they are considered as a single combined assumption.

Valuation Method

Projected Unit Credit Method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. In accordance with Chapter 78, P.L. 2011, beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars it will amortize the unfunded accrued liability over a closed 30 year period (i.e., for each subsequent valuation, the amortization period shall decrease by one year). Beginning with the July 1, 2029 actuarial valuation, when the remaining amortization period reaches 20 years, any increase or decrease in the unfunded accrued liability as a result of actuarial losses or gains for subsequent valuation years shall serve to increase or decrease, respectively, the amortization period for the unfunded accrued liability, unless an increase in the amortization period will cause it to exceed 20 years. If an increase in the amortization period as a result of actuarial losses for a valuation year would exceed 20 years, the accrued liability contribution shall be computed for the valuation year using a 20 year amortization period.

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.

Summary of Actuarial Assumptions and Methods, *continued*

State Contribution Payable Dates

Prior to the July 1, 2017 valuation, it is assumed the State will make pension contributions the June 30th following the valuation date. Effective with the July 1, 2017 valuation, 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.

Receivable Contributions

For the July 1, 2016 valuation, State contributions are expected to be paid the June 30th following the valuation date and are discounted by the valuation interest rate of 7.65% to the valuation date. Effective with the July 1, 2017 valuation, State contributions are expected to be paid in equal quarterly amounts as of September 30th, December 31st, March 31st, and June 30th following the valuation date and are discounted by the interest rate of 7.50% to the valuation date.

Asset Valuation Method

A five-year average of market values with write-up. (This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis, over a five-year period.)

Deaths After Retirement

For healthy inactive members and beneficiaries of deceased members the RP-2000 Combined Healthy Male (set back 3 years) and RP-2000 Combined Healthy Female Mortality tables projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB. These base tables will be further projected beyond the valuation date using the Buck Modified MP-2014 mortality improvement scale. For disabled members the RP-2000 Combined Healthy Male (set forward 5 years) and RP-2000 Combined Healthy Female Mortality (set forward 5 years) tables are used. Illustrative rates of mortality unadjusted for the Buck Modified MP-2014 Projection Scale are shown below:

	Lives per Thousand			
	Retired Members and Beneficiaries of Deceased Members		Disabled Members	
Age	Males	Females	Males	Females
55	2.6	2.5	6.7	5.1
60	4.3	4.4	12.7	9.7
65	7.5	8.3	22.2	16.7
70	13.2	14.3	37.8	28.1
75	22.4	24.0	64.4	45.9
80	38.5	39.2	110.8	77.4
85	66.1	66.2	183.4	131.7
90	117.8	114.0	267.5	194.5

Summary of Actuarial Assumptions and Methods, *continued*

Rates of Retirement

Rates of retirement vary by length of service and age (if more than 24 years of service) with 100% of those remaining at age 55 retiring at age 55. The rates are shown below:

Service	Lives Per 100
20	2.0
21	0.5
22	0.0
23	0.0
24	0.0
25	50.0
Greater than 25:	
(a) Through age 42	5.0
(b) ages 43-47	28.0
(c) ages 48-53	33.0
(d) age 54	61.0

Changes in Actuarial Assumptions and Methods

The following are changes to the actuarial assumptions and methods from those used in the prior valuation:

1. The rate of investment return has been reduced from 7.65% per annum to 7.50% per annum. The impact of the assumption change is an increase in the accrued liability of $55,934,385.

Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/2017	101	$5,555,153	79	$3,074,257	3,588	$215,773,680	1.16%	$60,138
7/1/2016	137	8,351,556	82	3,165,408	3,566	213,292,784	1.02	59,812
7/1/2015	160	10,330,374	58	2,732,284	3,511	208,106,636	3.79	59,273
7/1/2014	201	14,131,655	45	1,563,031	3,409	200,508,546	6.69	58,817
7/1/2013	291	20,641,305	68	2,192,736	3,253	187,939,922	10.88	57,774
7/1/2012	256	17,483,694	44	1,557,365	3,030	169,491,353	10.81	55,938

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

2. *The benefit amounts shown prior to the 7/1/2013 valuation date are the annualized benefits as of the valuation date and are not the actual benefits paid during the fiscal year.*

Schedule of Active Members Valuation Data

Valuation Date	Number of Active Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/2017	2,812	$289,022,222	$102,782	0.83%
7/1/2016	2,725	277,771,135	101,934	-0.01
7/1/2015	2,676	275,477,457	102,944	-1.09
7/1/2014	2,522	262,496,289	104,083	-1.46
7/1/2013	2,481	262,063,829	105,628	1.48
7/1/2012	2,721	283,219,927	104,086	7.56

Solvency Test

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[3]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members		(1)	(2)	(3)
7/1/17	$206,680,622	$2,445,366,686	$694,034,966	$1,923,127,122	100.00%	70.19%	0.00%
7/1/16	190,955,019	2,401,980,284	616,450,730	1,931,131,875	100.00	72.45	0.00
7/1/15	181,536,046	2,289,865,821	618,818,617	1,969,239,472	100.00	78.07	0.00
7/1/14	173,529,948	2,173,442,158	616,210,014	1,981,376,495	100.00	83.18	0.00
7/1/13	171,462,709	2,034,551,263	664,576,728	1,990,797,312	100.00	89.42	0.00
7/1/12	180,407,372	1,822,707,659	764,653,782	1,995,388,133	100.00	99.58	0.00

3. Actuarial value including receivable amounts.

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

Valuation Year	July 1, 2017	July 1, 2016	July 1, 2015	July 1, 2014	July 1, 2013	July 1, 2012
Prior Year Contribution Rate[1]	51.92%	48.36%	45.18%	41.56%	37.78%	32.53%
Adjustment for full member contributions to offset normal cost	N/A	N/A	N/A	N/A	(1.34)%	N/A
Revised Prior Year Contribution Rate[1]	51.92%	48.36%	45.18%	41.56%	36.44%	32.53%
Net Change Due to:						
Current New Entrants	0.34	0.10	0.71	0.36	0.00	0.11
Excess Salary Increases	0.68	(0.46)	(0.26)	(0.78)	(0.35)	1.58
Assumption/Method Changes	1.44	(0.01)	1.86	0.79	0.00	0.20
COLA Increases	0.00	0.00	0.00	0.00	0.00	0.00
Retiree Mortality	(0.33)	(0.44)	(0.38)	0.16	0.88	0.37
Active and Other Experience	(1.79)	0.54	(1.57)	0.38	1.28	(0.88)
Revised State Contribution[2]	0.07	0.00	(0.19)	N/A	N/A	N/A
Investment Loss/(Gain)	0.69	1.48	0.55	0.12	1.33	1.87
Appropriation Act[3]	2.05	2.35	2.46	2.59	1.98	2.00
Recommended Contribution Rate:						
• Prior to reflecting Chapter 1, P.L. 2010[1]	55.07%	51.92%	48.36%	45.18%	41.56%	37.78%
• After reflecting Chapter 1, P.L. 2010[1]	N/A	N/A	N/A	N/A	23.75%	16.18%

1 *Excludes contribution rates of .68% for 2017, 0.61% for 2016, 0.65% for 2015, 0.84% for 2014, 0.76% for 2013 and 0.67% for 2012 for premiums payable to the Non-Contributory Group Insurance Premium Fund.*

2 *The anticipated fiscal year 2017 contribution of $53,287,065 has been decreased to $51,038,000 to reflect the actual State contribution made during fiscal year 2017. The anticipated fiscal year 2015 contribution of $31,491,069 has been increased to $37,358,000 to reflect the actual State contribution made during fiscal year 2015.*

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

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

Eligibility for Membership

All members of the former State Police and Benevolent Fund: full-time commissioned officers, non-commissioned officers or troopers of the Division of State Police. Membership is a condition of employment.

1. Definitions

Plan Year

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

Service

Service rendered while a member as described above.

Credited Service

A year is credited for each year of service as an officer or trooper in the State Police. Service with other State Retirement Systems is included in the calculation of the retirement benefit at the rate of 1% of final compensation for each year of service credit.

Compensation

Based on contractual salary, including maintenance allowance, received by the member in the last 12 months of credited service preceding retirement, termination or death. Compensation does not include individual salary adjustments granted primarily in anticipation of the retirement or for temporary or extracurricular duties beyond the ordinary work day. (Effective June 30, 1996, Chapter 113, P.L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the System cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code; Chapter 1, P.L. 2010 provides that for members hired on or after May 22, 2010, the amount of compensation used for employer and member contributions and benefits under the System cannot exceed the annual maximum wage contribution base for Social Security, pursuant to the Federal Insurance Contributions Act.)

Final Compensation (FC)

Average compensation received by member in last 12 months of credited service preceding retirement or death. Such term includes the value of the member's maintenance allowance for the same period. (Chapter 1, P.L. 2010 provides that for members hired on or after May 22, 2010, Final Compensation means the average annual salary for service for which contributions are made during any three fiscal years of membership providing the largest possible benefit to the member or the member's beneficiary. Such term shall include the value of the member's maintenance allowance.)

Aggregate Contributions

The sum of all amounts deducted from the compensation of a member or contributed by him or on his behalf. For contribution purposes, compensation does not include overtime, bonuses, maintenance or any adjustments before retirement.

Adjusted Final Compensation

The amount of compensation or compensation as adjusted, as the case may be, increased by the same percentage increase which is applied in any adjustments of the compensation schedule of active members after the member's death and before the date on which the deceased member of the retirement system would have accrued 25 years of service under an assumption of continuous service, at which time that amount will become fixed. Adjustments to compensation or adjusted compensation shall take effect at the same time as any adjustments in the compensation schedule of active members.

2. Benefits

Service Retirement

Mandatory retirement at age 55. Voluntary retirement prior to age 55 with 20 years of credited service. Benefit is an annual retirement allowance equal to the greater of (a), (b), or (c), as follows:

(a) 50% of final compensation;

(b) For members retiring with 25 or more years of service, 65% of final compensation, plus 1% for each year of service in excess of 25 years, to a maximum of 70% of final compensation.

(c) For members as of August 29, 1985 who would not have 20 years of service by age 55, benefit as defined in (a) above. For members as of August 29, 1985 who would have 20 years of service but would not have 25 years of service at age 55, benefit as defined in (a) above plus 3% for each year of service in excess of 20 years.

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

Vested Termination

Termination of service prior to age 55. Benefit for 10 to 20 years of service - Refund of aggregate contributions, or a deferred life annuity beginning at age 55 equal to 2% of final compensation for each year of service up to 20 years.

Ordinary Death

Before Retirement

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

(a) Lump sum payment equal to 3-1/2 times final compensation, plus

(b) Spousal life annuity of 50% of final compensation payable until spouse's death or remarriage. If there is no surviving spouse, or upon death or remarriage, a total of 20%, 35% or 50% of final compensation payable to one, two or three dependent children. If there is no surviving spouse (or dependent children), an amount equal to 25% or 40% of final compensation to one or two dependent parents.

Minimum Ordinary Death Benefit

Aggregate contributions

After Retirement

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

(a) Lump sum of 50% of final compensation, plus

(b) Spousal life annuity of 50% of final compensation payable until spouse's death or remarriage. If there is no surviving spouse, or upon death or remarriage, a total of 20%, 35% or 50% of final compensation payable to one, two or three dependent children, respectively.

Accidental Death

Death of an active member of the plan resulting during performance of duties. Benefit is equal to:

(a) Lump sum payment equal to 3-1/2 times final compensation, plus

(b) Spousal life annuity of 70% of adjusted final compensation payable until spouse's death. If there is no surviving spouse, or upon death of the surviving spouse, 70% of adjusted final compensation payable to surviving children in equal shares. If there is no surviving spouse or dependent children, 25% or 40% of adjusted final compensation to one or two dependent parents.

Ordinary Disability Retirement

Mentally or physically incapacitated for the performance of his usual duty and of any other available duty in the Division of State Police and such incapacity is likely to be permanent.

(a) The benefit for members with less than four years of service is a refund of the member's aggregate contributions.

(b) For members with at least four years of service, the benefit is an immediate life annuity equal to 40% of final compensation plus 1-1/2% of final compensation for years of creditable service in excess of 26-2/3.

(c) For members who are forced to retire with 20 but less than 25 years of service, the benefit is 50% of the member's final compensation plus 3% of final compensation for each year of service in excess of 20 years, to a maximum of 65% of final compensation.

For death following disability retirement, a lump sum equal to 3-1/2 times final compensation if death occurs prior to age 55 or 1/2 of final compensation after age 55.

Accidental Disability Retirement

Totally and permanently disabled as a direct result of a traumatic event occurring during and as a result of his regular or assigned duties. Benefit is an immediate life annuity equal to 2/3 of final compensation. Upon death after disability retirement, lump sum benefit of 3-1/2 times final compensation if death occurs before age 55 and 1/2 times final compensation if death occurs after age 55.

Loan Provision

Eligible if an active member of the State Police Retirement System with at least 3 years of contributory service. If eligible, a member may borrow an amount, which is greater than $50, but not more than 50% of aggregate contributions. The loan accrues at a rate set

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

by the State Treasurer, which is based on a commercially reasonable rate as required by the Internal Revenue Service. An administrative fee may be charged by for the loan.

Member Contributions

Each member contributes 9.0% of Compensation.

Summary of Changes from the July 1, 2016 Valuation

The definition of child has been changed to include children of age 18 or older and enrolled in a secondary school, or under age 24 and enrolled in a degree program in an institution of higher education for at least 12 credit hours in each semester. The accidental death benefit payable to dependent children if there is no surviving spouse has been increased to 70% of adjusted final compensation from a total of 20%, 35% or 50% of final compensation payable to one, two or three dependent children. The impact of these plan changes is an increase in the accrued liability of $239,606.

BUCK
500 Plaza Drive
Secaucus, NJ 07096

February 1, 2019

State House Commission

The Judicial Retirement System
of New Jersey

Re: Actuary's Certification Letter

Members of the Commission:

An actuarial valuation of the Judicial Retirement System ("JRS") is performed annually to measure the ongoing costs of the System and the progress towards the funding goals of the System over time. In general, the financial goals of the Judicial Retirement System are a pattern of contributions, which is sufficient to cover the normal cost of the System plus the contribution towards the unfunded accrued liability. The information contained in this certification letter is based on the July 1, 2017 valuation of JRS.

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

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

This valuation also reflects Chapter 83, P.L. 2016 which 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.

The valuation reflects actual fiscal year 2017 State contributions of $19,677,000. In addition, the fiscal year 2018 has an actuarially determined pension contribution of $23,265,972. This amount may be subject to change per the requirements of the State's fiscal year 2018 spending plan.

The actuarially determined contribution for the fiscal year beginning July 1, 2018 is $48,368,041. This amount is comprised of an unfunded accrued liability payment of $36,370,890 plus a normal contribution of $11,997,151. This amount may be subject to change per the requirements of the State's fiscal year 2019 spending plan.

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

As required under Chapter 140, P.L. 1973, experience studies are performed once in every three year period. The valuation was prepared on the basis of the demographic assumptions that were determined from the July 1, 2011 – June 30, 2014 Experience Study and approved by the State House Commission. These assumptions will remain in effect for valuation purposes until such time as the State House Commission adopts revised demographic assumptions.

The valuation reflects economic assumptions, which include a rate of investment return of 7.50% per annum and the assumed future salary increases of 2.00% per annum through fiscal year ending 2025 and 3.00% per annum for fiscal years ending 2026 and thereafter. These assumptions will remain in effect for valuation purposes until such time the State House Commission or the Treasurer recommends revised assumptions.

