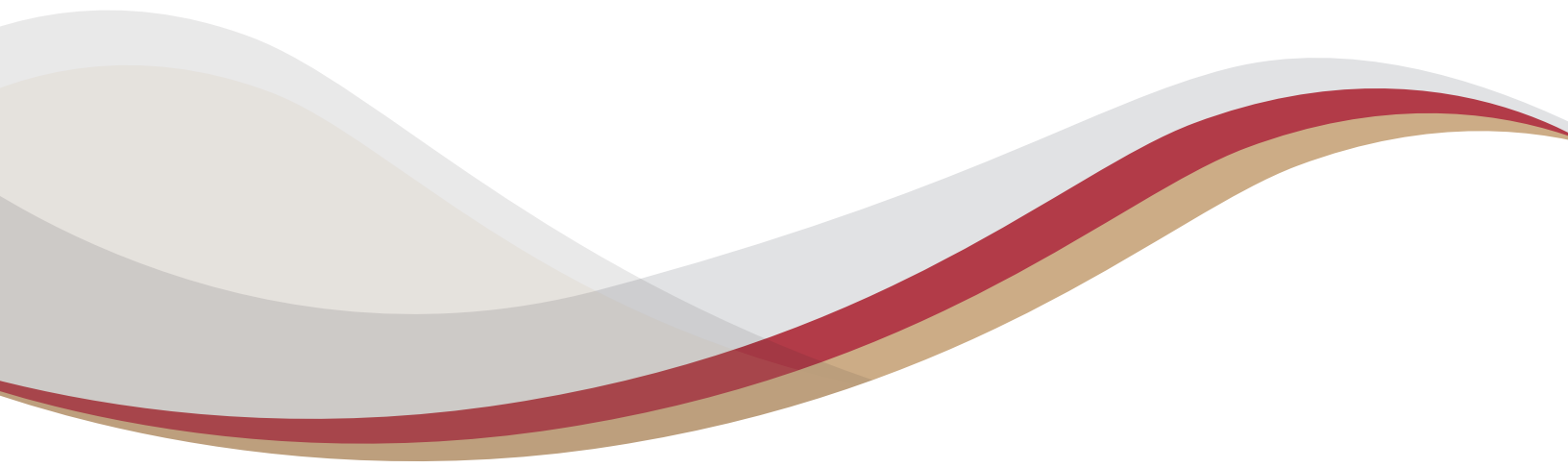


2018

COMPREHENSIVE ANNUAL FINANCIAL REPORT

For Fiscal Year Ended March 31, 2018



New York State and Local Retirement System

A pension trust fund of the State of New York

Office of the New York State Comptroller

Thomas P. DiNapoli

2018 COMPREHENSIVE ANNUAL FINANCIAL REPORT

For Fiscal Year Ended March 31, 2018

New York State and Local Retirement System

Employees' Retirement System

Police and Fire Retirement System

A pension trust fund of the State of New York

Prepared by the staff of the



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Government Finance Officers Association

**Certificate of
Achievement
for Excellence
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Reporting**

Presented to

**New York State
and Local Retirement System**

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

March 31, 2017

Christopher P. Morill

Executive Director/CEO



Public Pension Coordinating Council

***Public Pension Standards Award
For Funding and Administration
2017***

Presented to

New York State and Local Retirement System

In recognition of meeting professional standards for
plan funding and administration as
set forth in the Public Pension Standards.

Presented by the Public Pension Coordinating Council, a confederation of

National Association of State Retirement Administrators (NASRA)
National Conference on Public Employee Retirement Systems (NCPERS)
National Council on Teacher Retirement (NCTR)

A handwritten signature in cursive script that reads "Alan H. Winkle".

Alan H. Winkle
Program Administrator

LETTER OF TRANSMITTAL



Office of the New York State Comptroller
Thomas P. DiNapoli

New York State and Local Retirement System
110 State Street, Albany, New York 12244-0001

Phone: 1-866-805-0990

518-474-7736

Web: www.osc.state.ny.us/retire

September 30, 2018



To the Governor, the State Legislature
and the People of New York State:

I am pleased to present the Comprehensive Annual Financial Report (CAFR) for the New York State and Local Retirement System (the System or NYSLRS) for the fiscal year ended March 31, 2018. Responsibility for the accuracy of the data, and the completeness and fairness of the report, including all disclosures, rests with the System. All disclosures required and necessary to enable the public and the financial community to gain an understanding of the System's financial activities have been included.

I believe the enclosed financial statements and data are fairly presented in all material respects and are reported in a manner designed to present the financial position and results of the System's operations accurately. This report is intended to provide complete and reliable information as a basis for making management decisions, adhering to and complying with legal requirements, and ensuring responsible stewardship of the System's assets.

The Financial Section of this CAFR was prepared to conform with Generally Accepted Accounting Principles (GAAP) for governmental units, as set forth by the Governmental Accounting Standards Board (GASB), as well as the reporting requirements prescribed by the Government Finance Officers Association of the United States and Canada (GFOA). GAAP defines uniform minimum standards of, and guidelines for, financial accounting and reporting. These principles establish the framework within which financial transactions are recorded and reported, resulting in financial statements that provide comparability between government entities, consistency between accounting periods, and reliability for both internal and external users of financial statements.

The System's transactions are reported on the accrual basis of accounting. Sufficient internal accounting controls exist to provide reasonable assurance regarding the safekeeping of assets and the fair presentation of the financial statements and supporting schedules.

The Financial Section features a Management's Discussion and Analysis (MD&A). GASB requires that the System provide a narrative introduction, overview and analysis to accompany the basic financial statements in the form of an MD&A. This letter of transmittal is designed to complement the MD&A and should be read in conjunction with it. The MD&A can be found in the Financial Section immediately following the report of the independent auditors.

The System was awarded a Certificate of Achievement for Excellence in Financial Reporting from GFOA for its CAFR for the fiscal year ended March 31, 2017. The Certificate of Achievement is a prestigious national award recognizing excellence in the preparation of state and local government financial reports. GFOA awards these certificates to those governments whose comprehensive annual financial reports meet or exceed the Association's strict criteria. To be awarded a Certificate of Achievement, a governmental unit must publish an easily readable and efficiently organized comprehensive annual financial report that conforms to program standards and that satisfies both generally accepted accounting principles and applicable legal requirements.

The System has received this respected award for each of the past 14 years. We believe that our current report continues to meet the Certificate of Achievement program requirements and are submitting it to the GFOA for consideration again this year.

The System comprises the New York State and Local Employees' Retirement System (ERS) and the New York State and Local Police and Fire Retirement System (PFRS). The assets of ERS and PFRS are held in the New York State Common Retirement Fund (Fund) and managed by the Division of Pension Investment and Cash Management in the Office of the State Comptroller.

With more than one million participants, the System is one of the largest public retirement systems in the nation.

The System offers retirement benefits for members who reach specific ages or have completed a specified number of years of service, depending on the system and plan in which they are enrolled, as well as disability retirement and death benefits. At the end of fiscal year 2017-18, there were a total of 1,122,626 members, retirees and beneficiaries, and 3,044 participating employers.

This letter highlights some of the System's operations for the 2017-18 fiscal year, in order to enable readers to obtain a reasonable understanding of the System's financial affairs, as well as its internal controls, for this period.

FUNDING

The Fund's assets come from three main sources: employee (or member) contributions, employer contributions and investment income. The System is committed to meeting its long-term benefit obligations prudently and fairly. Member contributions are fixed by law. Annual employer contributions are actuarially determined. Employer contributions are the greater of a minimum contribution of 4.5 percent of member payroll, or the actuarially determined contributions.

The System announced in August 2017 that employer contribution rates would decrease in fiscal year 2018-19 as compared to fiscal year 2017-18. The average contribution rate for ERS decreased from 15.3 percent of payroll to 14.9 percent of payroll. The average contribution rate for PFRS decreased from 24.4 percent to 23.5 percent of payroll.

GASB no longer requires the computation of the traditional funded ratio. The ratio of fiduciary plan position to total pension liability is now a required financial disclosure. For the fiscal year ended March 31, 2018, these ratios are 98.24 percent for ERS and 96.93 percent for PFRS. The traditional funded ratios for ERS and PFRS can be found in this CAFR's Actuarial Section.

In April 2018, the Pew Charitable Trusts' public policy foundation ranked the Fund as the fourth best-funded retirement system among the states. According to Pew, only New York, South Dakota, Tennessee and Wisconsin were at least 90 percent funded. We have been vigilant about maintaining our industry-leading funded status because more than one million members, retirees and their families rely on us for their financial security in retirement.

The Actuarial Section also provides a detailed discussion of the System's funding.

INVESTMENTS

Our investment policies are designed to obtain optimal risk-adjusted returns and ensure that investments are made for the exclusive benefit of the participants and beneficiaries of the System, on whose behalf the assets of the Fund are invested. Fund investments are made consistent with the “prudent person” and “exclusive benefit” fiduciary standards of investment. Additionally, we have adopted policies and practices to ensure that the Fund is managed with high levels of ethical conduct and transparency. In fact, the independent triennial fiduciary and conflict of interest review conducted in 2016 by Funston Advisory Services commended the Fund for its strong investment policies and ethical management.

We are responsible for implementing an asset allocation strategy with an appropriate balance of risk and return. Our long-term target allocation for the investment portfolio is 22 percent in fixed income assets (cash, bonds, mortgages and Treasury Inflation-Protected Securities or “TIPS”) and 78 percent in equity, including domestic and international public equities as well as private equity investments, real estate, real assets, absolute return strategies, and opportunistic funds. This strategy helped the Fund pass the \$200 billion mark for the first time last fiscal year, a milestone which underscores the soundness of the long-term investment strategy we have employed.

At the end of the 2017-18 fiscal year, the market value of invested assets of the Fund was \$207.4 billion. The Fund posted positive investment performance with a time-weighted rate of return of 11.35 percent.

According to the National Association of State Retirement Administrators (NASRA), the average assumed rate of return for public pension funds has decreased from 7.91 percent in 2010 to 7.36 percent in 2018. NYSLRS’s assumed rate of return on investments is 7.0 percent. By taking a fiscally prudent approach, we help ensure the Fund remains adequately funded despite continued market volatility.

ACCOUNTING PRACTICES

My staff is responsible for identifying control objectives for the protection of assets and the proper recording of all transactions in order to permit the preparation of financial statements in accordance with GAAP. The objective of internal controls is to provide reasonable, rather than absolute, assurance that the financial statements are free of material misstatements. We have designed, implemented and maintained adequate internal controls to provide reasonable assurance that our control objectives are achieved.

The concept of reasonable assurance recognizes that the cost of a control should not exceed the benefits likely to be derived, and that the valuation of costs and benefits requires estimates and judgments by management. An internal control system includes the organization plan, the appropriate segregation of duties and responsibilities, the implementation of sound practices in the performance of duties, and the employment of personnel whose capabilities are commensurate with their responsibilities.

The System's financial information and internal controls are subject to examination by the New York State Department of Financial Services. Additionally, KPMG LLP, an independent, certified public accountant, audits the System's financial statements. KPMG's opinion appears on page 33 of this report. Lastly, pursuant to the New York State Government Accountability, Audit and Internal Control Act, the System is subject to an audit of its internal controls every three years.

We believe the internal controls in effect during the fiscal year ended March 31, 2018 adequately safeguard the System's assets and provide reasonable assurance regarding the proper recording of financial transactions.

PROGRAMS AND INITIATIVES

NYSLRS is continuing its multiyear project to upgrade the computer systems we use to calculate benefits and administer accounts. This modernization will allow us to provide better service to our customers and bring greater efficiency and accuracy to our work.

Part of this effort is *Retirement Online*, a secure self-service application that gives our members and retirees convenient access to their retirement account information and enhances their ability to conduct business with NYSLRS. Made available in 2017, this service has proven to be tremendously popular. As of March 31, 2018, nearly 126,000 members and retirees have registered for *Retirement Online*.

In the coming year, we will introduce new online tools for NYSLRS employers, and add additional features for members and retirees.

These new services are not just convenient, they are also secure. Protecting the data we use every day and the personal information of our stakeholders is a critical priority. That's why *Retirement Online* has security safeguards similar to those used by financial institutions for online banking.

We've undertaken this project in deliberate steps to minimize the risk of disruption to our operations. This helps ensure that the project is successful now and in the future.

More information about the technology systems replacement project, as well as other key programs and initiatives, can be found in the Overview of the New York State & Local Retirement System on page 23 and the Overview of Investments on page 81.

ACKNOWLEDGMENTS

I wish to thank the members of the Advisory Council for the Retirement System, the Investment Advisory Committee, the Real Estate Advisory Committee, the Actuarial Advisory Committee and the Audit Advisory Committee for their dedicated service and commitment to the System's members, retirees and beneficiaries. We are deeply indebted to them for their continued support and counsel.

I would also like to thank the staff in our Division of Retirement Services and our Division of Pension Investment and Cash Management, who are responsible for preparing this report. Their professionalism and dedication are greatly appreciated.

I am confident you will find this report to be a complete and reliable accounting of the System.

Sincerely,



Thomas P. DiNapoli
State Comptroller

ADMINISTRATIVE ORGANIZATION

ADVISORY COMMITTEES

Advisory Council for the Retirement System

The Advisory Council for the Retirement System, appointed by the Comptroller pursuant to regulations of the Comptroller (2 NYCRR Part 320), advises and makes recommendations to the Comptroller on the formulation of policies in relation to the administration and management of the Common Retirement Fund and the Retirement System. At the annual meetings of the Council, the Comptroller and senior staff also exchange information and insights with the Council to help stakeholders understand the status and challenges of the Common Retirement Fund and the Retirement System.

Honorable Peter J. Abbate, Jr.

Chair
Assembly Governmental Employees Committee
New York State Assembly

Stephen J. Acquario

Executive Director
New York State Association of Counties

Peter A. Baynes

Executive Director
New York State Conference of Mayors

Heather Briccetti

President & CEO
Business Council of New York State, Inc.

Mario Cilento

President
New York State AFL-CIO

Sam Fresina

President
Professional Fire Fighters Association

Gerry Geist

Executive Director
Association of Towns of the State of New York

Honorable Martin J. Golden

Chair
Senate Civil Service and Pensions Committee
New York State Senate

Don Kelly

Director of Research
Civil Service Employees Association

Timothy G. Kremer

Executive Director
New York State School Boards Association

Bing Markee

Legislative Director
New York State Association of
Police Benevolent Associations

John J. McPadden

President
Retired Public Employees Association

Andrew Pallotta

President
New York State United Teachers

Michael Powers

President
New York State Correctional Officers
& Police Benevolent Association

Raymond Santander

Assistant Director
AFSCME District Council 37

Wayne Spence

President
New York State Public Employees Federation

Ronald J. Walsh, Jr.

President
Council 82, AFSCME

Richard Wells

President
Police Conference of New York

Barbara Zaron

President
New York State Organization of
Management Confidential Employees

Investment Advisory Committee

The Investment Advisory Committee is appointed by the Comptroller pursuant to Section 423 of the New York State Retirement and Social Security Law. The Investment Advisory Committee advises the Comptroller on general investment issues. The Investment Advisory Committee reviews the investment policy statement and any amendments to it, and reviews and provides a recommendation to the Comptroller on the proposed asset allocation plan developed by the Chief Investment Officer after the completion of an asset liability study. The Investment Advisory Committee also periodically reviews the strategic plan of each Common Retirement Fund asset class, and monitors the Common Retirement Fund's risk profile, investment activity and performance on a periodic basis.

William G. Clark

Chief Investment Officer
Federal Reserve Employee Benefits System

Timothy C. Collins

CEO & Senior Managing Director
Ripplewood Holdings, LLC

Hugh Johnson

Chairman & Chief Investment Officer
Hugh Johnson Advisors, LLC

Catherine A. Lynch, CFA

Former Chief Executive Officer & Chief Investment Officer
National Railroad Retirement Investment Trust

Valerie Mosley

Chair & CEO
Valmo Ventures

Catherine James Paglia

Director
Enterprise Asset Management

Real Estate Advisory Committee

The Real Estate Advisory Committee is appointed by the Comptroller, with the consent of the Investment Advisory Committee, pursuant to Section 423 of the Retirement and Social Security Law. The Real Estate Advisory Committee reviews proposed mortgage and real estate investments. In the event the Real Estate Advisory Committee disapproves of a proposed mortgage or real estate investment, the investment will not be presented to the Comptroller and cannot be made by the Common Retirement Fund.

Camile Douglas

Senior Marketing Director
LeFrak

Louis M. Dubin

Managing Partner
Redbrick LMD

G. Gail Edwards

Independent Director

Michael Giliberto

S. Michael Giliberto & Co., Inc.

James M. Gottstine

Chief Operating Officer
Ciminelli Real Estate Corporation

Jo Ann Hanson

President
Church Investment Group

David H. Peirez, Esq.

Senior Partner
Reisman Peirez Reisman & Capobianco, LLP

Peter Tilles

Developer

Actuarial Advisory Committee

The Actuarial Advisory Committee, appointed by the Comptroller pursuant to regulation (11 NYCRR 136-2), reviews and advises the Comptroller on the actuarial soundness and financial condition of the Retirement System and the Common Retirement Fund, and annually reviews the proposed actuarial assumptions and employer contributions.

Armand de Palo

(Retired)

Michael Heller

(Retired)

Teri E. Landin

(Retired)

Stanley Talbi

Executive Vice President

Metropolitan Life Insurance

Mark T. Koehne

Senior Vice President & Actuary

Mutual of America Life Insurance Company

Audit Advisory Committee

The Audit Advisory Committee, appointed by the Comptroller pursuant to regulation (11 NYCRR 136-2), reviews and reports to the Comptroller on the annual internal and external audit processes related to the Retirement System and the Common Retirement Fund and on the Comprehensive Annual Financial Report.

Eugene Farley

(Retired)

Alan Lubin

(Retired)

Paul Moore

Past President

Retired Public Employees Association, Inc.

Ruben Cardona

Partner

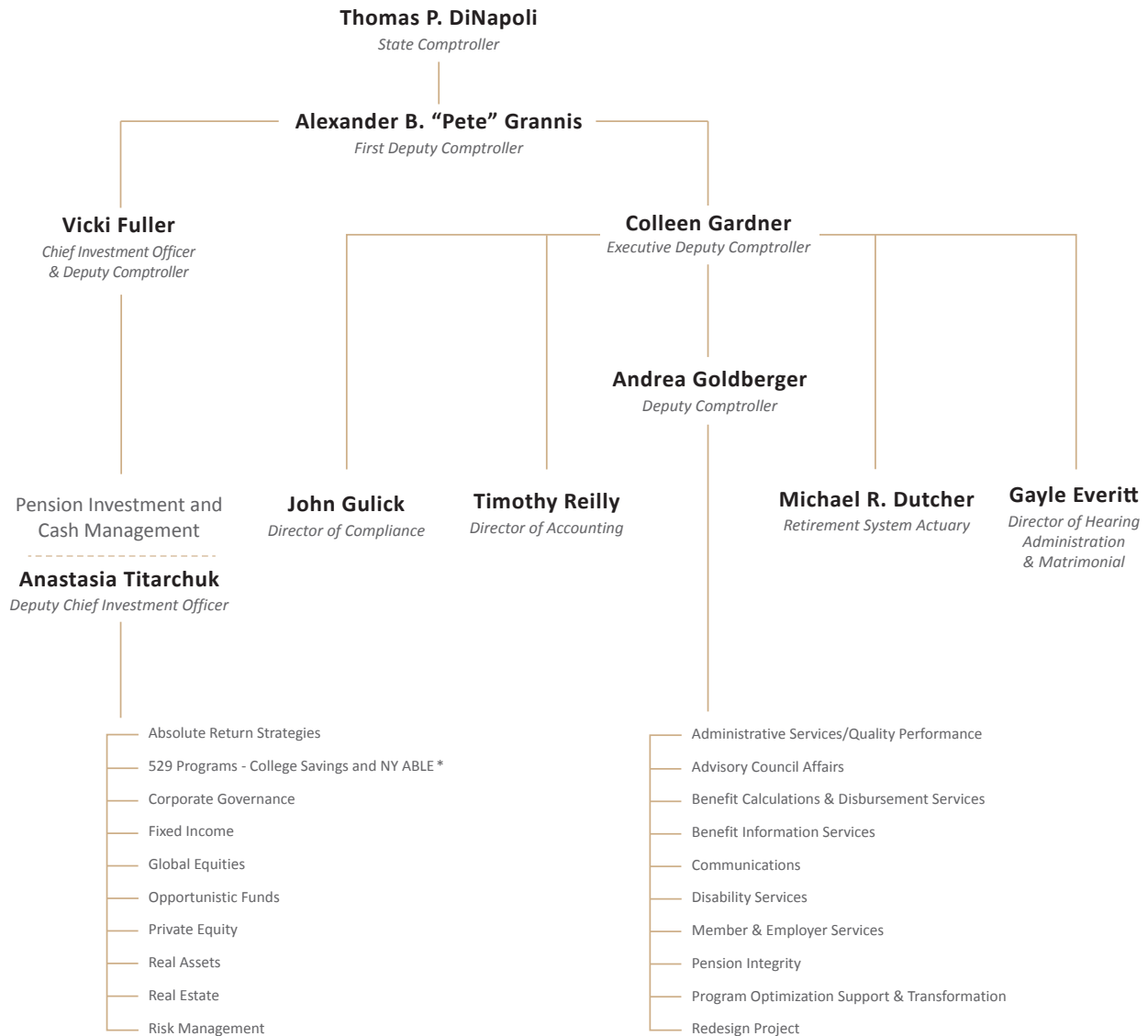
WithumSmith + Brown, PC

Jennifer Mulligan

Business Office Manager/Controller

Questar III BOCES

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM ORGANIZATION CHART



* College Savings and NY ABLE are independent programs within OSC.

Notes:

Information regarding investment managers and consultants can be found in the Investment Section on pages 106, 110, 115 and 119 – 128. Information regarding consultants other than investment advisors can be found on page 76 in the Financial Section.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

The number of retirements and new member registrations at NYSLRS increased again in fiscal year 2018, and these numbers are projected to continue to grow in the next few years. At NYSLRS, we are committed to helping our members achieve a secure retirement and to serving their needs throughout their working lives and after they retire. I am pleased to share highlights of our work in fiscal year (FY) 2017-18 with you.

RETIREMENT ONLINE BRINGS CHANGES AND BENEFITS

NYSLRS continued work on the Redesign Project — our multiyear project to replace the technology we use to administer benefits. Secure online services for our employers, members, retirees and beneficiaries were introduced. Our new *Retirement Online* was launched in January 2017, enabling members to view their retirement account information, update demographic information, apply for a loan, update beneficiaries, and request a hearing securely and conveniently. More than 125,500 NYSLRS members and retirees have signed up to use *Retirement Online* to manage their retirement accounts as of March 31, 2018. This new online service has yielded significant customer service improvements, while also helping streamline the work we do at NYSLRS.

Tens of thousands of customer transactions have been conducted using *Retirement Online*. More than 40 percent of member loan requests are now made via *Retirement Online*, which provides instant information to members about estimated repayment plans, taxability of loan amounts, and payroll deduction schedules. Over 34,600 updates to demographic information like addresses and phone numbers have been made online. Nearly 11,400 members submitted beneficiary requests via *Retirement Online*, enabling NYSLRS to complete its review and updates more quickly. Members who conduct business with NYSLRS can also view correspondence through their *Retirement Online* account. More features will be introduced in the future.

The next step in this project is to provide our participating employers with tools that will make reporting information and doing business with us easier and more convenient. Improving the way member data is reported will help us track service credit and calculate benefits with more efficiency in the future.

In 2017-18, our staff met with our participating employers throughout the State to introduce the changes planned for employer reporting and to seek their input. NYSLRS employers are essential to our operations, and that's why we are working closely with them as we prepare for the future. Deputy Comptroller Andrea Goldberger led our employer education and outreach efforts.

IMPROVING OUR PROCESSES

As part of our Redesign Project, NYSLRS is putting special focus on improving our internal, cross-bureau work processes. A major goal is to enhance operational efficiencies and effectiveness throughout NYSLRS. By moving away from paper-driven processes and leveraging technology, we are improving the quality and timeliness of our service to customers.

For example, our Hearing Administration & Matrimonial and Benefit Calculations & Disbursement bureaus have streamlined the process for verifying a valid Domestic Relations Order (DRO) governing the distribution of marital property that may be on file. Then they work together to calculate the distribution amounts and finalize the retirement benefits. NYSLRS also has a fillable DRO template on its website that members can use for faster service and priority review. This kind of work process adjustment results in better service to our customers.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

CONTINUED

COMMUNICATING WITH OUR CUSTOMERS

Significant improvements were made and resources were added to our Call Center over the past year. In April 2017, Call Center agents in the Benefit Information Services (BIS) bureau answered 27,643 calls (40 percent of all incoming calls), but less than 4 percent of those calls were answered within two minutes. By April 2018, BIS staff answered 43,305 calls (over 82 percent of all incoming calls), with over 48 percent of all incoming calls answered within two minutes.

To help improve the customer experience during peak calling times, NYSLRS implemented a Callback Assist feature for incoming calls. Callback is an especially useful feature because it offers customers an alternative to waiting on hold for an agent to become available. Customers who opt for a callback provide their name and a callback number, and are then free to disconnect. At the appropriate time, the callback assist feature connects a Call Center agent with the customer.

The customer service representatives in BIS are often the first point of contact our customers have with NYSLRS. They are a key factor in achieving our customer service goals. During the 2017-18 fiscal year, representatives:

- Answered 431,641 calls and responded to 22,617 email requests;
- Assisted 41,660 customers at on-site consultations and another 3,137 customers off-site;
- Delivered presentations to 20,009 members and pensioners; and
- Assisted 18,919 customers at information tables at events.

With the introduction of *Retirement Online*, a special unit of BIS staff was tasked with assisting our customers in the enrollment process. During the 2017-18 fiscal year, these employees responded to more than 20,000 calls pertaining to enrollment, resulting in 12,982 *Retirement Online* member registrations.

FIGHTING FRAUD

The verification of retiree and beneficiary deaths is an important step in identifying and preventing pension fraud. During the 2017-18 fiscal year, NYSLRS recovered over \$272,400 in disallowed post-death pension disbursements. NYSLRS will continue to search out unreported and falsely reported pensioner deaths and, when inappropriate payments are identified, will pursue full restitution.

TAX AND FINANCE WAGE MATCHES

Chapter 206 of the Laws of 2011, which Comptroller DiNapoli sponsored, enables NYSLRS to compare our retiree records with wage information reported by public employers to the Department of Taxation and Finance. This data allows us to identify NYSLRS retirees who are performing services for public employers and may be subject to earnings limitations. Over the 2017-18 fiscal year, our reviews of post-retirement employment uncovered \$915,078 in benefit overpayments. NYSLRS is actively pursuing full recovery.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

CONTINUED

REDESIGNED EMPLOYER'S GUIDE

We value our relationship with NYSLRS employers, and supporting their work is one of our most important priorities. In November 2017, we revamped the *Employer's Guide*, dividing it into smaller, more manageable sections. The new format still provides employers with the information they need, but that information is now more clearly organized by topic, making it easier for employers to find and access.

Since we know employees frequently ask their employers questions about their NYSLRS benefits, we also added a new "Resources" section to the *Employer's Guide* that provides links to our most popular web pages and contact information that can be given to members.

NEW OVERTIME REPORTING GUIDELINES

The amount of overtime to include on an employer's monthly report has always been limited for Tier 5 and 6 members, but now the limit is based on a calendar year for all Tier 5 and 6 members. Previously, the ERS Tier 6 limit was based on the State fiscal year (April 1 through March 31). We helped employers make the transition to reporting overtime limits on a calendar year basis in 2017. This will streamline reporting, since employers already track calendar year earnings for federal tax reporting purposes.

ACCIDENTAL DISABILITY APPLICATION PROCESS

Our office took part in a public hearing conducted by the New York State Senate Standing Committee on Civil Service and Pensions on November 15, 2017. The purpose of this hearing was to discuss the handling of accidental disability retirement applications for those who participated in the World Trade Center rescue, recovery and clean up, and consider what can be done to improve the application process.

Three months later, on February 15, 2018, we participated in a follow-up roundtable discussion held by the Senate Standing Committee. As a result of these discussions, we are developing a new website presentation and other information to address the disability-related questions and concerns that surfaced at these forums.

REVIEW OF NYSLRS

The New York State Department of Financial Services concluded its examination of NYSLRS, which is required every five years under New York Insurance Law and regulation. The examination primarily focused on a review of various core System functions, including fiduciary, financial, actuarial, investment, risk management, information technology, and member treatment.

Once again, NYSLRS engaged the pension administration benchmarking services of CEM Benchmarking to measure our services and costs. CEM analyzed over 120 key performance metrics and evaluated NYSLRS' service levels relative to our peer pension systems in 2017. Our service score increased over the previous year. We expect continued improvement next year as new customer services are available through *Retirement Online*.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

CONTINUED

NEW LAWS ENACTED IN THE PAST YEAR THAT IMPACT NYSLRS

Graded Contribution Rates Provided to Employers Who Amortize

Chapter 48 of the Laws of 2017, which was proposed by the Comptroller, provides participating employers with a tailored graded contribution rate when amortizing a portion of their contributions to NYSLRS.

Special Accidental Death Benefits Increased

Chapter 76 of the Laws of 2017 increases special accidental death benefits paid to widows, widowers or children of police officers and firefighters killed in the line of duty.

Collective Bargaining Agreements with Public Unions Implemented

Chapter 98 of the Laws of 2017 implements collective bargaining agreements between seven public employee unions and the State of New York, and also establishes that location pay and bonuses for certain nonjudicial officers and other employees of the Unified Court System are pensionable.

Maximum Amount Tier 6 Members Can Borrow Limited

Chapter 303 of the Laws of 2017, which was proposed by the Comptroller, aligns the maximum amount that NYSLRS Tier 6 members may borrow against their retirement contributions with the nontaxable loan caps established by the Internal Revenue Service.

Overtime Reporting Period for Tier 6 Members Standardized

Chapter 368 of the Laws of 2017 standardizes the overtime reporting period for NYSLRS Tier 6 members. The measure, which was proposed by the Comptroller, changes the time period for the overtime limit calculation from the State fiscal year (April 1 - March 31) to the calendar year (January 1 - December 31). The annual increase to the overtime limit will be based on the increase in the Consumer Price Index in the one-year period ending on September 30 of the previous year.

Deadline Extended to File for Accidental Disability Retirement Benefits

Chapter 432 of the Laws of 2017 extends from two years to five years the deadline for both active and retired firefighters in PFRS to file an application for accidental disability retirement benefits due to certain types of cancer.

State Police Officers Receive Credit as State University Police Officers

Chapter 440 of the Laws of 2017 allows State Police officers to receive credit for service as a State University police officer by changing the time period for completion of training from one year to two years of the appointment date.

NYSLRS continues to be one of the best-funded retirement systems in the country. As we implement the next phases of our Redesign Project, I am confident we will be among the best-administered pension systems in the country, too.

All of us at NYSLRS are looking to the future with excitement. I look forward to telling you about our successes in 2019.

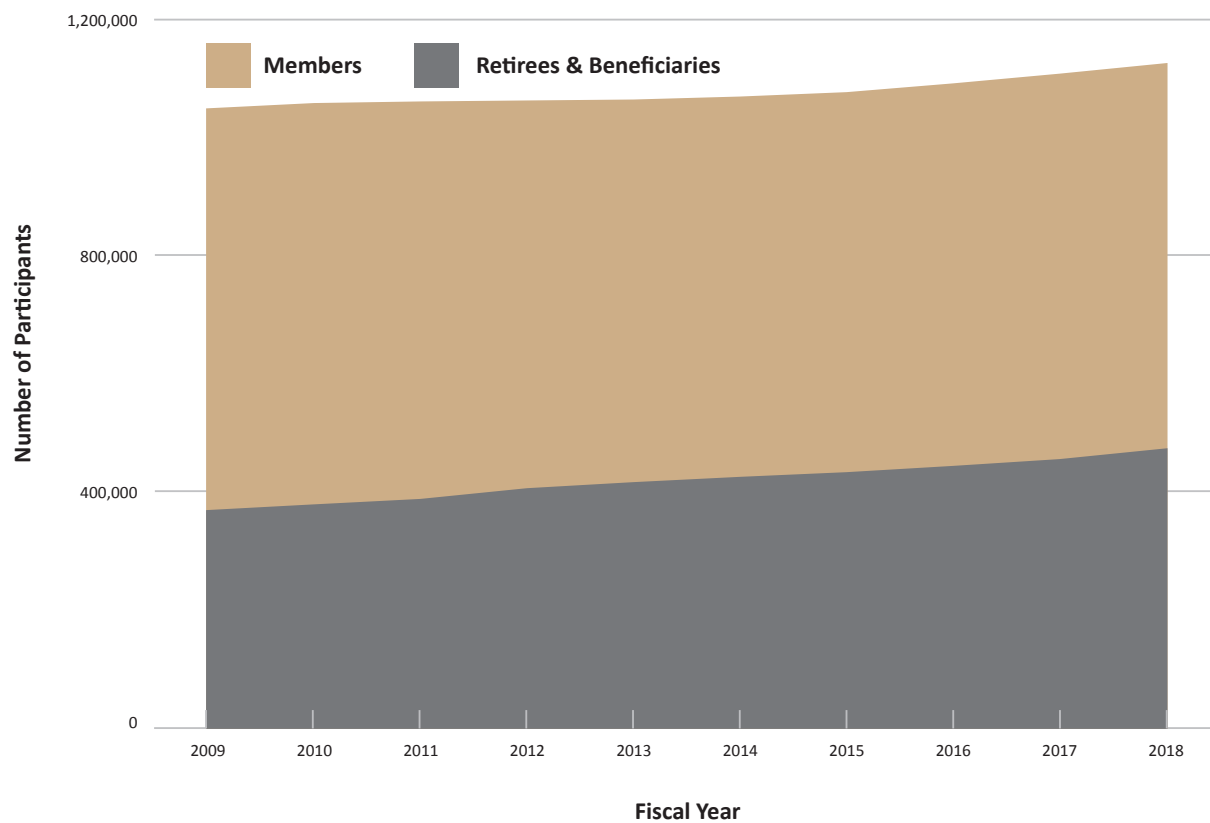
BY THE NUMBERS

MEMBERS AND RETIREES

There are 1,122,626 participants in the System, including 652,030 members and 470,596 retirees and beneficiaries.

The number of retirees is increasing more quickly than members. For example, in 1998 retirees represented 33 percent of the System's participants. By fiscal year 2018, that number had increased to approximately 42 percent.

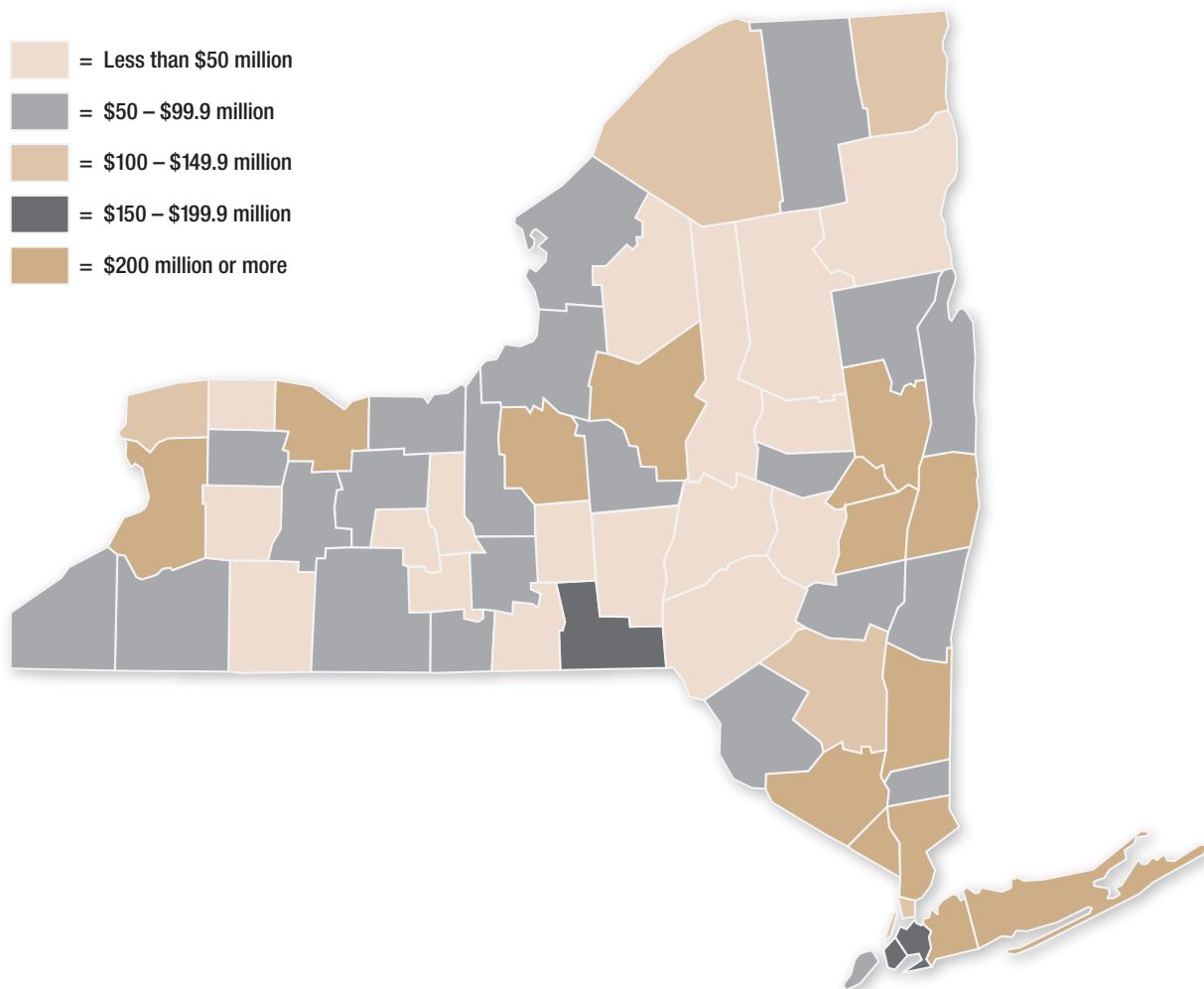
Benefit payments continue to rise, reflecting improvements in final average salaries over the past decades, cost-of-living adjustment (COLA) payments and benefit improvements enacted over the years.