The valuation cost method used is the projected unit credit method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. The asset valuation method used was a five-year average of market values with write-up. This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis.

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

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the State House Commission or staff of the State of New Jersey's Division of Pensions and Benefits may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. You should ask Buck Global, LLC (Buck), formerly Conduent HR Consulting LLC (Conduent), to review any statement you wish to make on the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

The actuarial assumptions and methods used by the Judicial Retirement System for financial reporting meet the requirements set forth in Governmental Accounting Standards Board (GASB) Statements No. 67 and No. 68. Information necessary to comply with the reporting requirements of GASB Statement Nos. 67 and No. 68 were provided in separate Actuarial Reports, which are available on the Division of Pensions and Benefits web site. Please refer to the separate Actuarial Reports for supplementary information documentation and support for the actuarial analysis and information presented herein.

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

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

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience–Reconciliation of Employer Contribution Rates
- Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck prepared the “Schedule of Assets and Liabilities” and the “Schedule of Employer Contributions” in the Financial Section which can be found in the July 1, 2017 valuation report for JRS. The Schedule of Assets and Liabilities and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statements No. 67 and No. 68 became effective as of the June 30, 2014 and June 30, 2015 reporting dates, respectively.

To the best of my knowledge, this information is complete and accurate. The valuation was performed by, and under the supervision of, independent qualified actuaries who are members of the American Academy of Actuaries with experience in performing valuations for public retirement systems.

The valuation was prepared in accordance with the principles of practice prescribed by the Actuarial Standards Board and generally accepted actuarial procedures and methods. The calculations are based on the current provisions of the Retirement System, and on actuarial assumptions that are individually and in the aggregate internally consistent and reasonable based on the actual experience of the Retirement System.

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy’s qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA
Principal, Consulting Actuary
Buck Global, LLC

Summary of Actuarial Assumptions and Methods

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

The demographic assumptions used for the July 1, 2017 actuarial valuation of the Judicial Retirement System were based on the results of the experience study, which covered the period from July 1, 2011 to June 30, 2014, which were approved by the State House Commission. The valuation interest rate assumption was changed effective with the July 1, 2017 valuation as indicated below.

An outline of the actuarial assumptions and methods used for the July 1, 2017 valuation is as follows:

Valuation Interest Rate: 7.50% per annum, compounded annually.

COLA: No future COLA is assumed.

Salary Increases: Salaries are assumed to increase by 2.00% per year through fiscal year ending 2025 and 3.00% per year for fiscal years ending 2026 and thereafter.

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

Separations from Service

Representative mortality and disability rates are as follows:

	Lives per Thousand		
	Death[1]		
Age	Male	Female	Disability
30	0.43	0.38	0.22
35	0.74	0.58	0.26
40	1.04	0.90	0.33
45	1.45	1.38	0.64
50	2.06	2.12	1.14
55	3.49	3.68	1.97
60	6.16	6.71	3.26
65	10.89	11.49	4.73

[1] RP-2000 Combined Healthy Male and RP-2000 Combined Healthy Female 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 for the base tables. The base tables are projected beyond the base year using the Buck Modified MP-2014 Projection scale. The above rates are unadjusted for the Buck Modified MP-2014 Projection Scale.

Summary of Actuarial Assumptions and Methods, *continued*

Deaths after Retirement

RP-2000 Combined Healthy Mortality Tables (unadjusted for males and set forward 3 years for females) for service retirement and beneficiaries of former members projected on a generational basis from the base year of 2000 to 2013 using Projection Scale BB for the base tables. The base tables are projected beyond the base year using the Buck Modified MP-2014 Projection scale. The RP-2000 Disability Mortality Tables (set forward 2 years for males and females) are used to value disabled retirees. Representative values of the annual rates of mortality unadjusted for the Buck Modified MP-2014 Projection Scale are as follows:

	Lives per Thousand			
	Retired Members & Beneficiaries of Deceased Members		Disabled Members	
Age	Males	Females	Males	Females
55	3.49	3.68	38.03	18.65
60	6.16	6.71	44.98	24.08
65	10.89	11.49	54.45	31.32
70	18.25	19.63	69.41	42.85
75	31.09	32.13	92.15	59.54
80	52.89	53.43	121.88	82.30
85	91.00	91.72	155.23	114.51
90	158.84	147.61	216.61	159.92

Summary of Actuarial Assumptions and Methods, *continued*

Retirement

Age	Lives per Thousand			
	Age 60 with 20 Years Judicial Service or Age 65 with 15 Years Judicial Service	After Age 59 with Less than 12 Years 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 Judicial Service and 25 Years Public Service
50	0.00000	0.00000	0.00000	0.00000
51	0.00000	0.00000	0.00000	0.00000
52	0.00000	0.00000	0.00000	0.00000
53	0.00000	0.00000	0.00000	0.00000
54	0.00000	0.00000	0.00000	0.00000
55	0.00000	0.00000	0.00000	0.00000
56	0.00000	0.00000	0.00000	0.00000
57	0.00000	0.00000	0.00000	0.00000
58	0.00000	0.00000	0.00000	0.00000
59	0.00000	0.00000	0.00000	0.00000
60	0.30000	0.02500	0.00000	0.00000
61	0.20000	0.02500	0.00000	0.00000
62	0.20000	0.02500	0.00000	0.00000
63	0.30000	0.02500	0.00000	0.00000
64	0.30000	0.02500	0.00000	0.00000
65	0.37500	0.02500	0.10000	0.00000
66	0.24000	0.02500	0.00000	0.00000
67	0.24000	0.02500	0.00000	0.00000
68	0.24000	0.02500	0.00000	0.00000
69	0.24000	0.02500	0.00000	0.00000

Marriage

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

Valuation Method

Projected Unit Credit Method. This method essentially funds the System's benefits accrued to the valuation date. Experience gains and losses are recognized in future accrued liability contributions. In accordance with Chapter 78, P.L. 2011, beginning with the July 1, 2010 actuarial valuation, the accrued liability contribution shall be computed so that if the contribution is paid annually in level dollars, it will amortize the unfunded accrued liability over an open 30 year period. Beginning with the July 1, 2019 actuarial valuation, the accrued liability contribution shall be computed so

Summary of Actuarial Assumptions and Methods, *continued*

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.

State Contribution Payable Dates

Prior to the July 1, 2017 valuation, it is assumed the State will make pension contributions the June 30th following the valuation date. Effective with the July 1, 2017 valuation, 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.

Receivable Contributions

For the July 1, 2016 valuation, State contributions are expected to be paid the June 30th following the valuation date and are discounted by the valuation interest rate of 7.65% to the valuation date. Effective with the July 1, 2017 valuation, State contributions are expected to be paid in equal quarterly amounts as of September 30th, December 31st, March 31st, and June 30th following the valuation date and are discounted by the interest rate of 7.50% to the valuation date.

Asset Valuation Method

A five year average of market values with write-up was used. (This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income, on a market value basis, over a five-year period).

The following are changes to the actuarial assumptions and methods from those used in the prior valuation:

1. The rate of investment return has been reduced from 7.65% per annum to 7.50% per annum. The impact of the assumption change indicates an increase in the accrued liability of $7,782,928 due to this assumption change.

Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number[1]	Annual Allowance[2]		
7/1/2017	37	$ 3,058,274	19	$ 1,670,094	623	$56,481,444	2.52%	$90,660
7/1/2016	41	3,599,047	22	1,471,553	605	55,093,264	4.02	91,063
7/1/2015	43	4,254,340	18	1,234,963	586	52,965,770	6.05	90,385
7/1/2014	34	3,165,378	22	1,456,153	561	49,946,393	3.54	89,031
7/1/2013	48	4,091,470	34	2,021,915	549	48,237,168	4.48	87,864
7/1/2012	34	3,723,186	21	1,423,636	535	46,167,613	5.24	86,295

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

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

Schedule of Active Members Valuation Data

Valuation Date	Number of Active Members	Annual Compensation	Average Compensation	% Increase in Average Compensation
7/1/2017	430	$71,385,705	$166,013	-0.00%
7/1/2016	410	68,062,584	166,006	-0.05
7/1/2015	404	67,097,166	166,082	-0.14
7/1/2014	397	66,028,491	166,319	0.32
7/1/2013	409	67,810,110	165,795	-0.13
7/1/2012	407	67,497,660	165,842	-0.16

Solvency Test

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[3]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members		(1)	(2)	(3)
7/1/2017	$37,093,233	$471,714,228	$137,699,648	$216,952,852	100.00%	38.13%	0.00%
7/1/2016	31,564,870	460,298,517	169,512,295	226,310,119	100.00	42.31	0.00
7/1/2015	26,322,768	430,541,499	145,499,933	243,864,022	100.00	50.53	0.00
7/1/2014	23,058,086	444,577,573	165,044,278	258,101,497	100.00	52.87	0.00
7/1/2013	20,588,967	435,970,958	163,816,367	276,966,331	100.00	58.81	0.00
7/1/2012	19,799,227	417,423,315	167,958,092	290,191,842	100.00	64.78	0.00

3. Actuarial value including receivable amounts.

Analysis of Past Financial Experience — Reconciliation of Employer Contribution Rates

Valuation Year	July 1, 2017	July 1, 2016	July 1, 2015	July 1, 2014	July 1, 2013	July 1, 2012
Prior Year Contribution Rate[1]	68.37%	65.81%	70.43%	65.38%	66.20%	60.43%
Adjustment for full member contributions to offset normal cost	N/A	N/A	N/A	N/A	(2.42)%	N/A
Revised Prior Year Contribution Rate[1]	68.37%	65.81%	70.43%	65.38%	63.78%	60.43%
Net Change Due to:						
Current New Entrants	1.85	1.31	1.97	0.68	1.93	1.73
Excess Salary Increases	(0.71)	(0.64)	(0.62)	(0.34)	(0.91)	(0.97)
Assumption/Method Changes	0.77	(0.63)	(8.54)	1.03	0.00	0.61
COLA Increases	N/A	N/A	N/A	N/A	N/A	N/A
Retiree Mortality	(0.45)	0.97	(0.14)	0.36	0.19	0.12
Active and Other Experience	(5.08)	(2.83)	(1.84)	(1.16)	(3.86)	(1.05)
Revised State Contribution[2]	(0.24)	(0.00)	(0.31)	N/A	N/A	N/A
Investment Loss/(Gain)	0.58	0.96	0.59	0.45	1.06	1.52
Appropriation Act[3]	2.67	3.42	4.27	4.03	3.19	3.81
Chapter 78, P.L. 2011	N/A	N/A	N/A	N/A	N/A	N/A
Recommended Contribution Rate:						
• Prior to reflecting Chapter 1, P.L. 2010[1]	67.76%	68.37%	65.81%	70.43%	65.38%	66.20%
• After reflecting Chapter 1, P.L. 2010[1]	N/A	N/A	N/A	N/A	37.36%	28.37%

1. *Excludes contribution rates of 1.02% for 2017, 1.02% for 2016, 0.97% for 2015, 1.22% for 2014, 1.18% for 2013 and 1.29% for 2012 for premiums payable to the Non-Contributory Group Insurance Premium Fund.*

2. *The anticipated fiscal year 2015 contribution of $14,117,622 has been increased to $16,506,000 to reflect the actual State contribution made during fiscal year 2015.*

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

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

Eligibility for Membership

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

1. Definitions

Plan Year

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

Service

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

Final Salary

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

Accumulated Deductions

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

Retirement Allowance

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

2. Benefits

Service Retirement

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

(i) Age 70 and 10 years of judicial service;

(ii) Age 65 and 15 years of judicial service; or

(iii) Age 60 and 20 years of judicial service.

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

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

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

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

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

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

Early Retirement

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

Vested Termination

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

Death Benefits

Before Retirement

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

(a) Lump sum payment equal to 1-1/2 times final salary, plus

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

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

After Retirement

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

(a) Lump sum of 25% of final salary for a member retired under normal or early retirement. If a member were receiving a disability benefit, a lump sum 1-1/2 times final salary if death occurred before the member attained age 60 and ¼ times final salary if death occurred after age 60, plus

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

Disability Retirement

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

Member Contributions

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

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

A. For members enrolled prior to January 1, 1996

(i) Member Contributions of 9% (phased-in over a period of seven years beginning October 2011) of the salary for that position on January 18, 1982.

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

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

BUCK
500 Plaza Drive
Secaucus, NJ 07096

February 1, 2019

Commission
Consolidated Police and Firemen's Pension Fund
of New Jersey

Re: Actuary's Certification Letter

Members of the Commission:

An actuarial valuation of the Consolidated Police and Firemen's Pension Fund ("CPFPF") is performed annually to measure the ongoing costs of the Fund and the progress towards the funding goals of the Fund over time. Since the Pension Fund is closed to new entrants and there are no active participants, the financial goals of the Consolidated Police and Firemen's Pension Fund are to ensure that the combination of future State appropriations and current Trust assets, both projected forward with expected investment earnings, are sufficient to provide for all future benefit payments. The information contained in this certification letter is based on the July 1, 2017 valuation of CPFPF.

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

The actuarially determined contribution for the fiscal year beginning July 1, 2018 was based on the method described above using an interest rate of 2.00% per annum. In accordance with actuarial standards of practice, the mortality assumption for service retirements and beneficiaries was updated to the 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 MP-2014 projection scale. The asset valuation method used was a five-year average of market values with write-up. This method takes into account appreciation (depreciation) in investments in order to smooth asset values by averaging the excess of the actual over the expected income.

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

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the Commission or staff of the State of New Jersey's Division of Pensions and Benefits may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. You should ask Buck Global, LLC (Buck), formerly Conduent HR Consulting LLC (Conduent), to review any statement you wish to make on the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

STATE OF NEW JERSEY
DIVISION OF PENSIONS & BENEFITS
CONSOLIDATED POLICE AND FIREMEN'S PENSION FUND

The actuarial assumptions and methods used by the Consolidated Police and Firemen's Pension Fund for financial reporting meet the requirements set forth in Governmental Accounting Standards Board (GASB) Statement No. 67. Information necessary to comply with the reporting requirements of GASB Statement No. 67 was provided in a separate Actuarial Report, which is available on the Division of Pensions and Benefits web site. Please refer to that separate Actuarial Report for supplementary information documentation and support for the actuarial analysis and information presented herein.

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

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

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience – Reconciliation of Unfunded Accrued Liability/(Surplus)
- Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck prepared the "Schedule of Assets and Liabilities" and the "Schedule of Employer Contributions" in the Financial Section which can be found in the July 1, 2017 valuation report for CPFPF. The Schedule of Assets and Liabilities and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statement No. 67 became effective as of the June 30, 2014 reporting date.

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, FSA, EA, MAAA
Principal, Consulting Actuary
Buck Global, LLC

Summary of Actuarial Assumptions and Methods

An outline of the actuarial assumptions and methods used for the July 1, 2017 valuation is as follows:

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

Deaths after Retirement

RP-2000 Combined Healthy Mortality Tables 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 MP-2014 projection scale. Representative values of the assumed annual rates of mortality unadjusted for the Buck Modified MP-2014 projection scale are as follows:

	Service Pensioners and Beneficiaries	
Age	Men	Women
60	0.612%	0.439%
65	1.076	0.820
70	1.797	1.414
75	3.062	2.374
80	5.209	3.875
85	8.964	6.540
90	15.710	11.279

Marriage

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

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

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

Actuarial Method

The unfunded accrued liability was measured as of June 30, 1990 and the accrued liability contribution rate was then determined such that the unfunded accrued liability was to be amortized over a period of 9 years with contributions expected to remain constant.

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

In developing the unfunded accrued liability contribution rate as of June 30, 1991 and subsequent years, the contribution rate is adjusted to amortize any gains or losses over the remainder of the 9-year period. (Without additional guidance, we have assumed that the unfunded accrued liability determined as of June 30, 2017 will be amortized over 1 year.)

Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase (Decrease) in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance[1]		
7/1/2017	$0	$0	18	$ 117,408	77	$540,530	(17.84)%	$7,020
7/1/2016	0	0	29	164,935	95	657,938	(20.04)	6,925
7/1/2015	0	0	25	210,952	124	822,873	(20.41)	6,636
7/1/2014	0	0	36	268,424	149	1,033,825	(20.61)	6,938
7/1/2013	0	0	56	414,903	185	1,302,249	(24.16)	7,039
7/1/2012	3	46,595	72	478,997	241	1,717,152	(20.12)	7,125

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

Schedule of Active Members Valuation Data

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

Solvency Test

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members		(1)	(2)	(3)
7/1/17	$0	$2,674,728	$0	$2,721,368	N/A	100.00%	N/A
7/1/16	0	3,336,743	0	3,017,928	N/A	90.45	N/A
7/1/15	0	4,208,241	0	3,340,908	N/A	79.39	N/A
7/1/14	0	4,848,499	0	4,366,457	N/A	90.06	N/A
7/1/13	0	6,102,292	0	6,445,847	N/A	100.00	N/A
7/1/12	0	8,026,421	0	7,179,322	N/A	89.45	N/A

1. Actuarial value including receivable amounts.

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

Valuation Year	July 1, 2017	July 1, 2016	July 1, 2015	July 1, 2014	July 1, 2013	July 1, 2012
Prior Year Unfunded/(Surplus)	$318,815	$867,333	$482,042	$(343,555)	$847,099	$879,297
Net Change Due to:						
Interest on Prior Year Unfunded/(Surplus)	$6,376	$17,347	$9,641	$(6,871)	$16,942	$17,586
Investment Loss/(Gain)	164,069	194,017	228,240	265,707	306,998	355,895
Retiree Experience	(154,174)	(264,949)	(201,179)	(314,561)	(650,553)	(515,459)
State Appropriations	(381,726)	(494,933)	0	0	(864,041)	(896,883)
Appropriations Act	N/A	N/A	N/A	881,322	N/A	N/A
Assumption, Benefit or Method Changes	N/A	N/A	348,589	N/A	N/A	1,006,663
Actual Unfunded/(Surplus)	$(46,040)	$318,815	$867,333	$482,042	$(343,555)	$847,099

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

Eligibility for Membership

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

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

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

1. Definitions

Plan Year

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

Service

Service rendered while a member as described above.

Compensation

Base salary; not including individual salary adjustments which are granted primarily in anticipation of retirement or additional remuneration for performing temporary duties beyond the regular work day. (Effective June 30, 1996 Chapter 113, P.L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the program cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code.)

Final Compensation

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

Average Salary

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

2. Benefits

Service Retirement

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

Death Benefit while on duty

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

Death Benefit while not on duty after retirement

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

Ordinary Disability Retirement

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

Accidental Disability Retirement

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

3. Contributions

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

BUCK
500 Plaza Drive
Secaucus, NJ 07096

February 1, 2019

The Board of Trustees
Prison Officers' Pension Fund
of New Jersey

Re: Actuary's Certification Letter

Office of the Division:

An actuarial valuation of the Prison Officers' Pension Fund ("POPF") is performed annually to measure the ongoing costs of the Fund and the progress towards the funding goals of the Fund over time. Since the pension fund is closed to new entrants and there are no active participants, the financial goals of the Prison Officers' Pension Fund are to ensure that the combination of future State appropriations and current Trust assets, both projected forward with expected investment earnings, are sufficient to provide for all future benefit payments. The information contained in this certification letter is based on the July 1, 2017 valuation of POPF.

The unfunded accrued liability for basic allowances was initially determined as of July 1, 1989 and was to be amortized over the 14-year period beginning July 1, 1989 and ending on July 1, 2002. However, the provisions of Chapter 115, P.L. 1997 of the Pension Security Legislation permitted the State to pay off the unfunded accrued liability from the proceeds of pension obligation bonds. The net effect of this legislation and plan experience was that no contributions were required for the fiscal year beginning July 1, 2018. (There were no required unfunded accrued liability payments due to the fact that a net surplus existed as of July 1, 2017.)

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

The actuarially determined contribution for the fiscal year beginning July 1, 2018 was based on the method described above using an interest rate of 5.00%. In accordance with actuarial standards of practice, the mortality assumption for service retirements and beneficiaries reflects the RP-2000 Combined Healthy Mortality Tables projected on a generational basis 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 MP-2014 projection scale. Assets are valued at book value, which is equivalent to market value.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the staff of the State of New Jersey's Division of Pensions and Benefits may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. You should ask Buck Global, LLC (Buck), formerly Conduent HR Consulting LLC (Conduent), to review any statement you wish to make on the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

The actuarial assumptions and methods used by the Prison Officers' Pension Fund for financial reporting meet the requirements set forth in Governmental Accounting Standards Board (GASB) Statement No. 67. Information necessary to comply with the reporting requirements of GASB Statement No. 67 was provided in a separate Actuarial Report, which is available on the Division of Pensions and Benefits web site. Please refer to the separate Actuarial Report for supplementary information documentation and support for the actuarial analysis and information presented herein.

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

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

- Summary of Actuarial Assumptions and Methods
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Schedule of Active Member Valuation Data
- Solvency Test
- Analysis of Past Financial Experience – Reconciliation of Unfunded Accrued Liability/(Surplus)
- Summary of the Benefit and Contribution Provisions as Interpreted for Valuation Purposes

In addition, Buck prepared the "Schedule of Assets and Liabilities" and the "Schedule of Employer Contributions" in the Financial Section which can be found in the July 1, 2017 valuation report for POPF. The Schedule of Assets and Liabilities and the Schedule of Employer Contributions are provided for informational purposes only since the reporting requirements of Statement No. 67 became effective as of the June 30, 2014 reporting date.

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, M.A.A.A., F.S.A., E.A.
Principal, Consulting Actuary
Buck Global, LLC

Summary of Actuarial Assumptions and Methods

An outline of the actuarial assumptions and methods used for the July 1, 2017 valuation is as follows:

Valuation Interest Rate: 5.00% per annum, compounded annually for development of costs.

Deaths after Retirement

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 MP-2014 projection scale. RP-2000 disabled retiree mortality table is used for the period after disability retirement for disability retirements. Representative values of the assumed annual rates of mortality unadjusted for the Buck Modified MP-2014 projection scale are as follows:

	Service Pensioners and Beneficiaries		Disability Pensioners	
Age	**Men**	**Women**	**Men**	**Women**
60	0.612%	0.439%	4.204%	2.184%
65	1.076	0.820	5.017	2.803
70	1.797	1.414	6.258	3.764
75	3.062	2.374	8.207	5.223
80	5.209	3.875	10.937	7.231
85	8.964	6.540	14.160	10.020
90	15.710	11.279	18.341	14.005

Marriage:

Husbands are assumed to be 3 years older than wives.

Valuation Method

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

Asset Valuation Method

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

Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls

Valuation Date	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance	Number	Annual Allowance	Number	Annual Allowance[1]		
7/1/2017	1	$5,776	14	$96,732	77	$488,522	-15.70%	$6,344
7/1/2016	1	10,055	9	82,458	90	579,478	-11.11	6,439
7/1/2015	2	11,794	14	152,980	98	651,881	-17.80	6,652
7/1/2014	1	7,671	12	71,652	110	793,067	-7.47	7,210
7/1/2013	1	2,856	15	82,854	121	857,048	-8.54	7,083
7/1/2012	3	20,252	10	76,496	135	937,046	-5.66	6,941

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

Schedule of Active Members Valuation Data

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

Solvency Test

Valuation Date	Accrued Liabilities For			Net Assets Available for Benefits[1]	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Member Contributions	(2) Current Retirees & Beneficiaries	(3) Active & Inactive Members		(1)	(2)	(3)
7/1/17	$0	$2,849,732	$0	$5,620,868	N/A	100.00%	N/A
7/1/16	0	3,461,099	0	6,111,233	N/A	100.00	N/A
7/1/15	0	3,889,524	0	6,704,568	N/A	100.00	N/A
7/1/14	0	4,301,307	0	7,383,201	N/A	100.00	N/A
7/1/13	0	4,748,938	0	8,171,920	N/A	100.00	N/A
7/1/12	0	5,395,505	0	9,044,236	N/A	100.00	N/A

1. Market value including receivable amount.

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

Valuation Year	July 1, 2017	July 1, 2016	July 1, 2015	July 1, 2014	July 1, 2013	July 1, 2012
Prior Year Unfunded/(Surplus)	$(2,650,134)	$(2,815,044)	$(3,081,894)	$(3,422,982)	$(3,648,731)	$(4,900,858)
Net Change Due to:						
Interest on Prior Year Unfunded/(Surplus)	$(132,507)	$(140,752)	$(154,095)	$(171,149)	$(182,437)	$(245,043)
Investment Loss/(Gain)	261,844	302,063	345,889	381,569	421,375	473,239
Retiree Experience	(250,339)	3,599	(275,405)	130,668	(13,189)	210,511
Assumption/Method Changes	N/A	N/A	350,461	N/A	N/A	813,420
Actual Unfunded/(Surplus)	$(2,771,136)	$(2,650,134)	$(2,815,044)	$(3,081,894)	$(3,422,982)	$(3,648,731)

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

Eligibility for Membership

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

1. Definitions

Plan Year

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

Service

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

Average Final Compensation (AFC)

Average annual compensation (or base salary) for 3 years of Service immediately preceding retirement. (Effective June 30, 1996, Chapter 113, P.L. 1997 provided that the amount of compensation used for employer and member contributions and benefits under the program cannot exceed the compensation limitation of Section 401(a)(17) of the Internal Revenue Code.)

Accumulated Deductions

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

2. Benefits

Service Retirements

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

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

(B) 50% of final pay; and

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

Vested Retirements

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

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

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

Ordinary Disability Retirement

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

Accidental Disability Retirement

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

Death Benefits

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

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

3. Contributions

Service Retirement

Each member contributes 6% of compensation.

ACTUARIAL INFORMATION

BUCK
500 Plaza Drive
Secaucus, NJ 07096

February 1, 2019

Council
Supplemental Annuity Collective Trust
of New Jersey

Re: Actuary's Certification Letter

Members of the Council:

An actuarial valuation of the Supplemental Annuity Collective Trust ("SACT") is performed at least once in every three-year period to measure the ongoing costs of the Trust and the progress towards the funding goals of the Trust over time. The financial goals of the Supplemental Annuity Collective Trust are to ensure that current Trust assets are sufficient to provide for all future annuity payments. The information contained in this certification letter is based on the July 1, 2015 valuation of SACT.

The Supplemental Annuity Collective Trust of New Jersey was established under the provisions of Chapter 123, P.L. 1963, which was approved July 1, 1963. The act permits active members of the following retirement systems administered by the State of New Jersey to make voluntary additional contributions through their retirement systems to purchase either a variable or fixed annuity to supplement the benefits provided by their systems.

Public Employees' Retirement System
Teachers' Pension and Annuity Fund
The Police and Firemen's Retirement System
Consolidated Police and Firemen's Pension Fund
Prison Officers' Pension Fund
State Police Retirement System
Judicial Retirement System

As of the July 1, 2015 valuation, only the variable annuity program was in operation. It was inaugurated July 1, 1964. Chapter 123, P.L. 1963 was amended June 6, 1965 by Chapter 90, P.L. 1965, to permit eligible employees to enter into an agreement with their employers to reduce their salaries and purchase annuities on their behalf which will qualify for the tax sheltered treatment permitted under Section 403(b) of the Internal Revenue Code of 1954, as amended. The rules were revised in 1982 to permit contributions in the form of qualified voluntary employee contributions. These contributions are treated as IRA contributions for tax purposes.

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

The Trust status as of the fiscal year beginning July 1, 2015 was based on the actuarial assumptions and methods summarized on the following page. The mortality assumptions used for male and female service retirements and dependents of active and retired members were changed based on the results of an investigation of mortality experience covering the period July 1, 2012 to June 30, 2015. Based on the results of the study, the mortality assumptions for female service retirements, disability retirements and female beneficiaries of active and retired members were revised to better reflect actual plan experience. In addition, we have provided for future improvements in mortality for service retirements and beneficiaries of active and retired members using a generational approach. There were no other changes in actuarial assumptions and methods since the previous valuation.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. An analysis of the potential range of future results is beyond the scope of this valuation.

Use of this report for any other purpose or by anyone other than the Council or staff of the State of New Jersey's Division of Pensions and Benefits may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. You should ask Buck Global, LLC (Buck), formerly Conduent HR Consulting LLC (Conduent), to review any statement you wish to make on the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

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

This report was prepared under my supervision. I am a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. I meet the Academy's qualification Standards to issue this Statement of Actuarial Opinion. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and I am available to answer questions concerning it.

Respectfully submitted,

Aaron Shapiro

Aaron Shapiro, M.A.A.A., F.S.A., E.A.
Principal, Consulting Actuary
Buck Global, LLC

Summary of Actuarial Assumptions and Methods

An outline of the actuarial assumptions and methods used for the July 1, 2015 valuation is as follows:

In valuing the liabilities of the Variable Benefit Account, an interest rate of 4% per year was used.

In addition, the valuation used the RP-2000 Combined Healthy Male and Female Mortality Tables projected to 2014 using Scale BB for service retirement and dependent beneficiaries projected on a generational basis from the base year of 2014 using the Buck modified 2014 projection scale. The RP-2000 Disability Mortality Tables are used to value disabled retirees. Illustrative rates of mortality unadjusted for the Buck Modified 2014 projection scale used for valuation purposes are as follows:

	Rate per 1,000			
	Service Retirement		Disability	
Age	Male	Female	Male	Female
40	1.04	0.68	22.57	7.45
45	1.45	1.08	22.57	7.45
50	2.05	1.61	28.98	11.53
55	3.48	2.53	35.44	16.54
60	6.12	4.39	42.04	21.84
65	10.76	8.20	50.17	28.03
70	17.97	14.14	62.58	37.63
75	30.62	23.74	82.07	52.23
80	52.09	38.75	109.37	72.31
85	89.64	65.40	141.60	100.20
90	157.10	112.79	183.41	140.05
95	245.88	178.79	267.49	194.51

Based on the results of an investigation of the mortality experience covering the period from July 1, 2012 to June 30, 2015, the mortality tables used for female service retirements and beneficiaries of active and retired members and male and female disability retirements were changed. In addition, for service retirements and beneficiaries of active and retired members, provision is made for future improvements in mortality by using a generational approach using the Buck Modified 2014 projection scale.