RETIREES IN NEW YORK STATE

Of the 470,596 retirees and beneficiaries in the System, 370,329 (79 percent) remain New York State residents. As such, benefit payments surpassing \$9.8 billion this year alone reach the State's communities and businesses, representing a significant stimulus to the State's economy.

Benefit Payments by County



BY THE NUMBERS

CONTINUED

ANNUAL BENEFIT PAYMENTS WITHIN NEW YORK STATE

As of March 31, 2018.

County	Annuitants	Annual Payments
Albany	18,991	\$ 592,235,790
Allegany	1,698	32,161,770
Bronx	3,732	101,028,704
Broome	7,902	157,934,299
Cattaraugus	3,490	71,783,430
Cayuga	3,259	75,135,627
Chautauqua	4,881	99,209,041
Chemung	3,722	87,846,331
Chenango	2,146	40,154,489
Clinton	4,420	112,653,137
Columbia	3,101	77,876,355
Cortland	1,798	35,842,645
Delaware	1,852	37,135,908
Dutchess	9,820	279,114,626
Erie	31,066	800,134,376
Essex	2,033	43,061,554
Franklin	3,127	73,406,077
Fulton	2,218	45,302,584
Genesee	2,359	52,529,503
Greene	2,509	62,581,370
Hamilton	468	9,448,657
Herkimer	2,488	48,957,331
Jefferson	3,512	77,783,888
Kings	5,954	177,102,790
Lewis	1,245	21,827,783
Livingston	2,988	67,460,719
Madison	2,543	52,458,183
Monroe	17,218	382,700,847
Montgomery	2,410	53,428,446
Nassau	24,066	815,709,103
New York	4,559	148,446,616
Niagara	6,407	147,826,097

County	Annuitants	Annual Payments
NY Military	12	\$ 114,135
Oneida	10,123	241,051,817
Onondaga	13,971	319,929,485
Ontario	3,573	76,997,236
Orange	9,428	255,540,294
Orleans	1,611	33,242,974
Oswego	4,372	86,490,318
Otsego	2,242	41,190,407
Putnam	2,446	75,862,877
Queens	6,343	194,450,145
Rensselaer	9,122	265,036,026
Richmond	2,520	81,654,476
Rockland	6,970	213,172,886
Saratoga	10,928	312,788,627
Schenectady	8,570	245,426,073
Schoharie	1,614	37,222,196
Schuyler	842	17,438,274
Seneca	1,512	31,223,083
St. Lawrence	5,356	122,444,212
Steuben	3,343	69,370,487
Suffolk	35,776	1,160,250,250
Sullivan	2,925	71,343,050
Tioga	1,638	30,401,724
Tompkins	2,808	58,362,079
Ulster	6,026	143,403,196
Warren	3,001	68,088,581
Washington	2,778	61,830,003
Wayne	3,439	68,093,640
Westchester	16,091	508,056,906
Wyoming	2,140	48,274,636
Yates	827	16,054,754
Total	370,329	\$ 9,835,082,930

Note: The objective of this chart is to show the relative amounts paid to annuitants in the various locations within New York State. Annuitants are retirees and beneficiaries who were receiving a retirement benefit at the end of the fiscal year. This includes death benefits paid as a continuing benefit. The numbers do not match the figures in the basic financial statements because the financial statement figures represent the sum of all benefit payments (including death benefits) made during the fiscal year, in accordance with Generally Accepted Accounting Principles (GAAP). The above numbers represent the sum of the annual benefits payable to all annuitants actively collecting as of the end of the fiscal year. These numbers are easier to organize by county than the financial statement figures.

ANNUAL BENEFIT PAYMENTS WITHIN THE UNITED STATES

As of March 31, 2018.

State	Annuitants	Annual Payments
Alabama	847	\$ 14,839,231
Alaska	60	1,116,839
Arizona	2,810	58,712,165
Arkansas	162	2,348,998
California	2,283	41,566,793
Colorado	860	16,819,230
Connecticut	2,319	54,881,119
Delaware	827	21,477,205
Florida	37,290	873,074,698
Georgia	3,887	79,359,742
Guam	2	12,983
Hawaii	114	2,327,615
Idaho	98	2,032,077
Illinois	381	6,325,026
Indiana	278	4,442,668
Iowa	84	1,254,152
Kansas	117	1,933,242
Kentucky	370	5,925,165
Louisiana	184	3,236,766
Maine	603	12,152,494
Maryland	1,490	28,023,549
Massachusetts	1,602	33,678,750
Michigan	362	5,489,798
Minnesota	154	2,062,283
Mississippi	218	3,899,345
Missouri	253	3,653,979
Montana	129	2,265,854

State	Annuitants	Annual Payments
Nebraska	58	\$ 791,945
Nevada	1,455	34,946,158
New Hampshire	653	15,866,008
New Jersey	7,689	274,196,625
New Mexico	448	8,174,739
New York	370,329	9,835,082,930
North Carolina	8,966	193,558,831
North Dakota	22	337,117
Ohio	803	12,712,028
Oklahoma	160	2,354,006
Oregon	298	5,015,529
Pennsylvania	4,785	108,347,756
Puerto Rico	438	6,874,994
Rhode Island	265	5,867,154
South Carolina	5,947	140,502,758
South Dakota	72	1,647,260
Tennessee	1,852	41,805,482
Texas	2,259	43,596,935
Utah	153	3,022,233
Vermont	603	12,158,346
Virginia	3,780	75,879,627
Washington	540	9,997,580
Washington, D.C.	114	2,319,021
West Virginia	194	3,491,911
Wisconsin	164	2,662,992
Wyoming	70	1,419,251
Total	469,901	\$ 12,125,540,981

ANNUAL BENEFIT PAYMENTS OUTSIDE THE UNITED STATES

As of March 31, 2018.

Annuitants	Total Annual Payments
695	\$ 11,119,776

Note: The objective of this chart is to show the relative amounts paid to annuitants within the United States and outside the United States. Annuitants are retirees and beneficiaries who were receiving a retirement benefit at the end of the fiscal year. This includes death benefits paid as a continuing benefit. The numbers do not match the figures in the basic financial statements because the financial statement figures represent the sum of all benefit payments (including death benefits) made during the fiscal year, in accordance with Generally Accepted Accounting Principles (GAAP). The above numbers represent the sum of the annual benefits payable to all annuitants actively collecting as of the end of the fiscal year. These numbers are easier to organize by country and state than the financial statement figures.

Financial

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INDEPENDENT AUDITORS' REPORT



KPMG LLP
515 Broadway
Albany, NY 12207-2974

Independent Auditors' Report

The Trustee
New York State and Local Retirement System:

Report on the Financial Statements

We have audited the accompanying combining statement of fiduciary net position of the New York State and Local Retirement System (the System) as of March 31, 2018, the related combining statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements.

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 and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States. 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 auditors consider 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 fiduciary net position of the System as of March 31, 2018, and the changes in fiduciary net position for the year then ended, in accordance with U.S. generally accepted accounting principles.

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the management's discussion and analysis and required supplementary information as listed in the accompanying table of contents be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential

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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.

Other Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the System's basic financial statements. The accompanying other supplementary information as listed in the accompanying table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates 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 other supplementary information is fairly stated in all material respects in relation to the basic financial statements as a whole. The introduction, investment, actuarial, and statistical sections of this report have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we express no opinion or provide any assurance on them.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated July 20, 2018 on our consideration of the System's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control over financial reporting and compliance.

KPMG LLP

July 20, 2018

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

March 31, 2018

The following overview of the financial activity of the New York State and Local Retirement System (the System) for the fiscal year ended March 31, 2018 is intended to provide the reader with an analysis of the System's overall financial position. The System is comprised of the New York State and Local Employees' Retirement System (ERS) and the New York State and Local Police and Fire Retirement System (PFRS). The net position of the System is held in the New York State Common Retirement Fund (the Fund), which was established to hold all assets and record changes in fiduciary net position allocated to the System. This management's discussion and analysis should be read in conjunction with the basic financial statements of the System, which follow.

FINANCIAL HIGHLIGHTS

The fiduciary net position of the System held in trust to pay pension benefits was \$212.08 billion as of March 31, 2018. This amount reflects an increase of \$14.47 billion from the prior fiscal year. This change is primarily the result of the net appreciation of the fair value of the investment portfolio. Investment appreciation for the fiscal years ended March 31, 2018 and 2017 was \$17.86 billion and \$16.92 billion, respectively.

- The System's investments reported a positive money-weighted rate of return, net of investment expense, of 11.29 percent for the fiscal year ended March 31, 2018 and a positive money-weighted rate of return, net of investment expense, of 11.40 percent for the fiscal year ended March 31, 2017.
- Retirement and death benefits paid during the fiscal year ended March 31, 2018 to 470,596 annuitants totaled \$12.03 billion, as compared to \$11.45 billion paid to 452,455 annuitants for the fiscal year ended March 31, 2017. The increase is primarily due to the number of new retirees.
- Contributions from employers increased to \$4.82 billion for the fiscal year ended March 31, 2018, from \$4.79 billion for the fiscal year ended March 31, 2017. The increase in contributions is attributable to the increase in covered payroll.
- The Net Pension Liability (NPL) for ERS was \$3.23 billion for the measurement period ended March 31, 2018 as compared to \$9.40 billion for the measurement period ended March 31, 2017. The fiduciary net position, restricted for pension benefits as of March 31, 2018, was \$180.17 billion, which represents 98.24 percent of the calculated total pension liability for ERS. The NPL is allocated to participating employers and reported pursuant to Governmental Accounting Standards Board (GASB) Statements 67 and 68.
- The NPL for PFRS was \$1.01 billion for the measurement period ended March 31, 2018 as compared to \$2.07 billion for the measurement period ended March 31, 2017. The fiduciary net position, restricted for pension benefits as of March 31, 2018, was \$31.90 billion, which represents 96.93 percent of the calculated total pension liability for PFRS. The NPL is allocated to participating employers and reported pursuant to GASB Statements 67 and 68.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

CONTINUED

OVERVIEW OF THE FINANCIAL STATEMENTS

The financial statements consist of the combining basic statement of fiduciary net position, the combining basic statement of changes in fiduciary net position, and the notes to the basic financial statements. The required supplementary information that appears after the notes to the basic financial statements is not a required part of the basic financial statements, but is supplementary information required by the Governmental Accounting Standards Board (GASB). The other supplementary information following the required supplementary information is not required, but management has chosen to include such information to increase transparency.

The combining basic statement of fiduciary net position reflects the resources available to pay members, retirees and beneficiaries at the close of the System's fiscal year. This statement also provides information about the fair value and composition of the System's net position.

The combining basic statement of changes in fiduciary net position presents the changes to the System's net position for the fiscal year, including net investment income (loss), which includes net appreciation (depreciation) in fair value of the investment portfolio, and contributions from members and employers. Benefits and administrative expenses paid by the System are included under the deductions section of the statement.

The notes to the financial statements are an integral part of the basic financial statements and provide additional information about the plans, policies, and performance of the System.

The required supplementary information includes: Schedule of Changes in the Employers' Net Pension Liability and Related Ratios, Schedule of Employer Contributions and Schedule of Investment Returns.

The additional supplementary information includes: Schedule of Administrative Expenses, Schedule of Investment Expenses, and Schedule of Consulting Fees.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

CONTINUED

ANALYSIS OF THE OVERALL FINANCIAL POSITION OF THE SYSTEM

The purpose of the System's investments is to provide for long-term growth, while also ensuring a reliable cash flow that meets the funding requirements of the near-term pension obligation. To achieve these goals, the investments are allocated to a variety of asset types and strategies in order to meet the System's current funding needs as well as future growth requirements. Equity-related investments are included for their long-term return and growth characteristics. While a majority of fixed income and debt-related investments are generally included in the allocation for their ability to control investment risk and provide for a reliable cash flow that meets the funding requirements, a portion is strategically invested in more actively traded markets. It is important to note that the change from year to year is due not only to changes in fair values but also to purchases, sales, and redemptions. Tables 1, 2, and 3 summarize and compare financial data for the current and prior years.

Table 1

Summary schedule of fiduciary net position as of March 31, 2018, as compared to March 31, 2017:

	(Dollars in Thousands)			Percentage Change
	2018	2017	Dollar Change	
Assets:				
Investments	\$ 207,415,970	\$ 192,410,603	\$ 15,005,367	7.8%
Securities lending collateral — invested	5,606,936	4,793,249	813,687	17.0
Receivables and other assets	<u>5,525,416</u>	<u>6,219,937</u>	<u>(694,521)</u>	<u>(11.2)</u>
Total assets	218,548,322	203,423,789	15,124,533	7.4
Liabilities:				
Securities lending obligations	5,614,883	4,801,017	813,866	17.0
Payables and other liabilities	<u>856,628</u>	<u>1,020,579</u>	<u>(163,951)</u>	<u>(16.1)</u>
Total liabilities	6,471,511	5,821,596	649,915	11.2
Net position, restricted for pension benefits	\$ 212,076,811	\$ 197,602,193	\$ 14,474,618	7.3%

The fiduciary net position of the System totaled \$212.08 billion as of March 31, 2018, an increase of \$14.47 billion from the prior fiscal year, primarily attributable to the net appreciation of invested assets.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

CONTINUED

Table 2

Schedule of invested assets as of March 31, 2018, as compared to March 31, 2017:

	(Dollars in Thousands)			Percentage Change
	2018	2017	Dollar Change	
Domestic equity	\$ 75,771,363	\$ 69,851,696	\$ 5,919,667	8.5%
Global fixed income	44,820,784	44,002,645	818,139	1.9
International equity	39,025,688	33,836,667	5,189,021	15.3
Private equity	17,500,516	15,348,492	2,152,024	14.0
Real estate	14,182,669	12,937,452	1,245,217	9.6
Absolute return strategy investments	7,879,320	7,523,769	355,551	4.7
Short-term investments	3,366,569	5,653,335	(2,286,766)	(40.4)
Opportunistic funds	2,507,027	2,065,686	441,341	21.4
Real assets	1,518,624	390,574	1,128,050	288.8
Mortgage loans	843,410	800,287	43,123	5.4
Total investments	\$ 207,415,970	\$ 192,410,603	\$ 15,005,367	7.8%

The largest percentage increases to the invested assets were in the real assets, opportunistic funds, and international equity, which represent 0.73 percent, 1.21 percent, and 18.82 percent of the total portfolio, respectively. The equity portfolios increased largely due to positive performance. In opportunistic funds and real assets, the growth largely reflected new allocations to bring these newer portfolios closer to their targeted asset allocations. Other asset classes' percentage growth mostly reflected positive performance for the year. The decrease in short-term investments reflected the tighter cash management approach. Absolute return strategy investments include equity-oriented long-only global funds of \$2.33 billion. Though these funds are in an absolute return strategy vehicle, the underlying assets are long-only equity positions.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

CONTINUED

Table 3

Summary schedule of changes in fiduciary net position for the year ended March 31, 2018, as compared to the year ended March 31, 2017:

	(Dollars in Thousands)			Percentage Change
	2018	2017	Dollar Change	
Additions:				
Net investment income	\$ 21,338,033	\$ 20,225,244	\$ 1,112,789	5.5%
Total contributions	5,388,310	5,352,191	36,119	0.7
Total additions	26,726,343	25,577,435	1,148,908	4.5
Deductions:				
Total benefits paid	(12,128,919)	(11,508,313)	(620,606)	5.4
Administrative expenses	(122,806)	(107,134)	(15,672)	14.6
Total deductions	(12,251,725)	(11,615,447)	(636,278)	5.5
Net increase	14,474,618	13,961,988	512,630	3.7
Net position, restricted for pension benefits — beginning of year	197,602,193	183,640,205	13,961,988	7.6
Net position, restricted for pension benefits — end of year	\$ 212,076,811	\$ 197,602,193	\$ 14,474,618	7.3%

The change in net investment income is primarily attributable to net appreciation in fair value of investments from 2017 to 2018. The increase in total benefits paid is attributable to the number of new retirees.

ECONOMIC FACTORS AND RATES OF RETURN

The Fund announced positive investment performance for the fiscal year ended March 31, 2018, with a time-weighted rate of return of 11.35 percent, a strong increase which reflected the strength of the global equity markets. Both U.S. and international equity portfolios performed exceptionally well as global growth continued to show strength. The Fund's alternative portfolios also enhanced overall performance, all having a positive year. Finally, despite the tightening stance of the Federal Reserve, the Fund's fixed income portfolio had a modestly positive year as well. General market volatility picked up over the year and the Fund continues to monitor the increasing uncertainty in the markets. This was the ninth consecutive year of positive performance for the Fund following the fiscal crisis of 2008.

REQUESTS FOR INFORMATION

This financial report is designed to provide a general overview of the System's finances for all interested parties. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the New York State and Local Retirement System, 110 State Street, Albany, New York 12244-0001. The report can also be accessed on the Comptroller's website at: www.osc.state.ny.us/retire/about_us/financial_statements_index.php.

BASIC FINANCIAL STATEMENTS

COMBINING BASIC STATEMENT OF FIDUCIARY NET POSITION

March 31, 2018

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Assets:			
Investments (notes 2(b), 4, 5, 8, and 11):			
Domestic equity	\$ 64,324,699	\$ 11,446,664	\$ 75,771,363
Global fixed income	38,049,777	6,771,007	44,820,784
International equity	33,130,137	5,895,551	39,025,688
Private equity	14,856,740	2,643,776	17,500,516
Real estate	12,040,115	2,142,554	14,182,669
Absolute return strategy investments	6,689,003	1,190,317	7,879,320
Short-term investments	2,857,987	508,582	3,366,569
Opportunistic funds	2,128,294	378,733	2,507,027
Real assets	1,289,208	229,416	1,518,624
Mortgage loans	715,997	127,413	843,410
Total investments	176,081,957	31,334,013	207,415,970
Securities lending collateral — invested (notes 7 and 8)	4,759,905	847,031	5,606,936
Forward foreign exchange contracts (notes 6 and 8)	36,970	6,579	43,549
Receivables:			
Employers' contributions	2,909,718	441,307	3,351,025
Members' contributions	7	—	7
Member loans	1,025,657	3,891	1,029,548
Investment income	335,299	59,667	394,966
Investment sales	206,706	36,784	243,490
Other	58,898	93,308	152,206
Total receivables	4,536,285	634,957	5,171,242
Capital assets, at cost, net of accumulated depreciation	263,699	46,926	310,625
Total assets	185,678,816	32,869,506	218,548,322
Liabilities:			
Securities lending obligations (notes 7 and 8)	4,766,651	848,232	5,614,883
Forward foreign exchange contracts (notes 6 and 8)	36,932	6,572	43,504
Accounts payable — investments	401,394	71,429	472,823
Benefits payable	117,585	14,082	131,667
Other liabilities	183,109	25,525	208,634
Total liabilities	5,505,671	965,840	6,471,511
Net position, restricted for pension benefits	\$ 180,173,145	\$ 31,903,666	\$ 212,076,811

See accompanying notes to basic financial statements.

BASIC FINANCIAL STATEMENTS

CONTINUED

COMBINING BASIC STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

Year Ended March 31, 2018

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Additions:			
Income from investing activities:			
Net appreciation in fair value of investments	\$ 15,173,823	\$ 2,685,946	\$ 17,859,769
Interest income	1,115,206	197,402	1,312,608
Dividend income	1,464,640	259,256	1,723,896
Other income	939,230	166,253	1,105,483
Less investment expenses	(584,666)	(103,492)	(688,158)
Total income from investing activities	18,108,233	3,205,365	21,313,598
Income from securities lending activities:			
Securities lending income	62,500	11,063	73,563
Securities lending rebates	(39,434)	(6,980)	(46,414)
Less securities lending management fees	(2,306)	(408)	(2,714)
Total income from securities lending activities	20,760	3,675	24,435
Total net investment income	18,128,993	3,209,040	21,338,033
Contributions:			
Employers	3,949,873	873,434	4,823,307
Members	318,439	30,950	349,389
Interest on accounts receivable	113,574	15,867	129,441
Other, net	68,151	18,022	86,173
Total contributions	4,450,037	938,273	5,388,310
Total additions	22,579,030	4,147,313	26,726,343
Deductions:			
Benefits paid:			
Retirement benefits	(10,008,626)	(1,817,463)	(11,826,089)
Death benefits	(191,579)	(9,673)	(201,252)
Other, net	(103,071)	1,493	(101,578)
Total benefits paid	(10,303,276)	(1,825,643)	(12,128,919)
Administrative expenses	(106,972)	(15,834)	(122,806)
Total deductions	(10,410,248)	(1,841,477)	(12,251,725)
Net increase	12,168,782	2,305,836	14,474,618
Net position, restricted for pension benefits — beginning of year	168,004,363	29,597,830	197,602,193
Net position, restricted for pension benefits — end of year	\$ 180,173,145	\$ 31,903,666	\$ 212,076,811

See accompanying notes to basic financial statements.

NOTES TO BASIC FINANCIAL STATEMENTS

March 31, 2018

1. DESCRIPTION OF PLANS

The Office of the New York State Comptroller administers the following plans: the New York State and Local Employees’ Retirement System (ERS) and the New York State and Local Police and Fire Retirement System (PFRS), which are collectively referred to as the New York State and Local Retirement System (the System). The net position of the System is held in the New York State Common Retirement Fund (the Fund), which was established to hold all assets and record changes in fiduciary net position allocated to the System.

The Comptroller of the State of New York serves as the trustee of the Fund and is the administrative head of the System. The Comptroller is an elected official determined in a direct statewide election and serves a four-year term. Thomas P. DiNapoli has served as Comptroller since February 7, 2007. In November 2014, he was elected for a new term commencing January 1, 2015.

The external advisory committees appointed by the Comptroller meet periodically throughout the year and provide independent, expert assistance in guiding the Fund. These committees include: the Advisory Council for the Retirement System; the Investment Advisory Committee; the Real Estate Advisory Committee; the Actuarial Advisory Committee; and the Audit Advisory Committee.

System benefits are established under the provisions of the New York State Retirement and Social Security Law (RSSL). Once a public employer elects to participate in the System, the election is irrevocable. The New York State Constitution provides that pension membership is a contractual relationship and plan benefits cannot be diminished or impaired. Benefits can be changed for future members only by enactment of a State statute. Generally, members of the System are employees of the State and its municipalities, other than New York City.

ERS and PFRS are cost-sharing, multiple-employer, defined benefit pension plans. The System is included in the State’s financial report as a pension trust fund. The Public Employees’ Group Life Insurance Plan (GLIP) provides death benefits in the form of life insurance. In these statements, GLIP amounts are apportioned to and included in ERS and PFRS.

As of March 31, 2018, the number of participating employers for ERS and PFRS consisted of the following:

	ERS	PFRS
State	1	1
Counties	57	4
Cities	61	61
Towns	914	207
Villages	483	372
Other	802	39
School districts	699	–
Total	3,017	684

BASIC FINANCIAL STATEMENTS

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Notes to Basic Financial Statements

As of March 31, 2018, the System membership for ERS and PFRS consisted of the following:

	ERS	PFRS
Retirees and beneficiaries currently receiving benefits	434,553	36,043
Active members	500,945	32,470
Inactive members*	115,961	2,654
Total members and benefit recipients	1,051,459	71,167

* Includes vested members not currently receiving benefits and nonvested members.

(a) Membership Tiers

Pension legislation enacted in 1973, 1976, 1983, 2009 and 2012 established distinct classes of membership. For convenience, the System uses a tier concept to distinguish these groups, generally:

ERS

- Tier 1** Those persons who last became members before July 1, 1973.
- Tier 2** Those persons who last became members on or after July 1, 1973, but before July 27, 1976.
- Tier 3** Generally, those persons who are State correction officers who last became members on or after July 27, 1976, but before January 1, 2010, and all others who last became members on or after July 27, 1976, but before September 1, 1983.
- Tier 4** Generally, except for correction officers, those persons who last became members on or after September 1, 1983, but before January 1, 2010.
- Tier 5** Those persons who last became members on or after January 1, 2010, but before April 1, 2012.
- Tier 6** Those persons who first became members on or after April 1, 2012.

PFRS

- Tier 1** Those persons who last became members before July 31, 1973.
- Tier 2** Those persons who last became members on or after July 31, 1973, but before July 1, 2009.
- Tier 3** Those persons who last became members on or after July 1, 2009, but before January 9, 2010.
- Tier 4** Not Applicable
- Tier 5** Those persons who last became members on or after January 9, 2010, but before April 1, 2012, or who were previously PFRS Tier 3 members who elected to become Tier 5.
- Tier 6** Those persons who first became members on or after April 1, 2012.

(b) Vesting

Members who joined the System prior to January 1, 2010 need five years of service to be 100 percent vested. Members who joined on or after January 1, 2010 (ERS) or January 9, 2010 (PFRS) require ten years of service credit to be 100 percent vested.

(c) Employer Contributions

Participating employers are required under the RSSL to contribute to the System at an actuarially determined rate adopted annually by the Comptroller. The average contribution rate for ERS for the fiscal year ended March 31, 2018 was approximately 15.3 percent of payroll. The average contribution rate for PFRS for the fiscal year ended March 31, 2018 was approximately 24.4 percent of payroll. Delinquent annual bills for employer contributions accrue interest at the actuarial interest rate applicable during the year. For the fiscal year ended March 31, 2018, the applicable interest rate was 7 percent.

(d) Member Contributions

Generally, Tier 3, 4, and 5 members must contribute 3 percent of their salary to the System. As a result of Article 19 of the RSSL, eligible Tier 3 and 4 employees, with a membership date on or after July 27, 1976, who have ten or more years of membership or credited service with the System, are not required to contribute. Members cannot be required to begin making contributions or to make increased contributions beyond what was required when membership began. For Tier 6 members, the contribution rate varies from 3 percent to 6 percent depending on salary. Generally, Tier 5 and 6 members are required to contribute for all years of service.

(e) Benefits

Tiers 1 and 2

Eligibility: Tier 1 members, with the exception of those retiring under special retirement plans, must be at least age 55 to be eligible to collect a retirement benefit. There is no minimum service requirement for Tier 1 members. Tier 2 members, with the exception of those retiring under special retirement plans, must have five years of service and be at least age 55 to be eligible to collect a retirement benefit. The age at which full benefits may be collected for Tier 1 is 55, and the full benefit age for Tier 2 is 62.

Benefit Calculation: Generally, the benefit is 1.67 percent of final average salary for each year of service if the member retires with less than 20 years. If the member retires with 20 or more years of service, the benefit is 2 percent of final average salary for each year of service. Tier 2 members with five or more years of service can retire as early as age 55 with reduced benefits. Tier 2 members age 55 or older with 30 or more years of service can retire with no reduction in benefits. As a result of Article 19 of the RSSL, Tier 1 and Tier 2 members who worked continuously from April 1, 1999 through October 1, 2000 received an additional month of service credit for each year of credited service they have at retirement, up to a maximum of 24 additional months.

Final average salary is the average of the wages earned in the three highest consecutive years of employment. For Tier 1 members who joined on or after June 17, 1971, each year's compensation used in the final average salary calculation is limited to no more than 20 percent greater than the previous year. For Tier 2 members, each year of final average salary is limited to no more than 20 percent greater than the average of the previous two years.

Tiers 3, 4, and 5

Eligibility: Tier 3 and 4 members, with the exception of those retiring under special retirement plans, must have five years of service and be at least age 55 to be eligible to collect a retirement benefit. Tier 5 members, with the exception of those retiring under special retirement plans, must have ten years of service and be at least age 55 to be eligible to collect a retirement benefit. The full benefit age for Tiers 3, 4 and 5 is 62.

Benefit Calculation: Generally, the benefit is 1.67 percent of final average salary for each year of service if the member retires with less than 20 years. If a member retires with between 20 and 30 years of service, the benefit is 2 percent of final average salary for each year of service. If a member retires with more than 30 years of service, an additional benefit of 1.5 percent of final average salary is applied for each year of service over 30 years. Tier 3 and 4 members with five or more years of service and Tier 5 members with ten or more years of service can retire as early as age 55 with reduced benefits. Tier 3 and 4 members age 55 or older with 30 or more years of service can retire with no reduction in benefits.

Final average salary is the average of the wages earned in the three highest consecutive years of employment. For Tier 3, 4 and 5 members, each year's compensation used in the final average salary calculation is limited to no more than 10 percent greater than the average of the previous two years.

Tier 6

Eligibility: Tier 6 members, with the exception of those retiring under special retirement plans, must have ten years of service and be at least age 55 to be eligible to collect a retirement benefit. The full benefit age for Tier 6 is 63 for ERS members and 62 for PFRS members.

Benefit Calculation: Generally, the benefit is 1.67 percent of final average salary for each year of service if the member retires with less than 20 years. If a member retires with 20 years of service, the benefit is 1.75 percent of final average salary for each year of service. If a member retires with more than 20 years of service, an additional benefit of 2 percent of final average salary is applied for each year of service over 20 years. Tier 6 members with ten or more years of service can retire as early as age 55 with reduced benefits.

Final average salary is the average of the wages earned in the five highest consecutive years of employment. For Tier 6 members, each year's compensation used in the final average salary calculation is limited to no more than 10 percent greater than the average of the previous four years.

Special Plans

The 25-Year Plans allow a retirement after 25 years of service with a benefit of one-half of final average salary, and the 20-Year Plans allow a retirement after 20 years of service with a benefit of one-half of final average salary. These plans are available to certain PFRS members, sheriffs, and correction officers.

Disability Retirement Benefits

Disability retirement benefits are available to ERS and PFRS members unable to perform their job duties because of permanent physical or mental incapacity. There are three general types of disability benefits: ordinary, performance of duty, and accidental disability benefits. Eligibility, benefit amounts, and other rules such as any offsets of other benefits depend on a member's tier, years of service, and plan.

Ordinary Death Benefits

Death benefits are payable upon the death, before retirement, of a member who meets eligibility requirements as set forth by law. The first \$50,000 of an ordinary death benefit is paid in the form of group term life insurance. The benefit is generally three times the member's annual salary. For most members, there is also a reduced post-retirement ordinary death benefit available.

Post-Retirement Benefit Increases

A cost-of-living adjustment is provided annually to: (i) all retirees who have attained age 62 and have been retired for five years; (ii) all retirees who have attained age 55 and have been retired for ten years; (iii) all disability retirees, regardless of age, who have been retired for five years; (iv) ERS recipients of an accidental death benefit, regardless of age, who have been receiving such benefit for five years; and (v) the spouse of a deceased retiree receiving a lifetime benefit under an option elected by the retiree at retirement. An eligible spouse is entitled to one-half the cost-of-living adjustment amount that would have been paid to the retiree when the retiree would have met the eligibility criteria. This cost-of-living adjustment is a percentage of the annual retirement benefit of the eligible retiree as computed on a base benefit amount not to exceed \$18,000 of the annual retirement benefit. The cost-of-living percentage shall be 50 percent of the annual Consumer Price Index as published by the U.S. Bureau of Labor, but cannot be less than 1 percent or exceed 3 percent.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

(a) Basis of Accounting

The System maintains records and accounts, and prepares financial statements using the accrual basis of accounting. Employer contributions are recognized when legally due, pursuant to statutory requirements, in accordance with the terms of each plan. Member contributions are based on earned member salaries and are recognized when due. Benefits, expenses, and refunds are recognized when due and payable.

(b) Investments

Investments are recorded on a trade-date basis and reported at fair value. Fair value is defined as the amount that can reasonably be expected to be received for an investment in a current sale between a willing buyer and a willing seller. Due to the nature of investments, it is reasonable that changes in the value of investments will occur in the near future, and such changes could materially affect the amounts reported. The amounts reported as investments on the financial statements are allocated between ERS and PFRS based on each system's monthly average equity in the Fund. See note 4(c) for detailed information on the System's policy on investment valuation and note 8 for more detail regarding the methods used to measure the fair value of investments.

(c) Member Loan Programs

Members are entitled to participate in a loan program that allows them to borrow up to 75 percent of their member contributions. Repayment of outstanding amounts is generally made through payroll deductions within five years. The interest rate charged for COESC Member Loans is fixed at 1 percent below the actuarial interest rate at the time the loan is granted. The rate for loans issued during the fiscal year ended March 31, 2018 was 6 percent.

(d) Capital Assets

Capital assets are capitalized at cost and depreciated on a straight-line basis over the related assets' estimated useful lives.

During the fiscal year ended March 31, 2014, the System began capitalizing outlays associated with the redesign of its pension administration system. As of March 31, 2018, capitalized outlays for the project total \$259.33 million. This project is currently ongoing and is expected to be completed in the period ending June 30, 2020, at which time depreciation of the capitalized costs will begin.

(e) Contributions Receivable

Employers' contributions receivable are presented net of withdrawals, refunds, advance employer payments, and credits due employers. Receivable amounts from participating employers include \$26.7 million for amortization of retirement incentives, new plan adoptions, and retroactive membership. The RSSL includes several provisions related to the amortization of employer contribution amounts. These include:

- Chapter 57 of the Laws of 2010 authorized the State and local employers to amortize a portion of their annual pension costs during periods when actuarial contribution rates exceed thresholds established by the statute. Amortized amounts will be paid in equal annual installments over a ten-year period including a rate of interest set by the Comptroller annually. Employers may prepay these amounts at any time without penalty. The first payment will be due in the fiscal year following the decision to amortize. Chapter 57 further provides that when contribution rates fall below legally specified levels and all outstanding amortizations have been paid, employers that elected to amortize will be required to pay additional moneys into reserve funds, specific to each employer, which will be used to offset their contributions in the future. These reserve funds will be invested separately from pension assets.

For the annual bill for the fiscal year ended 2011, the statutory amortization threshold was 9.5 percent of payroll for ERS and 17.5 percent for PFRS. The Comptroller set an interest rate of 5 percent. The amortized amount receivable from the State as of March 31, 2018 is \$88.2 million and from local participating employers is \$10.6 million.

For the annual bill for the fiscal year ended 2012, the statutory amortization threshold was 10.5 percent of payroll for ERS and 18.5 percent for PFRS. The Comptroller set an interest rate of 3.75 percent. The amortized amount receivable from the State as of March 31, 2018 is \$251 million and from local participating employers is \$77.1 million.

For the annual bill for the fiscal year ended 2013, the statutory amortization threshold was 11.5 percent of payroll for ERS and 19.5 percent for PFRS. The Comptroller set an interest rate of 3 percent. The amortized amount receivable from the State as of March 31, 2018 is \$419 million and from local participating employers is \$167.1 million.

For the annual bill for the fiscal year ended 2014, the statutory amortization threshold was 12.5 percent of payroll for ERS and 20.5 percent for PFRS. The Comptroller set an interest rate of 3.67 percent. The amortized amount receivable from the State as of March 31, 2018 is \$603.9 million and from local participating employers is \$114.6 million.

For the annual bill for the fiscal year ended 2015, the statutory amortization threshold was 13.5 percent of payroll for ERS and 21.5 percent for PFRS. The Comptroller set an interest rate of 3.15 percent. The amortized amount receivable from the State as of March 31, 2018 is \$523.3 million and from local participating employers is \$97.3 million.

For the annual bill for the fiscal year ended 2016, the statutory amortization threshold was 14.5 percent of payroll for ERS and 22.5 percent for PFRS. The Comptroller set an interest rate of 3.21 percent. The amortized amount receivable from the State as of March 31, 2018 is \$294.4 million and from local participating employers is \$53.4 million.

For the annual bill for the fiscal year ended 2017, the statutory amortization threshold was 15.1 percent of payroll for ERS and 23.5 percent for PFRS. The Comptroller set an interest rate of 2.33 percent. The amortized amount receivable from the State as of March 31, 2018 is zero and from local participating employers is \$5.6 million.