Schedule of Retired Members and Beneficiaries Added to and Removed from Rolls

Valuation Date	Added to Rolls: Number	Added to Rolls: Number of Annual Variable Equity Units	Removed from Rolls: Number	Removed from Rolls: Number of Annual Variable Equity Units	Rolls at End of Year: Number	Rolls at End of Year: Number of Annual Variable Equity Units*	% Increase (Decrease) in Annual Variable Equity Units	Average Number of Annual Variable Equity Units
6/30/15	41	3,786.0852	94	9,951.7512	401	34,876.9704	(15.02)%	86.9750
6/30/12	25	2,353.8420	97	9,841.6716	454	41,042.6364	(15.43)	90.4023
6/30/09	36	3,512.0064	113	11,157.3420	526	48,530.4660	(13.61)	92.2632
6/30/06	35	2,435.0580	100	9,824.2776	603	56,175.8016	(11.62)	93.1605
6/30/03	47	6,040.8276	118	10,755.7560	668	63,565.0212	(6.91)	95.1572
6/30/00	57	5,584.7820	122	10,275.5556	739	68,279.9496	(6.43)	92.3951

** The monthly number of variable equity units shown are the benefits on the valuation date and are not the actual benefits paid during the succeeding three fiscal years.*

Schedule of Active Members Valuation Data**

Valuation Date	Number of Active Members	Equity Shares	Average Units Per Person	Percentage Increase in Average Equity Units
6/30/15	2,402	1,673,916.6458	696.8845	2.92%
6/30/12	2,729	1,847,879.8189	677.1271	14.52
6/30/09	3,317	1,961,173.8340	591.2493	11.41
6/30/06	3,576	1,897,693.2350	530.6748	9.09
6/30/03	3,910	1,902,053.0982	486.4586	(9.34)
6/30/00	4,023	2,158,681.7328	536.5851	(21.74)

***These values exclude suspended members.*

Solvency Test

Valuation Date	Present Value of Liabilities For			(4) Fund Balances	Percentage of Accrued Liabilities Covered by Net Assets Available		
	(1) Aggregate Contributions	(2) Current Beneficiaries	(3) Active & Inactives		(1)	(2)	(3)
6/30/15	$66,300,552	$26,859,498	$103,650,135	$206,729,868	100.00%	100.00%	100.00%
6/30/12	69,131,827	22,239,231	54,761,622	149,840,256	100.00	100.00	100.00
6/30/09	69,792,459	18,294,318	28,783,838	120,414,735	100.00	100.00	100.00
6/30/06	61,417,327	30,688,847	70,384,314	159,612,705	100.00	100.00	95.91
6/30/03	52,666,675	26,582,925	48,099,954	127,186,109	100.00	100.00	99.66
6/30/00	45,026,249	46,341,126	124,548,634	216,985,359	100.00	100.00	100.00

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

Valuation Year	July 1, 2015	July 1, 2012	July 1, 2009	July 1, 2006	July 1, 2003	July 1, 2000
Prior Valuation Deficit/(Surplus)	$(3,707,577)	$(3,544,120)	$2,877,783	$163,445	$(1,069,350)	$(758,284)
Net Change Due to:						
Retiree Experience	(4,347,567)	(947,053)	(6,421,903)	1,128,877	1,232,795	1,919,537
Assumptions/Method Changes	(1,684,539)	783,596	N/A	1,585,451	N/A	(2,230,603)
Current Valuation Deficit/(Surplus)	$(9,919,683)	$(3,707,577)	$(3,544,120)	$2,877,783	$163,445	$(1,069,350)

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

A summary of the benefit and contribution provisions of the Trust in effect on the valuation date is presented in the following digest. Participants' accounts are expressed in terms of equity units. The value of an equity unit was initially set at $10. The dollar value of the unit is computed at the end of each month. It varies as a result of mortality experience and gains and losses and dividend earnings on the Variable Division's investments.

Eligibility

Member of a State-administered retirement system may become a participant upon filing an application for enrollment.

Participant Accounts:

Although contributions are permitted in either fixed or variable accounts, only the variable system is currently in place.

A. Three optional participant accounts:

(i) Variable annuity account.

(ii) Tax sheltered annuity account under Section 403(b) of the Internal Revenue Code.

(iii) Qualified voluntary employee contribution account (QVEC) – eliminated January 1, 1987.

B. Value of Account: The total number of equity units in force in the variable account at the end of each month shall be determined as follows:

(i) The number of equity units in force at the start of the month; plus

(ii) The number of equity units credited as of the first of the month for participant's contributions received during the preceding quarter, if any; less

(iii) The number of equity units paid out in the current month on account of terminations for death or withdrawal during the preceding month; less

(iv) The number of equity units transferred as of the first of the month for retirement during the preceding month; plus

(v) One third of one percent of the balance so obtained.

Benefits

Retirement

Upon retirement a participant is paid a life annuity which is the fixed number of variable equity units per month computed as the actuarial equivalent of the number of equity units in his account at the close of the month of retirement, multiplied by the value of each unit as of the end of the quarter preceding the month of payment.

At retirement the participant may elect in lieu of the variable life annuity either (1) a single cash payment, or (2) an equivalent reduced annuity with the provision that:

(a) In case of death prior to 5 years from the effective date of the annuity, the annuity will be continued to his designated beneficiary for the remainder of the 5-year period, or

(b) In case of death prior to 10 years from the effective date of the annuity, the annuity will be continued to his designated beneficiary for the remainder of the 10-year period, or

(c) At the death of the participant, his variable annuity will be continued throughout the life of such other person as the partici pant shall have designated at the time of retirement, or

(d) At the death of the participant, one-half of his variable annuity will be continued throughout the life of such other person as the participant shall have designated at the time of retirement.

In the event the value of the participant's account at retirement results in an annuity with initial monthly payments of less than $10, the benefit shall be paid in a single cash payment.

Death Before Retirement

If a participant dies before retirement, a lump sum payment equal to the value of his account on the last day of the month of his death is paid to his designated beneficiary or to his estate. If the beneficiary is a natural person, he may elect, in lieu of a lump sum payment, an annuity under any of the methods of settlement available to a retirant.

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

Withdrawal

Withdrawal is permitted only if membership in the basic State administered retirement system is terminated. However, the Council may terminate an inactive account if the value of the account is less than $100. The amount paid on withdrawal is the value of the participant's account as of the end of the month of termination.

Contributions

Participants

Each participant contributes through payroll deductions integral dollar amounts not in excess of 10% of his salary. He may also make lump sum contributions by direct payments in integral dollar amounts of not less than $50, provided that total contributions for any one year may not exceed 10% of his annual salary.

Employers

Employers may contribute, on behalf of eligible employees who agree to a salary reduction equivalent to the amount of the contribution, even dollar amounts which shall be from 1% to 10% of base salary.

The amounts by which the employee's salary is reduced must be within the exclusion allowance provided under Section 403(b) of the Internal Revenue Code.

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STATISTICAL SECTION

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Schedule of Retired Members by Type of Benefit
(Based on the most recent actuarial valuation prepared as of 6/30/16)

Group	PERS (State)	PERS (Local)	TPAF	PFRS	SPRS	JRS	CPFPF	POPF	Total
Service Retirements									
Number	47,749	99,014	93,659	30,658	2,889	454	2	12	274,437
Annual Allowance	$1,370,440,135	$1,790,170,223	$3,914,034,990	$1,936,676,901	$187,291,821	$47,014,884	$43,144	$159,101	$9,245,831,199
Average Annual Allowance	$28,701	$18,080	41,790	$63,170	$64,829	$103,557	$21,572	$13,258	$33,690
Ordinary Disability Retirements									
Number	4,597	8,115	3,289	2,938	137	7	–	2	19,085
Annual Allowance	$91,515,020	$136,558,350	$92,207,746	$85,655,379	$4,877,728	$818,564	–	$15,356	$411,648,143
Average Annual Allowance	$19,908	$16,828	$28,035	$29,154	$35,604	$116,938	–	$7,678	$21,569
Accidental Disability Retirements									
Number	515	837	264	2,901	154	–	–	2	4,673
Annual Allowance	$15,446,806	$23,470,787	$11,796,882	$147,865,274	$8,558,614	–	–	$19,649	$207,158,012
Average Annual Allowance	$29,994	$28,042	$44,685	$50,970	$55,575	–	–	$9,825	$44,331
Active Members' Death Benefits									
Number	16	57	3	666	57	15	9	8	831
Annual Allowance	$287,865	$1,137,520	$85,469	$25,856,257	$2,595,048	$501.672	$43,278	$29,629	$30,536,738
Average Annual Allowance	$17,992	$19,956	$28,490	$38,823	$45,527	$33,445	$4,809	$3,704	$36,747
Retired Members' Death Benefits									
Number	4,297	10,434	6,313	9,384	351	147	66	53	31,045
Annual Allowance	$72,774,917	$130,270,800	$166,537,088	$209,939,757	$12,450,469	$8,146,324	$454,108	$264,787	$600,838,250
Average Annual Allowance	$16,936	$12,485	$26,380	$22,372	$35,471	$55,417	$6,880	$4,996	$19,354
Deferred Terminated Vested									
Number	174	409	206	41	–	4	–	–	834
Annual Allowance	$2,428,380	$4,086,276	$3,305,904	$814,452	–	$183,500	–	–	$10,818,512
Average Annual Allowance	$13,956	$9,991	$16,048	$19,865	–	$45,875	–	–	$12,972

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 Contributions[2]	Pension Adjustment Contributions[3]	Other[4]	Percentage of Annual Covered Compensation[5]	Transfer from Other Systems[6]	Investment Income[7]	Total
PUBLIC	2008	705,903,439	812,356,103	–	–	7.11	–	(391,708,689)	1,126,550,853
EMPLOYEES'	2009	741,911,166	774,672,945	–	–	6.56	–	(3,787,350,299)	(2,270,766,188)
RETIREMENT	2010	743,486,792	919,999,429	–	–	7.67	–	2,696,305,650	4,359,791,871
SYSTEM	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
TEACHERS'	2008	585,800,133	701,584,600	–	–	7.73	–	(766,377,094)	521,007,639
PENSION	2009	616,222,799	102,472,305	–	–	1.09	–	(5,071,848,719)	(4,353,153,615)
AND	2010	615,862,621	42,850,384	–	–	0.44	–	3,277,424,465	3,936,137,470
ANNUITY	2011	593,587,972	36,117,717	–	–	0.36	–	4,364,388,191	4,994,093,880
FUND	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
POLICE	2008	310,259,367	886,871,720	–	–	25.63	–	(339,212,149)	857,918,938
AND	2009	326,491,066	913,302,011	–	–	25.40	–	(2,735,834,439)	(1,496,041,362)
FIREMEN'S	2010	330,951,798	1,001,223,223	–	–	27.25	–	2,008,239,281	3,340,414,302
RETIREMENT	2011	327,357,244	(216,914,092)	–	–	(5.83)	–	3,071,480,855	3,181,924,007
SYSTEM	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
STATE	2008	18,306,246	–	–	–	13.26	–	(34,109,753)	20,703,275
POLICE	2009	18,652,049	–	–	–	2.01	–	(298,475,097)	(274,178,989)
RETIREMENT	2010	18,825,131	–	–	–	0.43	–	214,479,134	234,539,845
SYSTEM	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

Schedule of Revenues by Source

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Member Contributions(1)	Employer 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	2008	1,825,726	12,913,986	–	–	20.45	–	(1,268,945)	13,470,767
	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
CONSOLIDATED POLICE AND FIREMEN'S PENSION FUND	2008	–	550,881	6,515,308	–	–	–	438,349	7,504,538
	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
PRISON OFFICER'S PENSION FUND	2008	–	–	1,104,335	–	–	–	546,188	1,650,523
	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
CENTRAL PENSION FUND	2008	–	403,163	24,690	–	–	–	8,973	436,826
	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

Schedule of Revenues by Source

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Member Contributions(1)	Employer Contributions(2	Pension Adjustment Contributions(3)	Other(4)	Percentage of Annual Covered Compensation(5)	Transfer from Other Systems(6)	Investment Income(7)	Total
SUPPLEMENTAL	2008	8,271,028	–	–	–	–	–	(17,688,152)	(9,417,124)
ANNUITY	2009	7,866,241	–	–	–	–	–	(33,470,754)	(25,604,513)
COLLECTIVE	2010	7,119,188	–	–	–	–	–	16,061,568	23,180,756
TRUST	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
DEFERRED	2008	185,234,570	–	–	–	–	–	(170,242,308)	14,992,262
COMPENSATION	2009	172,895,622	–	–	–	–	–	(334,762,381)	(161,866,759)
PLAN	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
DEFINED	2008	–	–	–	–	–	–	–	–
CONTRIBUTION	2009	–	–	–	–	–	–	–	–
RETIREMENT	2010	–	–	–	–	–	–	–	–
PROGRAM(10)	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	–	–	–	–	–	–	–	–
ALTERNATE	2008	–	2,000,000	–	–	–	–	128,401	2,128,401
BENEFIT	2009	–	2,685,591	–	–	–	–	42,876	2,728,467
LONG-TERM	2010	–	2,766,031	–	–	–	–	12,970	2,779,001
DISABILITY	2011	–	2,885,119	–	–	–	–	8,175	2,893,294
FUND(10)	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	–	–	–	–	–	–	–	–

Schedule of Revenues by Source

(based on Comprehensive Annual Financial Reports for relevant years)

	Fiscal Year	Member Contributions(1)	Employer Contributions(2)	Pension Adjustment Contributions(3	Other(4)	Percentage of Annual Covered Compensation(5)	Transfer from Other Systems(6)	Investment Income(7)	Total
STATE	2008	199,319,910	3,479,317,116	–	–	–	–	43,386,656	3,722,023,682
HEALTH	2009	198,176,549	3,474,413,647	–	–	–	–	16,370,148	3,688,960,344
BENEFIT	2010	217,154,537	4,144,906,282	–	–	–	–	4,269,124	4,366,329,943
PROGRAM	2011	233,187,835	4,607,439,545	–	–	–	–	2,777,355	4,843,404,735
FUNDS(9)	2012	244,680,394	4,721,637,111	–	–	–	–	1,361,300	4,967,678,805
	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
PENSION TRUST	2008	2,014,920,419	5,932,504,351	7,644,333	–	–	–	(1,676,098,523)	6,278,970,580
AND	2009	2,085,248,437	5,276,540,288	6,752,438	–	–	–	(12,301,215,345)	(4,932,674,182)
STATE HEALTH	2010	2,107,837,083	6,115,482,882	5,899,069	–	–	–	8,423,085,971	16,652,305,005
BENEFIT	2011	2,094,692,659	5,359,553,271	5,119,179	–	–	–	11,993,659,321	19,453,024,430
PROGRAM	2012	2,309,269,955	6,908,072,723	4,251,107	–	–	–	1,722,074,598	10,943,668,383
FUNDS TOTAL	2013	2,379,173,599	7,902,569,981	3,389,743	95,194,751	–	–	8,297,254,619	18,677,582,693
	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(9)
	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

(1) *Indicates contributions from active members.*

(2) *Includes contributions both from State and local employers.*

(3) *Indicates State contribution to POPF, CPFPF, 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/Approproations, Retro billing, CPFPF 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 tranfers 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	2008	1,782,422,238	241,149,747	125,809,087	78,543,399	–	21,669,271	15,047,572	2,264,641,314
	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
TEACHERS' PENSION AND ANNUITY FUND	2008	2,295,924,794	311,308,960	70,448,959	36,510,781	–	13,787,441	4,205,762	2,732,186,697
	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
POLICE AND FIREMEN'S RETIREMENT SYSTEM	2008	1,129,947,758	192,527,105	30,634,136	6,899,520	–	6,281,677	394,592	1,366,684,788
	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
STATE POLICE RETIREMENT SYSTEM	2008	99,990,185	19,922,390	1,525,502	196,139	–	531,982	–	122,166,198
	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

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	2008	30,653,458	3,992,612	956,890	9,642	–	212,923	–	35,825,525
RETIREMENT	2009	32,742,280	4,382,884	539,843	–	–	202,022	–	37,867,029
SYSTEM	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	4,441976	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
CONSOLIDATED	2008	3,883,291	6,515,308	–	–	–	20,152	–	10,418,751
POLICE AND	2009	3,202,401	5,641,890	–	–	–	13,234	–	8,857,525
FIREMEN'S	2010	2,664,607	4,830,461	–	–	–	8,200	–	7,503,268
PENSION	2011	2,275,329	4,033,256	–	–	–	19,182	–	6,327,767
FUND	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
PRISON	2008	1,145,705	1,104,335	–	–	–	9,403	–	2,259,443
OFFICERS'	2009	1,092,935	1,088,687	–	–	–	8,341	–	2,189,963
PENSION	2010	1,016,533	1,046,590	–	–	–	5,591	–	2,068,714
FUND	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
CENTRAL	2008	390,342	24,690	–	–	21,794	–	–	436,826
PENSION	2009	365,368	21,862	–	–	14,961	–	–	402,191
FUND	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

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	2008	12,918,042	–	–	–	–	–	–	12,918,042
	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
DEFERRED COMPENSATION PLAN	2008	65,013,841	–	–	–	–	455,696	–	65,469,537
	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
DEFINED CONTRIBUTION RETIREMENT PROGRAM(10)	2008	–	–	–	–	–	–	–	–
	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	–	–	–	–	–	–	–	–
ALTERNATE BENEFIT LONG-TERM DISABILITY FUND(10)	2008	2,554,019	–	–	–	–	–	–	2,554,019
	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	–	–	–	–	–	–	–	–

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)	2008	3,563,196,052	–	–	–	–	8,867,578	–	3,572,063,630
	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
PENSION TRUST AND STATE HEALTH BENEFIT PROGRAM FUNDS TOTAL	2008	8,988,039,725	776,545,147	229,545,147	122,159,481	21,794	51,836,123	19,647,926	10,187,624,770
	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

(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	Net Position: End of Year
PUBLIC EMPLOYEES' RETIREMENT SYSTEM	2008	1,126,550,853	2,264,641,314	(1,138,090,461)	28,375,046,264	27,236,955,803
	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
TEACHERS' PENSION AND ANNUITY FUND	2008	521,007,639	2,732,186,697	(2,211,179,058)	34,526,663,135	32,315,484,077
	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
POLICE AND FIREMEN'S RETIREMENT SYSTEM	2008	857,918,938	1,366,684,788	(508,765,850)	21,569,983,705	21,061,217,855
	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

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	Net Position End of Year
STATE	2008	20,703,275	122,166,199	(101,462,924)	2,069,260,914	1,967,797,990
POLICE	2009	(274,178,989)	132,718,593	(406,897,582)	1,967,797,990	1,560,900,408
RETIREMENT	2010	234,539,845	139,245,329	95,294,516	1,560,900,408	1,656,194,924
SYSTEM	2011	300,820,734	149,387,463	151,433,271	1,656,194,924	1,807,628,195
	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
JUDICIAL	2008	13,470,767	35,825,525	(22,354,758)	372,350,548	349,995,790
RETIREMENT	2009	(51,500,425)	37,867,029	(89,367,454)	349,995,790	260,628,336
SYSTEM	2010	42,495,291	41,599,635	895,656	260,628,336	261,523,992
	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
CONSOLIDATED	2008	7,504,538	10,418,750	(2,914,212)	16,096,595	13,182,383
POLICE AND	2009	7,060,225	8,857,525	(1,797,300)	13,182,383	11,385,083
FIREMEN'S	2010	4,878,920	7,503,268	(2,624,348)	11,385,083	8,760,735
PENSION FUND	2011	4,058,712	6,327,768	(2,269,056)	8,760,735	6,491,679
	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

Schedule of Changes in Net Position

(based on Comprehensive Annual Financial Reports for relevant years)

					Net Position	
	Fiscal Year	Additions (1)	Deductions (2)	Total Change in Net Position	Beginning of Year	End of Year
PRISON	2008	1,650,523	2,259,443	(608,920)	13,499,361	12,890,441
OFFICERS'	2009	1,286,442	2,189,963	(903,521)	12,890,441	11,986,920
PENSION	2010	1,100,162	2,068,714	(968,552)	11,986,920	11,018,368
FUND	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
CENTRAL	2008	436,826	436,826	–	–	–
PENSION	2009	402,191	402,191	–	–	–
FUND	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	–	–	–
SUPPLEMENTAL	2008	(9,417,124)	12,918,042	(22,335,166)	181,230,650	158,895,484
ANNUITY	2009	(25,604,513)	10,330,455	(35,934,968)	158,895,484	122,960,516
COLLECTIVE	2010	23,180,756	9,955,917	13,224,839	122,960,516	136,185,355
TRUST	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

Schedule of Changes in Net Position

(based on Comprehensive Annual Financial Reports for relevant years)

					Net Position	
	Fiscal Year	Additions [1]	Deductions [2]	Total Change in Net Position	Beginning of Year	End of Year
DEFERRED	2008	14,992,262	65,469,537	(50,477,275)	2,068,148,264	2,017,670,989
COMPENSATION	2009	(161,866,759)	76,382,165	(238,248,924)	2,017,670,989	1,779,422,065
PLAN	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
DEFINED	2008	–	–	–	–	–
CONTRIBUTION	2009	–	–	–	–	–
RETIREMENT	2010	–	–	–	–	–
PROGRAM[5]	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	–	–	–	–	–
ALTERNATE BENEFIT	2008	2,128,401	2,554,019	(425,618)	1,913,525	1,487,907
LONG-TERM	2009	2,728,467	2,685,591	42,876	1,487,907	1,530,783
DISABILITY	2010	2,779,001	2,766,031	12,970	1,530,783	1,543,753
FUND[5]	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	–	–	–	–	–

Schedule of Changes in Net Position

(based on Comprehensive Annual Financial Reports for relevant years)

					Net Position	
	Fiscal Year	Additions (1)	Deductions (2)	Total Change in Net Position	Beginning of Year	End of Year
STATE	2008	3,722,023,682	3,572,063,630	149,960,052	551,231,100	701,191,152
HEALTH BENEFIT	2009	3,688,960,344	3,905,614,344	(216,654,000)	701,191,152	484,537,152
PROGRAM	2010	4,366,329,943	4,395,854,101	(29,524,158)	484,537,152	455,012,994
FUNDS[4]	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
PENSION TRUST	2008	6,278,970,580	10,187,624,770	(3,908,654,190)	89,745,424,061	85,836,769,871
AND STATE	2009	(4,932,674,181)	11,000,182,293	(15,932,856,474)	85,836,769,871	69,903,913,397
HEALTH BENEFIT	2010	16,652,305,005	11,908,049,971	4,744,255,034	69,903,913,397	74,648,168,431
PROGRAM FUNDS	2011	19,453,024,432	13,033,582,581	6,419,441,851	74,648,168,431	81,067,610,282
TOTAL	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

(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

Atlantic County *
Bergen County
Burlington County/Payroll Dept
Camden Co Board of Chosen Freeholders
Cape May County
Cumberland County
Essex County
Gloucester County
Hudson County *
Hunterdon County
Mercer County *
Middlesex County
Monmouth County/Hall of Records
Morris County
Ocean County *
Passaic County
Salem County *
Somerset County Finance Office
Sussex County
Union County
Warren Co Bd of Chosen Freeholders
Atlantic County Welfare Board *
Bergen Co Board of Social Services
Burlington Co Bd of Soc Services *
Camden Co Bd of Social Services *
Cape May Co Board Social Services
Cumberland Co Bd Social Services *
Gloucester Co Bd of Social Services
Hunterdon Co Board Social Services
Mercer Co Board of Social Service *
Middlesex Co Bd of Social Services
Monmouth Co Div of Social Services
Ocean Co Board of Social Services *
Passaic Co Board of Social Services
Salem Co Board of Social Services *
Somerset Co Bd of Social Services *
Union Co Board of Social Services
NJ Assoc of Counties *
NJ School Boards Association *
NJ State League of Municipalities *
Comm Workers of America # 1034
Comm Workers of America #1037
Comm Workers of America # 1033
Aberdeen Township
Absecon City *
Alexandria Township *
Allamuchy Township *
Allendale Borough
Allenhurst Borough *
Allentown Borough
Alloway Township
Alpha Borough *
Alpine Borough
Andover Borough
Andover Township *
Asbury Park City
Atlantic City
Atlantic Highlands *
Audubon Borough *
Audubon Park Borough *
Avalon Borough
Avon By The Sea
Barnegat Light Borough *
Barnegat Township
Barrington Borough
Bass River Twp Municipal Bldg
Bay Head Borough *
Bayonne City *
Beach Haven Borough *
Beachwood Borough
Bedminster Township *
Belleville Township
Bellmawr Borough
Belmar Borough *
Belvidere Town *
Bergenfield Borough *
Berkeley Heights Township
Berkeley Twp Municipal Bldg *
Berlin Borough *
Berlin Township *
Bernards Township *
Bernardsville Boro *
Bethlehem Township *
Beverly City Municipal Bldg *
Blairstown Township *
Bloomfield Township
Bloomingdale Borough *
Bloomsbury Borough *
Bogota Borough
Boonton Town *
Boonton Township *
Bordentown City *
Bordentown Twp
Bound Brook Borough *
Bradley Beach Borough *
Branchburg Township
Branchville Borough *
Brick Township
Bridgeton City
Bridgewater Twp
Brielle Borough
Brigantine City
Brooklawn Borough
Buena Borough *
Buena Vista Township *
Burlington City *
Burlington Township
Butler Borough
Byram Township
Caldwell Borough
Califon Borough *
Camden City
Cape May City *
Cape May Point Borough *
Carlstadt Borough
Carneys Point Township
Carteret Borough
Cedar Grove Township *
Chatham Borough
Chatham Township
Cherry Hill Township
Chesilhurst Borough
Chester Borough *
Chester Township *
Chesterfield Township *
Cinnaminson Township
Clark Township *
Clayton Borough *
Clementon Borough *
Cliffside Park Borough *
Clifton City
Clinton Town *
Clinton Township *
Closter Borough *
Collingswood Borough *
Colts Neck Township
Commercial Township *
Corbin City *
Cranbury Township *
Cranford Township
Cresskill Borough *
Deal Borough *
Deerfield Township *
Delanco Township *
Delaware Township *
Delran Township
Demarest Borough *
Dennis Township *
Denville Township *
Deptford Township *
Dover Town
Downe Township
Dumont Borough *
Dunellen Borough *
Eaglewood Township *
East Amwell Township *
East Brunswick Township
East Greenwich Township
East Hanover Township
East Newark Borough
East Orange City
East Rutherford Borough *
East Windsor Township
Eastampton Township *
Eatontown Borough
Edgewater Borough
Edgewater Park Township *
Edison Township
Egg Harbor City
Egg Harbor Township *
Elizabeth City *
Elk Township *
Elmer Borough
Elmwood Park Borough *
Elsinboro Township
Emerson Borough
Englewood City *
Englewood Cliffs Borough *
Englishtown Borough
Essex Fells Borough *
Estell Manor City *
Evesham Township
Ewing Township *
Fair Haven Borough *
Fair Lawn Borough
Fairfield Township (Cumberland)
Fairfield Township (Essex)
Fairview Borough *
Fanwood Borough
Far Hills Borough *
Farmingdale Borough *
Fieldsboro Borough
Flemington Borough *
Florence Township *
Florham Park Borough
Folsom Borough *
Fort Lee Borough
Frankford Township *
Franklin Borough *
Franklin Lakes Borough *
Franklin Township (Gloucester)
Franklin Township (Hunterdon)
Franklin Township (Somerset)
Franklin Township (Warren)
Fredon Township
Freehold Borough *
Freehold Township
Frelinghuysen Twp *
Frenchtown Borough *
Galloway Township
Garfield City
Garwood Borough *
Gibbsboro Borough
Glassboro Borough
Glen Gardner Borough *
Glen Ridge Borough *
Glen Rock Borough *
Gloucester City
Gloucester Township
Green Brook Township *
Green Township *
Greenwich Township (Cumberland)
Greenwich Township (Gloucester)
Greenwich Township (Warren) *
Guttenberg Town
Hackensack City
Hackettstown Town *
Haddon Heights 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*

Haddon Township
Haddonfield Borough
Hainesport Township *
Haledon Borough *
Hamburg Borough *
Hamilton Township (Atlantic) *
Hamilton Township (Mercer)
Hammonton Town *
Hampton Borough *
Hampton Township *
Hanover Township
Harding Township
Hardwick Township *
Hardyston Township
Harmony Township *
Harrington Park Borough *
Harrison Town (Hudson)
Harrison Township (Gloucester) *
Harvey Cedars Borough *
Hasbrouck Heights Borough *
Haworth Borough *
Hawthorne Borough
Hazlet Township
Helmetta Borough *
High Bridge Borough
Highland Park Borough *
Highlands Borough
Hightstown Borough
Hillsborough Township *
Hillsdale Borough
Hillside Township
Hi-Nella Borough
Hoboken City
Ho-Ho-Kus Borough *
Holland Township *
Holmdel Township
Hopatcong Borough
Hope Township *
Hopewell Borough *
Hopewell Township (Cumberland)
Hopewell Township (Mercer)
Howell Township
Independence Twp/ Mun. Bldg *
Interlaken Borough
Irvington Twp Dept Of Rev & Finance
Island Heights Borough *
Jackson Township *
Jamesburg Borough *
Jefferson Township *
Jersey City
Keansburg Borough
Kearny Town *
Kenilworth Borough *
Keyport Borough
Kingwood Township *
Kinnelon Borough
Knowlton Township *
Lacey Township *
Lafayette Township *
Lake Como Borough *
Lakehurst Borough *
Lakewood Township
Lambertville City *
Laurel Springs Borough *
Lavallette Borough *
Lawnside Borough
Lawrence Township (Cumberland) *
Lawrence Township (Mercer) *
Lebanon Borough *
Lebanon Township *
Leonia Borough *
Liberty Township *
Lincoln Park Borough
Linden City *
Lindenwold Borough *
Linwood City
Little Egg Harbor Township
Little Falls Twp *
Little Ferry Borough *
Little Silver Borough
Livingston Township *
Loch Arbour Village
Lodi Borough
Logan Township
Long Beach Township *
Long Branch City
Long Hill Township *
Longport Borough *
Lopatcong Township
Lower Alloways Creek Township
Lower Township
Lumberton Township *
Lyndhurst Township
Madison Borough
Magnolia Borough
Mahwah Township
Manalapan Township *
Manasquan Borough
Manchester Township
Mannington Township *
Mansfield Township (Burlington)
Mansfield Township (Warren)
Mantoloking Borough *
Mantua Township *
Manville Borough *
Maple Shade Township
Maplewood Township *
Margate City
Marlboro Township *
Matawan Borough
Maurice River Township *
Maywood Borough
Medford Lakes Borough *
Medford Township *
Mendham Borough *
Mendham Township *
Merchantville Borough
Metuchen Borough
Middle Township *
Middlesex Borough *
Middletown Township
Midland Park Borough *
Milford Borough *
Millburn Township *
Millstone Borough
Millstone Township *
Milltown Borough *
Millville City
Mine Hill Township *
Monmouth Beach Borough *
Monroe Township (Gloucester)
Monroe Township (Middlesex)
Montague Township *
Montclair Township *
Montgomery Township *
Montvale Borough
Montville Township *
Moonachie Borough
Moorestown Township
Morris Plains Borough *
Morris Township *
Morristown Town
Mount Arlington Borough *
Mount Ephraim Borough
Mount Holly Township *
Mount Laurel Township *
Mount Olive Township
Mountain Lakes Borough *
Mountainside Borough *
Mullica Township *
National Park Borough
Neptune City Borough
Neptune Township
Netcong Borough *
New Brunswick City
New Hanover Township *
New Milford Borough
New Providence Borough
Newark City
Newfield Borough *
Newton Town *
North Arlington Borough
North Bergen Township
North Brunswick Township *
North Caldwell Borough *
North Haledon Borough *
North Hanover Township *
N. Hunterdon Municipal Court *
North Plainfield Borough *
North Wildwood City
Northfield City *
Northvale Borough *
Norwood Borough *
Nutley Township *
Oakland Borough
Oaklyn Borough
Ocean City
Ocean Gate Borough *
Ocean Township (Monmouth) *
Ocean Township (Ocean)
Oceanport Borough
Ogdensburg Borough
Old Bridge Township
Old Tappan Borough
Oldmans Township
Oradell Borough *
Orange City
Oxford Township *
Palisades Park Borough
Palmyra Borough *
Paramus Borough *
Park Ridge Borough
Parsippany Troy Hills Township
Passaic City *
Paterson City
Paulsboro Borough
Peapack Gladstone Borough *
Pemberton Borough *
Pemberton Township
Pennington Borough *
Penns Grove Borough
Pennsauken Township
Pennsville Township
Pequannock Township
Perth Amboy City
Phillipsburg Town
Pilesgrove Township *
Pine Beach Borough *
Pine Hill Borough
Pine Valley Borough *
Piscataway Township
Pitman Borough
Pittsgrove Township *
Plainfield City *
Plainsboro Township
Pleasantville City *
Plumsted Township
Pohatcong Township
Point Pleasant Beach Borough
Point Pleasant Borough
Pompton Lakes Borough *
Port Republic City *
Princeton Borough *
Princeton Township
Prospect Park Borough *
Quinton Township
Rahway City
Ramsey 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*