For the annual bill for the fiscal year ended 2018, the statutory amortization threshold is 14.9 percent of payroll for ERS and 24.3 percent for PFRS. The Comptroller has set an interest rate of 2.84 percent. The amortized amount receivable from the State as of March 31, 2018 is zero and from local participating employers is \$4.4 million.

- The fiscal year 2014 Enacted Budget included an alternate contribution program (the Alternate Contribution Stabilization Program) that provided certain participating employers with a one-time election to amortize slightly more of their required contributions than would be available for amortization under the 2010 legislation. In addition, the maximum payment period was increased from ten years to twelve years. The election was available to: counties, cities, towns, villages, BOCES, school districts and the four public health care centers operated in the counties of Nassau, Westchester and Erie. The State was not eligible to participate in the Alternate Contribution Stabilization Program.

For the annual bill for the fiscal year ended 2014, the alternative amortization threshold was 12 percent of payroll for ERS and 20 percent for PFRS. The Comptroller set an interest rate of 3.76 percent. The amortized amount receivable as of March 31, 2018 from participating employers is \$171.7 million.

For the annual bill for the fiscal year ended 2015, the alternative amortization threshold was 12 percent of payroll for ERS and 20 percent for PFRS. The Comptroller set an interest rate of 3.5 percent. The amortized amount receivable as of March 31, 2018 from participating employers is \$154.5 million.

For the annual bill for the fiscal year ended 2016, the alternative amortization threshold was 12.5 percent of payroll for ERS and 20.5 percent for PFRS. The Comptroller set an interest rate of 3.31 percent. The amortized amount receivable as of March 31, 2018 from participating employers is \$115.2 million.

For the annual bill for the fiscal year ended 2017, the alternative amortization threshold was 13 percent of payroll for ERS and 21 percent for PFRS. The Comptroller set an interest rate of 2.63 percent. The amortized amount receivable as of March 31, 2018 from participating employers is \$86.2 million.

For the annual bill for the fiscal year ended 2018, the alternative amortization threshold is 13.5 percent of payroll for ERS and 21.5 percent for PFRS. The Comptroller has set an interest rate of 3.31 percent. The amortized amount receivable as of March 31, 2018 from participating employers is \$74.9 million.

(f) Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingencies. These estimates are subject to a certain amount of uncertainty in the near term, which could result in changes in the values reported for those assets in the combined statement of fiduciary net position. Estimates also affect the reported amounts of income/additions and expenses/deductions during the reporting period. Actual results could differ from these estimates.

BASIC FINANCIAL STATEMENTS

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Notes to Basic Financial Statements

3. SYSTEM RESERVES

The legally required reserves, as covered by provisions of the RSSL, are maintained by the System, are fully funded as of March 31, 2018, and are described below:

- *Annuity Savings Funds* – Funds in which contributions of Tier 1 and Tier 2 members are accumulated.
- *Annuity Reserve Funds* – Funds from which member contribution annuities are paid.
- *Pension Accumulation Funds* – Funds in which employer contributions and income from the investments of the System are accumulated.
- *Pension Reserve Funds* – Funds from which pensions are paid.
- *Designated Annuitant Funds* – Funds from which beneficiary annuities are paid.
- *Loan Insurance Funds* – Funds that provide loan insurance coverage for members with existing no default loan balances at time of death.
- *Group Life Insurance Plan Reserve* – Reserves that provide group term death benefits not to exceed \$50,000, payable upon the death of eligible members.
- *Coescalation (COESC) Contribution Funds* – Funds in which member contributions are accumulated. These funds are transferred to the Pension Accumulation Fund at retirement.

As of March 31, 2018, the System reserves for ERS and PFRS consisted of the following:

	(Dollars in Thousands)	
	ERS	PFRS
Annuity savings	\$ 3,034	\$ 56,210
Annuity reserve	72,031	11,943
Pension accumulation	73,174,797	12,981,804
Pension reserve	98,237,808	18,742,576
Designated annuitant	51,714	20,286
Loan insurance	2,522	104
Group Life Insurance Plan reserve	94,700	5,513
COESC contributions	8,536,539	85,230
Total	\$ 180,173,145	\$ 31,903,666

4. INVESTMENTS

(a) Investment Policy

The State Comptroller, currently Comptroller Thomas P. DiNapoli, is Trustee of the Fund. He is directly accountable for the investment of Fund assets and for the oversight and management of the Fund. Comptroller DiNapoli is responsible for implementing an asset allocation with an appropriate balance of risk and return. The Trustee has put in place investment policies and practices designed to ensure that investments are made for the exclusive benefit of the participants and beneficiaries of the System, on whose behalf the assets of the Fund are invested, and that Fund investments are made with the care that a prudent person serving in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims — the “prudent person” and “exclusive benefit” fiduciary standards of investment. Additionally, the Trustee has adopted policies and practices to ensure that the Fund is managed with high levels of ethical conduct and transparency.

The Comptroller seeks the input of a wide range of internal and external advisors to determine the allocation of assets and the appropriate investment choices for the Fund. Approximately sixty employees work in the Office of the State Comptroller’s Division of Pension Investment and Cash Management (PICM). The Comptroller appoints a Chief Investment Officer to oversee PICM operations, manage staff, and supervise investments on a day-to-day basis. The Fund also relies on advice from a network of outside advisors, consultants, and legal counsel, as well as the members of independent external advisory committees appointed by the Comptroller. Outside advisors and internal investment staff are part of the chain of approval that must recommend all investment decisions before they reach the Comptroller for final approval.

The asset allocation is not intended to be an absolute limit on the type of investments that can be made by the Comptroller or considered by staff. The Comptroller is expressly permitted to invest the assets of the Fund pursuant to various provisions of State law, including, among others, sections 13, 176, 177, 178, and 313 of the RSSL, which also contains limitations on the amount and quality of investments the Fund may hold in certain asset categories. Investments purchased pursuant to these provisions are so called “legal list” investments. In addition to the foregoing, section 177(9) of the RSSL contains a provision that currently provides that up to 25 percent of the Fund’s assets may be placed in investments not specifically authorized by any other provision of law. In making investments under this provision, the Comptroller is subject to the prudent person and exclusive benefit provisions in the statute. Subject to such standards, investments made under this provision must also, to the extent reasonably possible, benefit the overall economic health of the State. Investments purchased pursuant to section 177(9) of the RSSL are so-called “basket clause” investments.

BASIC FINANCIAL STATEMENTS

CONTINUED

Notes to Basic Financial Statements

(b) Asset Allocation

The following was the adopted asset allocation policy as of March 31, 2018:

Asset Class	Target Allocation
Domestic equity	36.0%
International equity	14.0
Private equity	10.0
Real estate	10.0
Absolute return strategies*	2.0
Opportunistic portfolio	3.0
Real assets	3.0
Bonds and mortgages	17.0
Cash	1.0
Inflation-indexed bonds	4.0
	100.0%

* Excludes equity-oriented long-only global funds of \$2.33 billion. For investment management purposes, these funds are included in domestic equity and international equity.

(c) Methods Used to Value Investments

Equity securities traded on a national or international exchange are reported at current quoted fair values.

Bonds and other fixed income assets are primarily reported at fair values obtained from independent pricing services.

Mortgages are valued on the basis of future principal and interest payments and are discounted at prevailing interest rates for similar instruments.

Direct investments in real estate are valued based on independent appraisals made every three years or according to the fund agreement.

Real estate partnerships are reported at values provided by general partners. These values are based on discounted cash flows, comparative sales, capitalization rates applied to net operating income, or if none of the preceding fit a property's attributes and strategy, at cost.

For various alternative investments (private equity, absolute return strategies, opportunistic funds, and real assets) where no readily ascertainable fair value exists, management in consultation with its investment advisors will value these investments in good faith based upon reported net asset values, cash-flow analysis, purchases and sales of similar investments, new financings, economic conditions, other practices used within the industry, or other information provided by the underlying investment advisors. Because of the inherent uncertainty in privately held securities, the fair value may differ from the values that would have been used if a ready market for such securities existed, and the difference can be material.

Information on securities lending is available in note 7. Information on foreign currency risks and derivative financial instruments can be found in note 5(f) and note 6, respectively.

The Fund trades in foreign exchange contracts in the normal course of its investing activities in order to manage exposure to market risks. Such contracts, which are generally for a period of less than one year, are used to purchase and sell foreign currency at a guaranteed future price. These contracts are recorded at fair value using foreign currency exchange rates.

(d) Rates of Return

In accordance with U.S. generally accepted accounting principles, the money-weighted rate of return on plan investments, net of investment expenses, was 11.29 percent for the year ended March 31, 2018. For internal purposes, the System evaluates investment performance using the time-weighted rate of return, gross of certain investment fees, which was 11.35 percent for the year ended March 31, 2018.

5. DEPOSIT AND INVESTMENT RISK DISCLOSURE

(a) Custodial Credit Risk for Investments

Investment securities are exposed to custodial credit risk if the securities are not registered in the name of the Fund, or are held either by the counterparty or the counterparty's trust department or agent, but not in the name of the Fund.

Equity and fixed income investments owned directly by the Fund, which trade in the United States (U.S.) markets, are generally held by the Fund's custodian, in separate accounts, in the name of the Comptroller of the State of New York in Trust for the Fund. These securities are typically held in electronic form through the Federal Book Entry System and by the Depository Trust Company (DTC) and its subsidiaries acting as an agent of the Fund's custodian bank. Securities held directly by the Fund that trade in markets outside the U.S. are held by a subsidiary of the Fund's custodian bank in the local market, a bank performing custodial services in the local market acting as an agent for the Fund's custodian bank, and in some foreign markets, the securities are held in electronic form by a DTC subsidiary or an organization similar to DTC. Fixed income investments that are not held by the Fund's custodian are held by third-party administrators in the name of the Comptroller of the State of New York in Trust for the Fund.

Equity investments held indirectly by the Fund via limited partnerships, commingled investment funds, joint ventures, and other similar vehicles are held in custody by an organization contracted by the general partner and/or the investment management firm responsible for the management of each investment organization.

Title to real estate invested in by the Fund is held either by a real estate holding company or a real estate investment fund. Ownership of mortgage assets is documented by the Fund's holding of original mortgage and note documents by the Office of the State Comptroller's PICM.

BASIC FINANCIAL STATEMENTS

CONTINUED

Notes to Basic Financial Statements

(b) Custodial Credit Risk for Deposits

Deposits are exposed to custodial credit risk if the deposits are not covered by depository insurance or the deposits are uncollateralized, collateralized with securities held by the pledging financial institution, or collateralized with securities held by the pledging institution's trust department or agent, but not in the name of the Fund.

In accordance with existing policies and procedures, the PICM in the Office of the State Comptroller monitors deposit balances for the purpose of determining collateralization levels. Collateral sufficient to cover all uninsured deposits is held at the State's custodial bank.

(c) Interest Rate Risk

The System is subject to interest rate risk, which is the risk that changes in market interest rates will adversely affect the fair value of the Fund's fixed income securities. Pursuant to the Fund's investment policies and procedures and to address changing economic factors and their impact on various sectors of the economy, PICM staff meets regularly to discuss the investment strategy for the fixed income portfolio. Several factors are taken into account when formulating this strategy, including sector weightings and the current duration of the portfolio.

The price volatility of the Fund's fixed income holdings is measured by duration. Effective duration is a measure of the price sensitivity of a bond to interest rate movements. Effective duration follows the concept that interest rates and bond prices move in opposite directions.

As of March 31, 2018, the duration of the fixed income portfolio is as follows (dollars in thousands):

Bond Category	Fair Value	Percentage of Bond Portfolio	Effective Duration (In Years)
Core Portfolio:			
Treasury	\$ 6,286,329	14.0%	8.20
Federal agency	513,986	1.2	2.37
Corporate	13,847,074	30.9	6.95
Asset-backed	1,237,929	2.8	2.14
Commercial mortgage-backed	1,713,115	3.8	5.14
Mortgage-backed	5,124,568	11.4	5.01
Collateralized loan obligations	3,147,357	7.0	0.10
Municipal bonds	270,509	0.6	8.32
Core Portfolio	32,140,867	71.7	5.73
Treasury Inflation-Protected Securities (TIPS)	7,857,384	17.5	7.51
Externally managed funds:			
BlackRock Fixed Income	2,333,488	5.2	1.57
DoubleLine Capital	240,598	0.5	14.40
Neuberger Berman Fixed Income	1,207,426	2.7	3.74
New Century Advisors	248,696	0.6	8.13
Semper Capital Management	279,896	0.6	3.39
Smith Graham	512,429	1.2	4.36
Total	\$ 44,820,784	100.0%	

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Notes to Basic Financial Statements

(d) Credit Risk of Debt Securities

Fixed income obligations purchased pursuant to section 177(1-a) of the RSSL must be investment grade at the time of their acquisition. A bond is considered investment grade if its credit rating is Baa or higher by Moody's or BBB- or higher by Standard & Poor's. Fixed income obligations purchased pursuant to section 177(9) of the RSSL, the "basket clause," are subject to a standard of prudence. As of March 31, 2018, credit ratings, obtained from several industry rating services, for the fixed income portfolio are as follows (dollars in thousands):

Quality Rating	Fair Value	Percentage of Fair Value
AAA	\$ 24,404,806	54.45%
AA	3,179,685	7.09
A	6,204,269	13.84
BBB	6,550,538	14.62
BB	599,854	1.34
CCC	39,886	0.09
CC	6,389	0.01
C	14,547	0.03
Externally managed commingled funds:*		
BlackRock Fixed Income Range AAA to D & Not Rated	2,333,488	5.21
Neuberger Berman Fixed Income Range AAA to D & Not Rated	1,207,426	2.69
Semper Capital Management Fixed Income Range AAA to CA & Not Rated	279,896	0.63
Total	\$ 44,820,784	100.00%
* These externally managed commingled funds are considered investments under the "basket clause," subject to the prudent person standard. All or a part of the holdings can be non-investment grade.		

(e) Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the Fund's investment in a single issuer.

As of March 31, 2018, the System did not hold any investments in any one issuer that totaled 5 percent or more of the pension plan's fiduciary net position. Investments issued or explicitly guaranteed by the U.S. government and pooled investments are excluded.

Issuer limits for investments held by the Fund are established by law and by policy guidelines adopted by the PICM.

Short-term fixed income investments not purchased pursuant to section 177(9) of the RSSL are generally limited to the following investment types maturing in one year or less:

- Obligations for which the full faith and credit of the U.S. government is pledged to provide payment of interest and principal.
- Obligations issued by any Federal Home Loan Bank or obligations fully guaranteed as to principal and interest by the Federal National Mortgage Association or the Federal Home Loan Mortgage Corporation.
- Commercial paper that has received the highest rating from two nationally recognized rating services. A maximum of \$1 billion of the short-term portfolio may be invested in any one commercial paper issuer.
- Simultaneous purchase and sale of U.S. Treasury obligations may be executed with Primary Government dealers. A maximum of \$200 million may be invested with any one Primary Government dealer.
- Corporate and asset-backed securities (ABS) that are rated investment grade by two nationally recognized rating services. ABS must have a weighted average life of one year or less.

Short-term fixed income investments purchased pursuant to section 177(9) of the RSSL are subject to the specific prudent person investor and exclusive benefit provisions of this statute. Subject to such standards, investments made under section 177(9) must, to the extent reasonably possible, benefit the overall economic health of the State.

Fixed income investments not purchased pursuant to section 177(9) of the RSSL are generally limited to the following investment types with maturities longer than one year:

- Obligations for which the full faith and credit of the U.S. government is pledged to provide payment of principal and interest.
- Obligations payable in U.S. dollars issued by any department, agency, or political subdivision of the U.S. government or issued by any corporation, company, or other issuer of any kind or description created or existing under the laws of the U.S., any state of the U.S., the District of Columbia, or the Commonwealth of Puerto Rico, and obligations payable in U.S. funds of Canada or any province or city of Canada, provided each obligation at the time of investment shall be rated investment grade by two nationally recognized rating services (or by one nationally recognized rating service in the event only one such service rates such obligation). The aggregate investment by the Fund in the obligations of any one issuer shall not exceed 2 percent of the assets of the Fund or 5 percent of the direct liabilities of the issuer.
- Interest-bearing obligations payable in U.S. funds, which at the time of investment are rated in one of the three highest rating grades by each rating service approved by the New York State Department of Financial Services that has rated such obligations. The aggregate amount invested in the obligations of any single issuer may not exceed 1 percent of the assets of the Fund.
- Bonds issued or guaranteed by the State of Israel and approved by the United States Comptroller of the Currency, payable in U.S. dollars, not to exceed 5 percent of the assets of the Fund.
- Obligations issued or guaranteed by the International Bank for Reconstruction and Development (not to exceed 5 percent of the assets of the Fund), the Inter-American Development Bank, the Asian Development Bank, or the African Development Bank.

Fixed income investments purchased pursuant to section 177(9) of the RSSL are subject to the specific prudent person investor and exclusive benefit provisions of this statute. Subject to such standards, investments made under section 177(9) must, to the extent reasonably possible, benefit the overall economic health of the State.

(f) Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The Fund has exposure through direct investments in international equities, international equity commingled funds, international fixed income investments, international real estate investments, international absolute return strategies, international private equity investments, international opportunistic funds, and international real asset funds. The Fund's asset allocation and investment policies allow for active and passive investments in international securities. The Fund permits the managers of direct investments in international equities to use forward currency contracts to manage their exposure to foreign currencies relative to the U.S. dollar. Where the Fund participates in commingled funds, limited partnerships, or other investment arrangements, the decision whether or not to use forward currency contracts to manage their foreign currency exposure is left up to the individual investment managers. To address the impact of changes in exchange rates, only forward foreign exchange contracts of one year or less are allowed when used to lessen portfolio volatility or hedge the portfolio's currency exposure.

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Notes to Basic Financial Statements

Foreign investments included in the combining basic statement of fiduciary net position as of March 31, 2018 are as follows (dollars in thousands):

	Fixed Income	Equity	Cash	Real Estate	Private Equity, Opportunistic, Absolute Return Strategy and Real Asset Funds	Total
Albanian Lek	\$ —	\$ —	\$ —	\$ 17	\$ 14	\$ 31
Angolan Kwanza	—	—	—	—	(414)	(414)
Argentine Peso	1,993	—	—	—	76,540	78,533
Australian Dollar	—	498,428	1,262	80,945	263,406	844,041
Azerbaijani New Manat	—	—	—	—	(135)	(135)
Bahamian Dollar	—	—	—	61	41	102
Bahraini Dinar	—	—	—	—	715	715
Belarusian Ruble	—	—	—	—	225	225
Bermudian Dollar	—	—	—	—	87,674	87,674
Brazilian Real	3,005	246,080	96	84,911	399,923	734,015
British Pound Sterling	14,102	2,263,695	2,785	473,333	950,076	3,703,991
Bulgarian Lev	—	—	—	104	8,498	8,602
Burmese Kyat	—	—	—	—	9,064	9,064
Cambodian Riel	—	—	—	—	8,133	8,133
Canadian Dollar	—	408,744	273	330	420,496	829,843
Cayman Islands Dollar	—	—	—	94,958	157,591	252,549
Central African CFA Franc	—	—	—	—	(210)	(210)
Chilean Peso	—	24,008	140	—	4,353	28,501
Chinese Yuan Renminbi	1,921	—	—	236,841	1,108,999	1,347,761
Colombian Peso	—	5,831	—	4	34,510	40,345
Costa Rican Colon	—	—	—	—	345	345
Croatian Kuna	—	—	—	9	—	9
Czech Koruna	—	—	—	338	10,712	11,050
Danish Krone	—	315,055	503	200,459	49,505	565,522
Egyptian Pound	—	8,382	9	—	27,820	36,211
Euro	47,065	3,787,113	1,190	917,192	2,789,197	7,541,757
Georgian Lari	—	—	—	—	(1)	(1)
Ghanaian Cedi	—	—	—	—	25,644	25,644
Hong Kong Dollar	1,259	1,155,435	893	43,746	144,874	1,346,207
Hungarian Forint	—	18,845	50	—	(2,868)	16,027
Indian Rupee	—	350,906	2,637	147,373	351,482	852,398
Indonesian Rupiah	8,412	88,171	235	—	61,062	157,880
Iraqi Dinar	—	—	—	—	2,424	2,424
Israeli Shekel	—	44,812	278	—	112,235	157,325
Japanese Yen	1,628	2,235,846	3,285	49,845	201,088	2,491,692
Jordanian Dinar	—	—	—	—	114	114
Kazakhstani Tenge	—	—	—	—	(270)	(270)
Kenyan Shilling	—	—	—	—	17,511	17,511
Lebanese Pou	—	—	—	—	123	123
Macanese Pataca	—	—	—	—	(251)	(251)
Malaysian Ringgit	—	133,206	1,235	—	53,542	187,983

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Notes to Basic Financial Statements

	Fixed Income	Equity	Cash	Real Estate	Private Equity, Opportunistic, Absolute Return Strategy and Real Asset Funds	Total
Maldivian Rufiyaa	\$ —	\$ —	\$ —	\$ 3,064	\$ —	\$ 3,064
Mauritian Rupee	—	—	—	1,806	39,595	41,401
Mexican Peso	—	89,512	288	13,075	97,216	200,091
Moroccan Dirham	—	—	—	—	1,929	1,929
Mozambique Metical	—	—	—	—	1,048	1,048
New Taiwan Dollar	—	455,404	74	91	10,031	465,600
New Zealand Dollar	—	3,514	219	—	56,258	59,991
Nigerian Naira	—	—	—	—	48,737	48,737
Norwegian Krone	—	85,709	450	610	114,100	200,869
Omani Rial	—	—	—	—	(337)	(337)
Pakistani Rupee	—	2,149	—	—	—	2,149
Panamanian Balboa	—	—	—	—	85	85
Peruvian Sol	—	2,088	1	—	19,397	21,486
Philippine Peso	—	16,416	6	—	2,608	19,030
Polish Zloty	—	30,678	10	10,562	111,756	153,006
Qatar Rial	—	5,716	—	—	9	5,725
Romanian Leu	—	—	—	778	6,667	7,445
Russian Ruble	12,141	—	—	5,311	98,143	115,595
Saudi Riyal	—	—	—	—	594	594
Serbian Dinar	—	—	—	26	27	53
Singapore Dollar	—	264,472	—	85,872	143,614	493,958
South African Rand	8,018	254,877	1,412	401	44,229	308,937
South Korean Won	419	688,899	568	29,524	66,294	785,704
Sri Lankan Rupee	—	—	—	—	4,818	4,818
Swedish Krona	—	392,653	319	227,042	438,062	1,058,076
Swiss Franc	278	767,311	52	91	149,342	917,074
Tajikistani Somoni	—	—	—	—	179	179
Tanzanian Shilling	—	—	—	—	4,246	4,246
Thai Baht	—	128,727	—	—	57	128,784
Turkish Lira	691	74,718	185	3,308	73,890	152,792
Ugandan Shilling	—	—	—	—	278	278
Ukrainian Hryvnia	—	—	—	2,921	5,963	8,884
United Arab Emirates Dirham	—	5,396	—	9,618	29,637	44,651
Uruguayan Peso	—	—	—	—	455	455
Venezuelan Bolivar	—	—	—	—	5,785	5,785
Vietnamese Dong	—	—	—	17	19,208	19,225
West African CFA Franc	—	—	—	—	2,948	2,948
Zambian Kwacha	—	—	—	—	1,152	1,152
Other	—	—	—	5,035	—	5,035
Total subject to foreign currency risk	100,932	14,852,796	18,455	2,729,618	8,971,807	26,673,608
Commingled international equity in U.S. Dollars	—	19,086,991	—	—	—	19,086,991
Other investments in U.S. Dollars	1,116,033	5,085,901	—	—	6,937,051	13,138,985
Total foreign investments	\$ 1,216,965	\$ 39,025,688	\$ 18,455	\$ 2,729,618	\$ 15,908,858	\$ 58,899,584

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Notes to Basic Financial Statements

6. DERIVATIVES

A derivative is generally defined as an investment contract or security with a value that depends on, or is derived from, the value of an underlying asset, reference rate, or financial index.

Forward Currency Contracts

The System may enter into forward currency contracts to manage exposure to fluctuations in foreign currency exchange rates on portfolio holdings. The System also enters into forward exchange contracts to settle future obligations. A forward exchange contract is a commitment to purchase or sell a foreign currency at a future date at a negotiated forward rate. A contract is classified as a forward contract when the settlement date is more than two days after the trade date. Risk associated with such contracts includes movement in the value of a foreign currency relative to the U.S. dollar. The contracts are valued at forward exchange rates and include net appreciation/depreciation in the combining statement of fiduciary net position. Realized gain or loss on forward currency contracts is the difference between the original contract and the closing value of such contract and is included in the combining basic statement of changes in fiduciary net position.

The table below summarizes the fair value of foreign currency contracts as of March 31, 2018 (dollars in thousands):

Currency	Forward Currency Contracts	Spot Currency Contracts	Totals
Australian Dollar	\$ (16)	\$ —	\$ (16)
Brazilian Real	(334)	—	(334)
British Pound Sterling	2,981	—	2,981
Canadian Dollar	—	(16)	(16)
Danish Krone	(5,677)	—	(5,677)
Euro	(179)	—	(179)
Hong Kong Dollar	303	—	303
Indonesian Rupiah	(652)	—	(652)
Israeli Shekel	(172)	(106)	(278)
Japanese Yen	(1,608)	(1,508)	(3,116)
Swedish Krona	19	—	19
Swiss Franc	(5,176)	—	(5,176)
U.S. Dollar	10,557	1,627	12,184
Total	\$ 46	\$ (3)	\$ 43

7. SECURITIES LENDING PROGRAM

Section 177-d of the RSSL authorizes the Fund to enter into security loan agreements with broker/dealers and state or national banks. The Fund has designated its master custodian bank (the custodian) to manage a securities lending program. This program is subject to a written contract between the Fund and the custodian who acts as securities lending agent for the Fund. The custodian is authorized to lend securities within the borrower limits and guidelines established by the Fund. Types of collateral received from borrowers for securities loaned are cash, government securities, and obligations of federal agencies. The custodian is authorized to invest the cash collateral in short-term investments that are legal for the Fund. These include domestic corporate and bank notes, U.S. Treasury obligations, obligations of federal agencies, repurchase agreements, and specific asset-backed securities. All rights of ownership to securities pledged as collateral remain with the borrower except in the event of default. As of March 31, 2018, there were no violations of legal or contractual provisions. The Fund has not experienced any losses resulting from the default of a borrower or lending agent during the year ended March 31, 2018.

The Fund lends fixed income, domestic equity, and international equity securities to approved broker/dealers. Collateral for securities loaned equals 102 percent of fair market value for domestic securities and 105 percent for international securities. Credit risk associated with the investment of cash collateral pledged by borrowers is mitigated by the maturity restrictions, percentage limitations, and rating requirements for individual asset classes included in the Fund's reinvestment guidelines. The custodian acknowledges responsibility to reimburse the Fund for losses that might arise from managing the program in a manner inconsistent with the contract. The Fund manages its market risk by recording investments at market value daily and maintaining the value of the collateral held by the Fund in excess of the value of the securities loaned. As of March 31, 2018, the fair value of securities on loan was \$6.23 billion. The associated collateral was \$6.38 billion, of which \$5.60 billion was cash collateral and \$776 million was securities. The cash collateral has been reinvested in other instruments, which had a fair value of \$5.61 billion as of March 31, 2018. The securities lending obligations were \$5.61 billion. The unrealized loss in invested cash collateral on March 31, 2018 was \$7.94 million, which is reported in the combining basic statement of changes in fiduciary net position as part of "Net appreciation in fair value of investments."

All open security loans can be terminated on demand by either the Fund or the borrower. To provide sufficient liquidity, the policy of the Fund is to maintain a minimum of 10 percent collateral in overnight investments. While the Fund's Securities Lending Investment Guidelines allow investments up to a maximum of three years for U.S. Treasury and federal agency obligations and one year for all other investments, the average term of open security loans at March 31, 2018 was 33 days. All loans were open loans. There were no direct matching loans.

The collateral pool is valued at fair value obtained from independent pricing services.

8. FAIR VALUE MEASUREMENT

The System's investments, measured and reported at fair value, including securities lending collateral and obligations and forward foreign exchange contracts, are classified according to the following hierarchy in which the levels are based on the nature of inputs used to measure the fair value of the investment:

Level 1 – Investment fair values based on prices quoted in active markets for identical assets.

Level 2 – Investment fair values based on observable inputs for the assets either directly or indirectly, other than those considered Level 1 inputs, which may include quoted prices for identical assets in markets that are not considered to be active, and quoted prices of similar assets in active or inactive markets.

Level 3 – Investment fair values based on unobservable inputs.

The categorization of investments within the hierarchy above is based solely upon the objectivity of the inputs used in the measurement of the fair value of the investments and does not reflect the level of risk associated with the investments.

Investments classified in Level 1 of the fair value hierarchy are valued from predetermined external pricing vendors or primary dealers who source quoted prices in active markets which are readily attainable exit values of these securities. Investments classified in Level 2 are subject to alternative pricing sources, including a combination of price sources, descriptive data and pricing models based on attributes such as spread data, sector, quality, duration, and prepayment characteristics. Investments classified as Level 3 are valued using best available sources such as property appraisals, discounted cash flow models and public market comparables of similar assets where applicable. The values are supplied by advisors or general partners who hold those or similar assets in investment vehicles they oversee. These pricing sources may or may not be indicative of realizable exit values attainable for the assets.

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Notes to Basic Financial Statements

The table below summarizes assets and liabilities carried at fair value based on levels from the fair value hierarchy as of March 31, 2018, with certain assets carried at net asset value (NAV) and cost also included to allow reconciliation to the statement of fiduciary net position (dollars in thousands):

	Total	Level 1	Level 2	Level 3
Assets:				
Investments by fair value level:				
Fixed income securities:				
Short-term instruments	\$ 2,766,680	\$ —	\$ 2,766,680	\$ —
Global fixed income securities	40,919,974	140	40,919,834	—
Total fixed income securities	43,686,654	140	43,686,514	—
Equity securities:				
Domestic equities	75,771,363	75,771,363	—	—
International equities	36,912,753	36,912,710	43	—
Total equity securities	112,684,116	112,684,073	43	—
Mortgages	843,410	—	—	843,410
Private equity	445,139	—	—	445,139
Real assets	8,337	—	—	8,337
Real estate:				
Direct equity real estate investments	8,072,650	—	—	8,072,650
Real estate private equity	392,751	—	—	392,751
Total real estate	8,465,401	—	—	8,465,401
Securities lending collateral	4,144,952	—	4,144,952	—
Forward foreign exchange contracts	43,549	—	43,549	—
Total investment assets by fair value level	\$ 170,321,558	\$ 112,684,213	\$ 47,875,058	\$ 9,762,287
Investments measured at cost:				
Global fixed income securities	\$ 80,000			
Securities lending collateral	\$ 1,461,984			
Total investments measured at cost	\$ 1,541,984			
Investments measured at Net Asset Value (NAV):				
Global fixed income funds ¹	\$ 3,820,810			
Commingled international equity funds ²	2,112,935			
Alternative investments:³				
Private equity	17,055,377			
Absolute return strategy investments	7,879,320			
Opportunistic funds	2,507,027			
Real assets	1,510,287			
Real estate	5,717,268			
Total alternative investments	34,669,279			
Total investments measured at NAV	\$ 40,603,024			
Investment related cash and cash equivalents not included in above	599,889			
Total investment assets	\$ 213,066,455			
Liabilities:				
Investments by fair value level:				
Forward foreign exchange contracts	(43,504)	—	(43,504)	—
Total investment liabilities by fair value level	\$ (43,504)	\$ —	\$ (43,504)	\$ —

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Notes to Basic Financial Statements

The table below summarizes liquidity information for investments valued at NAV (dollars in thousands):

Investments measured at NAV	Amount	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Global fixed income funds ¹	\$ 3,820,810	\$ —	Daily	0-30 days
Commingled international equity funds ²	2,112,935	—	Daily, Monthly, Quarterly	2-120 days
Alternative investments: ³				
Private equity	17,055,377	10,593,024	N/A	N/A
Absolute return strategy investments	7,879,320	—	Monthly, Quarterly, Annually, Semi-annually	5-120 days
Opportunistic	2,507,027	2,122,319	N/A	N/A
Real assets	1,510,287	1,248,163	N/A	N/A
Real estate	5,717,268	3,383,120	N/A	N/A
Total investments measured at NAV	\$ 40,603,024	\$ 17,346,626		

¹Global fixed income funds consist of three funds for which the System is the only limited partner. These funds invest primarily in both privately and publicly issued global fixed income securities. The investments are valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments.

²Commingled international equity funds consist of four commingled investment vehicles which invest primarily in publicly traded global equity securities. The funds are valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments.

³Alternative investments include private equity, absolute return strategy investments, opportunistic funds, real assets and real estate through limited partnership structures. Private equity (8.0 percent at March 31, 2018) consists of buyout, co-investments, distressed debt and turnaround funds, fund of funds, growth capital, and venture capital. Absolute return strategy investments (3.7 percent at March 31, 2018) consist of investments in strategies including hedged equity, credit, global macro, managed futures, distressed debt, emerging markets, and long-only equity strategies. Opportunistic (1.2 percent at March 31, 2018) consists of investments in both public and private companies, property, and real assets. Real assets (0.7 percent at March 31, 2018) consist of commodities, farmland, inflation-linked bonds, infrastructure, and renewables. Real estate (2.7 percent at March 31, 2018) consists of investments in closed-end, open-end, and fund of funds. The fair values of the alternative investments have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partner's capital. NAV is used as a practical expedient to estimate fair value. Private equity, opportunistic, real assets, and real estate are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over a span of 5-10 years.*

See note 7 for detailed securities lending information and note 6 for detailed forward foreign currency information.

*Percentages are stated relative to total investments and securities lending collateral invested.

9. NET PENSION LIABILITY OF PARTICIPATING EMPLOYERS

The components of the net pension liability of the employers participating in the System as of March 31, 2018, were as follows:

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Employers' total pension liability	\$ 183,400,590	\$ 32,914,423	\$ 216,315,013
Fiduciary net position	180,173,145	31,903,666	212,076,811
Employers' net pension liability	\$ 3,227,445	\$ 1,010,757	\$ 4,238,202
Ratio of fiduciary net position to the employers' total pension liability	98.24%	96.93%	98.04%

(a) Actuarial Assumptions

The total pension liability at March 31, 2018 was determined by using an actuarial valuation as of April 1, 2017, with update procedures used to roll forward the total pension liability to March 31, 2018. The actuarial valuation used the following actuarial assumptions:

	ERS	PFRS
Inflation	2.5%	2.5%
Salary increases	3.8	4.5
Investment rate of return (net of investment expense, including inflation)	7.0	7.0
Cost-of-living adjustments	1.3%	1.3%

Annuitant mortality rates are based on April 1, 2010 – March 31, 2015 System experience with adjustments for mortality improvements based on the Society of Actuaries' Scale MP-2014.

The actuarial assumptions used in the April 1, 2017 valuation are based on the results of an actuarial experience study for the period April 1, 2010 – March 31, 2015.

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 return, net of investment expenses 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.

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Notes to Basic Financial Statements

Best estimates of arithmetic real rates of return for each major asset class included in the target asset allocation as of March 31, 2018 (see Investment policy – note 4(a)) are summarized below:

Asset Class	Long-Term Expected Real Rate of Return
Domestic equity	4.55%
International equity	6.35
Private equity	7.50
Real estate	5.55
Absolute return strategies*	3.75
Opportunistic portfolio	5.68
Real assets	5.29
Bonds and mortgages	1.31
Cash	(0.25)
Inflation-indexed bonds	1.25

* Excludes equity-oriented long-only funds. For investment management purposes, these funds are included in domestic equity and international equity.

The real rate of return is net of the long-term inflation assumption of 2.50%.

(b) Discount Rate

The discount rate used to calculate the total pension liability was 7.0 percent. The projection of cash flows used to determine the discount rate assumes that contributions from plan members will be made at the current contribution rates and that contributions from employers will be made at statutorily required rates, actuarially. Based upon the assumptions, the System's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

(c) Sensitivity of the Net Pension Liability to the Discount Rate Assumption

The following presents the current period net pension liability of the employers calculated using the current-period discount rate assumption of 7.0 percent, as well as what the net pension liability (asset) would be if it were calculated using a discount rate that is one percentage-point lower (6.0 percent) or one percentage-point higher (8.0 percent) than the current assumption (dollars in thousands):

	One Percent Decrease (6.0%)	Current Assumption (7.0%)	One Percent Increase (8.0%)
ERS net pension liability (asset)	\$ 24,419,718	\$ 3,227,445	\$ (14,700,371)
PFRS net pension liability (asset)	\$ 4,950,961	\$ 1,010,757	\$ (2,294,150)

10. FEDERAL INCOME TAX STATUS

ERS and PFRS are qualified defined benefit retirement plans under section 401(a) of the Internal Revenue Code (IRC) and are exempt from federal income taxes under section 501(a) of the IRC. ERS and PFRS last received favorable determination letters from the Internal Revenue Service dated August 28, 2014 stating that ERS and PFRS are in compliance with the applicable requirements of the Internal Revenue Code. Therefore, no provision for income taxes has been included in the System's financial statements.

11. COMMITMENTS

As of March 31, 2018, the System had contractual commitments totaling \$14 billion to fund future private equity investments, \$4.52 billion to fund future real estate investments, \$2.47 billion to fund future investments in opportunistic funds, and \$1.78 million to fund future real asset investments. When compared to note 8 the variances that exist in the private equity commitments and real estate equity commitments, are due to the above representing total commitments of the investment type inclusive of investments measured at fair value and net asset value. Future commitments will be funded over the commitment period through transaction income including distributions, redemptions, and maturities.

12. CONTINGENCIES

The System is a defendant in litigation proceedings involving individual benefit payments, participant eligibility, and other issues arising from its normal activities. Management of the System believes there will be no material adverse effect on the basic financial statements as a result of the outcome of these matters.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY AND RELATED RATIOS (UNAUDITED)

(Dollars in Thousands)

	2018 Employees' Retirement System	2017 Employees' Retirement System	2016 Employees' Retirement System	2015 Employees' Retirement System
Total pension liability:				
Service cost	\$ 3,004,697	\$ 2,951,979	\$ 2,916,374	\$ 2,989,807
Interest	12,063,525	11,723,859	11,198,823	11,581,437
Difference between expected and actual experience	1,235,058	226,737	(2,378,116)	135,177
Changes in assumptions	—	—	5,350,157	—
Benefit payments	(10,200,205)	(9,740,272)	(9,224,904)	(8,829,751)
Other, net	(103,071)	(65,261)	(150,294)	(77,388)
Net change in total pension liability	6,000,004	5,097,042	7,712,040	5,799,282
Total pension liability — beginning	177,400,586	172,303,544	164,591,504	158,792,222
Total pension liability — ending (a)	183,400,590	177,400,586	172,303,544	164,591,504
Fiduciary net position:				
Contributions — employer	3,949,873	3,949,710	4,347,619	4,893,110
Contributions — member	318,439	306,218	289,332	272,004
Net investment income (loss)	18,128,993	17,194,267	(327,068)	10,582,102
Benefit payments	(10,200,205)	(9,740,272)	(9,224,904)	(8,829,751)
Refunds of contributions	(103,071)	(65,261)	(150,294)	(77,388)
Administrative expense	(106,972)	(93,943)	(93,012)	(93,357)
Other additions	181,725	200,379	198,333	193,176
Net change in fiduciary net position	12,168,782	11,751,098	(4,959,994)	6,939,896
Fiduciary net position — beginning	168,004,363	156,253,265	161,213,259	154,273,363
Fiduciary net position — ending (b)	180,173,145	168,004,363	156,253,265	161,213,259
Net pension liability — ending (a) – (b)	\$ 3,227,445	\$ 9,396,223	\$ 16,050,279	\$ 3,378,245
Ratio of fiduciary net position to total pension liability	98.24%	94.70%	90.68%	97.95%
Covered-employee payroll	\$ 26,686,412	\$ 26,200,001	\$ 25,644,078	\$ 24,480,045
Net pension liability as a percentage of covered-employee payroll	12.09%	35.86%	62.59%	13.80%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available. See accompanying independent auditors' report and notes to required supplementary information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

CONTINUED

SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY AND RELATED RATIOS (UNAUDITED)

(Dollars in Thousands)

	2018 Police and Fire Retirement System	2017 Police and Fire Retirement System	2016 Police and Fire Retirement System	2015 Police and Fire Retirement System
Total pension liability:				
Service cost	\$ 674,079	\$ 657,407	\$ 628,863	\$ 625,648
Interest	2,154,117	2,065,752	1,935,222	1,997,215
Difference between expected and actual experience	241,387	302,375	(537,163)	39,833
Changes in assumptions	–	–	1,531,662	–
Benefit payments	(1,827,136)	(1,708,410)	(1,683,580)	(1,606,417)
Other, net	1,493	5,632	(1,694)	(158)
Net change in total pension liability	1,243,940	1,322,756	1,873,310	1,056,121
Total pension liability — beginning	31,670,483	30,347,727	28,474,417	27,418,296
Total pension liability — ending (a)	32,914,423	31,670,483	30,347,727	28,474,417
Fiduciary net position:				
Contributions — employer	873,434	837,253	792,585	904,339
Contributions — member	30,950	22,609	17,297	12,789
Net investment income (loss)	3,209,040	3,030,977	(57,765)	1,862,789
Benefit payments	(1,827,136)	(1,708,410)	(1,683,580)	(1,606,417)
Refunds of contributions	1,493	5,631	(1,694)	(158)
Administrative expense	(15,834)	(13,191)	(13,608)	(13,794)
Other additions	33,889	36,021	134,548	37,623
Net change in fiduciary net position	2,305,836	2,210,890	(812,217)	1,197,171
Fiduciary net position — beginning	29,597,830	27,386,940	28,199,157	27,001,986
Fiduciary net position — ending (b)	31,903,666	29,597,830	27,386,940	28,199,157
Net pension liability — ending (a) – (b)	\$ 1,010,757	\$ 2,072,653	\$ 2,960,787	\$ 275,260
Ratio of fiduciary net position to total pension liability	96.93%	93.46%	90.24%	99.03%
Covered-employee payroll	\$ 3,683,960	\$ 3,633,237	\$ 3,526,980	\$ 3,257,100
Net pension liability as a percentage of covered-employee payroll	27.44%	57.05%	83.95%	8.45%

Schedule is intended to show information for 10 years. Additional years will be displayed as they become available. See accompanying independent auditors' report and notes to required supplementary information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

CONTINUED

SCHEDULE OF EMPLOYER CONTRIBUTIONS (UNAUDITED)

(Dollars in Millions)

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
ERS										
Actuarially determined contribution (1)	\$ 3,950	\$ 3,950	\$ 4,348	\$ 4,893	\$ 5,138	\$ 4,524	\$ 3,879	\$ 3,623	\$ 1,879	\$ 1,963
Contributions in relation to the actuarial determined contribution (2)	3,950	3,950	4,348	4,893	5,138	4,524	3,879	3,623	1,879	1,963
Contribution deficiency (excess)	-	-	-	-	-	-	-	-	-	-
Covered-employee payroll	26,686	26,200	25,644	24,480	24,361	24,405	24,291	24,389	24,972	24,099
Contributions as a percentage of covered-employee payroll	14.80%	15.08%	16.96%	19.99%	21.09%	18.54%	15.97%	14.86%	7.52%	8.15%
PFRS										
Actuarially determined contribution (1)	\$ 873	\$ 837	\$ 793	\$ 904	\$ 926	\$ 812	\$ 706	\$ 542	\$ 465	\$ 493
Contributions in relation to the actuarially determined contribution (2)	873	837	793	904	926	812	706	542	465	493
Contribution deficiency (excess)	-	-	-	-	-	-	-	-	-	-
Covered-employee payroll	3,684	3,633	3,527	3,257	3,233	3,163	3,191	3,146	3,113	2,970
Contributions as a percentage of covered-employee payroll	23.70%	23.04%	22.48%	27.76%	28.64%	25.67%	22.12%	17.23%	14.94%	16.60%
(1) The actuarially determined contribution includes normal costs, the GLIP amounts, adjustments made to record the reconciliation of projected salary to actual salary and miscellaneous accounting adjustments.										
(2) The contributions in relation to the actuarially determined contribution reflects actual payments and installment payment plans.										

See accompanying independent auditors' report and notes to required supplementary information.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

CONTINUED

SCHEDULE OF INVESTMENT RETURNS (UNAUDITED)

	2018	2017	2016	2015
Annual money-weighted rate of return, net of investment expenses*	11.29%	11.40%	0.03%	6.98%
* Investment expenses include management fees, investment and accounting staff salaries and benefits, and other investment-related expenses.				

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

See accompanying independent auditors' report.

NOTES TO REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

Year Ended March 31, 2018

Changes in Benefit Terms

There were no significant legislative changes in benefits for the April 1, 2016 actuarial valuation.

Changes of Assumptions

There were no significant changes in the economic (investment rate of return, inflation, COLA, and salary scales) and demographic (pensioner mortality and active member decrements) assumptions used in the April 1, 2016 actuarial valuation.

Methods and Assumptions Used in Calculations of Actuarially Determined Contributions

The April 1, 2016 actuarial valuation determines the employer rates for contributions payable in fiscal year 2018.

The following actuarial methods and assumptions were used:

Actuarial cost method	The System is funded using the Aggregate Cost Method. All unfunded actuarial liabilities are evenly amortized (as a percentage of projected pay) over the remaining worker lifetimes of the valuation cohort.
Asset valuation period	5-year level smoothing of the difference between the actual gain and the expected gain using the assumed investment rate of return.
Inflation	2.5%
Salary scale	3.8% in ERS, 4.5% in PFRS, indexed by service
Investment Rate of Return	7.0% compounded annually, net of investment expenses, including inflation.
Cost-of-living adjustments	1.3% annually

OTHER SUPPLEMENTARY INFORMATION

SCHEDULE OF ADMINISTRATIVE EXPENSES

Year Ended March 31, 2018

(Dollars in Thousands)

	2018
Personal services:	
Salaries	\$ 56,119
Overtime salaries	3,082
Fringe benefits	39,318
Total personal services	98,519
Building occupancy expenses:	
Building, lease, and condominium fees	3,646
Utilities and municipal assessments	90
Office supplies and services	1,068
Telephone	649
Total building occupancy expenses	5,453
Computer expenses:	
IT shared services*	8,213
Total computer expenses	8,213
Personal and operating expenses:	
Training	354
Travel and auto expenses — includes pre-retirement seminars	1,028
Postage — includes member and retiree communication	1,426
Depreciation expense — Imaging System	4,580
Printing — includes member and retiree communication	162
Subscriptions/memberships	149
Total personal and operating expenses	7,699
Professional expenses:	
Audit services	196
Medical/clinical services	1,593
Miscellaneous consulting services	1,133
Total professional expenses	2,922
Total	\$ 122,806
* The System has implemented a shared service, information technology (IT) model within the New York State Office of the State Comptroller, wherein all IT costs, including personal services, will be incorporated into the IT shared services and reflected as nonpersonal service expenditures.	

See accompanying independent auditors' report.

OTHER SUPPLEMENTARY INFORMATION

CONTINUED

SCHEDULE OF INVESTMENT EXPENSES

Year Ended March 31, 2018

(Dollars in Thousands)

	2018
Investment expenses:	
Investment management and incentive fees:	
Absolute return strategy funds*	\$ 193,647
Private equity	170,386
International equity	136,569
Real estate	55,037
Domestic equity	48,114
Opportunistic funds	29,549
Fixed income	17,803
Real assets	<u>12,602</u>
Total investment management and incentive fees	663,707
Investment-related expenses:	
Data processing expenses/licenses	5,708
General consulting	3,242
Mortgage loan servicing fees	2,940
Private equity consulting and monitoring	2,286
Absolute return strategy consulting and monitoring	1,842
Legal fees	1,834
Compliance/Risk monitoring	1,427
Real estate consulting and monitoring	1,298
Administrative expenses	879
Miscellaneous expenses	696
Research services	646
Real assets consulting and monitoring	440
Global equity consulting	365
Opportunistic consulting and monitoring	300
Fixed income consulting	242
Audit and audit-related fees	167
Domestic equity consulting and monitoring	71
Emerging manager program consulting and monitoring	<u>68</u>
Total investment-related expenses	24,451
Total investment expenses	\$ 688,158
* Absolute return strategy investments include equity-oriented long-only global funds. Though these funds are in an absolute return strategy vehicle, the underlying assets are long-only equity positions.	

See accompanying independent auditors' report.

OTHER SUPPLEMENTARY INFORMATION

CONTINUED

SCHEDULE OF CONSULTING FEES

Year Ended March 31, 2018

Fees in excess of \$25,000 paid to outside professionals other than investment advisors.

	Amount	Nature
MSCI BarraOne	\$ 625,000	Compliance/Risk Monitoring
NYS Department of Financial Services	425,593	Statutory Examination
J.P. Morgan Chase Bank	410,866	Retail Banking Services
Morgan Lewis & Bockius LLP	401,411	Legal Services
KPMG LLP	363,715	Audit Services
Intex Solutions, Inc.	362,400	Compliance/Risk Monitoring
Orrick Herrington & Sutcliffe LLP	320,982	Legal Services
First Choice Evaluations LLC	307,179	Medical/Clinical Services
Jackson Walker LLP	286,649	Legal Services
Foster Pepper & Shefelman PLLC	284,139	Legal Services
D & D Medical Associates PC	260,272	Medical/Clinical Services
LEAD IT Corp.	227,220	IT Consulting Services
Seward & Kissel LLP	214,133	Legal Services
Certified Medical Consultants Inc.	194,140	Medical/Clinical Services
BCA Research, Inc.	186,975	Research Services
Strategas Securities LLC	150,000	Research Services
MSCI ESG Research Inc	142,400	Research Services
First Advantage Back Track Reports LLC	141,952	Compliance/Risk Monitoring
Altura Capital Group	140,250	Professional Services
Content Critical Solutions, Inc.	131,250	Medical/Clinical Services
Certified Management Consultants, Inc.	125,514	Medical/Clinical Services
Marcum Accountants/Advisors	125,200	Compliance/Risk Monitoring
RELX, Inc.	102,419	Miscellaneous Consulting Services
Jeffrey M Meyer MD PLLC	101,574	Medical/Clinical Services
CoStar Group, Inc.	93,600	Research Services
Seyfarth Shaw LLP	88,516	Legal Services
Institutional Shareholder Services	85,120	Professional Services
Nixon Peabody LLP	77,384	Legal Services
CEM Benchmarking, Inc.	75,000	Industry Measurement Survey
Lenox Park Solutions LLC	75,000	Professional Services
Corporate Resolutions, Inc.	63,300	Compliance/Risk Monitoring
Milliman, Inc.	56,325	Statutory Examination
Cox, Castle & Nicholson LLP	45,024	Legal Services
West Publishing	44,754	Miscellaneous Consulting Services
K&L Gates LLP	43,938	Legal Services
State Street Bank/Elkins-McSherry	42,500	Compliance/Risk Monitoring
BDO USA LLP	40,400	Compliance/Risk Monitoring
Summit Security Service Inc	39,339	Security Services
CreditSights, Inc.	38,000	Research Services
Regional Orthopaedics PLLC	37,675	Medical/Clinical Services
International Foundation of Employee Benefit Plans	33,250	IT Consulting Services
Ernst & Young LLP	32,712	Legal/Tax Consultant
New York State Industries for the Blind	31,440	Miscellaneous Consulting Services
Precision Reporters CSR PC	30,755	Miscellaneous Consulting Services
Groom Law Group	30,535	Legal Services
Council of Institutional Investors	30,000	Professional Services
Stephen J. Andreski MD	29,813	Medical/Clinical Services
Arthur J. Cooperman	29,715	Miscellaneous Consulting Services
DALCO Reporting, Inc.	28,324	Miscellaneous Consulting Services
New Wave People, Inc.	27,360	Miscellaneous Consulting Services
Compliance Science, Inc.	26,500	Compliance/Risk Monitoring
Benchmark Printing, Inc.	26,349	Miscellaneous Consulting Services
Brigar X-Press Solutions, Inc.	26,170	Medical/Clinical Services
Syracuse Orthopedic Specialists PC	25,391	Medical/Clinical Services
Sanford Lewis, Attorney	25,265	Legal Services

See accompanying independent auditors' report.

INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL



KPMG LLP
515 Broadway
Albany, NY 12207-2974

Independent Auditors' Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with Government Auditing Standards

The Trustee
New York State and Local Retirement System:

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, the financial statements of the New York State and Local Retirement System (the System), which comprise the combining statement of fiduciary net position as of March 31, 2018, and the related combining statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements, and have issued our report thereon dated July 20, 2018.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the System's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, we do not express an opinion on the effectiveness of the System's internal control.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A material weakness is a deficiency, or combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A significant deficiency is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the System's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

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INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL

CONTINUED



Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the System's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the System's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

KPMG LLP

July 20, 2018

Investment

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OVERVIEW OF INVESTMENTS

OVERALL OBJECTIVES AND PERFORMANCE

The Division of Pension Investment and Cash Management (PICM) in the Office of the State Comptroller is responsible for the management of the assets of the New York State Common Retirement Fund (Fund). The Fund's primary objectives are to provide the means to pay benefits to the System's participants and to minimize employer contributions through an investment program designed to protect and enhance the long-term value of the assets. The Fund's asset allocation policy was constructed to meet these objectives by achieving a maximum level of return consistent with policies on liquidity, diversification and investment risk. Investments in equities, although historically volatile, provide superior long-term performance and growth characteristics, while fixed income investments provide less volatility and more predictable cash flow to meet the System's funding requirements and pension obligations.

The Fund's investment performance for the fiscal year ended March 31, 2018 was 11.35 percent gross of certain investment fees, reflecting strength in global equity markets. Both U.S. and international equity portfolios performed exceptionally well based on continued global market strength. The Fund's alternative portfolios also enhanced the overall performance. Despite the tightening stand of the Federal Reserve, the Fund's fixed income portfolio had positive returns. The general market volatility has increased and the Fund continues to monitor the increasingly uncertain markets.

The Fund's positive performance reflects gains across all asset classes. The equity portfolio returned 15.03 percent, the real estate portfolio returned 9.15 percent, the private equity portfolio returned 18.7 percent, the absolute return strategies portfolio returned 5.9 percent, opportunistic funds returned 11.48 percent and real assets returned 10.33 percent. The core fixed income portfolio returned 2.05 percent, the non-core fixed income portfolio returned 5.23 percent and Treasury Inflation-Protected Securities (TIPS) returned 1.25 percent.

The investment performance information provided in this section of the Comprehensive Annual Financial Report was calculated by the Fund's custodian, J.P. Morgan, using a daily time-weighted rate of return based on the market value of assets.

PENSION RISK MANAGEMENT

Pension Risk Management (PRM) is a service that is independent of the Fund's internal investment process. In 2017, the position of Chief Investment Risk Officer (CIRO) was created, with the ability to escalate risk issues directly to the Fund's Trustee. The PRM program provides an investment risk framework within the context of the Fund's actuarial liabilities. Recognizing that prudent risk-taking is a key to providing adequate returns and affordable pension plan funding, PRM controls investment risks within and among asset classes, to help maintain the economic viability of the System. PRM also works to control non-investment risks, inasmuch as these risks may affect investment activities of the Fund.

GLOBAL EQUITIES

The role of the global equities portfolio is to provide the largest source of nominal returns in the Fund's portfolio over the long term through diversified, global equity market exposure. For the fiscal year ended March 31, 2018, the \$118.2 billion Fund global public equity portfolio posted a positive 15.03 percent return versus a positive 14.85 percent return for the MSCI All Country World Index. The Fund continues to benefit from its long term overweight to U.S. equities, with U.S. equities rising 13.94 percent for the fiscal year ending March 2018 versus the Russell 3000 Index of 13.81 percent. Robust earnings and widespread improvements in the global economy supported equity returns and bolstered equity valuations. Historic lows in unemployment and a steady course of modest interest rate hikes from the Federal Reserve kept equity markets on track, with potential trade tensions as the only significant hindrance to confidence in equity markets. The Fund's U.S. equity portfolio had grown to \$75.8 billion at the end of the fiscal year.

The Fund's non-U.S. equity portfolio reached \$31.5 billion for the fiscal year end, having risen 17.02 percent as compared to the MSCI ACWI Ex US IMI Index of 17.10 percent. The \$10.9 billion actively managed global portfolio, in which managers have mandates mixing U.S. and international portfolios, continued to outperform, posting a gain of 17.49 percent versus the MSCI ACWI return of 14.85 percent. The Fund's \$4.2 billion emerging markets portfolio posted another outstanding year of performance, with a gain of 25.62 percent for the fiscal year.

The global equity program continues to rely on internally managed passive investment vehicles in the more efficient segments of the equity markets. This allows the Fund to maintain exposure to broad market returns at very low costs. Staff continue to employ active manager mandates in less efficient markets where active management is likely to outperform.

The Fund continued to include minority- and women-owned brokerage service providers in its trading of internally managed assets. For the fiscal year, these brokers accounted for 32 percent of the internally managed global equity commissions.

FIXED INCOME

The fixed income portfolio is designed to provide a consistent source of funds to help address the cash flow needs of the Fund. Additionally, these assets provide downside protection against the volatility of the overall portfolio's equity-like strategies, while achieving efficiency in the risk/return profile for fixed income. The Fund accomplishes these goals by investing internally in long-term and short-term assets, while external managers focus on increasing returns and diversification, primarily through non-core fixed income investments. The short-term fixed income portfolio offers liquidity to meet monthly pension fund liabilities, as well as providing funding needed for the other asset classes within the Fund.

The core fixed income portfolio uses the Bloomberg Barclays U.S. Aggregate Bond Index as a benchmark and seeks to add value through sector allocation and security selection. The long-term core fixed income portfolio consists primarily of U.S. Treasury securities, government-sponsored agency debentures, corporate bonds, commercial mortgage-backed securities, mortgages, asset-backed securities, collateralized loan obligations, and municipal bonds. The non-core, externally managed fixed income allocation consists primarily of higher yielding credit-focused investments. The Fund also has a large allocation to Treasury Inflation-Protected Securities (TIPS). The Fund's short-term fixed income portfolio may be invested in high quality commercial paper, U.S. Treasury bills, bank certificates of deposit, and agency discount notes, as well as short-term corporate bonds and asset-backed securities.

OVERVIEW OF INVESTMENTS

CONTINUED

The Fund's core long-term fixed income portfolio (excluding TIPS) returned 2.05 percent for the year as compared to 1.20 percent for the Bloomberg Barclays U.S. Aggregate Bond Index. The outperformance was attributable to a number of factors, including the portfolio's overweight to corporate bonds, an underweight to Treasury securities, and an approximately 9 percent allocation to collateralized loan obligations (which are not held in the Barclays Index). The Fund continues to maintain overweight positions in corporate bonds and structured products. Over the year, the average credit quality of the core portfolio improved to AA-/Aa3 as a result of an increase in Treasury holdings. For the internal fixed income accounts, the Fund does not invest in securities that are below investment grade.

The Fund's internally managed TIPS portfolio, which assists in hedging inflation risk in the United States, returned 1.25 percent as compared to the Bloomberg Barclays U.S. TIPS Index of 0.92 percent. The Fund's holdings of older, higher coupon TIPS provided incremental income, which in part accounted for the 33 basis points of outperformance. Short-term cash investments returned 1.71 percent for the fiscal year. External non-core fixed income gained 5.23 percent for the fiscal year.

The Fund recently completed an extensive review of brokerage counterparties, and as a result the Fund now has 23 approved broker-dealer firms to execute trades in the long-term and short-term fixed income portfolios (down from 35 approved broker-dealers before this review). Seventeen percent of these trading partners are women- or minority-owned firms; firms owned by Disabled American Veterans represent another 9 percent. Women- and minority-owned firms continue to play a central role in the Fund's long-term and short-term fixed income strategy, executing 6 percent of all long-term trades and 11 percent of all short-term broker trades during the past fiscal year.

The Fund participates in a securities lending program, whereby the custodian bank loans a portion of the fixed income and equity securities to qualified counterparties, providing incremental income. For the fiscal year ended March 31, 2018, the securities lending program earned the Fund \$24 million in revenue, net of management fees and rebates.

REAL ESTATE

The Real Estate group invests in diversified real estate properties across core, core-plus/value-add, and opportunistic strategies in order to achieve its mandate to provide a steady stream of cash flows through core investments and capture excess returns through core-plus/value-add and opportunistic investments.

The Real Estate Group invests through four primary investment structures: wholly owned assets, joint ventures, co-investments, and funds (closed-end, open-end, and fund-of-funds). For wholly owned assets, the Fund works with an external advisor or third party provider to manage the property. For all other structures, the Fund invests alongside a general partner and focuses on investing with partners whose interests are aligned with the Fund's via shared risk and reward.

As of March 31, 2018, equity real estate represented 6.7 percent of the total Fund value and produced a total return of 9.15 percent for the fiscal year, as compared to the National Council of Real Estate Fiduciaries (NCREIF) Index of 6.98 percent. The performance continues to be strong, especially when taking into consideration that the portfolio has been positioned to be more defensive at this stage of the economic cycle. As we look forward, the Fund will continue to monitor market conditions and adjust risk tolerance as it evaluates opportunities in core, value-add and opportunistic strategies.

Core strategies include well-located, well-leased, and well-maintained properties whose primary purpose in the portfolio is to provide a reliable source of current income, along with value appreciation commensurate with the surrounding market. These assets are often in irreplaceable locations and are of very high quality. Currently, a significant percentage of the real estate portfolio assets are located in markets that have demonstrated tenant demand for high “institutional quality” assets in prime locations in gateway cities. Value-added investments include under-managed real estate that will be repositioned and re-leased as the economy recovers. Opportunistic investments include strategies such as development or substantial renovation that carry the increased risk of construction.

The Fund continues to be disciplined in its evaluation of sustainable investing and Environmental, Social and Governmental (ESG) considerations when considering investment underwriting. The Fund believes that ESG is a sound investment policy that will not only generate investment return, but will be impactful across various sectors. Many of the Fund’s assets are LEED certified. LEED (Leadership in Energy and Environmental Design) is a set of objective standards by which owners and managers can measure the efficiency of assets. Notably, the Fund is nearing the completion of a \$500 million plus office redevelopment that will be certified LEED Gold.

The Fund recognizes that certain tenants prefer to lease assets in LEED-certified buildings, further justifying the focus on this objective.

In terms of risk management, the real estate portfolio risk is mitigated by diversification by property type, geography, investment strategy, capital pacing and selection of best-in-class joint venture partners and managers, as well as consultants and advisors. In order to achieve long-term appreciation and sustainable investment returns, the Fund will continue to manage the current portfolio investments effectively and maximize the existing relationships with investment managers. In addition, the Fund partners with small and minority managers in the real estate arena to capitalize on their talent and expertise.

AFFORDABLE HOUSING PERMANENT LOAN PROGRAM

In 1991, the Fund developed a program to support the rehabilitation and development of affordable housing in New York State. Under the program, the Fund’s designated manager, the Community Preservation Corporation (CPC) originates affordable long-term housing mortgages across New York State. CPC provides the construction financing and when construction is completed, CPC sells the permanent loans to the Fund. All mortgages are 100 percent insured by the State of New York Mortgage Agency (SONYMA).

Through this program with CPC, the Fund has been able to provide moderate-income and low-income families across the State with the opportunity to rent affordable housing. By purchasing permanent mortgages, the Fund provides for the production of affordable new multi-family housing and the revitalization of deteriorated or obsolete housing units.

Since the inception of this program, 19,988 units representing \$830 million have been completed and 2,465 are in the pipeline. In the 2017-18 fiscal year, the Fund invested in affordable housing throughout the State, including Albany, Dutchess, Erie, Monroe, Rensselaer, Orange, and Westchester counties. The Fund remains dedicated to working with CPC and SONYMA to provide New York State residents with opportunities in affordable housing, as long as the investment structures and potential returns fulfill the fiduciary mandate of the overall pension fund to the System’s members, retirees and beneficiaries.

HELPING NY/EQUITY REAL ESTATE INVESTMENTS

Alongside the CPC program, the Fund also invests in New York State commercial real estate properties through a mix of investment structures such as joint ventures, commingled funds and club fund investments, as well as wholly owned properties. The Fund owns, in whole or in part, shopping centers, office buildings, residential properties and hotels. Through these investment vehicles, the Fund has been able to acquire, develop, re-lease and reposition properties that are in need of upgrading with the goal of increasing jobs, helping the community and increasing property values. In line with these goals, the Fund is currently undertaking a major redevelopment of an office building in New York City and has co-invested alongside a multi-family commingled fund which focuses on affordable housing in the State.

ALTERNATIVE INVESTMENTS

Private Equity

The Fund's private equity portfolio is designed to generate long-term returns that exceed those of public equities. As of March 31, 2018, the private equity program had generated a one-year total return of 18.70 percent as compared to the Cambridge U.S. Private Equity Index of 17.49 percent.

The Fund seeks to participate in private equity investments primarily through partnerships consisting of pooled funds managed by specialized investment managers for the purpose of investing in private companies. The Fund seeks to partner with the very best private equity investors, including emerging and diverse managers, across various investment strategies. Private equity investments are generally held for long-term appreciation and are less liquid than publicly-traded securities.

The Fund will commit capital to private equity at a disciplined pace to ensure the diversification of the portfolio over time. In addition, the Fund seeks to commit capital across various geographies, including international managers who have the expertise to source attractive investment opportunities in global markets, and more locally, to managers that focus their investments in New York State. The Fund also seeks to commit capital to industry sectors that show high potential for economic growth and capital appreciation, and that will further enhance the diversification of the portfolio.

Because private equity investments involve long-term contractual commitments to a manager, the Fund will seek to invest with managers who have the ability to consistently deliver superior returns. The Fund can better achieve such superior returns through active portfolio monitoring, which requires frequent and direct interaction with investment managers to monitor performance and ensure proper alignment of interests between manager and investor.

The private equity program will seek to capitalize on those long-term commitments and alignments of interests by making additional co-investments alongside select managers on improved economic terms. During the past year, the Fund made 13 equity co-investments totaling over \$178.7 million in invested capital in portfolio companies alongside Fund managers. The Fund has established co-investment programs focused on opportunities sourced from its core private equity portfolio, the emerging manager program, and In-State investments. The In-State program also has the capability to make credit co-investments, and five credit co-investments totaling over \$20.7 million have been made during the past year in companies in New York State.

Absolute Return Strategies

The investment goal for the absolute return strategies program is to provide diversified superior risk-adjusted returns with low correlation to other asset classes. The absolute return strategies portfolio invests with hedge fund managers on a global basis across multiple security types and asset classes. The portfolio values long-term partnerships with investment managers who have shown an ability to consistently deliver top-quartile returns and who partner with the Fund to better align investor and fund manager interests.

The portfolio, as of March 31, 2018, consists of roughly 22 core investments across strategies, including hedged equity, credit, global macro, managed futures, distressed debt and emerging markets. The portfolio seeks diversification through a multi-manager and multi-strategy approach, typically investing in vehicles which generate uncorrelated returns and those which can lower the overall risk and volatility of the Fund's portfolio.

As of March 31, 2018, the absolute return strategies portfolio generated a return of 5.90 percent for the fiscal year versus the HFRX Global Hedge Fund Index return of 4.26 percent.

OPPORTUNISTIC FUNDS

The opportunistic portfolio invests across a broad range of investment strategies that do not fit neatly into the definition of traditional asset classes or that share characteristics of multiple asset classes. The portfolio includes investments across the capital structures of both public and private companies, investment in properties, and real assets that are distinguished from the mandates of the other asset classes by their history, investment structures, terms, duration, risk/return profiles or other relevant characteristics. Additionally, the portfolio seeks to take advantage of short-to-medium term market dislocations. The role of the opportunistic asset class is to add alpha to the Fund's overall return with relatively low correlation to other asset classes. We do this by capitalizing on market dislocations that create unique investment opportunities and identifying skilled external managers who can generate excess returns in all market environments.

The investment objectives are accomplished by investing in strategic opportunities that have resulted from market dislocations, regulatory reforms, capital shortages, structural changes, and stress or distress among asset owners. These opportunities may exhibit lower risk and higher current income than the Fund's more traditional asset classes and provide a source of capital to investment ideas that do not fit neatly into existing asset categories or that span multiple categories.

The opportunistic portfolio affords the Fund the opportunity to capture returns in advance of heavy institutional asset flows (early mover advantage) or have preferential position in situations that are capacity constrained. The portfolio also allows the Fund to invest more flexibly across asset classes, geographies and capital structures.

The structures of these investments will vary greatly depending on the opportunity, and may range from broad strategic partnerships where the Fund's staff is able to leverage the resources of an institution to invest across a wide number of asset classes or strategies, to a more targeted approach that may include investments through various vehicles. In addition to commingled funds, separate accounts and minority investment stakes, the Opportunistic team may also at times seed new investment platforms or take an anchor position in new investment strategies with existing managers by providing acceleration capital.

As of March 31, 2018, the portfolio has generated a one-year total return of 11.48 percent.

Real Assets

The Real Assets portfolio is the Fund's newest alternative asset allocation, having first launched in 2014. To date, the Real Assets portfolio has made investments in a diverse basket of assets including commodities, farmland, inflation-linked bonds, infrastructure and renewables. The Real Assets portfolio's objectives are to add alpha to the Fund's overall portfolio return and offer inflation participation opportunities while maintaining a low correlation to traditional asset classes over time. The performance of the asset class is primarily driven by broad, macroeconomic factors including commodity prices and resource demand, demographics, inflation and idiosyncratic supply shocks. The portfolio also seeks to benefit from investment themes that will play out over multiple economic cycles, including the development of renewable infrastructure and the growth of the middle class in emerging and frontier economies.

Within this asset class, the Fund seeks to source best-in-class real asset fund managers with strong track records. To date, the Fund has invested approximately \$1.5 billion across a number of real asset strategies, including agriculture, energy and infrastructure. The Real Assets portfolio's allocation was 0.7 percent at fiscal year-end. The modest weight is due to the limited maturity of the portfolio. Nonetheless, this prudent capital deployment by the Fund's real asset managers still represents nearly a near threefold increase over the prior year.

As of March 31, 2018, the portfolio returned 10.33 percent as compared to the benchmark of U.S. CPI+5%. This positive result is attributed to continued strength in the energy markets and to private market investments overcoming the 'j-curve' effect. Overall, the performance is consistent with a developing Real Assets portfolio.

New York Business Development Corporation

The Fund seeks to diversify its investments and achieve a risk-adjusted rate of return through a commitment to the New York Business Development Corporation (NYBDC). NYBDC underwrites loans to small businesses in New York State, often with guarantees from the Small Business Administration, for working capital, equipment, the acquisition of real property, capital improvements and the refinancing of existing loans. NYBDC has successfully completed loans to a wide range of business enterprises including retailers, restaurants, small manufacturers and a variety of other service businesses across the State. By focusing exclusively on small business lending, NYBDC can frequently offer more favorable terms than other lenders. NYBDC has an active Veteran's Loan Program where New York business owners who serve in the National Guard or Army Reserve, or honorably-discharged former active duty members can access small business loans.

NYBDC also has a goal of making at least 25 percent of its loans to women- or minority-owned businesses. In 2017, 31 percent of NYBDC loans that were due to Fund investments were to women-owned businesses, and 46 percent were to minority-owned businesses.

The Common Retirement Fund has been an investor in NYBDC since 1987, with commitments totaling \$400 million. In 2010, the Fund approved a fourth \$100 million commitment to support NYBDC's small business loan program. Since this program began in 1987, NYBDC has made 1,152 loans totaling \$401 million to businesses that employ over 23,000 New Yorkers. During the fiscal year ended March 31, 2018, NYBDC made 13 loans totaling \$7.5 million.

Financing for Businesses in New York State

In 2000, the Fund initiated the New York State Private Equity Investment Program. The In-State Program is designed to generate a market rate of return consistent with the risk of private equity while increasing the diversification of the Fund's investment portfolio and expanding the availability of capital for New York State businesses. By making sound strategic investments in new and expanding New York companies, and making equity and debt capital available to small businesses often overlooked by investment professionals in this asset class, the Program is proving to be an important contributor to the State's economy. The In-State Program provides a model for how the Fund can identify profitable investment opportunities and generate market rate returns, while supporting business development and job growth in New York State.

On March 31, 2018, the Fund's private equity portfolio included investments in over 370 New York businesses with a market value of \$1.8 billion. This figure reflects only the Fund's share of these investments; the total value of New York companies held by the Fund's partnerships was more than \$21.2 billion as of December 31, 2017 (the most recent data available). Included in the Fund's New York State portfolio are: 901D in Airmont; World Kitchen in Corning; Southern Tier Brewery in Lakewood; LeverPoint in Clifton Park; Movable Ink in New York City; Vnomics in Rochester; and CognitiveTPG in Ithaca.

As of March 31, 2018, the Fund had over \$520 million of remaining commitments available for investment. Commitments to this program totaled \$1.7 billion. These commitments are devoted exclusively to New York State investment opportunities. The nineteen managers in the program are:

- *Ascend Ventures*, a technology venture fund located in New York City.
- *Ascent Biomedical Ventures NY*, a New York City-based venture capital fund focusing on life sciences.
- *Grosvenor Capital Management*, a Chicago-based fund that makes investments alongside other private equity funds investing in New York State.
- *Contour Venture Partners*, an early-stage venture fund based in New York City.
- *DeltaPoint Capital*, a growth equity fund located in Rochester.
- *Gotham Ventures (fka. DFJ Gotham)*, a New York City-based fund focused on early-stage venture capital investments.
- *Easton Hunt Capital Partners*, a New York City-based fund that pursues a broad strategy of investing in companies in a wide range of industries and stages of development.
- *FA Technology Ventures*, a venture capital fund focusing on information and energy technology located in Albany.
- *Founders Equity*, a New York City-based fund that makes growth equity investments.
- *Graycliff Partners*, a New York City-based fund that targets buyout and growth equity investments.
- *Tribeca Venture Partners*, a New York City-based early-stage applied technology venture firm focused on investing in business information and technology-enabled services companies.
- *Primary Venture Partners (fka High Peaks Ventures)*, an early-stage venture capital fund based in New York City and Albany.
- *Hamilton Lane*, a Philadelphia-based manager, that makes equity and credit investments alongside other private equity managers investing in New York.