Randolph Township
Raritan Borough *
Raritan Township
Readington Township *
Red Bank Borough
Ridgefield Borough *
Ridgefield Park Village
Ridgewood Village *
Ringwood Borough
River Edge Borough *
River Vale Township *
Riverdale Borough *
Riverside Township
Riverton Borough *
Robbinsville Township
Rochelle Park Township *
Rockaway Borough *
Rockaway Township *
Rockleigh Borough *
Rocky Hill Borough
Roosevelt Borough *
Roseland Borough *
Roselle Borough
Roselle Park Borough
Roxbury Township
Rumson Borough *
Runnemede Borough
Rutherford Borough
Saddle Brook Township
Saddle River Borough
Salem City *
Sandyston Township *
Sayreville Borough
Scotch Plains Township
Sea Bright Boro *
Sea Girt Borough *
Sea Isle City
Seaside Heights Borough *
Seaside Park Borough *
Secaucus Town
Shamong Township *
Shiloh Borough
Ship Bottom Borough
Shrewsbury Borough
Shrewsbury Township
Somerdale Borough *
Somers Point City
Somerville Borough *
South Amboy City
South Bergen JT Const. Code Office
South Bound Brook Borough *
South Brunswick Township *
South Hackensack Township
South Harrison Township
South Orange Village *
South Plainfield Borough
South River Borough *
South Toms River Borough *
Southampton Township *
Sparta Township
Spotswood Borough *
Spring Lake Borough *
Spring Lake Heights Borough *
Springfield Township (Union)
Springfield Twp (Burlington) *
Stafford Township
Stanhope Borough *
Stillwater Township *
Stockton Borough
Stone Harbor Borough
Stow Creek Township
Stratford Borough *
Summit City *
Surf City Borough
Sussex Borough *
Swedesboro Borough
Tabernacle Township *
Tavistock Borough
Teaneck Township *
Tenafly Borough *
Teterboro Borough *
Tewksbury Township *
Tinton Falls Borough
Toms River Township
Totowa Borough *
Trenton City *
Tuckerton Borough *
Union Beach Borough *
Union City
Union Township (Hunterdon) *
Union Township (Union)
Upper Deerfield Township *
Upper Freehold Township *
Upper Pittsgrove Township *
Upper Saddle River Boro *
Upper Township
Ventnor City
Vernon Township
Verona Township *
Victory Gardens Borough
Vineland City
Voorhees Township *
Waldwick Borough *
Wall Township
Wallington Borough
Wallpack Township
Wanaque Borough
Wantage Township
Warren Township *
Washington Borough *
Washington Township (Bergen) *
Washington Twp (Burlington)
Washington Twp (Gloucester)
Washington Twp (Morris)
Washington Twp (Warren)
Watchung Borough *
Waterford Township *
Wayne Township
Weehawken Township *
Wenonah Borough
West Amwell Township *
West Caldwell Township
West Cape May Borough *
West Deptford Township
West Long Branch Borough
West Milford Township
West New York Town
West Orange Township *
West Paterson Borough
West Wildwood Borough *
West Windsor Township
Westampton Township *
Westfield Town
Westville Borough
Westwood Borough
Weymouth Township *
Wharton Borough *
White Township *
Wildwood City *
Wildwood Crest Borough *
Willingboro Township
Winfield Township *
Winslow Township
Woodbine Borough *
Woodbridge Township
Woodbury City
Woodbury Heights Borough *
Woodcliff Lake Borough *
Woodland Township *
Woodlynne Borough *
Wood-Ridge Borough
Woodstown Borough *
Woolwich Township
Wrightstown Borough *
Wyckoff Township *

** In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program*

Participating Education Employers

Atlantic Co Audio Visual Aids Comm *
Burlington Co Audio Visual Aids Comm *
Gloucester Co Audio Visual Aid Comm *
Morris Audio Visual Commission
Ocean Co Audio Visual Aids Commission *
Warren Co Audio Visual Aids
Absecon Boardof Education
Alexandria Twp Board of Education
Allamuchy Board of Education
Allendale Boro Board of Education
Allenhurst Board of Education *
Alloway Twp Board of Education
Alpha Board of Education *
Alpine Board of Education *
Andover Regional Board of Education *
Asbury Park Board of Education *
Atlantic City Board of Education
Atlantic Highlands Board of Education *
Audubon Borough Board of Education
Avalon Borough Board of Education
Avon By The Sea Boro Board of Ed *
Barnegat Twp Board of Education
Bass River Twp Board of Education *
Bay Head Board of Education
Bayonne Board of Education
Beach Haven Borough Board of Ed *
Bedminster Twp Board of Education
Belleville Board of Education
Bellmawr Borough Board of Education *
Belmar Boro Board of Education
Belvidere Town Board of Education
Bergenfield Board of Education *
Berkeley Heights Board of Education
Berkeley Twp Board of Education
Berlin Borough Board of Education
Berlin Township Board of Education
Bernards Twp Board of Education
Bethlehem Twp Board of Education
Beverly City Board of Education *
Black Horse Pike Regional School District
Blairstown Twp Board of Education
Bloomfield Twp Board of Education
Bloomingdale Board of Education
Bloomsbury Borough Board of Education*
Bogota Boro Board of Education *
Boonton Town Board of Education
Boonton Twp Board of Education
Bordentown Regional School District *
Bound Brook Boro Board of Education
Bradley Beach Board of Education
Branchburg Twp Board of Education
Branchville Board of Education
Brick Twp Board of Education
Bridgeton Board of Education
Bridgewater-Raritan Regional School Dist
Brielle Boro Board of Education
Brigantine City Board of Education *
Brooklawn Boro Board of Education
Buena Regional School District
Burlington City Board of Education
Burlington Twp Board of Education
Butler Boro Board of Education
Byram Twp Board of Education
Caldwell West Caldwell Board of Ed *
Califon Boro Board of Education *
Camden City Board of Education *
Cape May City Board of Education *
Cape May Pt Boro Board of Education
Carlstadt Borough Board of Education
Carlstadt East Rutherford Board of Ed
Carteret Board of Education
Cedar Grove Twp Board of Education
Central Regional High School District
Chathams School District
Cherry Hill Twp Board of Education
Chesilhurst Boro Board of Education *
Chester Twp Board of Education
Chesterfield Twp Board of Education *
Cinnaminson Twp Board of Education
Clark Twp Board of Education
Clayton Borough Board of Education
Clearview Regional Board of Education
Clementon Board of Education
Cliffside Park Board of Education
Clifton City Board of Education
Clinton Town Board of Education
Clinton Twp Board of Education
Closter Board of Education *
Collingswood Borough Board of Education
Colts Neck Twp Board of Education
Commercial Twp Board of Education
Corbin City Board of Education *
Cranbury Township Board of Education
Cranford Twp Board of Education *
Cresskill Board of Education
Cumberland Regional School Dist
Deal Boro Board of Education *
Deerfield Township Board of Education
Delanco Twp Board of Education
Delaware Twp Board of Education *
Delaware Valley Regional High School Dist.
Delsea Regional High School District
Demarest Boro Board of Education *
Dennis Twp Board of Education
Denville Twp Board of Education
Deptford Twp Board of Education
Dover Board of Education
Downe Twp Board of Education
Dumont Borough Board Of Education
Dunellen Board of Education
Eagleswood Twp Board of Education *
East Amwell Township Board of Ed *
East Brunswick Twp Board of Education
East Hanover Twp Board of Education *
East Newark Borough Board of Ed *
East Orange City Board of Education *
East Rutherford Boro Board of Education
East Windsor Regional School Dist
Eastampton Township Board of Education
Eastern Camden Co Regional School Dist
Eatontown Board of Education *
Edgewater Boro Board of Education
Edgewater Park Twp Board of Education *
Edison Twp Board of Education
Egg Harbor City Board of Education *
Egg Harbor Twp Board of Education
Elizabeth Board of Education *
Elk Twp Board of Education
Elmer Board of Education
Elmwood Park Borough Board of Ed *
Elsinboro Township Board of Education *
Emerson Borough Board of Education *
Englewood City Board of Education *
Englewood Cliffs Board of Education *
Essex Fells Board of Education
Estell Manor Board of Education *
Evesham Twp Board of Education
Ewing Township Board of Education *
Fair Haven Borough Board of Education
Fair Lawn Board of Education
Fairfield Twp Bd of Ed (Cumberland) *
Fairfield Twp Board of Education (Essex)
Fairview Boro Board of Education *
Farmingdale Board of Education *
Flemington Raritan Board of Education
Florence Township Board of Education
Florham Park Board of Education *
Folsom Borough Board of Education *
Fort Lee Board of Education
Frankford Township Board of Education
Franklin Boro Board of Education *
Franklin Lakes Board of Education
Franklin Twp Board of Ed (Gloucester)
Franklin Twp Board of Ed (Somerset)
Franklin Twp Board of Education (Warren)
Franklin Twp Board of Ed Hunterdon)
Freehold Boro Board of Education
Freehold Regional High School District
Freehold Twp Board of Education
Frelinghuysen Twp Board of Education
Frenchtown Borough Board of Education *
Galloway Township Board of Education
Garfield City Board of Education *
Garwood Borough Board of Education
Gateway Regional High School
Gibbsboro Borough Board of Education
Glassboro Board of Education
Glen Ridge Board of Education
Glen Rock Borough Board of Education *
Gloucester City Board of Education *
Great Meadows Regional Board of Ed
Greater Egg Harbor Regional
Green Brook Board of Education
Green Township Board of Education
Greenwich Twp Bd of Ed (Cumberland) *
Greenwich Twp Board of Ed (Gloucester)
Greenwich Twp Board of Ed (Warren)
Guttenberg Boro Board of Education
Hackensack City Board of Education *
Hackettstown Board of Education
Haddon Heights Board of Education
Haddon Township Board of Education
Haddonfield Board of Education
Hainesport Township Board of Education
Haledon Borough Board of Education *
Hamburg Borough Board of Education
Hamilton Twp Board of Education (Atlantic)
Hamilton Twp Board of Education (Mercer)
Hammonton Town Board of Education
Hampton Borough Board of Education *
Hampton Township Board of Education *
Hanover Park Regional High School Dist *
Hanover Township Board of Education *
Harding Township Board of Education
Hardwick Twp Board of Education
Hardyston Township Board of Education
Harmony Township Board of Education *
Harrington Park Board of Education
Harrison Town Board of Ed (Hudson)
Harrison Twp Board of Ed (Gloucester)
Hasbrouck Heights Board of Education
Haworth Borough Board of Education *
Hawthorne Board of Education
Hazlet Twp Board of Education
Helmetta Boro Board of Education *
Henry Hudson Regional School District
High Bridge Borough Board of Education
High Point Regional High School
Highland Park Board of Education
Highlands Boro Board of Education
Hillsdale Borough Board of Education *
Hillside Board of Education
Hoboken Board of Education
Ho-Ho-Kus Board of Education *
Holland Twp Board of Education
Holmdel Township Board of Education *
Hopatcong Board of Education
Hope Twp Board of Education *
Hopewell Twp Board v Ed (Cumberland)
Hopewell Valley Regional School District
Howell Twp Board of Education
Hunterdon Central High School
Interlaken Borough Board of Education
Irvington Board of Education
Island Heights Boro Board of Education *
Jackson Township Board of Education
Jamesburg Borough Board of Education *
Jefferson Township 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*