- *Activate Venture Partners (fka. Milestone Venture Partners)*, a New York City-based fund that focuses on companies providing technology-enhanced businesses services.
- *Paladin Homeland Security Fund (NY)*, a Washington, D.C.-based fund that opened a New York office to invest in companies that address a broad range of government and commercial security needs.
- *SoftBank Capital NY*, a New York City and Buffalo-based fund that invests in digital media and technologies that leverage broadband.
- *Summer Street Capital Partners*, a growth equity investment fund located in Buffalo.
- *Trillium Lakefront Partners NY*, a Rochester-based fund that focuses on investing in technology companies in upstate New York.
- *Wheatley Partners*, a technology venture fund with a focus on information and medical technology located in New York City and Long Island.

Corporate Governance Program and Environmental, Social and Governance (ESG) Integration

The Fund's investment philosophy requires the consideration of environmental, social, and governance (ESG) factors in the investment process because they can influence both risk and return. A thriving economy, efficient markets, and the adoption of and adherence to sound ESG practices by the Fund's portfolio companies are essential to the long-term value of the Fund's investments.

The Fund incorporates consideration of relevant ESG factors into its investment analyses and decision-making processes, recognizing that the relevance of particular ESG factors may differ and vary in degree across companies, sectors, regions, asset classes, and over time. Risk assessments that identify material ESG factors are systematically applied across asset classes and ensure that due diligence of external managers includes an evaluation of their ESG policies. In addition, annual surveys of the Fund's managers provide regularly updated information about their ESG policies and practices.

The Fund's Corporate Governance Program works to promote sound ESG practices at its portfolio companies through active ownership and public policy advocacy with a strategic focus on sustainability, diversity and accountability.

Sustainability is a vital interest, since the Fund's long-term commitment to the New York State and Local Retirement System's members and retirees requires careful assessment of the long-range vision and prospects of Fund investments. Sustainable practices are of critical importance in a variety of areas, including anticipating and responding to environmental challenges, managing the political and regulatory landscape, and protecting the health, safety, and rights of employees in a company's workforce and in its supply chain to ensure productivity while diminishing risks of liability and reputational damage. A commitment to sustainability provides a framework for companies to flourish for decades to come — along with the Fund's investments.

Diversity — in its many forms — is another key component the Fund looks for in a company to enhance its long-term strategy for success. Research shows that the ability to draw on a wide range of viewpoints, backgrounds, skills and experience is increasingly critical to corporations' and asset managers' long-term success in the global marketplace. This year, the Fund took action on diversity by, among other things, voting against all incumbent directors at companies where there were no women on the board.

Accountability is essential for the Fund because of the vast scale and scope of its investments and the immense responsibility of its long-term commitments. The Fund relies on public company directors, as its elected representatives, to structure compensation that properly incentivizes strong long-term returns, and expects those directors to ensure the full disclosure of risks, opportunities and strategies necessary to allow for informed decision-making. Likewise the Fund expects its managers in private markets to demand the same level of accountability.

The Fund's strategic focus on enhancing long-term value through sustainability, diversity and accountability is, in part, implemented through active ownership of public portfolio companies to address ESG issues in a manner consistent with enhancing shareholder value. The Fund's active ownership program takes many forms, including voting on nearly 30,000 proxy measures annually, filing shareholder resolutions, writing letters to portfolio companies and regulatory authorities as specific issues arise, discussing important ESG issues directly with corporate directors and management, and advocating for public policies to promote the overall stability, transparency and functionality of the markets and the economy.

During the 2017-18 fiscal year the Fund advanced its strategy in several ways.

ESG Principles and Proxy Voting Guidelines were recently updated, and not only provide guidance on voting practices, but also guide other corporate engagements and policy initiatives, articulating to the capital markets the Fund's view of what constitutes good corporate governance and ESG best practices.

Shareholder Proposals are a powerful engagement tool that provides an opportunity to bring specific issues of concern to the attention of the board, management and fellow investors. Even after filing a shareholder proposal, though, the Fund seeks a productive dialogue with the company. This includes discussing the proposal with the company, allowing the company to highlight its work on the given issue, and determining how the company can address the Fund's concerns.

Public Policy Advocacy can improve the long-term value of the Fund's investments by advocating for the overall stability, transparency and functionality of financial markets and the economy generally, and the preservation of shareholder rights specifically. The Fund's public policy engagement includes meetings with and letters to elected representatives, regulators and other public officials, testimony at hearings and forums, comments on regulatory and legislative proposals, and participation in State, national, and international forums and initiatives.

Climate Change: Risks and Opportunities

At the request of the G20 (a forum convened by 19 leading industrial nations and the European Union), the Financial Stability Board — an international body that monitors and makes recommendations about the global financial system — established the Task Force on Climate-related Financial Disclosures (TCFD). The TCFD was asked to develop voluntary, consistent, climate-related financial disclosures that would be useful to investors, lenders, and insurance underwriters in understanding material risks. In 2017, the TCFD published its recommendations, with the goal of integrating climate-related financial information into mainstream financial filings. Recognizing that climate-related risks and opportunities are relevant for organizations across all sectors, the TCFD encouraged all organizations, including public pension plans, to implement its recommendations. The Fund supports the TCFD recommendations and is, for the first time, utilizing the TCFD implementation guidance for asset owners to report on its climate change initiatives in the CAFR.

Governance

As Trustee of the Fund, the Comptroller is responsible for the prudent investment of the Fund's assets and seeks to protect those investments from climate-related risks. The Comptroller believes that climate change presents significant risks to the Fund's investments, as well as unique investment opportunities. The Fund's Chief Investment Officer (CIO) formulates the Fund's overall investment strategy—including climate-related strategy—with the assistance of investment staff, corporate governance staff, the risk management team and relevant consultants. The CIO then reviews the strategy with the Comptroller. Additionally, in 2018, the Comptroller constituted the Decarbonization Advisory Panel for the purpose of advising the Fund on climate-related investment risks and opportunities.

Strategy

With the transition to a low-carbon economy already underway and accelerating globally, and likely to affect virtually every investment in the Fund's broadly diversified portfolio, the Fund is developing strategies to address both the risks and opportunities presented by climate change. However, key drivers of climate risk assessment such as climate modeling, projections of energy demand, technological development, and regulations are in a state of flux. These factors will affect the magnitude and the timing of climate impacts on the Fund's assets. The Fund has set a strategic priority of evaluating the constantly shifting individual factors and the complex interaction among those factors to inform the Fund's investment, engagement and public policy advocacy strategies.

Transition Risks

In light of the Paris Agreement and other expected policy actions, regulatory risks in developed markets are one of the most pressing short-term climate-related risks to the Fund's investments.

The Fund, in partnership with Mercer Consulting, released a tailored climate change scenario analysis in 2015.* The study provided the estimated return implications under four climate scenarios and four climate risk factors, modeled between 2015 and 2050. This analysis described potentially significant impacts from climate change on the Fund's total portfolio, and concluded that the Fund's allocation to public equity in developed markets, if left unchanged, would be at high risk in the event of the swift and strong policy action envisioned under the 2-degree scenario.

While new low-carbon technologies may pose an investment risk for specific industries and companies across the portfolio, the Fund anticipates that there will also be significant opportunities to invest in those new or expanded technologies over the short to medium term, including low carbon energy generation and transportation, and the infrastructure to support those climate change solutions. However, identifying specific sustainable investment opportunities that meet the Fund's requirements for risk, return and scale remains a significant challenge.

Physical Risks

The physical impacts of climate change are already affecting businesses around the world, and the rate of impact is accelerating. Extreme weather events pose an immediate threat to the Fund's portfolio, but measuring investment risks is challenging due to difficulties in accurately projecting weather events at the local level. The Fund expects that better modeling of the economic impacts of climate change's physical effects will be developed shortly, allowing for improved assessment of physical impacts and the development of strategies to mitigate this risk.

*https://www.osc.state.ny.us/pension/NYSCRF_climate_change_report.pdf

Risk Management

The Fund's staff reviews a variety of studies to identify and assess climate change-related investment risks. The Fund's staff also works closely with Ceres, CDP (formerly the Carbon Disclosure Project), the Portfolio Decarbonization Coalition founded by the United Nations Environmental Programme Financial Initiative, and the Institutional Investor Group on Climate Change to stay informed about cutting-edge issues around climate change-related investment risks. In addition, the Decarbonization Advisory Panel is exploring recommendations for the Comptroller of additional strategies to manage climate change risks.

The Fund currently employs a multi-faceted approach to addressing climate-change-related investment risks that includes sustainable investing, shareholder engagement, and public policy advocacy.

Sustainable Investing

The Comptroller's Sustainable Investment Program has committed \$7 billion to investments in climate solutions, or other investments consistent with the United Nations' sustainable development goals, including:

- \$4 billion low emissions index, which reduces investments in companies with the highest carbon emissions and increases investments in companies with lower emissions. This strategy has reduced the carbon emissions intensity of the Fund's portfolio by over 75 percent in that index holding, with a rate of return that closely tracks the Fund's benchmark (Russell 1000).
- \$3 billion in additional sustainable investments around the world, across all asset classes.

When considering new investments, the Fund evaluates potential ESG risks relevant to the investment, including climate change.

Shareholder Engagement

Since 2008, the Fund has filed 126 climate-change-related shareholder resolutions and reached agreements with 54 portfolio companies to analyze and disclose climate risks, and set goals for greenhouse gas emissions (GHG) reduction, renewable energy use, or energy efficiency.

Specifically, the Fund has advocated for improved corporate disclosures of emissions data and for scenario analyses, including stress testing portfolios against a 2-degree scenario. The Fund has also urged high GHG emitters to adopt long-term emissions reduction targets in line with the Paris Agreement's climate goals.

The Fund has recently joined with other investors (representing trillions of dollars in assets under management) in collaborative efforts such as the Climate Action 100+ to urge companies to accelerate and expand emissions reductions, risk disclosures and sustainable business practices.

The Fund supports other investors' shareholder resolutions that seek greater disclosure of climate risks and the implementation of GHG reduction targets through its proxy voting program. Pursuant to its recently updated Proxy Voting Guidelines, the Fund withholds support from directors when a board fails to appropriately manage and comprehensively report on climate risks.

Public Policy Advocacy

The Fund provides public policy leadership at the international, federal, and state levels on climate change issues that may impact its returns on a variety of issues, including the Paris Agreement, the Clean Power Plan, tax credits for solar and wind power, low-carbon fuels standards, carbon pricing, the Regional Greenhouse Gas Initiative, and SEC requirements for corporate disclosure of material carbon risks.

Metrics and Targets

The Fund uses the following metrics to assess climate risks and opportunities:

- **Annual average weighted emissions intensity** assessment of the Fund's public equity holdings, including Scope 1 and Scope 2 greenhouse gas emissions. The emissions intensity of the Fund's public equity holdings in 2017 was 16 percent lower than the Fund's benchmark (75 percent Russell 3000 / 25 percent MSCI ACWI ex-US). The emissions intensity metric is useful in assessing transitional risks, particularly regulatory risks, but fails to capture trends over time and the future direction of portfolio companies. The Fund recognizes the significance of Scope 3 emissions as a risk metric in investment analysis and is exploring ways to overcome challenges, such as data availability and accuracy.
- **Portfolio exposure to carbon-related assets.** The Fund monitors its exposure to carbon-related assets, such as the Global Industry Clarification Standard (GICS) energy sector and the Carbon Underground 200, but the usefulness of this data is limited because it only provides backward-looking information.
- **Shareholder engagement outcomes,** such as the number of companies that agreed to improve their climate disclosures and climate risk management practices. Although shareholder engagement helps measure progress on the climate risk management of the underlying holdings, its application is limited to public equity.
- **Capital allocation to sustainable/low-carbon investments.** The Fund currently has a \$7 billion commitment to the Sustainable Investment Program.

The Fund is actively exploring development and use of other metrics that make more underlying data available, assess physical risks, and are more forward-looking.

INVESTMENT RESULTS

Based on Fair Values as of March 31, 2018.

	Annualized Rate of Return			
	1 Year	3 Years	5 Years	10 Years
Total Fund	11.35%	7.54%	8.54%	6.46%
Global Equity	15.03	9.35	11.16	7.73
MSCI All Country World Index Free	14.85	8.12	9.20	5.57
Private Equity	18.70	11.78	12.36	8.28
Cambridge U.S. Private Equity Index	17.49	11.79	13.86	9.80
Real Estate	9.15	10.98	12.36	3.74
National Council of Real Estate Investment Fiduciaries (NCREIF)	6.98	9.40	10.19	6.08
Absolute Return Strategy	5.90	2.64	4.69	2.99
HFRX Global Hedge Fund Index	4.26	0.95	1.63	(0.39)
Opportunistic Funds	11.48	6.69	6.96	–
Real Assets	10.33	0.88	–	–
U.S. CPI +5%	7.57	7.11	–	–
Treasury Inflation-Indexed Securities	1.25	1.60	0.32	3.73
Bloomberg Barclays Capital U.S. TIPS Index	0.92	1.30	0.05	2.93
Core Fixed Income	2.05	2.12	2.18	3.97
Bloomberg Barclays Capital Aggregate Bond Index	1.20	1.20	1.82	3.63
Non Core Fixed Income	5.23	5.42	–	–
Non Core Fixed Income Blended Benchmark	4.56	5.08	–	–
Short-Term Investments	1.71	1.15	0.84	0.78

Investment return calculations were prepared by the Custodian using a time-weighted rate of return. These figures are for investment management purposes and may not agree with audited statements. Due to reporting timing differences, actual results may differ from reported results.

Private Equity, Real Estate and Real Assets are reported on a three-month lag (adjusted by cash flows); Opportunistic Funds and Absolute Return Strategy are reported on a one-month lag (adjusted by cash flows). Alternative asset classes and non-core fixed income are generally reported net of fees.

INVESTMENT SUMMARY

The following table summarizes the fair values of Fund investments by asset type for March 31, 2018 and 2017 (Dollars In Thousands).

Asset Type	Fair Value March 31, 2018	Percentage of Total Fair Value	Fair Value March 31, 2017	Percentage of Total Fair Value
Domestic Equity	\$ 75,771,363	36.5%	\$ 69,851,696	36.3%
Global Fixed Income	44,820,784	21.6	44,002,645	22.9
International Equity	39,025,688	18.8	33,836,667	17.6
Private Equity	17,500,516	8.5	15,348,492	8.0
Real Estate	14,182,669	6.9	12,937,452	6.7
Absolute Return Strategy	7,879,320	3.8	7,523,769	3.9
Short-term Investments	3,366,569	1.6	5,653,335	2.9
Opportunistic Funds	2,507,027	1.2	2,065,686	1.1
Mortgage Loans	1,518,624	0.7	800,287	0.4
Real Assets	843,410	0.4	390,574	0.2
Total Investments	\$ 207,415,970	100.0%	\$ 192,410,603	100.0%

Note: This table reflects percentages derived from financial statement figures and may differ slightly from the asset allocation figures because certain investments have been reclassified.

ASSET ALLOCATION — MARCH 31, 2018

The Fund diversifies its assets among various classes including domestic and international equity, fixed income, inflation-indexed securities, real estate, private equity, absolute return strategies, opportunistic funds and real assets.

Asset liability studies, conducted periodically with help from an investment consultant, identify the optimal mix of assets to meet the growth requirements of the System's pension obligations while controlling risk as measured by return volatility. In the fiscal year ended March 31, 2015, the Fund completed an asset liability analysis and adopted a Long-Term Policy Allocation, which was updated on June 16, 2017. As implementation of the updated Long-Term Policy Allocation is expected to take several years, the Fund updated the Interim Policy Allocation for the transition period.

The Fund has formal rebalancing guidelines which ensure a disciplined process for meeting asset allocation goals, as well as allocation ranges for individual asset classes which minimize unnecessary turnover.

Asset Type	Allocation as of March 31, 2018	Current Interim Policy	Long-Term Policy Allocation
Equity			
Domestic Equity	39.1%	36.0%	36.0%
International Equity	18.0	15.0	14.0
Alternatives			
Private Equity	8.3%	9.0%	10.0%
Real Estate	6.7	8.0	10.0
Absolute Return Strategy	2.7	3.0	2.0
Opportunistic Funds	1.2	2.0	3.0
Real Assets	0.7	2.0	3.0
<i>Bonds & Mortgages</i>	18.5%	20.0%	17.0%
<i>Cash</i>	0.9%	1.0%	1.0%
<i>Inflation-Indexed Bonds</i>	3.9%	4.0%	4.0%

Note: A detailed listing of the New York State and Local Retirement System's assets as of March 31, 2018, is on our website at www.osc.state.ny.us.

GLOBAL EQUITY PERFORMANCE

For the Fiscal Year Ending March 31, 2018.

	Total Assets (Dollars in Millions)	Annualized Rate of Return				Inception Date	Since Inception Performance	Benchmark Performance*
		1 Year	3 Years	5 Years	10 Years			
Total Global Equity	\$ 118,181.0	15.03%	9.35%	11.16%	7.73%			
MSCI All Country World Index		14.85%	8.12%	9.20%	5.57%			
Total Large Cap Composite	\$ 52,273.3	14.59%	10.91%	13.37%	9.49%	2/1/83	11.31%	11.29%
CRF Large Cap Index Fund	42,752.6	14.67	11.09	13.47	9.60	8/1/78	11.70	11.67
CRF High Efficiency Defensive Index Fund	3,243.4	15.13	–	–	–	1/1/16	14.67	14.21
CRF Low Emission Index Fund	4,384.5	13.52	–	–	–	1/1/16	13.99	14.13
Aronson+Johnson+Ortiz	920.1	10.49	6.37	10.99	8.94	12/1/04	8.14	7.45
Eagle Capital	972.7	16.20	11.44	–	–	9/1/14	11.06	10.28
Russell Top 200 (S&P 500 To 1/1/16)		14.68%	10.90%	13.38%	9.53%			
Total Mid Cap Composite	\$ 16,130.6	12.29%	7.79%	10.82%	10.01%	7/1/91	11.71%	12.30%
CRF Mid Cap Index Fund	14,208.2	12.27	7.96	11.44	10.67	11/1/91	11.94	11.95
Apex Capital Management	483.1	24.39	9.43	13.41	12.56	3/1/08	12.28	10.94
First Pacific Advisors	310.3	(2.69)	(0.23)	0.76	–	11/1/12	2.07	13.97
Iridian Asset Management	483.0	11.85	6.60	–	–	1/8/15	7.42	9.14
Progress Mid Cap Composite	646.0	13.61	6.66	10.19	9.05	9/1/94	11.32	11.11
Russell Midcap (S&P 400 Mid Cap To 1/1/16)		12.20%	7.64%	11.15%	10.50%			
Total Small Cap Composite	\$ 6,117.4	15.32%	10.30%	12.72%	11.11%	7/1/91	10.75%	10.26%
CRF Small Cap Index Fund	2,273.5	11.65	8.69	12.19	10.69	10/1/05	9.10	8.98
Ariel Investments	54.0	(5.86)	(6.84)	–	–	11/1/13	(6.09)	9.85
Artisan Partners	494.5	26.25	13.67	–	–	8/28/13	12.66	11.18
Brown Capital Management	1,104.9	28.35	17.84	18.53	17.55	9/1/94	15.52	9.46
Channing Capital Management	292.8	6.18	7.68	–	–	4/1/15	7.68	7.87
EARNEST Partners	1,103.9	13.18	10.72	13.72	10.72	6/1/01	10.85	8.81
Leading Edge Investment Advisors	418.0	13.65	8.23	–	–	4/1/15	8.23	8.39
PENN Capital Management	375.8	9.37	4.97	–	–	9/1/13	5.73	9.38
Russell 2000 Index		11.79%	8.39%	11.47%	9.84%			
Total Long-Only Alpha Composite	\$ 1,171.8	4.95%	4.56%	10.40%	–	9/1/11	13.08%	7.36%
Triam Partners Strategic Fund II LP	173.1	0.56	5.71	8.82	–	1/1/13	9.69	6.94
Triam Partners Strategic Investment Fund-N, L.P.	444.9	(0.92)	6.30	–	–	2/1/15	5.96	5.12
ValueAct Capital Partners II, LP	553.8	11.08	4.02	11.27	–	9/1/11	13.75	7.36
HFRI Event Driven Activist Index		1.38%	3.55%	6.14%	–			
Total Domestic Transition Accounts	\$ 59.9	–	–	–	–	–	–	–

* Benchmarks for all accounts will vary according to mandate.

GLOBAL EQUITY PERFORMANCE

CONTINUED

For the Fiscal Year Ending March 31, 2018.

	Total Assets (Dollars in Millions)	Annualized Rate of Return			Inception Date	Since Inception Performance	Benchmark Performance*
		1 Year	3 Years	5 Years			
Total Progress Mid Cap Composite	\$ 646.0	13.61%	6.66%	10.19%	9/1/94	11.32%	11.11%
Affinity Investment	100.7	13.81	6.28	–	9/23/14	7.39	9.13
Lisanti Capital	58.3	28.94	11.40	–	7/1/14	12.01	10.15
Channing Capital Management Mid	61.6	7.09	6.10	11.50	7/1/05	8.69	8.85
Channing Capital Management SMID	53.7	7.09	–	–	3/1/17	7.12	6.57
Denali Advisors	107.3	7.97	8.81	13.17	3/1/08	10.95	9.61
Hahn Capital	84.7	13.80	7.41	–	8/1/13	8.79	11.13
Piedmont Investment Advisors	100.9	21.14	–	–	3/1/17	19.29	12.43
Piermont Capital	47.4	14.09	–	–	5/1/16	16.28	20.19
Stoneridge	32.3	6.28	(.05)	–	7/1/14	1.80	10.15
Progress Composite Benchmark		11.66%	8.31%	11.99%			
Total Progress Global Composite	\$ 582.6	–	–	–	5/1/17	13.40%	11.93%
ARGA Investment Management	143.0	–	–	–	5/1/17	12.17	13.08
Ativo Capital	108.9	–	–	–	5/1/17	15.76	11.93
Strategic Global Advisors	188.1	–	–	–	5/1/17	14.41	11.93
Sustainable Insight Capital Management	85.7	–	–	–	5/1/17	11.53	11.93
Bell Asset Management	57.5	–	–	–	5/1/17	11.69	11.93
MSCI World Index		–	–	–			
Total FIS Composite	\$ 1,257.3	15.55%	7.56%	–	10/1/13	8.41%	8.53%
Aubrey Capital	71.9	–	–	–	6/1/17	11.65	18.74
Change Global Investment	78.7	11.45	–	–	3/1/17	10.52	21.46
Clifford Capital	63.3	–	–	–	8/10/17	13.03	4.54
Decatur Capital Management	181.5	20.80	10.99	–	10/1/13	14.55	14.86
Denali Advisors	233.7	9.63	–	–	6/1/16	14.26	11.94
FIS Frontier Markets	20.9	24.77	15.98	–	10/1/13	9.65	7.51
Global Alpha Capital Management	88.7	26.91	16.65	–	10/1/13	15.24	9.48
Metis Global Partners	52.8	15.88	–	–	4/1/17	15.88	14.80
Osmosis Investment Management	223.5	18.17	–	–	11/1/15	11.99	8.12
Radin Capital Partners	47.0	–	–	–	8/10/17	2.29	9.97
Redwood Investments	196.4	23.07	–	–	3/1/17	20.87	12.01
MSCI All Country World Index		14.85%	8.12%	–			
Total Leading Edge Investment Advisors Composite	\$ 418.0	13.65%	8.23%	–	4/1/15	8.23%	8.39%
Bowling Portfolio Management	58.7	–	–	–	12/20/17	(2.73)	(2.77)
Granahan Investment Management	55.9	–	–	–	9/29/17	18.32	7.36
Granite Investment Partners	60.3	15.78	9.29	–	4/1/15	9.29	8.39
Matarin Capital Management	66.5	10.32	8.77	–	4/1/15	8.77	8.39
Nicholas Investment Partners	31.5	24.09	7.23	–	4/1/15	7.23	8.77
Palisades Investment Partners	39.0	15.55	9.05	–	4/1/15	9.05	8.39
Phocas Financial Corporation	61.7	8.08	7.77	–	4/1/15	7.77	7.87
Redwood Investments	45.2	10.51	7.61	–	4/1/15	7.61	8.77
Russell 2000 Index		11.79%	8.39%	–			

* Benchmarks for all accounts will vary according to mandate.
Composite market values include transition accounts and accrued management fees.

GLOBAL EQUITY PERFORMANCE

CONTINUED

For the Fiscal Year Ending March 31, 2018.

	Total Assets (Dollars in Millions)	Annualized Rate of Return				Inception Date	Since Inception Performance	Benchmark Performance*
		1 Year	3 Years	5 Years	10 Years			
Brandes Investment	\$ 1,326.3	10.58%	6.11%	9.21%	4.37%	11/1/99	6.97%	5.23%
FIS Group	1,257.3	15.55	7.56	–	–	10/1/13	8.41	8.53
FTSE Environmental Technology 50	132.3	14.22	6.01	10.12	–	11/1/09	4.24	4.23
Generation Investment Management	1,453.2	25.81	17.83	17.48	–	4/8/09	18.56	12.92
Goldman Sachs Asset Management	2,629.6	17.92	9.97	–	–	1/1/15	10.03	8.09
Progress Global Composite	582.6	–	–	–	–	5/1/17	13.40	11.93
Rockefeller	384.2	17.20	9.21	–	–	2/23/15	8.33	7.26
T. Rowe Price	1,342.8	27.64	15.46	16.61	–	3/1/11	12.79	8.39
Templeton Investments	1,783.3	11.68	6.25	9.05	–	3/1/11	8.84	8.39
MSCI All Country World Index		14.85%	8.12%	9.20%	5.57%			
Acadian Asset Management	\$ 2,063.6	23.64%	11.78%	9.79%	4.18%	11/1/04	8.15%	6.33%
Baillie Gifford	2,514.4	19.66	8.95	8.66	6.13	2/1/99	6.42	4.53
GQG Partners	486.1	–	–	–	–	4/1/18	–	–
Wellington Management	1,464.1	30.40	–	–	–	3/1/16	21.86	18.10
BlackRock ACWI Ex U.S.	11,777.3	17.28	6.59	6.23	3.03	11/1/04	6.63	6.38
MSCI ACW Ex U.S. IMI		17.10%	6.75%	6.24%	3.06%			
Barings International	\$ 1,065.8	14.56%	5.04%	6.75%	3.90%	4/1/02	7.25%	6.29%
Capital Guardian	1,689.8	19.17	7.17	7.69	3.97	9/1/89	7.57	4.85
Mondrian Investment Partners	1,721.5	10.89	4.81	7.14	3.10	1/1/98	7.00	5.10
BlackRock MSCI Europe	3,972.6	7.17	–	–	–	8/1/15	6.19	5.59
MSCI EAFE Index		14.80%	5.55%	6.50%	2.74%			
Genesis Investment Management	\$ 833.0	24.92%	9.51%	5.75%	–%	3/1/12	5.63%	3.83%
Morgan Stanley Emerging Markets	1,222.7	25.13	9.66	5.56	3.22	11/1/93	7.89	5.98
Morgan Stanley Frontier Markets	192.4	18.07	–	–	–	11/1/15	11.04	13.42
Quantitative Management Associates	1,360.6	26.11	9.15	5.72	–	2/1/12	6.06	4.78
Rock Creek Group	631.1	28.99	7.87	–	–	10/1/13	5.28	6.66
MSCI Emerging Markets Index		24.93%	8.81%	4.99%	3.02%			
Cevian Capital II, LP	\$ 538.1	1.46%	3.15%	7.45%	–	9/1/11	10.73%	7.36%
HFRI Event Driven Activist Index		1.38%	3.55%	6.14%	–			

* Benchmarks for all accounts will vary according to mandate.

DOMESTIC EQUITY PORTFOLIO — TEN LARGEST HOLDINGS

For the Fiscal Year Ending March 31, 2018.

Company	Shares	Fair Value	Percentage of Domestic Equity
Apple, Inc.	14,105,767	\$ 2,366,665,587	3.1%
Microsoft Corp.	22,957,005	2,095,285,846	2.8
Amazon.com, Inc.	1,139,733	1,649,581,160	2.2
J.P. Morgan Chase & Company	10,208,894	1,122,672,073	1.5
Berkshire Hathaway, Inc. - Class B	5,571,931	1,111,488,796	1.5
Facebook, Inc.	6,773,888	1,082,399,564	1.4
Johnson & Johnson	7,750,844	993,270,659	1.3
Alphabet, Inc. - Class C	957,378	987,813,047	1.3
Alphabet, Inc. - Class A	904,571	938,166,767	1.2
Exxon Mobil Corp.	11,492,622	857,464,527	1.1

Note: A detailed listing of the New York State and Local Retirement System's assets as of March 31, 2018 is on our website at www.osc.state.ny.us.

FIXED INCOME PORTFOLIO AND COMPARISON

As of March 31, 2018.

Sector	Fair Value (Dollars in Millions)	Fair Value Percentage	Effective Duration	Current Yield
Treasury	\$ 6,286.3	19.6%	8.20	2.73%
Federal Agency	514.0	1.6	2.37	1.01
Corporate	13,847.1	43.1	6.95	3.75
Asset-Backed	1,237.9	3.9	2.14	2.95
Commercial Mortgage-Backed	1,713.1	5.3	5.14	3.55
Mortgage-Backed	5,124.6	15.9	5.01	3.86
Collateralized Loan Obligations	3,147.4	9.8	0.10	3.38
Municipal Bonds	270.5	0.8	8.32	4.82
Totals	\$ 32,140.9	100.0%	5.73	3.43%
TIPS	\$ 7,857.4		7.51	1.52%
Externally Managed Funds:				
Blackrock	\$ 2,333.5		1.57	5.08%
DoubleLine Capital	\$ 240.6		14.40	2.90%
Neuberger Berman	\$ 1,207.4		3.74	5.07%
New Century Advisors	\$ 248.7		8.13	0.97%
Semper Capital	\$ 279.9		3.39	3.59%
Smith Graham	\$ 512.4		4.36	2.82%

FIXED INCOME PERFORMANCE

As of March 31, 2018.

	Common Retirement Fund — Annual Rate of Return		
	1 Year	3 Years	5 Years
Common Retirement Fund — Core	2.07%	2.07%	2.24%
Treasury	0.46	0.41	0.86
Federal Agency	0.79	0.91	1.10
Corporate	2.65	2.90	3.10
Asset-Backed	2.09	2.05	N/A
Commerical Mortgage-Backed	0.78	1.41	1.95
Mortgage-Backed	1.42	1.58	2.17
Collateralized Loan Obligations	3.44	3.13	N/A
Bloomberg Barclays Capital Aggregate Bond Index	1.20%	1.20%	1.82%
Common Retirement Fund — TIPS	1.25%	1.60%	0.32%
Bloomberg Barclays Capital U.S. TIPS Index	0.92%	1.30%	0.05%

FIXED INCOME PORTFOLIO — TEN LARGEST HOLDINGS

As of March 31, 2018.

Issue	Fair Value (Dollars in Millions)	Percentage of Fixed Income
Treasury Inflation-Indexed Securities Due 1/15/25	\$ 863.5	2.16%
Treasury Inflation-Indexed Securities Due 4/15/29	799.9	2.00
Treasury Bonds Due 11/30/21	706.5	1.77
Treasury Inflation-Indexed Securities Due 1/15/19	675.4	1.69
Treasury Inflation-Indexed Securities Due 7/15/18	667.5	1.67
Treasury Inflation-Indexed Securities Due 7/15/19	616.3	1.54
Treasury Bonds Due 12/15/19	556.6	1.39
Treasury Inflation-Indexed Securities Due 2/15/46	554.9	1.39
Treasury Inflation-Indexed Securities Due 4/15/28	515.6	1.29
Treasury Bonds Due 8/15/45	449.3	1.12
Total	\$ 6,405.5	16.01%

REAL ESTATE PORTFOLIO

As of March 31, 2018.

	Equity Amount	Percentage	Mortgage Amount	Percentage
Property Diversification				
Industrial/R&D	\$ 1,960,021,517	13.8%	\$ –	0.0%
Land for Development	119,247,736	0.8	–	0.0
Lodging	416,751,159	3.0	–	0.0
Office	4,405,219,322	31.1	92,428,036	11.0
Other*	2,309,104,489	16.3	–	0.0
Residential	1,480,270,954	10.4	421,644,287	50.0
Retail	3,490,620,213	24.6	329,337,702	39.0
Total	\$ 14,181,235,390	100.0%	\$ 843,410,025	100.0%
Regional Diversification				
Northeast	\$ 2,950,233,244	20.8%	\$ 843,410,025	100.0%
Mideast	1,116,081,741	7.9	–	0.0
Southeast	1,056,704,585	7.4	–	0.0
Southwest	1,551,339,641	10.9	–	0.0
Midwest	824,617,414	5.8	–	0.0
Mountain	532,231,569	3.8	–	0.0
Pacific	3,544,304,500	25.0	–	0.0
Non-U.S.	2,605,722,696	18.4	–	0.0
Total	\$ 14,181,235,390	100.0%	\$ 843,410,025	100.0%

Note: Equity and mortgage amounts are based on the fair value of the Fund's full real estate portfolio.

* Other includes alternative property types (i.e. self storage, medical office, data centers, student housing).

These figures may not agree with the audited statements due to timing and classification differences made for investment management purposes.

OPPORTUNISTIC REAL ESTATE

Number of Active Partnerships	Capital Committed (Dollars in Millions)	Capital Contributed (Dollars in Millions)	Current Fair Value (Dollars in Millions)	Cumulative Distributions (Dollars in Millions)	Total Value / Exposure (Dollars in Millions)
79	\$ 14,800.6	\$ 10,894.7	\$ 3,768.1	\$ 10,043.4	\$ 13,811.5

These figures may not agree with the audited statements due to timing and classification differences made for investment management purposes.

ALTERNATIVE INVESTMENTS SUMMARY

As of March 31, 2018.

	Number of Partnerships	Capital Committed	Capital Contributed	Net Asset Value	Cumulative Distributions	Total Value
Private Equity Funds						
Buyout	149	\$ 27,628,286,371	\$ 23,518,753,726	\$ 10,153,746,622	\$ 25,459,168,613	\$ 35,612,915,235
Distressed/Turnaround	22	2,724,031,072	2,084,882,280	753,813,896	2,152,271,764	2,906,085,660
Growth	47	7,451,317,600	5,113,757,705	3,755,760,303	3,530,742,911	7,286,503,214
Venture	43	3,358,755,304	3,456,394,428	1,122,362,800	3,303,797,281	4,426,160,081
Special Situations	42	6,464,779,719	5,076,588,973	1,661,828,815	5,019,414,935	6,681,243,750
Other	N/A	N/A	53,003,853	53,003,853	N/A	53,003,853
Total	303	\$ 47,627,170,066	\$ 39,303,380,965	\$ 17,500,516,289	\$ 39,465,395,504	\$ 56,965,911,793
Absolute Return Strategy Funds						
Equity Long-Bias	4	N/A	N/A	\$ 1,709,889,379	N/A	\$ 1,709,889,379
Equity Long-Short	6	N/A	N/A	1,218,714,990	N/A	1,218,714,990
Event Driven	14	N/A	N/A	1,353,739,448	N/A	1,353,739,448
Fund of Funds	4	N/A	N/A	840,354,776	N/A	840,354,776
Quantitative	1	N/A	N/A	134,358,487	N/A	134,358,487
Relative Value	2	N/A	N/A	533,938,519	N/A	533,938,519
Structured Credit	2	N/A	N/A	496,129,540	N/A	496,129,540
Tactical Trading	6	N/A	N/A	1,592,195,044	N/A	1,592,195,044
Total	39			\$ 7,879,320,183		\$ 7,879,320,183
Opportunistic Funds	24	\$ 5,130,000,000	\$ 2,944,451,501	\$ 2,507,026,506	\$ 1,035,781,828	\$ 3,542,808,334
Real Assets	13	\$ 3,800,000,000	\$ 1,812,157,095	\$ 1,518,624,435	\$ 399,635,278	\$ 1,918,259,713
Note: The total figures for Private Equity Funds include the Fund's private equity investments and other investments through the New York Business Development Corporation (NYBDC).						