Jersey City Public Schools *
Keansburg Board v Education
Kearny Town Board of Education
Kenilworth Borough Board of Education
Keyport Borough Board of Education
Kingsway Regional School District
Kingwood Township Board of Education
Kinnelon Borough Board of Education
Kittatinny Regional High School
Knowlton Twp Board of Education
Lacey Township Board of Education *
Lafayette Twp Board of Education
Lakehurst Borough Board of Education
Lakeland Regional High School District
Lakewood Twp Board of Education *
Lambertville City Board of Education *
Laurel Springs Borough Board of Ed
Lavallette Borough Board of Education
Lawnside Borough Board of Education
Lawrence Twp Board of Ed (Cumberland)
Lawrence Twp Board of Education (Mercer)
Lebanon Borough Board of Education *
Lebanon Township Board of Education
Lenape Regional High School District
Lenape Valley Regional High School Dist
Leonia Borough Board of Education
Lincoln Park Boro Board Of Education
Linden City Board of Education
Lindenwold Borough Board of Education
Linwood Board of Education *
Little Egg Harbor Twp Board of Education
Little Falls Board of Education
Little Ferry Board of Education *
Little Silver Board of Education
Livingston Board of Education
Lodi Board of Education
Logan Township Board of Education
Long Beach Island Board of Education *
Long Branch Board of Education
Long Hill Twp Board of Education
Longport Borough Board of Education *
Lopatcong Township Board of Education
Lower Alloways Creek Board of Ed *
Lower Cape May Regional School District *
Lower Township Board of Education *
Lumberton Twp Board of Education
Lyndhurst Twp Board of Education
Madison Boro Board of Education
Magnolia Borough Board of Education
Mahwah Board of Education
Mainland Regional High School *
Manalapan Englishtown Reg Schools *
Manasquan Borough Board of Education
Manchester Township Board of Education
Mannington Township Board of Education
Mansfield Twp Board of Ed (Burlington)
Mansfield Twp Board of Ed (Warren)
Mantoloking Boro Board of Education
Manville Borough Board ofEducation
Maple Shade Board of Education
Margate City Board of Education *
Marlboro Township Board of Education
Maurice River Township Board of Ed
Maywood Board of Education
Medford Lakes Boro Board of Education
Medford Township Board of Education
Mendham Boro Board of Education *
Mendham Township Board of Education
Merchantville Boro Board of Education *
Metuchen Boro Board of Education
Middle Township Board of Education *
Middlesex Board of Education
Middletown Twp Board of Education
Midland Park Boro Board of Education *
Milford Borough Board of Education *
Millburn Twp Public Schools
Millstone Borough Board of Education
Millstone Township Board of Education
Milltown Borough Board Of Education
Millville Board of Education
Mine Hill Twp Board of Education *
Monmouth Beach Board of Education *
Monmouth Regional School
Monroe Twp Board of Ed (Gloucester)
Monroe Twp Board of Ed (Middlesex)
Montague Board of Education
Montclair Board of Education
Montgomery Twp Board of Education
Montvale Borough Board of Education *
Montville Twp Board of Education
Moonachie Borough Board of Education
Moorestown Township Board OofEd *
Morris Hills Regional District
Morris Plains Board of Education
Morris School District
Mount Arlington Board of Education
Mount Ephraim Board of Education
Mount Holly Twp Board of Education
Mount Laurel Twp Board of Education
Mount Olive Twp Board of Education
Mountain Lakes Boro Board of Ed *
Mountainside Boro Board of Education *
Mullica Twp Board of Education *
National Park Borough Board of Ed
Neptune City Board of Education
Neptune Twp Board of Education
Netcong Borough Board of Education
New Brunswick Board of Education
New Hanover Twp Board of Education
New Milford Board of Education
New Providence Board of Education
Newark Public Schools *
Newton Board of Education
North Arlington Board of Education
North Bergen Board of Education *
North Brunswick Board of Education
North Caldwell Board of Education
North Haledon Boro Board of Education *
North Hanover Township Board of Ed
North Hunterdon-Voorhees
North Plainfield Boardof Education
North Warren Regional High School
North Wildwood Board ofEducation *
Northern Burlington Co Regional
Northern Highlands Reg High School *
Northern Valley Regional High School Dist
Northfield Board of Education
Northvale Board of Education *
Norwood Board of Education *
Nutley Board of Education
Oakland Board of Education
Oaklyn Borough Board of Education
Ocean City Board of Education
Ocean Gate Board of Education *
Ocean Twp Board of Ed (Monmouth)
Ocean Twp Board of Education (Ocean) *
Oceanport Schools
Old Bridge Board of Education
Old Tappan Board of Education
Oldmans Twp Board of Education
Oradell Board of Education
Oxford Twp Board of Education
Palisades Park Board of Education
Palmyra Borough Board of Education
Paramus Board of Education
Parsippany Troy Hills Board of Education
Pascack Valley Regional High
School Dist *
Passaic Board of Education *
Passaic Co Manchester Regional High *
Passaic Co Regional High School Dist 1 *
Paterson Board of Education *
Paulsboro Boro Board ofEducation
Pemberton Borough Board of Education
Pemberton Township Board of Education
Penns Grove Carneys Point Regional
Pennsauken Twp Board of Education
Pennsville Twp Board of Education
Pequannock Twp Board of Education
Perth Amboy Board of Education
Phillipsburg Town Board of Education
Pine Hill Borough Board of Education
Pinelands Regional School District *
Piscataway Board of Education Admn Bldg
Pitman Board of Education
Plainfield Board of Education
Pleasantville Board of Education
Plumsted Twp Board of Education
Pohatcong Twp Board of Education
Point Pleasant Boro Board of Education
Pompton Lakes Board of Education
Port Republic City Board of Education *
Princeton Regional School
Prospect Park Board of Education *
Quinton Township Board of Education *
Ramapo Indian Hills Reg High School Dist
Ramsey Borough Board of Education
Rancocas Valley Regional High School
Randolph Township Board of Education
Readington Twp Board of Education
Red Bank Board of Education *
Red Bank Regional High School District
Ridgefield Boro Board of Education *
Ridgefield Park Board of Education *
Ridgewood Twp Board of Education
Ringwood Boro Board of Education *
River Dell Regional School District *
River Edge Boro Board of Education
River Vale Twp Board of Education
Riverdale Borough Board of Education *
Riverside Township Board of Education
Riverton Boro School Board
Robbinsville Twp Board of Education
Rochelle Park Twp Board of Education *
Rockaway Borough Board of Education *
Rockaway Township Board of Education
Rockleigh Borough Board of Ed
Rocky Hill Board of Education
Roosevelt Borough Board of Education *
Roseland Board of Education
Roselle Boro Board of Education
Roselle Park Boro Board of Education
Roxbury Twp Board of Education
Rumson Boro Board of Education
Rumson Fair Haven Regional High School
Runnemede Borough Board of Education
Rutherford Boro Board of Education
Saddle Brook Board of Education *
Saddle River Board of Education *
Salem City Board of Education
Sandyston Walpack School Dist *
Sayreville Board of Education Selover Elm
Scotch Plains Fanwood Board of Education
Sea Bright Boro Board of Education *
Sea Girt Board of Education *
Sea Isle City Board of Education *
Seaside Heights Board of Education
Seaside Park Board of Education *
Secaucus Town Board of Education
Shamong Twp Board of Education
Shiloh Borough Board of Education
Shore Regional High School District
Shrewsbury Borough Board of Education
Somerdale Boro Board of Education
Somers Point City Board of Education
Somerset Hills Board of Education
Somerville Board of Education
South Amboy 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*

South Belmar Board of Education
South Bound Brook Board of Education
South Brunswick Board of Education *
South Hackensack Board of Education *
South Harrison Twp Board of Education
South Hunterdon Regional Bd of Ed *
South Orange-Maplewood Board of Ed *
South Plainfield Board of Education
South River Boro Board of Education
Southampton Twp Board of Education
Southern Regional High School District
Sparta Board of Education
Spotswood Board of Education
Spring Lake Boro Board of Education
Spring Lake Heights Board of Education
Springfield Twp Board of Ed (Union)
Springfield Twp Board of Ed (Burlington)
Stafford Township Board of Education
Stanhope Borough Board of Education
Sterling High School District
Stillwater Township Board of Education *
Stockton Borough Board of Education *
Stone Harbor Board of Education *
Stow Creek Township Board of Education
Stratford Board of Education
Summit Board of Education
Sussex-Wantage Regional School District
Swedesboro Woolwich Board of Education
Tabernacle Twp Board of Education
Teaneck Board of Education *
Tenafly Board of Education *
Tewksbury Twp Board of Education
Tinton Falls Board of Education *
Toms River School District
Totowa Borough Board of Education *
Trenton City Board of Education
Union Beach Boro Board of Education
Union City Board of Education
Union Twp of Ed (Hunterdon)
Upper Deerfield Twp Board of Education
Upper Freehold Regional
Upper Pittsgrove Twp Board of Education
Upper Saddle River Board of Education *
Upper Township Board of Education
Ventnor City Board of Education
Vernon Township Board of Education
Verona Board of Education
Victory Gardens Boro Board of Education *
Vineland City Board of Education
Voorhees Twp Board of Education
Waldwick Boro Board of Education *
Wall Township Board of Education
Wallington Borough Board of Education *
Wallkill Valley Regional High School
Wanaque Board of Education
Warren Hills Regional Schools
Warren Township Board of Education
Washington Boro Board of Education
Washington Twp Board of Ed (Morris)
Washington Twp Board of Ed (Warren)
Washington Twp Board of Ed (Gloucester)
Watchung Borough Board of Education
Watchung Hills Regional High School
Waterford Twp Board of Education
Wayne Board of Education
Weehawken Twp Board of Education *
Wenonah Borough Board of Education *
West Amwell Twp Board of Education *
West Cape May Boro Board of Education *
West Essex Regional School District *
West Long Branch Board of Education
West Milford Township Board of Education
West Morris Regional High School Dist *
West New York Board of Education *
West Orange Township Board of Education
West Paterson Boro Board of Education *
West Windsor Plainsboro Regional *
Westampton Township Board of Education
Westfield Town Board of Education
Westville Board of Education *
Westwood Regional School District *
Weymouth Township Board of Education *
Wharton Borough Board of Education *
White Township Board of Education
Wildwood Crest Board of Education *
Willingboro Twp Board of Education *
Winfield Township Board of Education *
Winslow Township Board of Education
Woodbine Borough Board of Education
Woodbridge Township Board of Education
Woodbury City Board of Education
Woodbury Heights Board of Education *
Woodcliff Lake Board of Education *
Woodland Twp Board of Education *
Woodlynne Board of Education *
Wood-Ridge Board of Education *
Woodstown-Pilesgrove Regional School
Wyckoff Township Board of Education *
Atlantic Cape Community College *
Bergen Community College *
Brookdale Community College *
Burlington Co College *
Camden County College *
Cumberland County College *
Essex County College *
Gloucester County College *
Hudson Co Community College *
Mercer Co Community College *
Middlesex County College
Morris County College *
Ocean County College *
Passaic County Community College *
Raritan Valley Community College *
Salem Community College *
Sussex County Comm. College *
Union County College *
Vineland Developmental Center
Warren County Community College *
Woodbine Developmental Center
Academy For Urban Leadership
Academy Charter High School
Adelaide Sanford Charter School
Barack Obama Green Charter High School
Bergen Arts And Science Charter School
Bridgeton Public Charter School
Burch Charter School For Excellence
Camden Academy Charter High School
Camden Promise Charter School
Camden's Pride Charter School
Central Jersey Arts Charter School *
Central Jersey College Prep Charter
Charter Tech *
Classical Acad. Charter School *
Community Charter School of Paterson
Cresthaven Academy Charter School
Dr Lena Edwards Academy Chater School
East Orange Community Chart School
Eco Charter School
Elysian Charter School of Hoboken *
Englewood On The Palisades Char *
Ethical Comm Charter School Jersey City
Freedom Academy Charter School
Galloway Community Charter School
Granville Charter Middle School
Gray Charter School *
Great Oaks Charter School
Greater Brunswick Charter School *
Hatikvah International Academy C S
Hoboken Charter School
Hoboken Dual Language Charter School
Hope Academy Charter School
Hudson Arts & Sciences Charter School
International Charter School
Jersey City Comm Charter School *
Jersey City Golden Door Charter
John P Holland Charter School
Leap Academy Charter School
Learning Comm. Charter School *
Maria L. Varisco-Rogers Charter *
Marion P. Thomas Charter School *
Mets Chater School
Millville Public Charter School
New Horizon Community Charter School
Newark Legacy Charter School
Newark Educators' Comm Charter School
New Lisbon Developmental Center
North Star Academy Charter School
Pace Charter School of Hamilton *
Paterson Chart School - Science/Tech
Paul Robeson Charter School
Peoples Preparatory Chater School
Phillips Academy Chart. Schl of Paterson
Pleasantech Academy Charter School
Pride Academy Charter School
Princeton Charter School
Queen City Academy Charter School
Red Bank Charter School
Ridge And Valley Charter School
Riverbank Charter School of Excellence
Robert Treat Academy Charter School
Roseville Community Charter School
Soaring Heights Charter School *
Sussex County Charter School
Team Academy Charter School
Teaneck Community Charter School *
Trenton Community Charter School *
Union County Teams Charter School
Unity Charter School *
University Academy Charter High School
University Heights Charter School *
Village Charter School *
Vineland Public Charter School
Visions Academy Charter High School
Communications Workers of America
Newark Teachers' Union
NJ State Federation of Teachers
NJEA
Piscataway Twp Education Association
Trenton Education Association
Woodbridge Twp Ed Association
Camden Co Ed Services Commission
Essex Co Educational Service Commission
Hunterdon Co Ed Services Commission
Middlesex Co Ed Services Commission
Monmouth Ocean Ed Service Commission
Morris Co Education Services Commission
Passaic Co. Ed Services Commission *
Somerset Co Ed Services Commission *
Sussex Co Ed Services Comm Bd of Ed *
Union Co Ed Services Commission *
Ramapo College of New Jersey *
Richard Stockton College of NJ *
State Library Affiliated W/TESC *
The College of New Jersey *
Thomas Edison State University *
Atlantic Co Special Services *
Bergen Co Bd Of Special Services
Burlington Co Bd Special Services
Cape May Co Special Services *
Gloucester Co Sp Services School District
Mercer Co Special Ser School Dist
Salem Co Sp Services School Dist *
Stockton Affiliated Services Inc
Warren Co Sp Services School Dist

** 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*

Kean University *
Montclair State University *
New Jersey City University *
NJ Institute Of Technology *
Rowan University *
Rowan University-Rutgers Camden
Rutgers University *
Univ. Of Med & Dentistry New Brunswick *
Univ. Of Medicine & Dentistry - Newark *
Univ. Of Medicine & Dentistry - Stratford *
William Paterson University Of NJ *
Atlantic Co Vocational Schools *
Bergen Co Vocational School
Burlington Co Institute of Tech
Camden County Technical Schools *
Cape May Co Technical School Dist
Cumberland Co Bd of Voc Ed
Essex Co Vocational School
Gloucester Co Vo-Tech School Dist
Hudson Co Schools of Technology
Hunterdon County Vocational *
Mercer Co Vocational Schools
Middlesex Co Vocational School *
Monmouth Co Vocational Schools *
Morris Co Vocational School District
Ocean County Vocational School *
Passaic Co Vocational School
Salem Co Vocational School *
Somerset Co Vocational School
Sussex County Vocational
Union Co Vocational Schools *