DOMESTIC EQUITY MANAGEMENT FEES

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees	Incentive Fees	Total
Ariel Investments, LLC	\$ 492,819	\$ -	\$ 492,819
Aronson + Johnson + Ortiz, LP	995,549	-	995,549
Artisan Partners, LP	4,528,948	-	4,528,948
Brown Capital Management, Inc.	9,163,841	-	9,163,841
Channing Capital Management, LLC	531,426	-	531,426
Eagle Capital Management, LLC	6,666,768	-	6,666,768
EARNEST Partners, LLC	3,892,757	-	3,892,757
Fiera Capital, Inc.	2,224,023	-	2,224,023
First Pacific Advisors, LLC	2,147,397	-	2,147,397
FIS Group, Inc.*	2,006,212	-	2,006,212
Goldman Sachs Asset Management	702,300	-	702,300
Iridian Asset Management, LLC	2,608,429	-	2,608,429
Leading Edge Investment Advisors, LP*	3,346,451	-	3,346,451
Penn Capital Management Company, Inc.	1,870,407	-	1,870,407
Piedmont Investment Advisors, LLC	79,120	-	79,120
Progress Investment Management Company*	4,125,582	-	4,125,582
Russell Investments Group, LLC	1,797,725	-	1,797,725
Systematic Financial Management, LP	934,179	-	934,179
Total	\$ 48,113,933	\$ -	\$ 48,113,933

* Represents Fund of Funds relationship and includes sub-manager fee payments.

DOMESTIC EQUITY COMMISSIONS — INTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2018.

Broker	Shares	Commission \$ U.S.
Barclays Capital, Inc.	12,062,927	\$ 164,721
Bloomberg Tradebook, LLC	8,481,813	164,622
Cabrera Capital Markets, Inc.	1,876,170	37,523
Citigroup Global Markets, Inc.	7,166,792	137,196
Cowen & Company, LLC	7,775,031	81,925
Credit Suisse Securities, Ltd.	11,695,598	174,284
Goldman Sachs & Company	15,516,601	193,918
Great Pacific Securities, Inc.	11,882,289	193,613
Guzman & Company	11,645,136	191,273
Instinet	6,091,582	112,644
Investment Technology Group	9,183,610	170,030
J.P. Morgan Securities, LLC	6,955,066	136,532
Jefferies & Company, Inc.	7,001,554	126,284
Loop Capital Markets, LLC	11,425,667	187,864
Merrill Lynch Pierce Fenner & Smith, Inc.	10,654,185	201,272
Morgan Stanley & Company, Inc.	7,134,978	115,128
Sanford C. Bernstein & Company, LLC	5,526,030	103,430
Siebert Cisneros Shank & Company, LLC	8,591,236	150,563
Sturdivant & Company, Inc.	3,910,278	78,206
Virtu Americas, LLC	2,426,069	48,521
Weeden & Company	9,035,220	150,871
Wells Fargo Securities, LLC	1,001,205	20,024
Williams Capital Group, LP	11,327,010	201,735
Total	188,366,047	\$ 3,142,179

DOMESTIC EQUITY COMMISSIONS — EXTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2018.

Broker	Shares	Commission \$ U.S.
Abel Noser Corp.	2,383,076	\$ 103,734
Academy Securities, Inc.	79,596	1,900
Ancora Securities, Inc.	25,095	1,255
Auerbach Grayson & Company, Inc.	58,593	586
B. Riley & Company, LLC	551,067	16,443
Baird, Robert W. & Company, Inc.	2,422,665	91,672
Barclays Capital, Inc.	6,860,488	151,202
Blair, William & Company	2,214,541	84,228
Blaylock & Company, Inc.	4,630	93
Bloomberg Tradebook, LLC	1,469,316	43,221
BMO Capital Markets Corp.	411,442	12,201
BTIG, LLC	4,852,445	102,395
Buckingham Research Group, Inc.	173,797	8,657
C.L. King & Associates, Inc.	1,239,000	25,282
Cabrera Capital Markets, Inc.	1,619,702	30,042
Cantor Fitzgerald & Company	3,767,500	95,431
Capital Institutional Services, Inc.	1,680,082	53,052
CastleOak Securities, LP	2,655,244	31,971
Celadon Financial Group, LLC	516,600	4,391
Cheevers & Company	217,612	4,352
Citigroup Global Markets, Inc.	1,607,535	39,672
CLSA Americas, LLC	15,700	395
Collins Stewart, LLC	1,546,718	57,217
Compass Point Research & Trading, LLC	88,242	3,530
Concept Capital Markets, LLC	42,172	1,265
Cornerstone Macro, LLC	79,208	2,801
Cowen and Company, LLC	7,297,398	186,338
Craig-Hallum Capital Group, LLC	444,971	17,624
Credit Suisse Securities, Ltd.	668,099	20,011
CV Brokerage, Inc.	452,216	15,060
D.A. Davidson & Company, Inc.	220,275	6,653
Daiwa Capital Markets America, Inc.	29,333	1,173
Deutsche Bank Securities, Inc.	5,232,980	58,515
Dougherty & Company, LLC	230,359	6,749
Dowling & Partners Securities, LLC	19,507	780
Drexel Hamilton, LLC	12,641	361
Fidelity Capital Markets	691,308	7,706

Broker	Shares	Commission \$ U.S.
FIG Partners, LLC	18,527	\$ 371
Fox River Execution Technology, LLC	820,500	4,103
Freimark Blair & Company, Inc.	276,751	9,042
Friedman Billings & Ramsey	9,116	456
Gabelli & Company	34,998	1,635
Goldman Sachs & Company	2,856,805	53,355
Guggenheim Securities, LLC	210,103	8,404
Guzman & Company	5,796,951	49,942
Imperial Capital, LLC	32,624	1,300
Instinet	15,110,380	164,428
Investment Technology Group	18,306,066	283,204
ISI Group, Inc.	1,607,780	21,138
Ivy Securities, Inc.	997,030	24,321
J.P. Morgan Securities, LLC	7,460,381	96,448
Janney Montgomery Scott, Inc.	35,656	1,392
Jefferies & Company, Inc.	1,352,986	32,688
JMP Securities	438,853	13,260
JNK Securities, Inc.	869,764	9,988
Johnson Rice & Company, LLC	80,430	2,618
JonesTrading Institutional Services, LLC	12,979,641	458,738
Keefe Bruyette & Wood, Inc.	909,058	30,849
KeyBanc Capital Markets, Inc.	1,201,090	45,969
Ladenburg Thalmann & Company, Inc.	6,812	204
Leerink Swann & Company	320,572	9,627
Liquidnet, Inc.	14,228,437	269,461
Longbow Securities, LLC	237,703	13,830
Loop Capital Markets, LLC	18,070,245	253,538
Luminex Trading and Analytics, LLC	287,803	775
Macquarie Securities (USA), Inc.	294,689	12,389
Maxim Group	101,413	3,210
Merrill Lynch Pierce Fenner & Smith, Inc.	2,115,197	56,603
Mischler Financial Group, Inc.	61,015	1,562
Mizuho Securities USA, Inc.	70,752	3,370
MKM Partners, LLC	317,397	14,012
Monness, Crespi, Hardt & Company, Inc.	268,771	13,439
Morgan Stanley & Company, Inc.	2,503,480	70,074
National Financial Services Corp.	6,419	257

DOMESTIC EQUITY COMMISSIONS — EXTERNALLY MANAGED

CONTINUED

Broker	Shares	Commission \$ U.S.
Needham & Company, LLC	1,485,904	\$ 57,354
North South Capital, LLC	689,330	12,315
Northcoast Research Partners, LLC	28,217	1,411
Northland Securities, Inc.	159,931	6,323
O'Neil, William & Company, Inc.	46,535	1,861
Oppenheimer & Company, Inc.	776,817	25,471
Pavillion Global Markets, Ltd.	283,805	3,436
Penserra Securities, Inc.	3,976,425	59,986
Pickering Energy Partners, Inc.	141,200	7,060
Piper Jaffray	687,164	26,952
Precision Securities, LLC	472,000	4,012
Raymond James & Associates, Inc.	1,427,202	46,639
RBC Capital Markets	2,159,909	48,378
Rosenblatt Securities, Inc.	934,699	9,882
Roth Capital Partners, Inc.	539,271	17,247
Samuel A. Ramirez & Company, Inc.	126,871	952
Sandler O'Neill & Partners, LP	605,364	12,100
Sanford C. Bernstein & Company, LLC	794,301	32,736
Seaport Group Securities, LLC	684,082	16,778
SG Americas Securities, LLC	3,888,941	33,068
SIDCO/ITG, Inc.	75,028	2,539
Sidoti & Company, LLC	438,354	13,868
State Street Global Markets, LLC	189,395	2,596
Stephens, Inc.	856,646	36,082
Sterne Agee & Leach, Inc.	1,789,884	76,814
Stifel Nicolaus & Company, Inc.	2,441,739	82,953
Strategas Securities, LLC	452,621	18,690
Stuart Frankel & Company, Inc.	32,349	1,294
Sturdivant & Company, Inc.	16,437	647
SunTrust Capital Markets, Inc.	1,562,645	57,954
Telsey Advisory Group, LLC	623,353	11,719
The Benchmark Company, LLC	538,624	13,742
The Vertical Trading Group, LLC	25,243	1,010
Themis Trading, LLC	1,952,593	21,081
Tourmaline Partners, LLC	62,115	932
Trading Block Holdings, Inc.	160,418	5,184
UBS Securities, LLC	3,927,641	77,630

Broker	Shares	Commission \$ U.S.
Vandham Securities Corp.	1,398	\$ 42
Verint Systems, Inc.	75,700	2,938
Virtu Americas, LLC	1,881	65
Wedbush Securities, Inc.	2,473,446	84,090
Weeden & Company	437,289	6,081
Wells Fargo Securities, LLC	1,904,171	46,995
Williams Capital Group, LP	4,488,427	100,171
Wolfe Research Securities	376,669	15,241
Yamner & Company, Inc.	1,015,962	10,160
Total	208,005,344	\$ 4,438,437

INTERNATIONAL EQUITY MANAGEMENT FEES

For the Fiscal Year Ended March 31, 2018.

Broker	Management Fees	Incentive Fees	Total
Acadian Asset Management, LLC	\$ 6,486,138	\$ –	\$ 6,486,138
Baillie Gifford Overseas, Ltd.	6,448,805	–	6,448,805
Baring Asset Management	2,855,856	–	2,855,856
BlackRock Institutional Trust Company, NA	5,637,836	–	5,637,836
Brandes Investment Partners LP	4,273,229	–	4,273,229
Capital Guardian Trust Company	2,120,635	7,514,363	9,634,998
Consilium Frontier Equity Fund, LP	191,232	–	191,232
FIS Group, Inc. *	2,946,276	–	2,946,276
Generation Investment Management, LLP	10,597,959	21,753,585	32,351,544
Genesis Investment Management, LLP	5,453,233	–	5,453,233
Goldman Sachs Asset Management *	19,099,421	–	19,099,421
Mondrian Investment Partners, Inc.	5,156,345	–	5,156,345
Morgan Stanley Emerging Markets Fund, Inc.	8,476,452	–	8,476,452
Morgan Stanley Investment Management, Inc.	1,785,276	–	1,785,276
Progress Investment Management Company *	2,893,631	–	2,893,631
Quantitative Management Associates, LLC	4,170,348	–	4,170,348
Rockefeller & Company Asset Management	2,251,425	–	2,251,425
T. Rowe Price Associates, Inc.	4,897,525	–	4,897,525
Templeton Investment Counsel, LLC	4,362,096	–	4,362,096
Wellington Management Company, LLP	7,196,876	–	7,196,876
Total	\$ 107,300,594	\$ 29,267,948	\$ 136,568,542

* Represents Fund of Funds relationship and includes sub-manager fee payments.

INTERNATIONAL EQUITY COMMISSIONS — INTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2018.

Broker	Shares	Commission \$ U.S.
Barclays Capital, Inc.	271,900	\$ 5,540
J.P. Morgan Securities, LLC	8,281,850	2,049
Weeden & Company	105,000	2,100
Total	8,658,750	\$ 9,689

INTERNATIONAL EQUITY COMMISSIONS — EXTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2018.

Broker	Shares	Commission \$ U.S.
ABG Securities	156,338	\$ 8,629
ABG Sundal Collier, Inc.	5,190	1,521
Ak Yatirim Menkul Degerler A.S	24,221	977
Allen & Company, Inc.	22,849	1,004
Arqaam Securities, LLC	128,746	3,572
Atlantic Equities, LLP	4,694	440
Auerbach Grayson & Company, Inc.	74,413	1,961
B. Riley FBR, Inc.	370,671	14,556
Baader Bank AG	597,336	6,386
Baird, Robert W. & Company, Inc.	1,936,986	94,545
Banca IMI Securities Corp.	17,945	119
Banco BICE	391,868	3,371
Banco Bilbao Viscaya	3,272	300
Banco Bradesco S.A.	388,711	3,306
Banco BTG Pactual S.A.	9,523,570	12,729
Banco Itau	556,653	15,082
Banco Portugues de Investimento	29,690	320
Banco Santander	681,800	14,810
Bank of New York Mellon Corp.	7,572,392	44,288
Bank Vontobel AG	43,607	2,165
Bankhaus Lampe KG	52,716	1,599
Barclays Capital, Inc.	8,050,108	124,586
Bay Crest Partners, LLC	894,563	16,004
Berenberg Bank	5,684,860	136,083
Blair, William & Company	1,271,616	82,712
Bloomberg Tradebook, LLC	37,593	351
BMO Capital Markets Corp.	962,016	20,094
BMO Nesbitt Burns Securities, Ltd.	434,940	13,741
BNP Paribas Securities Corp.	6,495,565	72,209
Brockhouse & Cooper, Inc.	8,041,803	39,930
BTIG, LLC	4,214,651	62,360
Buckingham Research Group, Inc.	48,300	1,208
C.L. King & Associates, Inc.	132,038	3,350
Cabrera Capital Markets, Inc.	1,504,193	27,655
Canaccord Genuity Group, Inc.	2,393,176	4,446
Cantor Fitzgerald & Company	2,106,443	10,888
Capital Institutional Services, Inc.	151,062	7,256

Broker	Shares	Commission \$ U.S.
Carnegie Fondkommission	36,600	\$ 483
CF Global Trading, LLC	913,401	19,158
Cheevers & Company	116,770	4,110
China International Corp.	1,833,200	7,641
CIBC World Markets Corp.	1,567,711	10,173
CIMB Securities	398	2,377
Citibank	121,291	845
Citigroup Global Markets, Inc.	219,162,567	708,001
Clearview Trading Advisors, Inc.	257,042	5,603
COL Financial Group, Inc.	4,559,945	1,756
Commerzbank AG	633	86
Concordia S.A. CVMCC	222,790	2,999
Cornerstone Macro, LLC	49,110	1,747
Corredores Davivienda S.A.	16,096	520
Cowen & Company, LLC	14,723,465	158,692
Credit Agricole S.A.	6,202,713	43,264
Credit Lyonnais Securities, Inc.	81,704,493	382,806
Credit Suisse Securities, Ltd.	145,015,725	616,948
Crest Depository, Ltd.	266,123	469
Cuttone & Company, Inc.	37,808	409
CV Brokerage, Inc.	31,600	1,264
D. Carnegie & Company AB	9,243	525
Daewoo Securities	4,087	18,274
Daiwa Capital Markets America, Inc.	23,581,680	68,617
Danske Bank A/S	352,987	25,313
Davy Securities, Ltd.	7,390,091	8,839
Deutsche Bank Securities, Inc.	32,431,276	249,446
Deutsche WertpapierService Bank AG	28,200	655
Divine Capital Markets, LLC	118,820	2,971
DNB ASA	819	104
Dolat Capital Market Pvt., Ltd.	109,416	252
Dom Inwestycyjny BRE Banku S.A.	15,260	157
Dougherty & Company, LLC	85,640	3,426
Drexel Hamilton, LLC	128,347	2,668
Edelweiss Securities	180,309	10,491
Erste Bank	137,733	10,272
Euroclear	17,160	171

INTERNATIONAL EQUITY COMMISSIONS — EXTERNALLY MANAGED

CONTINUED

Broker	Shares	Commission \$ U.S.
Euroz Securities, Ltd.	13,040	\$ 423
Evans and Partners Pty., Ltd.	15,011	155
Evercore Group, LLC	676,394	25,396
Exane, SA	5,365,537	110,752
FBN Securities, Inc.	90,622	2,067
Fidelity Capital Markets	284,227	4,560
Fidentiis Equities S.V.S.A.	422,609	2,166
First Manhattan Company	103,351	1,194
First New York Securities, LLC	281,825	2,614
Flow Corretora de Mercadorias, Ltda.	542,431	6,853
Fubon Securities Company, Ltd.	25,210	247
GBM Grupo Bursatil Mexicano S.A. de C.V.	129,633	4,455
Global Hunter Securities, LLC	222,139	8,886
Goldman Sachs & Company	382,274,040	762,541
Goodbody Stockbrokers	1,018,343	9,404
Gordon, Haskett Capital Corp.	46,013	1,841
Griffiths McBurney & Partners	4,278	120
Guggenheim Securities, LLC	44,082	896
Guzman & Company	42,100	467
Height Securities, LLC	8,210	287
Helvea S.A.	23,700	364
Hibernia Southcoast Capital, Inc.	52,405	2,096
HSBC Securities, Inc.	66,613,798	211,600
Hyundai Securities Company, Ltd.	1,550	450
ICAP Group	9,200	64
ICICI Brokerage Services Mumbai	20,272	469
IEX Group, Inc.	326,216	3,262
IM Trust S.A. Corredores De Bolsa	1,000	300
India Infoline, Ltd.	102,858	569
ING Bank N.V.	11,889	1,319
Instinet	108,879,066	511,977
Interacciones Casa de Bolsa S.A. de C.V	815,470	3,269
Intermonte SIM S.p.A	709,969	1,031
Intesa Sanpaolo S.p.A.	142,341	1,424
Investec Henderson Crosthwaite Securities	1,258,844	8,576
Investec Securities, Ltd. Johannesburg	12,921	239
Investment Technology Group	218,009,176	527,714

Broker	Shares	Commission \$ U.S.
ISI Group, Inc.	2,047,085	\$ 59,722
Island Trader Securities, Inc.	273,875	10,287
Ivy Securities, Inc.	8,522	232
J.P. Morgan Securities, LLC	358,066,368	658,816
Jefferies & Company, Inc.	23,115,809	236,146
Jones & Associates, Inc.	135,450	2,370
JonesTrading Institutional Services, LLC	1,118,947	14,205
Kallpa Securities S.A.B.	15,570	776
KAS Bank N.V.	6,912	126
Keefe Bruyette & Wood, Inc.	919,622	18,843
Kempen & Company N.V.	39,102	2,155
Kepler Cheuvreux S.A.	949,785	48,740
KeyBanc Capital Markets, Inc.	127,809	2,078
Korea Investment & Securities Company	141,690	9,346
Kotak Securities, Ltd.	88,826	1,301
Ladenburg Thalmann & Company, Inc.	408,438	13,196
Leerink Swann & Company	58,745	1,963
Liberum Capital, Ltd.	8,228	377
Liquidnet, Inc.	61,776,524	700,846
Longbow Securities, LLC	139,032	5,561
Loop Capital Markets, LLC	51,725,608	316,210
Luminex Trading & Analytics, LLC	409,070	1,023
M.M. Warburg & Company	3,200	357
Macquarie Equities, Ltd.	103,118,876	195,493
Mainfirst Bank AG	155,112	5,336
Maxim Group	10,890	366
Maybank Kim Eng Holdings, Ltd.	88,000	519
Mediobanca S.p.A.	1,746,651	33,648
Merrill Lynch Pierce Fenner & Smith, Inc.	296,913,134	1,137,205
Mischler Financial Group, Inc.	5,639,873	50,337
Mitsubishi UFJ Securities Holdings Co., Ltd	711,177	25,112
Mizuho Securities	2,927,605	57,966
MKM Partners, LLC	81,600	1,428
Morgan Stanley & Company, Inc.	101,125,127	593,665
National Bank Financial, Inc.	4,506	138
Natixis S.A.	182,917	7,256
Nomura Securities International, Inc.	810,098	27,567

INTERNATIONAL EQUITY COMMISSIONS — EXTERNALLY MANAGED

CONTINUED

Broker	Shares	Commission \$ U.S.
Nordea Bank AB	78,380	\$ 2,053
North South Capital, LLC	36,200	905
Northcoast Research Partners, LLC	256,355	10,254
Northern Trust Company	1,942,278	22,309
Numis Securities, Ltd.	361,255	3,970
Oddo Securities	25,703	2,701
Okasan Securities Company, Ltd.	1,900	111
Olivetree Financial, LLC	1,700	68
Oppenheimer & Company, Inc.	306,145	9,734
Parel Paris	64,379	907
Pavilion Global Markets, Ltd.	3,600	301
Peel Hunt, LLP	808,643	2,341
Penserra Securities, Inc.	4,042,223	28,710
Pershing, LLC	719,092	15,738
Pictet Global Markets (UK), Ltd.	142,626	29,368
Piper Jaffray	1,156,822	45,385
PT Danareksa Sekuritas	44,447,837	4,946
PT Mandiri Sekuritas	23,377,438	4,772
Raymond James & Associates, Inc.	2,011,017	216,137
RBC Capital Markets	6,096,784	114,545
Redburn Partners, LLP	5,300,950	97,634
Renaissance Capital Holdings, Ltd.	2,032	43
RHB OSK Securities (Thailand) Public Company, Ltd.	359,430	623
Robert Fleming & Company	228,480	11,424
Rosenblatt Securities, Inc.	61,150	917
Samsung Securities	440	2,177
Samuel A. Ramirez & Company, Inc.	227,300	1,137
Sandler O'Neill & Partners, LP	249,874	7,496
Sanford C. Bernstein & Company, LLC	32,054,556	232,261
Schroders Salomon Smith Barney	27,294	912
Scotia Capital, Inc.	2,119,771	33,283
Seaport Group Securities, LLC	31,044	1,242
SEB Copenhagen	100,660	1,940
SG Americas Securities, LLC	158,179,183	232,293
Shenyin & Wanguo Securities Company, Ltd.	244,160	532
Shinhan Investment Corp.	3,863	1,223

Broker	Shares	Commission \$ U.S.
Singer Capital Markets, Ltd.	45,314	\$ 696
Skandinaviska Enskilda Banken AB	90,738	2,800
SMBC Nikko Securities	1,114,861	44,867
Societe Generale Securities Corp.	37,666,415	114,297
State Street Bank & Trust Company	29,720,121	176,284
State Street Global Markets, LLC	208,469	2,498
Stephens, Inc.	847,715	33,031
Stifel Nicolaus & Company, Inc.	1,221,233	42,860
Strategas Securities, LLC	257,173	7,188
Stuart Frankel & Company, Inc.	40,134	803
Sturdivant & Company, Inc.	17,874	584
SunTrust Robinson Humphrey, Inc.	16,582	488
Susquehanna Financial Group, LLLP	475,175	19,007
Svenska Handelsbanken AB	91,432	4,202
TD Securities, Inc.	12,378	345
Telsey Advisory Group, LLC	148,981	4,822
The Benchmark Company, LLC	121,530	4,861
Themis Trading, LLC	414,502	4,820
Toronto Dominion Bank	269,776	4,203
Tradition Asiel Securities, Inc.	19,337	1,620
UBS Securities, LLC	427,907,705	791,618
UOB Kay Hian Pte, Ltd.	3,209,550	7,184
Virtu Americas, LLC	944,196	8,897
Wall Street Access Corp.	59,441	395
Walton Johnson & Company	10,375	298
Wedbush Securities, Inc.	40,490	1,042
Weeden & Company	5,573,984	36,733
Wells Fargo Securities, LLC	817,896	25,199
Williams Capital Group, LP	1,300,626	7,028
Wilson HTM, Ltd.	152,070	515
Winslow, Evans & Crocker, Inc.	9,303	186
Wolfe Research Securities	528,967	14,686
Woori Investment & Securities Company, Ltd.	13,566	4,950
XP Investimentos	14,950	525
Total	3,208,590,120	\$ 12,196,768

GLOBAL FIXED INCOME MANAGEMENT FEES

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees	Incentive Fees	Total
BlackRock Institutional Trust Company, NA	\$ 8,094,219	\$ 876,888	\$ 8,971,107
DoubleLine Capital, LP	151,294	–	151,294
Neuberger Berman Fixed Income, LLC	2,954,584	3,674,840	6,629,424
New Century Advisors, LLC	220,887	–	220,887
Semper Capital Management, LP	976,870	–	976,870
Smith Graham & Company Investment Advisors, LP	853,439	–	853,439
Total	\$ 13,251,293	\$ 4,551,728	\$ 17,803,021

LONG-TERM DOMESTIC BOND TRANSACTIONS — INTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2018.

Summarized by Broker or Direct Issuer.

Long-Term Broker	Par \$ U.S.
Bank of America Merrill Lynch	\$ 1,613,947,425
Barclay Investment	840,000,000
Barclays Capital, Inc.	1,153,016,636
BNP Paribas Securities Corp.	25,770,000
Cantor Fitzgerald & Company	12,248,000
Citigroup Global Markets, Inc.	1,910,273,076
Credit Suisse Securities, Ltd.	677,317,113
Deutsche Bank Securities, Inc.	382,724,000
Goldman Sachs & Company	906,579,312
Great Pacific Securities, Inc.	726,201,000
HSBC Securities, Inc.	236,000,000
J.P. Morgan Securities, LLC	1,757,293,807
Jefferies & Company, Inc.	237,750,000
Loop Capital Markets, LLC	20,000,000
Mizuho Securities USA, Inc.	25,000,000
Morgan Stanley & Company, Inc.	2,485,483,097
RBC Capital Markets	597,554,000
Siebert Cisneros Shank & Company, LLC	58,000,000
SunTrust Capital Markets, Inc.	245,261,000
Susquehanna Financial Group, LLLP	8,003,000
Toronto Dominion Securities (USA), Inc.	377,161,000
U.S. Bancorp Investments, Inc.	46,514,000
UBS Securities, LLC	634,740,000
Wells Fargo Securities, LLC	1,214,562,557
Williams Capital Group, LP	132,228,000
Total	\$ 16,323,627,023

LONG-TERM DOMESTIC BOND TRANSACTIONS — EXTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2018.
Summarized by Broker or Direct Issuer.

Long-Term Broker	Par \$ U.S.
Academy Securities, Inc.	\$ 900,000
Amherst Pierpont Securities, LLC	11,028,734
Auriga USA, LLC	744,748
Baird, Robert W. & Company, Inc.	3,166,004
Bank of America Merrill Lynch	200,252,232
Barclays Capital, Inc.	406,609,759
Bay Crest Partners, LLC	3,337,000
BB&T Securities, LLC	1,600,000
BNP Paribas Securities Corp.	17,552,727
Brean Capital, LLC	6,290,467
Brownstone Investment Group, LLC	15,585,598
Cabrera Capital Markets, Inc.	19,740,000
Cantor Fitzgerald & Company	1,613,166
Capital Institutional Services, Inc.	62,250,000
CastleOak Securities, LP	14,367,194
Citadel Securities Institutional, LLC	50,600,000
Citigroup Global Markets, Inc.	863,647,519
Credit Lyonnais Securities, Inc.	7,320,000
Credit Suisse Securities, Ltd.	81,047,078
Deutsche Bank Securities, Inc.	69,444,000
Drexel Hamilton, LLC	260,000
Goldman Sachs & Company	155,959,448
Guggenheim Securities, LLC	362,245
HSBC Securities, Inc.	40,600,000
Hunt Financial Securities	10,766,784
J.P. Morgan Securities, LLC	559,997,827
Janney Montgomery Scott, Inc.	966,220
Jefferies & Company, Inc.	29,536,866
KeyBanc Capital Markets, Inc.	12,331,131
KGS-Alpha Capital Markets, LP	21,130,891
Loop Capital Markets, LLC	370,000
Mitsubishi UFJ Securities (USA), Inc.	6,461,191
Mizuho Securities USA, Inc.	19,259,250
Morgan Stanley & Company, Inc.	74,374,957
Nomura Securities International, Inc.	220,295,758
Performance Trust Capital Partners, LLC	2,945,765

Long-Term Broker	Par \$ U.S.
RBC Capital Markets	35,600,537
RBS Securities, Inc.	32,415,000
Samuel A. Ramirez & Company, Inc.	815,000
Societe Generale Securities Corp.	16,130,000
Stifel Nicolaus & Company, Inc.	2,284,544
StormHarbour Securities, LP	3,646,250
SunTrust Capital Markets, Inc.	11,779,000
Toronto Dominion Securities (USA), Inc.	48,895,000
UBS Securities, LLC	3,000,000
Wells Fargo Securities, LLC	510,016,853
Williams Capital Group, LP	242,000
Total	\$ 3,657,538,743

SHORT-TERM DOMESTIC BOND TRANSACTIONS — INTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2018.

Summarized by Broker or Direct Issuer.

Short-Term Broker	Par \$ U.S.
Bank of America Merrill Lynch	\$ 8,087,394,000
Bank of New York Mellon	12,192,170,000
Barclays Capital, Inc.	1,160,960,000
BNP Paribas Securities Corp.	708,938,000
Cabrera Capital Markets, Inc.	140,000,000
Citigroup Global Markets, Inc.	14,613,065,000
Credit Suisse Securities, Ltd.	4,465,354,000
Deutsche Bank Securities, Inc.	141,500,000
Goldman Sachs & Company	20,000,000
Great Pacific Securities, Inc.	6,934,950,000
J.P. Morgan Securities, LLC	10,133,259,000
Morgan Stanley & Company, Inc.	29,000,000
RBC Capital Markets	9,001,586,000
Toronto Dominion Securities (USA), Inc.	500,000,000
Toyota Motor Credit Corp.	7,300,000
UBS Securities, LLC	55,000,000
Wells Fargo Securities, LLC	203,794,000
Williams Capital Group, LP	284,797,000
Total	\$ 68,679,067,000

REAL ESTATE MANAGEMENT AND INCENTIVE FEES (EXPENSED)

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees	Incentive Fees	Total
ARA Fund Management (MIP), Ltd.	\$ 750,000	\$ –	\$ 750,000
Artemis Real Estate Partners, LLC	9,062,276	–	9,062,276
Avanath Capital Management, LLC, Series C	1,179,794	–	1,179,794
Blackstone Real Estate Advisors	9,716,886	–	9,716,886
Brookfield Strategic Real Estate Partners II GP, LP	4,455,907	–	4,455,907
Carlyle Group	1,216,757	–	1,216,757
Cherokee Advisers, LLC	410,666	–	410,666
CIF-H GP, LLC (Cayuga Lake Fund, LP)	835,958	–	835,958
CIM Group, LP	4,247,766	–	4,247,766
Clarion Partners	4,013,037	–	4,013,037
Franklin Templeton Institutional, LLC (Lake Montauk)	1,302,352	–	1,302,352
Heitman Capital Management, LLC	5,648,649	–	5,648,649
HL Lake Hempstead GP, LLC	123,445	–	123,445
HL Lake Success GP, LLC	168,034	–	168,034
J.P. Morgan Investment Management, Inc.	3,640,911	–	3,640,911
Jamestown Premier GP, LP	157,341	–	157,341
LaSalle Investment Management, Inc.	2,311,269	–	2,311,269
Morgan Stanley Group	145,609	–	145,609
Redwood Grove International Management, LLC	336,218	–	336,218
Rockpoint Real Estate Funds	877,659	–	877,659
Westbrook Realty Management	4,436,760	–	4,436,760
Total	\$ 55,037,294	\$ –	\$ 55,037,294

REAL ESTATE MANAGEMENT AND INCENTIVE FEES (CAPITALIZED)

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees	Incentive Fees	Total
ACA Advisors (Aetos)	\$ 32,948	\$ -	\$ 32,948
ARA Fund Management (MIP), Ltd.	737,037	-	737,037
ARES Management	1,336,397	-	1,336,397
Asana Partners, LP	155,776	-	155,776
Avanath Capital Management, LLC - Series C	45,205	-	45,205
BCP Strategic Partners (Beacon)	618,333	-	618,333
Blackstone Real Estate Advisors	5,571,925	-	5,571,925
City Investment Fund Associates, LLC	75,047	-	75,047
Clarion Partners	1,606,933	-	1,606,933
Colony Advisors, LLC	773,487	-	773,487
Heitman Capital Management, LLC	1,500,000	-	1,500,000
J.P. Morgan Investment Management, Inc.	841,458	-	841,458
Kimex	61,110	-	61,110
Landmark Partners, LLC	503,143	-	503,143
LaSalle Investment Management, Inc.	1,719,629	-	1,719,629
LSP (Lone Star)	29,410	-	29,410
MetLife Investment Advisors, LLC	4,723,799	-	4,723,799
Metropolitan Workforce Housing Fund, LLC	6,801	-	6,801
NIAM VI GP, Inc.	1,782,381	-	1,782,381
PGIM Fund Management Ltd.	544,898	-	544,898
Prologis, LP	2,143,026	-	2,143,026
Redwood Grove International Management B, LLC (RGI Co-Investment Fund)	79,891	-	79,891
Stockbridge Real Estate Funds	1,314,546	-	1,314,546
UBS Realty Investors, LLC	1,016,818	-	1,016,818
Total	\$ 27,219,998	\$ -	\$ 27,219,998

PRIVATE EQUITY MANAGEMENT FEES (EXPENSED)

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees
57 Stars, LLC	\$ 477,083
Access Capital Advisors, LLC	716,231
ACON Investments, LLC	3,598,367
Activate Venture Partners	283,900
Affinity Equity Partners, Ltd.	2,595,395
African Capital Alliance, Ltd.	1,967,791
Aisling Capital, LLC	357,054
Apollo Management, LP	7,897,505
ARES Management, LP	5,330,355
Ascent Biomedical Ventures	251,783
Asia Alternatives Management, LLC	2,369,846
Blackstone Group, LP	8,666,768
Brait Capital Partners, Ltd.	46,969
Bridgepoint Capital, Ltd.	2,088,831
Brookfield Asset Management, Inc.	3,530,581
Carlyle Group, LP	455,677
CCMP Capital Advisors, LP	2,118,066
Centerbridge Partners, LP	3,577,828
Cinven Capital Management, Ltd.	3,721,220
Clearlake Capital Group, LP	1,920,613
Contour Venture Partners	260,947
CVC Capital Partners, Ltd.	8,214,969
DeltaPoint Capital Management, LLC	227,399
Draper Fisher Jurvetson	375,000
EQT Partners	3,593,397
Fairview Capital Partners, Inc.	203,128
Falcon Investment Advisors, LLC	18,969
Farol Asset Management, LP	1,756,413
FIMI Opportunity Funds	550,000
FountainVest Partners (Asia), Ltd.	919,873
Francisco Partners Management, LP	519,641
Freeman, Spogli & Company	1,514,589
GCM Grosvenor Capital Management, LP	254,805
GenNx360 Capital Partners	1,746,980
Graycliff Partners, LP	825,413
Hamilton Lane Advisors, LLC	4,350,214
HarbourVest Partners, LLC	728,356

Manager	Management Fees
Helios Investment Partners, LLP	\$ 1,000,000
Hellman & Friedman Investors, Inc.	6,512,286
High Peaks Venture Partners	906,024
Hony Capital, Ltd.	4,066,063
J.P. Morgan Partners, LLC	2,007,107
JMI Equity	283,428
Kelso & Company	1,007,824
KKR & Company, LP	3,386,388
KSL Capital Partners, LLC	4,308,143
Leonard Green & Partners, LP	1,070,465
Levine Leichtman Capital Partners, Inc.	216,980
Lindsay Goldberg & Company, LLC	4,278,285
Lion Capital, LLP	197,018
Muller & Monroe Asset Management, LLC	689,010
Neuberger Berman Group, LLC	4,257,166
Nordic Capital	1,236,459
Paladin Capital Group	159,636
Palladium Equity Partners	577,807
Patria Investments, Ltd.	867,884
Performance Equity Management, LLC	612,631
Pine Brook Road Partners, LLC	2,400,779
Providence Equity Partners, LLC	1,338,651
Quadrangle Group, LLC	154,940
RRJ Capital	2,140,639
Searchlight Capital Partners	3,772,393
Snow Phipps Group, LLC	6,021,444
SoftBank Capital	837,996
Stepstone Group, LP	221,509
Summer Street Capital Partners, LLC	640,342
TA Associates Management, LP	5,761,642
Thoma Bravo, LLC	5,269,466
Thomas H. Lee Partners, LP	50,064
TPG Capital, LP	9,611,055
Tribeca Venture Partners, LLC	732,000
Trillium Group, LLC	287,276
Vista Equity Partners, LLC	13,883,908
Warburg Pincus, LLC	1,588,908
Total	\$ 170,385,572

PRIVATE EQUITY MANAGEMENT FEES (CAPITALIZED)

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees
Ardian	\$ 52
Ascent Biomedical Ventures	194,604
Avenue Capital Group	187,112
Blackstone Group, LP	44,425
Bridgepoint Capital, Ltd.	563,942
Clearwater Capital Partners, LLC	1,459,935
First Albany, Inc.	167,409
Founders Equity, Inc.	274,000
Gilde, LP	242,459
Hamilton Lane Advisors, LLC	1,387,953
HarbourVest Partners, LLC	1,088,256
Hudson Clean Energy Partners, LP	840,816
IK Investment Partners	2,515,855
Insight Venture Partners, LLC	1,579,861
Institutional Venture Partners	953,836
JMI Equity	320,772
Leonard Green & Partners, LP	(19,028)
Oaktree Capital Management, LP	1,578,979
RRJ Capital	5,335,247
SAIF Partners	1,711,395
SoftBank Capital	286,810
Stepstone Group, LP	25,120
Summer Street Capital Partners, LLC	118,487
TPG Capital, LP	56,955
Tribeca Venture Partners, LLC	76,896
VCFA Group	516,307
Warburg Pincus, LLC	1,283,741
Total	\$ 22,792,196

PRIVATE EQUITY — FEE, EXPENSE AND CARRIED INTEREST ANALYSIS

For the Fiscal Year Ended March 31, 2018.