** In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program*

Participating Agencies and Authorities

Aberdeen Twp Fire Dist 2
Aberdeen Twp Fire District 1 *
Bordentown Fire District #1 *
Bordentown Twp Fire District 2 *
Brick Township Fire Dist 2
Brick Twp Fire District 1
Brick Twp Joint Board of Fire Commission *
Burlington Twp Fire District 1
Cherry Hill Fire District 13
Chesterfield-Ham. Fire District #1 *
Cinnaminson Twp Fire Dist #1
Delran Twp Fire District #1 *
Deptford Twp Fire District *
Dover Twp Fire District 2
East Brunswick Twp Fire District #1
Florence Twp. Fire District #1
Gloucester Twp Fire District 2
Gloucester Twp Fire District 3 *
Gloucester Twp Fire District 4
Gloucester Twp Fire District 5 *
Gloucester Twp Fire District 6 *
Haddon Twp Fire District 1 *
Hamilton Twp Fire District 2 *
Hamilton Twp Fire District 3 *
Hamilton Twp Fire District 4 *
Hamilton Twp Fire District 5 *
Hamilton Twp Fire District 6 *
Hamilton Twp Fire District 7 *
Hamilton Twp Fire District 8 *
Hamilton Twp Fire District 9 *
Hanover Twp Fire District 2
Hanover Twp Fire District 3
Harrison Township Fire District #1
Hazlet Township Fire District #1
Hopewell Twp Fire District 1 *
Howell Twp Fire District 1
Howell Twp Fire District 2
Howell Twp Fire District 3 *
Howell Twp Fire District 4
Jackson Bd Fire District 2 *
Jackson Twp Fire District 3 *
Jackson Twp Fire District 4
Jersey City Fire Department
Lakewood Twp Fire District 1
Lambertville City Fire District #1
Lindenwold Twp Fire District 1 *
Manalapan Fire District 2
Manalapan Twp Fire District 1
Manasquan Boro Fire District 1
Marlboro Twp Fire District 1
Marlboro Twp Fire District 3
Middle Township Fire District #1 *
Millstone Township Fire District #1 *
Monroe Twp Fire District 1 *
Monroe Twp Fire District 2 *
Monroe Twp Fire District 3 *
Montville Twp Fire District 1 *
Montville Twp Fire District 3 *
Moorestown Twp Fire District 1 *
Moorestown Twp Fire District 2
Mount Laurel Fire District #1 *
Neptune Fire District 1 *
North Hudson Regional Fire & Rescue
Ocean Grove Board Of Fire Commission
Ocean Twp Fire District 1 *
Ocean Twp Fire District 2 *
Old Bridge Twp District 1
Old Bridge Twp Fire District 2
Old Bridge Twp Fire District 3 *
Old Bridge Twp Fire District 4
Pine Hill Fire District 1
Pine Hill Fire District 1
Plainsboro Twp Fire District 1 *
Plumsted Fire District #1 *
Riverside Twp Fire District # 1
Toms River Twp Fire District 1
Towaco Fire District 2
Voorhees Fire District *
Wall Township Fire District 2
Wall Township Fire District 3
Washington Twp Board of Fire Commission
Washington Twp Fire District #1
Westville Fire District # 1
Winslow Twp Fire District 1 *
Woodbridge Bd Of Fire Commission 9
Woodbridge Fire District 5 *
Woodbridge Twp Fire District 2 *
Woodbridge Twp Fire District #12
Woodbridge Twp Fire District 1 *
Woodbridge Twp Fire District 11
Woodbridge Twp Fire District 8
Woodbridge Twp Fire District 7 *
Asbury Park Housing Authority *
Atlantic City Housing Authority *
Bayonne Housing Authority *
Belmar Housing Authority
Bergen Co Housing Authority
Berkeley Twp Housing Authority *
Beverly City Housing Authority *
Boonton Housing Authority *
Brick Twp Housing Authority *
Bridgeton City Housing Auth *
Buena Boro Housing Auth *
Burlington City Housing Auth *
Camden City Housing Authority *
Cape May City Housing Authority *
Carteret Housing Authority *
Clementon Housing Authority
Cliffside Park Housing *
Collingswood Boro Housing Auth *
Dover Town Housing Authority
East Orange Housing Authority *
Edgewater Housing Authority *
Edison Twp Housing Authority *
Elizabeth City Housing Authority *
Englewood Housing Authority *
Florence Twp Housing Authority
Fort Lee Housing Authority *
Franklin Twp Housing Authority
Freehold Boro Housing Authority *
Garfield Housing Authority *
Glassboro Borough Housing Authority *
Gloucester Co Housing Authority *
Gloucester Twp Housing Authority *
Guttenberg Housing Authority *
Hackensack Housing Authority *
Haddon Township Housing Authority *
Harrison Town Housing Authority
Highland Park Housing Authority *
Highlands Housing Authority *
Hightstown Boro Housing Authority *
Hoboken Housing Authority *
Irvington Housing Authority *
Jersey City Housing Authority *
Keansburg Boro Housing Authority *
Lakewood Housing Authority
Linden City Housing Authority *
Lodi Housing Authority *
Long Branch City Housing Authority *
Madison Boro Housing Authority
Middletown Twp Housing Authority *
Millville Housing Authority
Morris County Housing Authority
Morristown Housing Authority *
Neptune City Housing Authority
Neptune Twp Housing Authority *
New Brunswick Housing Authority *
Newark Housing Authority *
Newton Town Housing Authority *
North Bergen Housing Authority *
Ocean City Housing Authority *
Old Bridge Housing Authority
Orange City Housing Authority *
Passaic City Housing Authority *
Paterson Housing Authority *
Penns Grove Housing Authority *
Perth Amboy Housing Authority
Phillipsburg Housing Authority
Plainfield Housing Authority *
Pleasantville Housing Authority *
Princeton Housing Authority *
Rahway City Housing Authority *
Red Bank Boro Housing Auth *
Salem City Housing Authority *
Sayreville Housing Authority *
Secaucus Housing Authority
South Amboy Housing Authority *
Trenton Housing Authority *
Union City Housing Authority *
Vineland Housing Authority
Weehawken Twp Housing Authority *
West New York Housing Authority
Wildwood City Housing Authority *
Woodbridge Housing Authority *
Camden Co Health Services Center
Essex Regional Health Commission *
Hudson Regional Health Commission *
Mid Bergen Regional Health Commission *
Middle Brook Regional Health Comm *
Monmouth Co Health Department *
Monmouth Co Regional Health Comm 1
Northwest Bergen Health Commission *
Ocean Co Board of Health
Middlesex Co Joint Health Insurance Fund
Middlesex Co Municipal Joint Ins Fund *
NJ School Board Association Ins Group *
Statewide Insurance Fund
Bayshore Jointure Commission *
Morris-Union Jointure Commission
South Bergen Jointure Commission
Burlington County Bridge Commission
Cape May Co Bridge Commission *
Essex & Union Joint Meeting *
Madison-Chatham Joint Meeting *
Second River Joint Meeting
General Assembly *
Senate *
Bedminster & Far Hills Pub Library *
Chatham Joint Free Public Library *
Chester Boro/Twp Public Library *
Elizabeth Public Library *
Hillside Public Library
Linden City Free Public Library
Matawan Aberdeen Public Library *
Montclair Library *
Morristown/Morris Joint Library *
Orange City Library
Princeton Joint Public Library *

** In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program*

Participating Agencies and Authorities, *continued*

Rahway Public Library
Ridgewood Public Library *
Roselle Borough
Union Township Library
West Orange Library *
Atlantic City Convention Center *
NJ Public Broadcasting Authority
Northwest Bergen Central Dispatch *
Trenton Downtown Association
Middlesex Co Mosquito Exterm Comm
Monmouth Co Mosquito Exterm Comm *
Ocean Co Mosquito Commission *
Salem Co Mosquito Commission *
Warren Co Mosquito Exterm Commission
Camden County Park Police
Mercer County Park Commission *
Morris County Park Commission
Somerset Co Park Commission
Bayonne City Parking Authority *
Bloomfield Parking Authority *
Camden City Park Authority *
Dover Twp Parking Authority
Dunellen Parking Authority *
East Orange Parking Authority *
Elizabeth City Parking Authority *
Fort Lee Parking Authority Hackettstown
Parking Authority
Hoboken City Parking Authority
Jersey City Parking Authority *
Long Branch Parking Authority *
Metuchen Parking Authority
Montclair Parking Authority *
Morristown Parking Authority
New Brunswick Parking Authority *
Newark Parking Authority
North Bergen Parking Authority
North Plainfield Parking Authority *
Paterson Parking Authority *
Perth Amboy City Parking Authority
Rahway Parking Authority *
South Orange Twp Parking Authority *
South River Parking Authority
Trenton Parking Authority *
Union City Parking Authority
West New York Parking Authority
West Windsor Parking Authority *
Camden Co Pollution Control Fin
Union Co Pollution Control Authority
Warren Co Pollution Control *
Carteret Port Authority
Perth Amboy Port Authority
Salem City Municipal Port Authority *
Atlantic Co Improvement Authority *
Bayonne Local Redevelopment Agency *
Bergen County Improvement Authority *
Bridgeton Zone Development Authority *
Camden City Redevelopment Agency
Camden Co Improvement Authority
Carteret Redevelopment Agency *
Cumberland Co Improvement Authority *
Essex Co Improvement Authority *
Gloucester Co Improvement Authority
Greater Wildwood Tourism Imp & Da *
Hudson Co Economic Development Corp
Hudson Co Improvement Authority *
Jersey City Redevelopment Agency *
Mercer Co Improvement Authority *
Middlesex County Improvement Authority
Passaic County Improvement Authority
Rahway City Redevelopment Agency
Salem Co Improvement Authority *
Sayreville Economic & Redev Agency *
South Jersey Economic Development Dist *
Vineland-Millville Urban Enterprise Zone *
Wildwoods Joint Construction
Casino Reinvestment Development Auth *
Compensation Rating & Ins Bureau *
Delaware River Basin Commission *
Delaware River Joint Toll Bridge Comm
Delaware River Port Authority
Ed Information & Resource Center
Fort Monmouth Planning Authority *
Interstate Environmental Commission *
Lake Hopatcong Commission *
Meadowlands Conservation Trust
NJ Building Authority *
NJ Commerce & Economic Growth Comm *
NJ Economic Development Authority *
NJ Educational Facilities Authority *
NJ Firemens Home *
NJ Health Care Facilities *
NJ Housing & Mortgage Finance Agency *
NJ Meadowland Commission *
NJ Redevelopment Authority *
NJ Schools Development Authority *
NJ Sports & Exposition Authority
NJ Transit Corporation
NJ Turnpike Authority
NJ Water Supply Authority *
North Jersey Water Supply Commission
Palisades Interstate Park Commission *
Passaic Valley Sewerage Commission
Pinelands Commission *
Rowan University Foundation
South Jersey Port Corporation
South Jersey Transportation Authority
Waterfront Commission Of Ny Harbor *
Joint Dispatch Authority For Spring Lake
Bergen County Soil Conservation District *
Burlington Co Soil Conservation District *
Camden Co Soil Conservation District *
Cape Atlantic Soil Conservation District *
Cumberland-Salem Conservation District *
Freehold Soil Conservation District *
Gloucester Co Soil Conservation District *
Hunterdon Co Soil Conservation District *
Mercer Co Soil Conservation District *
Morris Co Soil Conservation District *
Ocean Co Soil Conservation District *
Sussex Co Soil Conservation *
Warren Co Soil Conservation District *
Atlantic Highlands-Highlands Regional
Sewerage Authority
Atlantic City Municipal Utilities Authority *
Atlantic Co Utilities Authority *
Bayonne Municipal Utilities Authority *
Bayshore Regional Sewerage Authority *
Beach Haven Sewerage Authority *
Beachwood Sewerage Authority
Bergen Co Utilities Authority
Berkeley Twp Sewerage Authority *
Berkeley Twp Municipal Utilities Authority *
Bernards Twp Sewerage Authority *
Beverly Sewerage Authority *
Bordentown Sewerage Authority *
Brick Twp Municipal Utilities Authority *
Buena Boro Municipal Utilities Authority *
Camden Co Municipal Utilities Authority
Cape May Co Municipal Utilities Authority
Carlstadt Sewerage Authority
Carneys Point Twp Sewerage Authority
Cinnaminson Sewerage Authority
Clinton Twp Sewerage Authority *
Cumberland Co Utilities Authority *
Delanco Sewerage Authority *
Delaware Twp Municipal Utilities Authority
Delran Sewerage Authority *
Deptford Twp Municipal Utilities Auth *
East Windsor Municipal Utilities Authority *
Eatontown Sewerage Authority
Edgewater Park Sewerage Authority
Egg Harbor Twp Municipal Utilities Auth *
Elk Township Municipal Utilities Authority
Evesham Municipal Utilities Authority *
Ewing Lawrence Sewerage Authority *
Florham Park Sew Authority
Franklin Twp Sewerage Authority *
Gloucester Co Utilities Authority
Gloucester Twp Municipal Utilities Auth *
Hackettstown Municipal Utilities Auth *
Hamilton Twp Municipal Utilities Auth *
Hanover Sewerage Authority *
Hazlet Twp Sewerage Authority *
Hillsborough Twp Mun. Utilities Authority *
Hudson-Essex Passaic *
Jackson Twp Municipal Utilities Authority *
Jersey City Incinerator Authority
Jersey City Municipal Utilities Authority
Kearny Municipal Utilities Authority *
Lacey Municipal Utilities Authority *
Lakewood Twp Municipal Utilities Auth *
Lambertville Sewerage Authority *
Landis Sewerage Authority
Lebanon Boro Sew Authority *
Linden Roselle Sewerage Authority *
Little Egg Harbor Mun. Utilities Authority *
Logan Twp Municipal Utilities Authority *
Long Branch Sewerage Authority *
Lower Twp Municipal Utilities Authority *
Manasquan River Reg Sewerage Auth
Manchester Utilities Authority
Mantua Twp Municipal Utilities Authority *
Marlboro Twp Municipal Utilities Auth *
Merchantville Pennsauken Water Comm
Middlesex Co Utilities Authority
Middletown Twp Sewerage Authority *
Monmouth Co Bayshore Outfill Authority *
Monroe Twp Mun. Ut Auth. (Gloucester) *
Montville Twp Municipal Utilities Authority
Mount Holly Municipal Utilities Authority
Mount Laurel Twp Municipal Utilities Auth
Musconetcong Sewerage Authority *
Neptune Twp Sewerage Authority *
North Bergen Municipal Utilities Authority
North Hudson Sewerage Authority *
Northwest Bergen Co Utility Authority *
Ocean Co Utilities Authority *
Ocean Grove Sewerage Authority
Ocean Twp Municipal Utility Authority
Ocean Twp Sewerage Authority *
Old Bridge Municipal Utility Authority
Passaic County Utility Authority
Passaic Valley Water Commission
Pemberton Twp Municipal Utilities Auth *
Penns Grove Sewerage Authority
Pennsauken Sewerage Authority *
Pennsville Sewerage Authority
Pequannock, Lincoln Park &Fairfield *

** In addition to participating in the retirement system, also participates in the State Health Benefits Program/School Employees' Health Benefits Program*

Participating Agencies and Authorities, *continued*

Pine Hill Boro Municipal Utilities Authority
Plainfield Area Regional Sewer Authority *
Plainfield Municipal Utilities Authority
Pompton Lakes Municipal Utilities Auth *
Rahway Valley Sewerage Authority *
Raritan Twp Municipal Utilities Authority *
Readington-Lebanon Sewerage Authority *
Riverside Sew Authority
Rockaway Valley Regional Sewer Auth *
Rockleigh Boro Sewerage Authority
Runnemede Sewerage Authority
Secaucus Municipal Utilities Authority
Somers Point Sewerage Authority
Somerset Raritan Valley Sewerage Auth *
Somerset Regional Animal Shelter *
South Monmouth Reg Sewerage Auth *
South Toms River Sewerage Authority *
Southeast Morris Co Muni Utilities Auth *
Stafford Municipal Utilities Authority
Stony Brook Regional Sewerage Auth *
Sussex Co Municipal Utilities Authority *
Toms River Twp Municipal Utilities Auth *
Two Rivers Water Reclamation Authority *
Union Co Utilities Authority
Wanaque Borough Sewerage Authority *
Wanaque Valley Reg Sewerage Authority *
Warren Co Municipal Utilities Authority *
Washington Twp Mun. Ut Auth. (Mercer)
Washington Twp Mun. Ut Auth. (Gloucester) *
Washington Twp Mun. Ut Auth. (Morris) *
Waterford Twp Municipal Utilities Auth *
W. Milford Twp Municipal Utilities Auth *
Western Monmouth Utilities Authority *
Weymouth Twp Municipal Utilities Auth
Willingboro Municipal Utilities Authority *
Woodbine Municipal Utilities Authority *
Woodstown Sewerage 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