Total Expenses		
Net Management Fees	\$	193,177,768
Partnership Expenses		<u>101,329,068</u>
Total Expenses	\$	294,506,836
Ratio — Total Expenses/Total Private Equity Allocation		0.83%
Total Profit Sharing (Carried Interest)		
Profit Sharing (Carried Interest)	\$	<u>220,699,287</u>
Total Profit Sharing	\$	220,699,287
Ratio — Total Profit Sharing/Total Actively Invested Private Equity Allocation		1.02%
Total Expenses + Profit Sharing (Carried Interest)		
Total Expenses	\$	294,506,836
Total Profit Sharing		<u>220,699,287</u>
Total Expenses and Profit Sharing (Carried Interest)	\$	515,206,123
Total Private Equity Allocation		
Unfunded Capital Commitments	\$	13,993,434,222
Net Asset Value (NAV) as of 3/31/2018		<u>17,500,516,289</u>
Distributions for FY 2018		<u>4,189,722,265</u>
Total Private Equity Allocation	\$	35,683,672,776
Ratio — Total Expenses + Profit Sharing/Total Private Equity Allocation		1.44%
Total Actively Invested Private Equity Allocation		
Net Asset Value (NAV) as of 3/31/2018	\$	17,500,516,289
Distributions for FY 2018		<u>4,189,722,265</u>
Total Actively Invested Private Equity Allocation	\$	21,690,238,554
Ratio — Total Expenses + Profit Sharing/Total Actively Invested Private Equity Allocation		2.38%

Note: The profit-sharing and partnership expenses were compiled based on information provided directly by the General Partner or calculated by the Fund's consultant applying the Fund's pro-rata ownership to carried interest and/or distribution and expense information provided in the Audited Financial Statements and Quarterly Financial Statements. Materials provided by General Partners consist of partners' capital statements, Institutional Limited Partners Association (ILPA) templates, and/or templates the consultant provided for the purposes of this analysis.

ABSOLUTE RETURN STRATEGY MANAGEMENT AND INCENTIVE FEES

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees	Incentive Fees	Total
Angelo, Gordon & Company, LP	\$ 1,743,313	\$ 672,188	\$ 2,415,501
Bain Capital, LP	1,483,485	603,486	2,086,971
Bridgewater Associates, LP	1,421,290	–	1,421,290
Brigade Capital Management, LLC	2,431,763	2,560,869	4,992,632
Caspian Capital Management, LLC	3,538,099	1,403,443	4,941,542
Cevian Capital, LLP	8,477,649	18,101,361	26,579,010
D.E. Shaw and Company, LP	14,022,376	11,225,261	25,247,637
Discovery Capital Management, LLC	4,111,151	–	4,111,151
Fortress Investment Group, LLC	805,424	–	805,424
Graticule Asset Management Asia, LP	4,883,445	5,846,658	10,730,103
HBK Capital Management, LP	4,350,038	3,120,619	7,470,657
Highfields Associates, LLC	3,949,342	3,013	3,952,355
Highland Capital Management, LP	537	–	537
Horizon Asset, LLP	2,590,784	2,138,141	4,728,925
King Street Capital Management, LP	3,555,976	2,832,931	6,388,907
Knighthood Capital Management, LLC	2,648,641	4,086,481	6,735,122
Lansdowne Partners, Ltd.	3,897,119	–	3,897,119
Mariner Investment Group LLC	1,008,041	754,414	1,762,455
Marshall Wace, LLP	5,366,590	12,389,115	17,755,705
Mezzacappa Management, LLC	20,978	–	20,978
OxFORD Asset Management, LLP	2,618,968	–	2,618,968
Paulson & Co., Inc.	332,181	–	332,181
Pharo Management, LLC	3,471,768	7,229,482	10,701,250
Rock Creek Group, LP	3,457,208	–	3,457,208
Schultze Asset Management, LLC	84,712	17,685	102,397
Stark Investments, LP	828	–	828
Systematica Investments, Ltd.	1,495,648	–	1,495,648
Tilden Park Capital Management LP	4,220,179	4,332,593	8,552,772
Trian Fund Management, LP	7,544,859	13,919,424	21,464,283
ValueAct Capital Management, LP	4,145,600	4,731,736	8,877,336
Total	\$ 97,677,992	\$ 95,968,900	\$ 193,646,892

OPPORTUNISTIC FUNDS MANAGEMENT AND INCENTIVE FEES (EXPENSED)

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees	Incentive Fees	Total
ADV Partners, Ltd.	\$ 1,047,863	\$ –	\$ 1,047,863
Blackstone Group, LP	5,478,333	5,122,063	10,600,396
Clearlake Capital Group, LP	294,512	–	294,512
Finisterre Capital, LLP	1,989,880	1,996,993	3,986,873
Invesco, Ltd.	120,672	1,565,934	1,686,606
Landmark Partners, LLC	1,944,294	–	1,944,294
Pacific Alternative Asset Management Company, LLC	3,191,804	–	3,191,804
Oak Hill Advisors, LP	293,670	–	293,670
Pine Street Alternative Asset Management, LLC	1,427,039	53,621	1,480,660
Stellex Capital Management, LP	2,676,959	–	2,676,959
TPG Capital, LP	306,485	2,038,419	2,344,904
Total	\$ 18,771,511	\$ 10,777,030	\$ 29,548,541

OPPORTUNISTIC FUNDS MANAGEMENT AND INCENTIVE FEES (CAPITALIZED)

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees
Landmark Partners, LLC	\$ 6,000,000
Strategic Value Partners, LLC	1,030,980
TPG Capital, LP	4,763,054
Total	\$ 11,794,034

REAL ASSETS MANAGEMENT FEES (EXPENSED)

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees
Apollo Aviation Group, LLC	\$ 1,371,341
Brookfield Asset Management, Inc.	3,225,000
Kayne Anderson Capital Advisors, LP	693,926
KKR & Company, LP	1,197,646
Meridiam	1,732,603
Morgan Stanley Investment Management, Ltd.	1,766,626
Patria Investments, Ltd.	2,062,500
Stonepeak Infrastructure Partners, LP	552,083
Total	\$ 12,601,725

REAL ASSETS MANAGEMENT FEES (CAPITALIZED)

For the Fiscal Year Ended March 31, 2018.

Manager	Management Fees
IFM Investors, Ltd.	\$ 353,297
Kayne Anderson Capital Advisors, LP	1,145,456
Morgan Stanley Investment Management, Ltd.	608,730
Pantheon Ventures, LP	690,186
TIAA	3,525,000
Total	\$ 6,322,669

CONSULTANT AND ADVISOR FEES

For the Fiscal Year Ended March 31, 2018.

Albourne America, LLC	\$	887,381
FX Transparency, LLC		35,000
Hamilton Lane Advisors, LLC		1,875,000
J.P. Morgan Asset Management, Inc.		9,174
J.P. Morgan Investment Management, Inc.		615,450
McKinsey & Company, Inc.		2,376,050
McLagan Partners, Inc.		500
Mosaic Global Partners Inc.		375,000
Pavillion Alternatives Group, LLC		559,142
Pension Consulting Alliance, Inc.		382,312
RV Kuhns & Associates, Inc.		990,027
Stockbridge Risk Management, Inc.		14,483
The Bank of New York Mellon		1,395,060
The Townsend Group		567,837
Wilshire Associates, Inc.		71,055
Total	\$	10,153,471

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Actuarial

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STATEMENT OF THE ACTUARY

September 30, 2018

As the Actuary for the Employees' Retirement System (ERS) and the Police and Fire Retirement System (PFRS), it is my duty to ensure that the New York State and Local Retirement System (the System) properly funds the benefits of members, retirees, and beneficiaries. A discussion of the plan provisions can be found at the beginning of the Notes to the Basic Financial Statements. The Systems' funding policy is established by New York State Retirement and Social Security Law. The System has a funding objective of employer contributions that, over time, are a level percentage of payroll and accumulate assets over an employee's working lifetime sufficient to pay benefits as they become due.

The Actuarial Bureau annually generates actuarial valuations, which determine the annual contributions required of employers. The most recent valuation was for valuation date April 1, 2017 and determined the employer contribution rates for February 1, 2019. A valuation relies on valuation date data for active members, retirees, and beneficiaries. Data for active members includes date of birth, salary, credited service, tier, and plan. For retired members and beneficiaries, data includes date of birth, monthly benefits and benefit option. In preparation for the valuation, we extensively validate the System's data by running reasonableness tests and accounting for every individual on a year-to-year basis. We also review the information contained in the Financial Statements.

For active members, the valuation projects expected benefits at retirement, death, disablement, and withdrawal based on estimated pay and service, as well as the member's plan benefit formula. For retirees, the valuation determines the present value of payments expected to be made for the retiree's and any beneficiary's lifetimes.

Proper funding requires that liabilities and employer contribution rates be determined on the basis of reasonable actuarial assumptions and methods. The types of assumptions that must be made include both demographic (rates of employee mortality, disability, turnover, and retirement) and economic (interest rates, inflation, and salary growth). Therefore, valuations include assumptions about these uncertainties.

The Actuary performs annual experience studies, ascertaining how closely the System's experience is conforming to the assumptions. If significant differences occur that the Actuary believes may indicate permanent shifts, the Actuary may recommend assumption changes.

The System retains an external auditor to independently review its financial records every year. Furthermore, an Actuarial Advisory Committee meets annually to review the actuarial assumptions and the results of the actuarial valuation. The System also engages the services of an outside actuarial consultant to perform a review every five years; similarly, every five years, the System is audited by the New York State Department of Financial Services. Lastly, the Comptroller of the State of New York, in his role as sole trustee of the System, established an Office of Internal Audit to help him fulfill his fiduciary objectives.

STATEMENT OF THE ACTUARY

CONTINUED

The April 1, 2016 valuation for determining the February 1, 2018 employer contribution rates found in this report was performed under my direction and supervision, using the assumptions adopted by the Comptroller, a summary of which is included later in this section. The assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice.

I am responsible for all of the valuation results and other actuarial calculations contained in this report. In the Notes to the Basic Financial Statements, I prepared the Schedule of Net Pension Liability of Participating Employers. While I prepared the employer contribution rates that determined the 2018 employer billing, I did not prepare the Schedule of Employer Contributions. I prepared the following schedules in the Actuarial section: Actuarial Valuation Balance Sheets; Local Government Employers' Final Contribution Rates for Select Plans; Contribution Rate Trend for Local Governments; Employer Contributions; Historical Trends; Changes in Contributions; Assets and Accrued Liabilities; Solvency Test; Schedule of Active Member Data; and Schedule of Retired Members and Beneficiaries.

In addition to the funding valuation report for ERS and PFRS, separate reports are issued to provide financial reporting for the System in accordance with Governmental Accounting Standard Board (GASB) Statement No. 67. Reports containing the actuarial results of the financial reporting valuations are based upon the measurement date of March 31, 2018.

On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial practices which are consistent with the principles prescribed by the Actuarial Standards Board as well as the Code of Professional Conduct and Qualification Standards for Public Statements of Actuarial Opinion of the American Academy of Actuaries, of which I am a member.



Michael Dutcher, E.A., A.S.A., M.A.A.A.

Actuary

New York State and Local Employees' Retirement System

New York State and Local Police and Fire Retirement System

ACTUARIAL COST METHOD AND VALUATION

ACTUARIAL COST METHOD

An actuarial cost method is a procedure for allocating the costs of a retirement system to particular time periods. It does not determine how much a system will ultimately cost; rather, it determines the portion of the estimated total cost that is to be allocated to a particular year.

For 70 years, by virtue of applying the definition of normal cost found in New York State Retirement and Social Security Law, the actuarial funding method used by the System was the aggregate method (AGG). Chapter 210 of the Laws of 1990 changed the funding method to a modified projected unit credit (PUC) method beginning in the fiscal year ending March 31, 1991 (referred to as fiscal year 1991). This law was challenged and the challenge was upheld by the New York State Supreme Court. On appeal, both the Appellate Division and the New York State Court of Appeals unanimously agreed with the New York State Supreme Court. These decisions allowed the Comptroller to return to the aggregate funding method beginning with the 1995 fiscal year. To ease the transition in the Employees' Retirement System (ERS), and to help prevent budget crises among participating employers, the Comptroller devised a plan to phase-in non-GLIP (New York State Public Employees' Group Life Insurance Plan) rates beginning in the 1995 fiscal year, when the rates were zero. The rates increased by 1.5 percent per year until 1999, when the transition would cease. However, due to excellent investment gains and favorable experience, almost all ERS employer bills were below the transition rates in 1997, and in 1998 all were below the transition rates, so the transition ceased in 1998.

The aggregate method is ultimately an amortization policy. All valuation gains and losses are amortized evenly over the remaining working lifetimes of the active membership. The fact that the method does not allow arbitrary amortization periods or increasing payments is useful in a public setting, as budgetary pressures can inspire a temptation to fund benefits over time frames that extend beyond the working lifetimes of the benefit recipients, and/or with back-loaded payments, which is not prudent and compromises intergenerational equity.

The "drawback" of the aggregate cost method is that it defines the accrued liability to be the actuarial value of assets. Thus the unfunded accrued liability is always zero, and the system's funded ratio is always 100 percent. This "drawback" is overcome by using the entry age normal cost method for purposes of financial disclosures. In this report, the reader should assume that any funding data provided is under the aggregate cost method unless otherwise noted as under the entry age normal method. The actuarial assumptions used are the same under either method.

ACTUARIAL VALUATION

At the beginning of the fiscal year, the Actuary, by law, determines the System's actuarial assets and liabilities. The actuarial valuation is important since it determines the rates of employer contributions. Chapter 49 of the Laws of 2003 mandates that the actuarial valuation undertaken on the first day of a fiscal year be used to determine contribution rates for the next succeeding fiscal year, to be applied to salaries as of the end of that fiscal year. Chapter 94 of the Laws of 2015 changed the billable salary to compensation earned during the previous fiscal year.

Each valuation differs markedly from the March 31, point-in-time snapshot of the System provided by the Financial Statements. The two measurements serve different purposes and use different techniques.

Two examples help make this clear:

- The actuarial assets for valuation purposes include the current value of all the future contributions employers and employees will make on behalf of current members. The Financial Statement balance sheet asset figure includes only contributions previously received and invested.
- The actuarial assets for valuation purposes smooth out the investment performance by using a multiyear smoothing procedure. Techniques like this are widely practiced and professionally recommended to protect employers from volatile contribution rates. The Financial Statements, on the other hand, simply present fair values of assets on the last day of the fiscal year.

AGGREGATE ACTUARIAL FUNDING METHOD

Actuarial liabilities are the valuation date values (called the actuarial present values) of the benefits the System expects to pay to current members, retirees, and beneficiaries. The actuarial present value of benefits is calculated by projecting the amount of future service retirement, death, and disability benefits (based on past and future service, salary, and plan) to be paid, and then discounting for assumed investment earnings, employee turnover, and other contingencies.

The actuarial present value of the contributions that employers must make to the System to fund the projected benefit payment is equal to the actuarial liabilities, minus the sum of the actuarial value of present assets and the present value of employee contributions.

Under the aggregate funding method, the actuarial present value of the contributions that employers must make to the System is funded as a level percentage of salary over the projected future working lifetimes of current members.

ELEMENTS OF THE ACTUARIAL VALUATION

ACTUARIAL ASSUMPTIONS

The actuarial assumptions for employer contribution rates for the fiscal year ending 2018 were adopted effective April 1, 2015. These assumptions and their predecessors are shown below. All assumptions presume ongoing systems.

Fiscal Year Ended 3/31	Salary Scale*			Interest Rate	Multiple-Decrement Tables Based on Systems' Experience
1987 – 88	Inflation Productivity & Merit	5.00% <u>2.30%</u> 7.30%		8.00%	4/1/81– 3/31/86 experience
1989 – 92	Inflation Productivity & Merit	5.00% <u>2.00%</u> 7.00%		8.75%	4/1/81– 3/31/86 experience
1993 – 96	Inflation Productivity & Merit	5.00% <u>2.00%</u> 7.00%		8.75%	4/1/86 – 3/31/91 experience
		ERS	PFRS		
1997 – 98	Inflation Productivity & Merit	4.75% <u>1.25%</u> 6.00%	4.75% <u>1.75%</u> 6.50%	8.50%	4/1/90 – 3/31/95 experience
1999 – 2000	Inflation Productivity & Merit	3.50% <u>2.50%</u> 6.00%	3.50% <u>3.00%</u> 6.50%	8.50%	4/1/90 – 3/31/95 experience
2001	Inflation Productivity & Merit	3.00% <u>2.50%</u> 5.50%	3.00% <u>3.00%</u> 6.00%	8.00%	4/1/90 – 3/31/95 experience
2002 – 04	Inflation Productivity & Merit	3.00% <u>2.90%</u> 5.90%	3.00% <u>3.90%</u> 6.90%	8.00%	4/1/95 – 3/31/00 experience
2005	Inflation Productivity & Merit	3.00% <u>2.40%</u> 5.40%	3.00% <u>3.90%</u> 6.90%	8.00%	4/1/95 – 3/31/00 experience
2006	Inflation Productivity & Merit	3.00% <u>2.40%</u> 5.40%	3.00% <u>3.90%</u> 6.90%	8.00%	4/1/95 – 3/31/00 experience with subsequent adjustments
2007 – 11	Inflation Productivity & Merit	3.00% <u>2.40%</u> 5.40%	3.00% <u>3.70%</u> 6.70%	8.00%	4/1/00 – 3/31/05 experience with subsequent adjustments
2012 – 16	Inflation Productivity & Merit	2.70% <u>2.20%</u> 4.90%	2.70% <u>3.30%</u> 6.00%	7.50%	4/1/05 – 3/31/10 experience with subsequent adjustments
2017 – 18	Inflation Productivity & Merit	2.50% <u>1.30%</u> 3.80%	2.50% <u>2.00%</u> 4.50%	7.00%	4/1/10 – 3/31/15 experience with subsequent adjustments

* This is an approximate value. Salary scales vary by age and plan and are based on each System's experience.

ELEMENTS OF THE ACTUARIAL VALUATION

CONTINUED

SELECTED ACTUARIAL ASSUMPTIONS USED IN THE APRIL 1, 2016 VALUATION

These illustrations show the number of people expected to decrement during the year (i.e., decease, retire, become disabled, withdraw, etc.). Demographic assumptions below show counts per 10,000 members. Assumptions are computed by the Actuary and adopted by the Comptroller. They are based on recent member experience.

Service Retirement — ERS

Age	Service (in years)		
	< 20	20 – 29.99	≥ 30
Tier 1			
55	1,566	2,977	5,586
60	982	1,600	1,930
65	2,050	2,553	2,321
Tiers 2–4			
55	555	925	3,977
60	526	812	1,919
65	1,532	2,527	2,058
Tiers 5–6			
55	447	747	925
60	423	655	812
65	1,532	2,527	2,058

Service Retirement — PFRS

Service	20-year (All Tiers)	20-year with additional 60ths (All Tiers)
20	2,292	887
25	770	714
30	735	1,625

Service Retirees — Mortality

Age	ERS Male Clerk	ERS Female Clerk	PFRS
55	50	37	28
60	69	46	48
70	136	106	134
80	440	313	469

Disability Retirees — Mortality

Age	ERS Male	ERS Female	PFRS
30	35	36	13
40	81	111	14
60	300	261	61
80	730	610	576

ELEMENTS OF THE ACTUARIAL VALUATION

CONTINUED

Disability Retirement — Ordinary and Accidental

Age	ERS Ordinary	ERS Accidental	PFRS Ordinary*	PFRS Accidental
35	9	0	14	13
40	11	0	23	23
45	21	1	37	34
50	35	1	44	38

* Includes performance of duty.

Ordinary Death

Age	ERS	PFRS
35	5	4
40	7	4
45	10	6
50	14	8

Withdrawal — ERS (Ten-year ultimate rates)

Age	ERS
35	192
40	168
45	157
50	130

Withdrawal — PFRS

Service	PFRS
5	117
10	55
15	28

Salary Scale — Annual Percentage Increase

Service	ERS	PFRS
5	4.5	7.5
10	3.8	4.1
15	3.3	3.6
20	3.0	3.3
25	3.0	3.3

ACTUARIAL VALUE OF ASSETS

The actuarial asset values are determined by applying the assumed return on investments (7.0 percent for the April 1, 2016 valuation) to the financial statement plan net position with adjustments for cash flow (contributions and deductions). This smoothing method expects and immediately recognizes the assumed return on assets while phasing in unexpected gains/losses over a five-year period. The method treats realized and unrealized gains in the same manner. The Group Term Life Insurance Plan assets appreciate at the same rate as our short-term investment pool.

In the April 1, 2016 valuation of the System and the Group Life Insurance Plan (GLIP) for fiscal year 2018, the difference between market and actuarial values of smoothed investments was:

	Investments (Dollars in Millions)	
Actuarial Value	\$	185,696
Market Value		<u>178,640</u>
Difference	\$	7,056

ADMINISTRATIVE EXPENSES

The cost of administering the System is borne by the State and local employers on a current disbursement basis.

GROUP LIFE INSURANCE PLAN (GLIP)

GLIP provides for up to \$50,000 of member and certain post-retirement death benefits to be paid as life insurance. All benefits provided are on a one-year term insurance basis. Participating employers are billed each year based on the aggregate of anticipated claims for the plan year. Premiums are set so that the reserve will, at its lowest amount during any year, be approximately equal to payables. Payables is an estimate of the amount of claims currently being processed, plus claims incurred but not yet reported.

DEFICIENCY COSTS

An employer may also have a deficiency contribution. When a new employer joins a System, any past service liability is paid for by separate annual payments over a period of up to 25 years. These payments are not affected by the funding method.

RATE AND CONTRIBUTION COMPARABILITY

Unless stated otherwise, rates and contributions assume a payment date of February 1 before the end of the fiscal year to provide for comparability of State and local government rates and costs.

ACTUARIAL VALUATION BALANCE SHEETS

Actuarial assets and liabilities are used to determine employer contributions for the fiscal year ending March 31. Values are in millions of dollars, as calculated in the April 1, 2015 valuation for fiscal year end (FYE) 2017 billing and the April 1, 2016 valuation for fiscal year end 2018 billing.

	FYE 2017 Billing*	FYE 2018 Billing*
	(Dollars in Millions)	
ERS		
Actuarial Assets		
Actuarial Value of Present Assets:		
Held for Current Retirees & Beneficiaries	\$ 90,163	\$ 95,102
Held for Members	57,877	58,382
Member Contributions	8,608	8,635
Total	\$ 156,648	\$ 162,119
Actuarial Present Value of Prospective Contributions:		
From Employers	\$ 31,751	\$ 31,332
From Members	2,251	2,788
Total	\$ 34,002	\$ 34,120
Total Actuarial Assets	\$ 190,650	\$ 196,238
Actuarial Liabilities		
Actuarial Present Value of Benefits for Current Retirees & Beneficiaries:		
Service Retirement Benefits	\$ 85,790	\$ 90,646
Disability Retirement Benefits	4,261	4,344
Death Benefits	113	112
Total	\$ 90,163	\$ 95,102
Actuarial Present Value of Benefits for Members:		
Service Retirement Benefits	\$ 97,481	\$ 97,988
Disability Retirement Benefits	1,653	1,724
Death Benefits	941	960
Other	411	464
Total	\$ 100,487	\$ 101,137
Total Actuarial Liabilities	\$ 190,650	\$ 196,238
* Numbers may not add up due to rounding.		

ACTUARIAL VALUATION BALANCE SHEETS

CONTINUED

	FYE 2017 Billing*	FYE 2018 Billing*
	(Dollars in Millions)	
PFRS		
Actuarial Assets		
Actuarial Value of Present Assets:		
Held for Current Retirees & Beneficiaries	\$ 17,072	\$ 17,599
Held for Members	10,238	10,730
Member Contributions	20	34
Total	\$ 27,330	\$ 28,362
Actuarial Present Value of Prospective Contributions:		
From Employers	\$ 7,428	\$ 7,889
From Members	291	374
Total	\$ 7,719	\$ 8,263
Total Actuarial Assets	\$ 35,049	\$ 36,626
Actuarial Liabilities		
Actuarial Present Value of Benefits for Current Retirees & Beneficiaries:		
Service Retirement Benefits	\$ 13,738	\$ 14,209
Disability Retirement Benefits	3,161	3,208
Death Benefits	173	181
Total	\$ 17,072	\$ 17,599
Actuarial Present Value of Benefits for Members:		
Service Retirement Benefits	\$ 16,194	\$ 17,125
Disability Retirement Benefits	1,503	1,605
Death Benefits	270	283
Other	10	13
Total	\$ 17,978	\$ 19,027
Total Actuarial Liabilities	\$ 35,049	\$ 36,626
* Numbers may not add up due to rounding.		

New York Public Employees' Group Life Insurance Plan

Actuarial Assets	2017	2018
	(Dollars in Millions)	
Assets		
Investments	\$ 138	\$ 135
Premiums Receivable	-	-
Total Assets	\$ 138	\$ 135
Liabilities		
Managed Overdraft (cash)	6	6
Claims Being Processed	29	45
Claims Unreported	18	18
Reserve for Mortality Fluctuations	85	66
Total Liabilities	\$ 138	\$ 135

LOCAL GOVERNMENT EMPLOYERS' FINAL CONTRIBUTION RATES FOR SELECT PLANS

The following contribution rates are for the fiscal year ending March 31, 2018 and assume a February 1, 2018 payment date.

All rates exclude any contribution rates due to amortization payments, prior years' adjustments, deficiency costs, retirement incentive programs and certain benefits electable by local governments, such as credit for unused sick leave or one-year final average salary. All rates include Group Life Insurance.

	Plan ID	Percentage of Payroll				
		Tier 1	Tier 2	Tiers 3 & 4	Tier 5	Tier 6
ERS						
Age-based plans						
Basic, Age 55, Age 60 Contributory	71-a	10.6	9.8	n/a	n/a	n/a
Article 14	A14	n/a	n/a	15.8	n/a	n/a
Article 15	A15	n/a	n/a	15.8	13.0	9.2
Guaranteed Benefits	75-e	19.5	17.5	n/a	n/a	n/a
Career	75-g	20.7	18.7	n/a	n/a	n/a
New Career	75-h/75-i	21.5	19.5	n/a	n/a	n/a
25-year plans						
Sheriffs and Deputies	89-a	24.2	22.6	n/a	n/a	n/a
Article 14B Sheriffs — 25-year	551	22.7	22.3	20.3	17.8	13.0
Article 14B Sheriffs — 25-year + 1/60th	551-e	24.0	23.8	21.7	19.4	14.5
full service for 1/60th	551-ee	24.9	24.7	22.5	20.1	15.1
County Law Enforcement	89-e, etc.	24.7	24.4	18.2	15.6	11.0
20-year plans						
Sheriffs and Deputies	89-b	27.6	22.3	n/a	n/a	n/a
additional 1/60th	89-b(m)	27.8	23.6	n/a	n/a	n/a
Article 14B Sheriffs — 20-year	552	28.1	27.8	25.3	22.9	18.0
Article 14B Sheriffs — 20-year + 1/60th	553	28.1	27.8	25.8	23.7	19.0
full service for 1/60th	553b	29.2	28.9	26.8	24.6	19.7
Detective Investigators	89-d	27.0	26.8	n/a	n/a	n/a
additional 1/60th	89-d(m)	27.1	26.9	n/a	n/a	n/a

LOCAL GOVERNMENT EMPLOYERS' FINAL CONTRIBUTION RATES FOR SELECT PLANS

CONTINUED

	Plan ID	Percentage of Payroll				
		Tier 1	Tier 2	Tier 3	Tier 5*	Tier 6*
PFRS						
Age-based plans						
Basic, Age 55, Age 60 Contributory	371-a	12.2	10.7	10.7	6.9	2.9
Guaranteed Benefits	375-e	19.0	15.7	15.7	11.7	7.3
Career	375-g	20.8	17.2	17.2	13.0	8.5
New Career	375-i	21.5	17.7	17.7	13.5	8.8
Improved Career	375-j	21.5	17.7	17.7	13.5	8.8
25-year plans						
Contributory	384	n/a	n/a	n/a	16.2	11.4
additional 1/60th	384(f)	n/a	n/a	n/a	17.7	12.7
Non-Contributory	384	21.4	20.6	20.6	19.7	18.1
additional 1/60th	384(f)	22.5	22.3	22.3	21.2	19.4
20-year plans						
Contributory	384-d	n/a	n/a	n/a	19.9	14.8
additional 1/60th	384-e	n/a	n/a	n/a	20.6	15.4
Non-contributory	384-d	25.2	24.6	24.3	23.4	21.5
additional 1/60th	384-e	25.6	25.3	24.3	24.2	22.1
* Age-based plans in Tier 5 and Tier 6 are contributory.						
There is no Tier 4 in PFRS.						

CONTRIBUTION RATE TREND FOR LOCAL GOVERNMENTS

Rates are based on a February 1 payment date. Each rate is applied to the salary of members covered by that particular plan. Rates were calculated under the aggregate method. All rates include Group Life Insurance and administrative rates.

Actual costs borne by employers are shown in the *Statistical Section*.

Plan Name (Section)	Percentage of Payroll									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ERS										
Guaranteed Benefits (75-e)										
Tier 1	9.7	8.4	13.8	19.4	22.9	25.8	24.8	22.6	19.6	19.5
Tier 2	8.8	7.6	12.5	17.5	20.7	23.3	22.5	20.5	17.6	17.5
Career (75-g)										
Tier 1	10.3	8.9	14.6	20.4	24.1	27.3	26.3	24.0	20.7	20.7
Tier 2	9.4	8.1	13.3	18.6	22.0	24.9	24.0	21.9	18.7	18.7
New Career (75-i)										
Tier 1	10.7	9.2	15.2	21.3	25.2	28.5	27.4	25.0	21.6	21.5
Tier 2	9.8	8.5	13.9	19.5	23.0	26.0	25.1	22.9	19.6	19.5
Article 14/15 — Tier 3	7.9	6.9	11.2	15.6	18.4	20.8	20.1	18.6	15.8	15.8
Article 15 — Tier 4	7.9	6.9	11.2	15.6	18.4	20.8	20.1	18.6	15.8	15.8
Article 15 — Tier 5	—	—	—	12.6	14.9	16.7	16.4	15.3	13.0	13.0
Article 15 — Tier 6	—	—	—	—	9.9	11.3	10.8	10.4	9.2	9.2

CONTRIBUTION RATE TREND FOR LOCAL GOVERNMENTS

CONTINUED

Plan Name (Section)	Percentage of Payroll									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
PFRS										
Guaranteed Benefits (375-e)										
Tier 1	11.2	10.8	13.2	16.1	19.6	22.1	21.4	19.4	18.6	19.0
Tiers 2 & 3	9.5	9.2	11.1	13.0	16.2	18.1	17.8	16.1	15.4	15.7
Tier 5*	—	—	—	9.3	11.8	13.0	12.7	12.1	11.4	11.7
Tier 6*	—	—	—	—	7.0	7.3	7.2	6.4	7.1	7.3
Career (375-g)										
Tier 1	12.3	11.8	14.4	17.6	21.3	24.1	23.4	21.2	20.3	20.8
Tiers 2 & 3	10.4	10.0	12.1	14.2	17.6	19.7	19.4	17.6	16.8	17.2
Tier 5*	—	—	—	10.4	13.1	14.5	14.2	13.5	12.8	13.0
Tier 6*	—	—	—	—	8.2	8.6	8.5	7.6	8.4	8.5
New Career (375-i)										
Tier 1	12.7	12.2	14.9	18.1	22.1	24.9	24.2	21.9	21.0	21.5
Tiers 2 & 3	10.7	10.3	12.5	14.6	18.1	20.3	19.9	18.1	17.3	17.7
Tier 5*	—	—	—	10.8	13.6	15.1	14.7	14.0	13.2	13.5
Tier 6*	—	—	—	—	8.5	8.9	8.7	7.9	8.6	8.8
25-Year (384) — Contributory										
Tiers 1, 2 & 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 5	—	—	—	13.7	16.5	18.4	18.1	16.6	15.9	16.2
Tier 6	—	—	—	—	11.4	12.3	12.0	11.2	11.2	11.4
25-Year + 1/60ths (384(f)) — Contributory										
Tiers 1, 2 & 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 5	—	—	—	15.0	18.0	20.2	19.7	17.9	17.3	17.7
Tier 6	—	—	—	—	12.8	13.8	13.3	12.4	12.4	12.7
25-Year (384) — Non-Contributory										
Tier 1	12.5	11.9	14.7	17.7	21.2	24.0	23.2	21.2	20.9	21.4
Tiers 2 & 3	12.5	11.9	14.7	17.6	21.2	23.9	23.1	21.0	20.2	20.6
Tier 5	—	—	—	16.9	20.4	22.9	22.1	20.1	19.3	19.7
Tier 6	—	—	—	—	18.4	20.4	19.6	17.9	17.7	18.1
25-Year + 1/60ths (384(f)) — Non-Contributory										
Tier 1	12.9	12.4	15.2	19.2	23.1	26.1	25.1	22.7	22.0	22.5
Tiers 2 & 3	12.7	12.2	15.0	19.0	22.9	25.9	24.8	22.5	21.8	22.3
Tier 5	—	—	—	18.3	21.9	24.7	23.7	21.5	20.8	21.2
Tier 6	—	—	—	—	19.9	22.0	21.1	19.2	19.0	19.4

* Age-based plans in Tier 5 and Tier 6 are contributory.

There is no Tier 4 in PFRS.

CONTRIBUTION RATE TREND FOR LOCAL GOVERNMENTS

CONTINUED

Plan Name (Section)	Percentage of Payroll									
	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
20-Year (384-d) — Contributory										
Tiers 1, 2 & 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 5	—	—	—	16.7	20.1	22.7	22.0	20.1	19.5	19.9
Tier 6	—	—	—	—	14.6	16.0	15.4	14.3	14.5	14.8
20-Year + 1/60ths (384-e) — Contributory										
Tiers 1, 2 & 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 5	—	—	—	17.0	20.5	23.0	22.3	20.4	20.2	20.6
Tier 6	—	—	—	—	14.9	16.3	15.6	14.5	15.1	15.4
20-Year (384-d) — Non-Contributory										
Tier 1	14.9	14.2	17.4	21.5	25.7	29.2	28.0	25.4	24.7	25.2
Tier 2	14.5	13.8	16.8	20.9	25.1	28.4	27.3	24.7	24.1	24.6
Tier 3	—	—	—	20.4	24.2	27.5	26.1	24.4	23.8	24.3
Tier 5	—	—	—	20.0	24.1	27.1	26.1	23.6	22.9	23.4
Tier 6	—	—	—	—	21.6	24.1	23.1	21.0	21.0	21.5
20-Year + 1/60ths (384-e) — Non-Contributory										
Tier 1										
1990-1998 elections (avg.)	20.5	19.9	23.1	21.8	26.1	29.6	28.4	25.8	25.0	25.6
all other years	15.1	14.5	17.7	21.8	26.1	29.6	28.4	25.8	25.0	25.6
Tier 2										
1990-1998 elections (avg.)	15.9	15.3	18.4	21.2	25.4	28.8	27.6	25.1	24.8	25.3
all other years	15.0	14.4	17.5	21.2	25.4	28.8	27.6	25.1	24.8	25.3
Tier 3	—	—	—	20.4	24.2	27.5	26.1	24.4	23.8	24.3
Tier 5	—	—	—	20.3	24.4	27.5	26.3	23.9	23.7	24.2
Tier 6	—	—	—	—	22.0	24.4	23.3	21.3	21.7	22.1

There is no Tier 4 in PFRS.

EMPLOYER CONTRIBUTIONS

Contributions shown here may differ from those appearing elsewhere in the Actuarial Section because these tables deal only with the contributions attributable to the fiscal year shown. Actual contributions may include adjustments due to previous years, such as amortization payments/credits and reconciliation of other years' bills. Employers who opted into either of the Contribution Stabilization Programs (Chapter 57 of the Laws of 2010 and Chapter 57 of the Laws of 2013) are allowed to amortize a portion of their contribution. The following amounts show their total obligation. The average rates below are for normal, administrative and Group Life Insurance contributions.

COMPARISON OF EMPLOYER CONTRIBUTIONS*

For fiscal years ending 2017 and 2018. (Dollars in Millions)

	2018 Contribution			2017 Contribution		
	Salary	Contribution	Average Rate	Salary	Contribution	Average Rate
ERS						
Tier 1	\$ 141	\$ 31	21.7%	\$ 176	\$ 38	21.8%
Tier 2	168	33	19.7	205	41	19.9
Tiers 3 & 4	19,645	3,227	16.4	20,301	3,336	16.4
Tier 5	1,481	201	13.5	1,453	197	13.5
Tier 6	5,252	510	9.7	4,064	395	9.7
Total	\$ 26,686	\$ 4,001	15.0%	\$ 26,200	\$ 4,007	15.3%
PFRS						
Tier 1	\$ 5	\$ 1	28.9%	\$ 7	\$ 2	28.3%
Tier 2	2,977	767	25.8	3,077	776	25.2
Tier 3	17	4	22.9	15	3	22.4
Tier 5	158	33	21.0	145	30	20.6
Tier 6	527	82	15.5	389	59	15.2
Total	\$ 3,684	\$ 887	24.1%	\$ 3,633	\$ 870	23.9%
There is no Tier 4 in PFRS.						

Deficiency contributions for Fiscal Year 2018 (as of February 1, 2018) totaled \$1,508,540.

*Numbers may not add up due to rounding.

EMPLOYER CONTRIBUTIONS

CONTINUED

FINAL EMPLOYER CONTRIBUTIONS BY EMPLOYER TYPE*

Attributable to fiscal year 2018 costs only. (Dollars in Millions)

Employer	Normal	Administrative	GLIP	Total
ERS				
State	\$ 1,602	\$ 44	\$ 39	\$ 1,686
Counties	681	18	15	714
Cities	101	3	3	107
Towns	225	6	6	238
Villages	71	2	2	75
Miscellaneous	611	18	18	647
Schools	505	15	15	534
Total	\$ 3,796	\$ 107	\$ 99	\$ 4,001
PFRS				
State	\$ 178	\$ 3	\$ 1	\$ 182
Counties	197	3	1	201
Cities	246	4	1	251
Towns	91	2	—	93
Villages	74	1	—	75
Miscellaneous	82	1	—	84
Total	\$ 868	\$ 15	\$ 4	\$ 887

EMPLOYER CONTRIBUTIONS BY TIER*

(Dollars in Millions)

	2018 (as of February 1, 2018)		2017 (as of February 1, 2017)	
	Employer Contributions Attributable to Year	Percentage	Employer Contributions Attributable to Year	Percentage
ERS				
Tier 1	\$ 31	0.8%	\$ 38	1.0%
Tier 2	33	0.8	41	1.0
Tiers 3 & 4	3,227	80.6	3,336	83.2
Tier 5	201	5.0	197	4.9
Tier 6	510	12.8	395	9.9
Total	\$ 4,001	100.0%	\$ 4,007	100.0%
PFRS				
Tier 1	\$ 1	0.2%	\$ 2	0.2%
Tier 2	767	86.4	776	89.2
Tier 3	4	0.4	3	0.4
Tier 5	33	3.7	30	3.4
Tier 6	82	9.2	59	6.8
Total	\$ 887	100.0%	\$ 870	100.0%

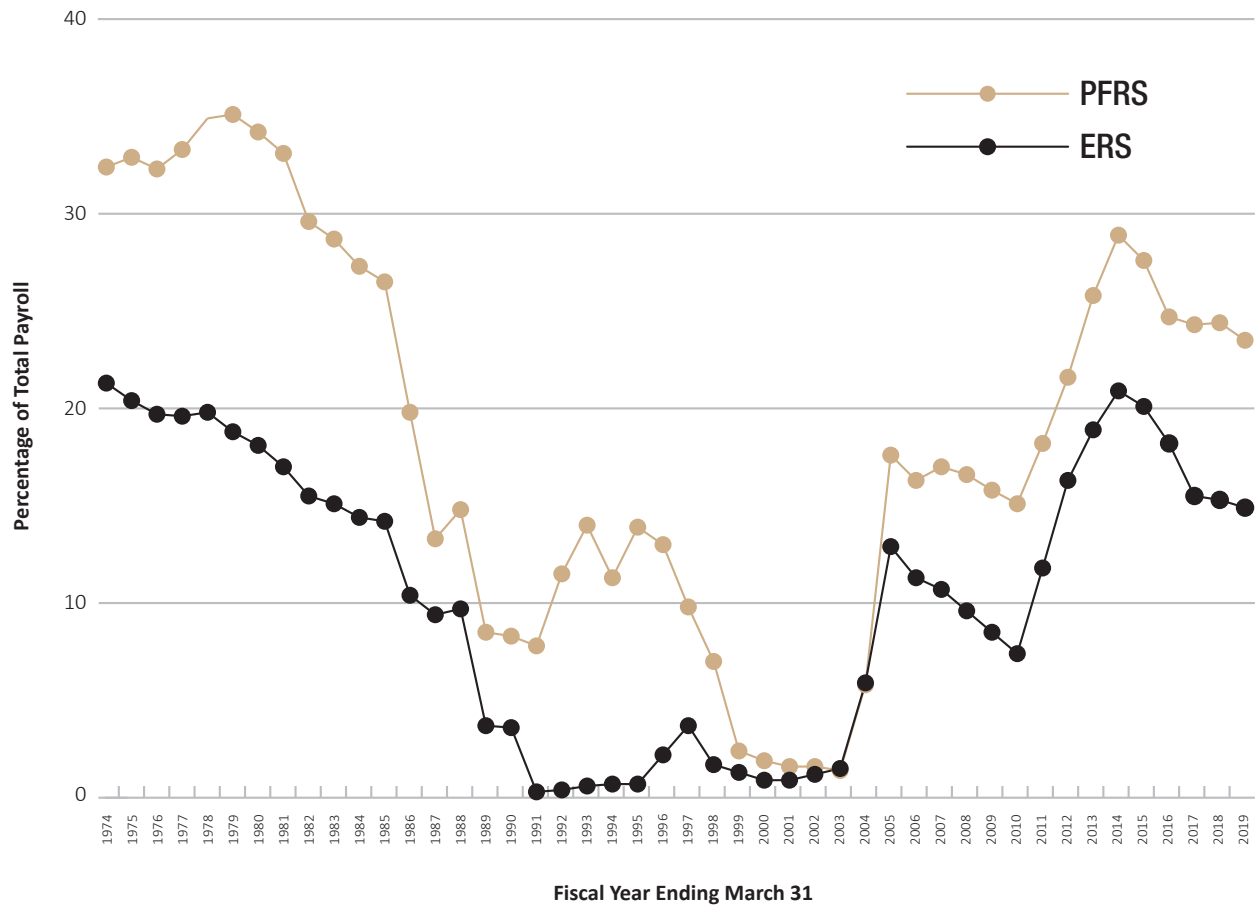
There is no Tier 4 in PFRS.

*Numbers may not add up due to rounding.

HISTORICAL TRENDS (RATES AS A PERCENTAGE OF SALARY, 1974 – 2019)

The State is obligated to pay its bill on March 1, one month before the end of the fiscal year. Through 2004, local employers paid their bills by December 15, three and one-half months before the end of the fiscal year. Beginning in 2005, the payment date for local employers was changed to February 1.

TRENDS IN EMPLOYER CONTRIBUTIONS



CHANGES IN CONTRIBUTIONS

The System's experience in many areas (employee salary growth or decrease, investment return, legislative enactment of benefits) is assessed and quantified yearly. Each element exerts an increasing, decreasing or neutral pressure on contributions to be charged for that year.

ANALYSIS OF CHANGES (BY SOURCE)

Experience during one fiscal year produces the increase or decrease in contributions for the following year.

(Dollars in Millions)

Fiscal Year Valuation Date	Fiscal Year Bill Date	Contributions for Preceding Fiscal Year Bill	Salary Growth	Return on Investments	Assumption Changes	Change in Benefits	Other Adjustments	Projected Contributions for Year Shown*
ERS								
2008	2010	2,018	88	(192)	n/a	n/a	(79)	1,835
2009	2011	1,854	135	1,098	(75)	n/a	130	3,142
2010	2012	3,029	89	782	417	n/a	(71)	4,246
2011	2013	3,948	15	570	202	n/a	(81)	4,654
2012	2014	4,627	119	870	(9)	n/a	(343)	5,264
2013	2015	5,243	97	521	(539)	n/a	(182)	5,140
2014	2016	5,143	(24)	(937)	633	n/a	(187)	4,628
2015	2017	4,515	35	(396)	273	n/a	(433)	3,994
2016	2018	3,995	85	120	22	n/a	(195)	4,027
2017	2019	4,005	108	(123)	131	n/a	(111)	4,010
PFRS								
2008	2010	487	26	(29)	8	n/a	(1)	491
2009	2011	474	31	152	(13)	n/a	(42)	602
2010	2012	576	10	117	22	n/a	(31)	694
2011	2013	693	18	93	(8)	n/a	53	849
2012	2014	827	25	142	(1)	n/a	(36)	957
2013	2015	936	3	79	(83)	n/a	(18)	917
2014	2016	917	23	(143)	52	n/a	(7)	842
2015	2017	809	1	(70)	161	n/a	(73)	828
2016	2018	857	60	17	36	n/a	(75)	895
2017	2019	888	31	(21)	12	n/a	(19)	891

* This is an estimated figure. Minor adjustments, mostly salary-related, result in the final contribution figure for the year as shown in the Contributions for Preceding Fiscal Year Bill column.

Note: Chapter 94 of the Laws of 2015 changed the definition of billing salary beginning with fiscal year 2016. The billing rates are now applied to salaries as of the end of the previous fiscal year, rather than the end of the fiscal year when the contributions are made.

The Projected Contributions for Fiscal Year Shown is now based on one year of salary projection (previously a two-year projection) and the Contributions for Preceding Fiscal Year Bill is based on known salaries from the previous fiscal year (previously a one-year projection). This explains the large decrease in contributions from the projected to the actual amount for fiscal year 2016.

ASSETS AND ACCRUED LIABILITIES

Plan assets can be expressed as the market value or as the actuarial value of assets. The market value of assets represents the market value of investments as of the last day of the fiscal year. The actuarial value of assets smoothes the volatility in the market value by phasing in unexpected gains and losses over a period of five years. The actuarial accrued liability is the portion of the actuarial present value of future benefits that is attributed to service rendered as of the valuation date. Note that the asset values do not include the following dedicated assets: Group Life Insurance Plan, Non-Member Contributions, Administrative Overbill Account, Loan Insurance Reserve and Annuity Savings Fund.

(Dollars in Millions)

Valuation Date	Market Value of Assets (MVA)	Actuarial Value of Assets (AVA)	Actuarial Accrued Liability (AL)	Ratio of Assets to AL based on	
				MVA	AVA
ERS					
4/1/08	\$ 132,474	\$ 128,916	\$ 120,183	110.2%	107.3%
4/1/09	94,242	126,438	125,136	75.3	101.0
4/1/10	114,058	125,482	133,574	85.4	93.9
4/1/11	127,192	126,395	140,087	90.8	90.2
4/1/12	130,349	125,688	144,107	90.5	87.2
4/1/13	139,580	132,067	149,211	93.5	88.5
4/1/14	154,119	145,985	158,638	97.2	92.0
4/1/15	161,065	156,648	167,065	96.4	93.8
4/1/16	156,088	162,119	172,246	90.6	94.1
4/1/17	167,820	168,246	178,216	94.2	94.4
PFRS					
4/1/08	\$ 23,372	\$ 22,767	\$ 21,072	110.9%	108.0%
4/1/09	16,695	22,423	21,597	77.3	103.8
4/1/10	20,194	22,230	22,998	87.8	96.7
4/1/11	22,357	22,205	24,169	92.5	91.9
4/1/12	22,837	22,009	25,048	91.2	87.9
4/1/13	24,436	23,112	25,815	94.7	89.5
4/1/14	26,961	25,474	27,377	98.5	93.0
4/1/15	28,154	27,330	29,336	96.0	93.2
4/1/16	27,337	28,362	30,620	89.3	92.6
4/1/17	29,539	29,586	31,776	93.0	93.1

SOLVENCY TEST

The System is funded in accordance with the aggregate method. The following solvency test is one means of checking the System's funding progress. In this test, the System's actuarial value of assets is compared to:

- (1) member contributions on deposit;
- (2) the liabilities for future benefits to persons who have retired; and
- (3) the employer-financed liabilities for service already rendered by active members.

The accrued liabilities in this chart are calculated in accordance with the entry age normal method.

Valuation Date	Accrued Liability (Dollars in Millions)				Actuarial Assets (Dollars in Millions)	Portion of Actuarial Accrued Liabilities Covered by Actuarial Assets		
	Member Contributions (1)	Retiree (2)	Active (3)	Total (1) + (2) + (3)		(1)	(2)	(3)
ERS								
4/1/08	\$ 7,430	\$ 54,945	\$ 57,808	\$ 120,183	\$ 128,916	100.0%	100.0%	115.1%
4/1/09	7,718	57,419	59,999	125,136	126,438	100.0	100.0	102.2
4/1/10	7,979	62,692	62,903	133,574	125,482	100.0	100.0	87.1
4/1/11	8,214	67,412	64,461	140,087	126,395	100.0	100.0	78.8
4/1/12	8,168	75,210	60,729	144,107	125,688	100.0	100.0	69.7
4/1/13	8,328	78,743	62,140	149,211	132,067	100.0	100.0	72.4
4/1/14	8,462	85,528	64,648	158,638	145,985	100.0	100.0	80.4
4/1/15	8,608	90,163	68,294	167,065	156,648	100.0	100.0	84.7
4/1/16	8,635	95,102	68,509	172,246	162,119	100.0	100.0	85.2
4/1/17	8,666	100,320	69,230	178,216	168,246	100.0	100.0	85.6
PFRS								
4/1/08	\$ 22	\$ 11,156	\$ 9,894	\$ 21,072	\$ 22,767	100.0%	100.0%	117.1%
4/1/09	26	11,588	9,983	21,597	22,423	100.0	100.0	108.3
4/1/10	27	12,891	10,080	22,998	22,230	100.0	100.0	92.4
4/1/11	29	13,383	10,757	24,169	22,205	100.0	100.0	81.7
4/1/12	2	14,060	10,986	25,048	22,009	100.0	100.0	72.3
4/1/13	5	14,948	10,862	25,815	23,112	100.0	100.0	75.1
4/1/14	10	15,958	11,409	27,377	25,474	100.0	100.0	83.3
4/1/15	20	17,072	12,244	29,336	27,330	100.0	100.0	83.6
4/1/16	34	17,599	12,987	30,620	28,362	100.0	100.0	82.6
4/1/17	55	18,920	12,801	31,776	29,586	100.0	100.0	82.9

SCHEDULE OF ACTIVE MEMBER DATA

Fiscal Year Ending March 31	Active Members	Annual Member Payroll (Dollars in Millions)	Percentage Increase in Annual Member Payroll	Average Salary
ERS				
2008	528,435	\$ 22,779	3.5%	\$ 43,106
2009	530,023	24,099	5.8	45,468
2010	529,466	24,972	3.6	47,164
2011	513,092	24,389	(2.3)	47,534
2012	505,575	24,291	(0.4)	48,046
2013	498,266	24,405	0.5	48,979
2014	493,209	24,361	(0.2)	49,392
2015	491,558	24,480	0.5	49,801
2016	494,411	24,985	2.1	50,536
2017	496,441	25,520	2.1	51,406
PFRS				
2008	33,089	\$ 2,926	3.6%	\$ 88,440
2009	33,052	2,970	1.5	89,854
2010	32,449	3,113	4.8	95,934
2011	31,659	3,146	1.0	99,357
2012	31,024	3,191	1.4	102,850
2013	30,780	3,163	(0.9)	102,754
2014	31,218	3,233	2.2	103,549
2015	31,372	3,257	0.8	103,822
2016	31,720	3,416	4.9	107,700
2017	32,332	3,522	3.1	108,930

SCHEDULE OF RETIRED MEMBERS AND BENEFICIARIES

Added to and Removed from Benefit Payroll

Fiscal Year	Number of Retired Members and Beneficiaries		Annual Benefits of Retired Members and Beneficiaries		Total Number of Retired Members and Beneficiaries	Total Annual Benefit	Percentage Increase in Total Annual Benefits	Average Annual Benefit
	Added During the Year	Removed During the Year	Added During the Year	Removed During the Year				
ERS								
2008	20,787	13,174	\$ 538,291,047	\$ 156,937,687	328,726	\$ 5,989,797,109	6.80%	\$ 18,221
2009	21,585	14,038	565,713,502	173,445,214	336,273	6,382,065,397	6.55	18,979
2010	22,885	14,052	604,707,420	181,343,790	345,106	6,805,429,027	6.63	19,720
2011	22,733	13,899	683,435,574	186,508,676	353,940	7,302,355,926	7.30	20,632
2012	31,906	14,378	990,541,993	198,660,208	371,468	8,094,237,711	10.84	21,790
2013	23,424	13,993	627,992,358	207,014,141	380,899	8,515,215,928	5.20	22,356
2014	23,320	14,931	636,672,277	229,131,028	389,288	8,922,757,178	4.79	22,921
2015	21,832	14,339	615,594,488	225,462,412	396,781	9,312,889,254	4.37	23,471
2016	25,517	15,186	764,025,727	247,047,150	407,112	9,829,867,831	5.55	24,145
2017	25,828	15,441	783,795,021	260,190,707	417,499	10,353,472,145	5.33	24,799
PFRS								
2008	1,157	727	\$ 73,592,416	\$ 20,604,380	29,383	\$ 1,148,515,468	4.84%	\$ 39,088
2009	1,270	748	85,132,844	21,203,012	29,905	1,212,445,300	5.57	40,543
2010	1,606	814	106,721,728	25,637,123	30,697	1,293,529,905	6.69	42,139
2011	1,184	790	80,517,204	24,073,826	31,091	1,349,973,282	4.36	43,420
2012	1,403	788	97,599,791	23,890,471	31,706	1,423,682,602	5.46	44,903
2013	1,629	798	120,115,279	25,836,637	32,537	1,517,961,244	6.62	46,653
2014	1,431	851	99,767,882	27,650,778	33,117	1,590,078,348	4.75	48,014
2015	1,222	812	89,763,321	27,980,968	33,527	1,651,860,701	3.89	49,270
2016	1,163	859	90,801,381	30,667,776	33,831	1,711,994,306	3.64	50,604
2017	2,028	903	157,020,746	32,764,190	34,956	1,836,250,862	7.26	52,530

For both systems, annual benefits are based on option 0 benefits (prior to option selection and partial lump sum distribution) plus cost-of-living adjustments (COLA).

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Statistical

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SCHEDULE OF ADDITIONS TO FIDUCIARY NET POSITION

(Dollars in Thousands)

Year Ending	Member Contributions	Employer Contributions	Other Income*	Investment Income	Total
2018	\$ 349,389	\$ 4,823,307	\$ 215,614	\$ 21,338,033	\$ 26,726,343
ERS	318,439	3,949,873	181,725	18,128,993	22,579,030
PFRS	30,950	873,434	33,889	3,209,040	4,147,313
2017	\$ 328,827	\$ 4,786,963	\$ 236,401	\$ 20,225,244	\$ 25,577,435
ERS	306,218	3,949,710	200,379	17,194,267	21,650,574
PFRS	22,609	837,253	36,022	3,030,977	3,926,861
2016	\$ 306,631	\$ 5,140,204	\$ 332,880	\$ (384,834)	\$ 5,394,881
ERS	289,333	4,347,619	198,332	(327,069)	4,508,215
PFRS	17,298	792,585	134,548	(57,765)	886,666
2015	\$ 284,793	\$ 5,797,449	\$ 230,799	\$ 12,444,891	\$ 18,757,932
ERS	272,004	4,893,110	193,176	10,582,102	15,940,392
PFRS	12,789	904,339	37,623	1,862,789	2,817,540
2014	\$ 281,398	\$ 6,064,133	\$ 192,581	\$ 20,598,593	\$ 27,136,705
ERS	273,545	5,137,935	175,677	17,496,541	23,083,698
PFRS	7,853	926,198	16,904	3,102,052	4,053,007
2013	\$ 269,134	\$ 5,336,045	\$ 131,853	\$ 14,717,622	\$ 20,454,654
ERS	264,788	4,524,395	122,931	12,496,378	17,408,492
PFRS	4,346	811,650	8,922	2,221,244	3,046,162
2012	\$ 273,247	\$ 4,585,178	\$ 157,625	\$ 7,868,313	\$ 12,884,363
ERS	268,545	3,878,717	134,821	6,681,603	10,963,686
PFRS	4,702	706,461	22,804	1,186,710	1,920,677
2011	\$ 286,199	\$ 4,164,571	\$ 127,709	\$ 19,339,896	\$ 23,918,375
ERS	284,486	3,622,638	101,730	16,427,023	20,435,877
PFRS	1,713	541,933	25,979	2,912,873	3,482,498
2010	\$ 284,291	\$ 2,344,222	\$ 81,981	\$ 28,422,361	\$ 31,132,855
ERS	282,791	1,879,209	76,466	24,145,393	26,383,859
PFRS	1,500	465,013	5,515	4,276,968	4,748,996
2009	\$ 273,316	\$ 2,456,223	\$ 155,918	\$ (40,428,820)	\$ (37,543,363)
ERS	268,991	1,963,413	89,042	(34,368,280)	(32,046,834)
PFRS	4,325	492,810	66,876	(6,060,540)	(5,496,529)

* Includes interest earned on member loans, interest on accounts receivable and transfers from other systems.

SCHEDULE OF INVESTMENT INCOME/(LOSS)

(Dollars in Thousands)

	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Net Change in Fair Value of Investments	\$ 17,859,769	\$ 16,923,203	\$ (3,934,853)	\$ 9,275,335	\$ 17,432,110	\$ 11,592,363	\$ 4,958,927	\$ 16,740,555	\$ 25,631,185	\$ (43,720,432)
Interest	1,312,608	1,349,658	1,446,569	1,447,757	1,366,175	1,394,442	1,379,423	1,426,941	1,540,095	1,722,343
Dividends	1,723,896	1,611,929	1,593,010	1,589,248	1,498,622	1,512,908	1,405,870	1,269,009	1,202,421	1,531,091
Real Estate and Mortgages	472,188	531,225	491,949	414,345	353,821	382,315	239,038	97,844	155,974	194,517
Alternative	352,488	230,919	174,552	174,850	259,960	377,664	170,225	234,940	109,603	49,646
Security Lending Income	73,563	74,428	52,878	35,639	28,381	32,617	33,323	31,328	62,224	545,934
International	295,388	153,368	360,723	137,227	220,090	146,314	153,157	46,127	5,748	23,223
Other Including Prior Year Adjustment	(14,581)	33,456	1,461	(40,881)	17,187	(247,988)	(44,790)	(57,241)	81,669	(44,810)
Security Lending Expenses	(49,128)	(18,001)	(5,278)	(3,563)	(2,838)	(3,261)	(3,332)	(2,744)	(2,080)	(367,584)
Investment Expenses	(688,158)	(664,941)	(565,845)	(585,066)	(574,915)	(469,752)	(423,528)	(446,863)	(364,478)	(362,748)
Net Investment Income/(Loss)	\$ 21,338,033	\$ 20,225,244	\$ (384,834)	\$ 12,444,891	\$ 20,598,593	\$ 14,717,622	\$ 7,868,313	\$ 19,339,896	\$ 28,422,361	\$ (40,428,820)

SCHEDULE OF DEDUCTIONS FROM FIDUCIARY NET POSITION

(Dollars in Thousands)

Year Ending	Retirement Allowances	Post-Retirement Supplements	Death Benefits	Separation from Service	Administrative Expenses	Other Expenses	Total
2018	\$ 11,197,802	\$ 628,287	\$ 201,252	\$ 34,969	\$ 122,806	\$ 66,609	\$ 12,251,725
ERS	9,478,272	530,354	191,579	34,302	106,972	68,769	10,410,248
PFRS	1,719,530	97,933	9,673	667	15,834	(2,160)	1,841,477
2017	\$ 10,617,500	\$ 615,032	\$ 216,150	\$ (5,406)	\$ 107,134	\$ 65,037	\$ 11,615,447
ERS	9,015,444	516,852	207,976	820	93,943	64,441	9,899,476
PFRS	1,602,056	98,180	8,174	(6,226)	13,191	596	1,715,971
2016	\$ 10,113,758	\$ 606,536	\$ 188,190	\$ 34,488	\$ 106,620	\$ 117,500	\$ 11,167,092
ERS	8,536,930	508,112	179,861	33,097	93,012	117,197	9,468,209
PFRS	1,576,828	98,424	8,329	1,391	13,608	303	1,698,883
2015	\$ 9,651,227	\$ 601,850	\$ 183,091	\$ 27,628	\$ 107,151	\$ 49,918	\$ 10,620,865
ERS	8,152,183	502,916	174,652	26,067	93,357	51,321	9,000,496
PFRS	1,499,044	98,934	8,439	1,561	13,794	(1,403)	1,620,369
2014	\$ 9,098,453	\$ 596,556	\$ 203,820	\$ 29,972	\$ 105,662	\$ 48,725	\$ 10,083,188
ERS	7,702,970	497,142	185,169	28,439	92,266	51,341	8,557,327
PFRS	1,395,483	99,414	18,651	1,533	13,396	(2,616)	1,525,861
2013	\$ 8,669,843	\$ 586,209	\$ 194,170	\$ 29,265	\$ 105,720	\$ 42,049	\$ 9,627,256
ERS	7,339,678	487,100	177,113	28,294	92,134	43,221	8,167,540
PFRS	1,330,165	99,109	17,057	971	13,586	(1,172)	1,459,716
2012	\$ 8,109,356	\$ 568,466	\$ 184,960	\$ 29,789	\$ 100,649	\$ 45,260	\$ 9,038,480
ERS	6,845,843	470,310	172,340	28,866	87,232	44,949	7,649,540
PFRS	1,263,513	98,156	12,620	923	13,417	311	1,388,940
2011	\$ 7,717,007	\$ 555,255	\$ 192,265	\$ 27,745	\$ 101,333	\$ 27,951	\$ 8,621,556
ERS	6,520,651	457,931	179,301	26,653	87,760	29,328	7,301,624
PFRS	1,196,356	97,324	12,964	1,092	13,573	(1,377)	1,319,932
2010	\$ 6,931,780	\$ 548,321	\$ 183,023	\$ 25,805	\$ 100,029	\$ 29,943	\$ 7,818,901
ERS	5,807,070	451,277	170,188	23,940	86,769	29,318	6,568,562
PFRS	1,124,710	97,044	12,835	1,865	13,260	625	1,250,339
2009	\$ 6,497,135	\$ 534,487	\$ 180,491	\$ 31,680	\$ 99,229	\$ 21,706	\$ 7,364,728
ERS	5,431,840	439,000	173,580	29,577	86,727	23,775	6,184,499
PFRS	1,065,295	95,487	6,911	2,103	12,502	(2,069)	1,180,229

SCHEDULE OF TOTAL CHANGES IN FIDUCIARY NET POSITION

(Dollars in Thousands)

Year Ending	Member Contributions	Employer Contributions	Other Income	Investment Income/(Loss)	Total
2018	\$ 349,389	\$ 4,823,307	\$ 215,614	\$ 21,338,033	\$ 26,726,343
ERS	318,439	3,949,873	181,725	18,128,993	22,579,030
PFRS	30,950	873,434	33,889	3,209,040	4,147,313
2017	\$ 328,827	\$ 4,786,963	\$ 236,401	\$ 20,225,244	\$ 25,577,435
ERS	306,218	3,949,710	200,379	17,194,267	21,650,574
PFRS	22,609	837,253	36,022	3,030,977	3,926,861
2016	\$ 306,631	\$ 5,140,204	\$ 332,880	\$ (384,834)	\$ 5,394,881
ERS	289,333	4,347,619	198,332	(327,069)	4,508,215
PFRS	17,298	792,585	134,548	(57,765)	886,666
2015	\$ 284,793	\$ 5,797,449	\$ 230,799	\$ 12,444,891	\$ 18,757,932
ERS	272,004	4,893,110	193,176	10,582,102	15,940,392
PFRS	12,789	904,339	37,623	1,862,789	2,817,540
2014	\$ 281,398	\$ 6,064,133	\$ 192,581	\$ 20,598,593	\$ 27,136,705
ERS	273,545	5,137,935	175,677	17,496,541	23,083,698
PFRS	7,853	926,198	16,904	3,102,052	4,053,007
2013	\$ 269,134	\$ 5,336,045	\$ 131,853	\$ 14,717,622	\$ 20,454,654
ERS	264,788	4,524,395	122,931	12,496,378	17,408,492
PFRS	4,346	811,650	8,922	2,221,244	3,046,162
2012	\$ 273,247	\$ 4,585,178	\$ 157,625	\$ 7,868,313	\$ 12,884,363
ERS	268,545	3,878,717	134,821	6,681,603	10,963,686
PFRS	4,702	706,461	22,804	1,186,710	1,920,677
2011	\$ 286,199	\$ 4,164,571	\$ 127,709	\$ 19,339,896	\$ 23,918,375
ERS	284,486	3,622,638	101,730	16,427,023	20,435,877
PFRS	1,713	541,933	25,979	2,912,873	3,482,498
2010	\$ 284,291	\$ 2,344,222	\$ 81,981	\$ 28,422,361	\$ 31,132,855
ERS	282,791	1,879,209	76,466	24,145,393	26,383,859
PFRS	1,500	465,013	5,515	4,276,968	4,748,996
2009	\$ 273,316	\$ 2,456,223	\$ 155,918	\$ (40,428,820)	\$ (37,543,363)
ERS	268,991	1,963,413	89,042	(34,368,280)	(32,046,834)
PFRS	4,325	492,810	66,876	(6,060,540)	(5,496,529)

SCHEDULE OF TOTAL CHANGES IN FIDUCIARY NET POSITION

CONTINUED

Retirement Allowances	Post-Retirement Supplement	Death Benefits	Separation from Service	Administrative Expenses	Other Expenses	Total	Net Increase / Decrease
\$ 11,197,802	\$ 628,287	\$ 201,252	\$ 34,969	\$ 122,806	\$ 66,609	\$ 12,251,725	\$ 14,474,618
9,478,272	530,354	191,579	34,302	106,972	68,769	10,410,248	12,168,782
1,719,530	97,933	9,673	667	15,834	(2,160)	1,841,477	2,305,836
\$ 10,617,500	\$ 615,032	\$ 216,150	\$ (5,406)	\$ 107,134	\$ 65,037	\$ 11,615,447	\$ 13,961,988
9,015,444	516,852	207,976	820	93,943	64,441	9,899,476	11,751,098
1,602,056	98,180	8,174	(6,226)	13,191	596	1,715,971	2,210,890
\$ 10,113,758	\$ 606,536	\$ 188,190	\$ 34,488	\$ 106,620	\$ 117,500	\$ 11,167,092	\$ (5,772,211)
8,536,930	508,112	179,861	33,097	93,012	117,197	9,468,209	(4,959,994)
1,576,828	98,424	8,329	1,391	13,608	303	1,698,883	(812,217)
\$ 9,651,227	\$ 601,850	\$ 183,091	\$ 27,628	\$ 107,151	\$ 49,918	\$ 10,620,865	\$ 8,137,067
8,152,183	502,916	174,652	26,067	93,357	51,321	9,000,496	6,939,896
1,499,044	98,934	8,439	1,561	13,794	(1,403)	1,620,369	1,197,171
\$ 9,098,453	\$ 596,556	\$ 203,820	\$ 29,972	\$ 105,662	\$ 48,725	\$ 10,083,188	\$ 17,053,517
7,702,970	497,142	185,169	28,439	92,266	51,341	8,557,327	14,526,371
1,395,483	99,414	18,651	1,533	13,396	(2,616)	1,525,861	2,527,146
\$ 8,669,843	\$ 586,209	\$ 194,170	\$ 29,265	\$ 105,720	\$ 42,049	\$ 9,627,256	\$ 10,827,398
7,339,678	487,100	177,113	28,294	92,134	43,221	8,167,540	9,240,952
1,330,165	99,109	17,057	971	13,586	(1,172)	1,459,716	1,586,446
\$ 8,109,356	\$ 568,466	\$ 184,960	\$ 29,789	\$ 100,649	\$ 45,260	\$ 9,038,480	\$ 3,845,883
6,845,843	470,310	172,340	28,866	87,232	44,949	7,649,540	3,314,146
1,263,513	98,156	12,620	923	13,417	311	1,388,940	531,737
\$ 7,717,007	\$ 555,255	\$ 192,265	\$ 27,745	\$ 101,333	\$ 27,951	\$ 8,621,556	\$ 15,296,819
6,520,651	457,931	179,301	26,653	87,760	29,328	7,301,624	13,134,253
1,196,356	97,324	12,964	1,092	13,573	(1,377)	1,319,932	2,162,566
\$ 6,931,780	\$ 548,321	\$ 183,023	\$ 25,805	\$ 100,029	\$ 29,943	\$ 7,818,901	\$ 23,313,954
5,807,070	451,277	170,188	23,940	86,769	29,318	6,568,562	19,815,297
1,124,710	97,044	12,835	1,865	13,260	625	1,250,339	3,498,657
\$ 6,497,135	\$ 534,487	\$ 180,491	\$ 31,680	\$ 99,229	\$ 21,706	\$ 7,364,728	\$ (44,908,091)
5,431,840	439,000	173,580	29,577	86,727	23,775	6,184,499	(38,231,333)
1,065,295	95,487	6,911	2,103	12,502	(2,069)	1,180,229	(6,676,758)

SERVICE RETIREES — ERS

This table shows the number (*Number*), average final average salary (*Avg FAS*), and average annual pension benefit prior to option selection, including any cost-of-living adjustment (*Avg Pen*), of surviving Employees' Retirement System service retirees on March 31, 2018. Groupings are based on years of service and age, with a breakdown by category of employer.

Years of Service	Nearest Age														
	Under 55			55 – 64			65 – 74			75 – 84			85 & Over		
	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen
State															
Under 10	–	–	–	1,182	44,612	4,246	2,233	43,754	5,244	1,007	35,082	4,615	476	20,954	3,353
10 – 14	–	–	–	3,428	42,621	6,682	8,078	38,780	7,525	4,579	33,045	7,225	2,760	26,160	6,866
15 – 19	–	–	–	2,215	50,135	11,061	5,055	47,670	12,914	3,871	38,756	12,025	2,275	29,118	10,969
20 – 24	–	–	–	2,531	62,583	22,680	7,723	57,820	24,840	5,964	45,580	21,728	3,222	33,892	18,841
25 – 29	1,161	88,665	44,039	6,554	75,360	36,875	10,136	64,498	34,396	6,087	49,043	29,293	2,432	36,834	24,987
30 – 34	63	97,601	48,573	10,448	77,595	47,558	13,202	67,684	43,598	5,793	52,409	36,670	1,785	42,013	32,645
35 & Over	2	94,814	47,407	7,655	73,214	52,266	19,156	69,021	53,332	6,630	59,700	48,829	1,919	51,086	45,222
Total	1,226	89,134	44,277	34,013	68,602	36,706	65,583	60,503	34,696	33,931	47,345	27,360	14,869	34,987	20,985
Counties															
Under 10	–	–	–	1,024	39,815	3,839	1,979	36,850	4,278	934	32,524	4,317	294	19,842	3,303
10 – 14	–	–	–	2,188	40,378	6,346	5,060	36,003	6,955	3,142	30,409	6,657	1,819	22,703	5,976
15 – 19	–	–	–	1,338	45,906	10,155	3,346	42,464	11,475	2,534	35,902	11,118	1,644	25,627	9,633
20 – 24	307	83,708	43,454	1,919	55,731	21,698	5,014	51,291	22,195	3,305	40,512	19,455	1,739	30,541	16,665
25 – 29	607	92,882	47,637	2,343	71,896	35,282	4,447	57,390	30,607	2,636	44,665	26,515	1,140	33,648	22,640
30 – 34	35	96,634	55,881	4,065	70,185	43,890	4,863	59,242	38,307	1,949	48,349	33,841	556	37,664	29,058
35 & Over	1	115,553	85,914	2,469	68,031	49,289	6,051	66,356	51,189	1,842	58,322	47,712	469	44,823	39,406
Total	950	90,079	46,629	15,346	59,899	29,702	30,760	51,989	26,836	16,342	41,010	20,876	7,661	29,069	15,286
Cities															
Under 10	–	–	–	125	36,292	3,448	314	32,942	3,880	154	27,210	3,561	70	16,419	2,725
10 – 14	–	–	–	354	37,395	5,642	809	32,021	6,156	480	27,757	6,202	277	19,661	5,142
15 – 19	–	–	–	220	40,900	9,192	532	40,487	11,049	358	31,482	9,723	272	22,787	8,795
20 – 24	–	–	–	232	51,227	18,510	649	49,273	20,740	445	36,504	17,514	262	25,845	14,273
25 – 29	–	–	–	229	59,386	27,433	655	54,091	28,695	424	40,020	24,305	229	28,748	19,884
30 – 34	–	–	–	775	62,730	39,298	870	55,498	35,778	409	43,532	30,928	182	31,214	25,074
35 & Over	–	–	–	524	64,033	46,529	1,241	58,865	45,521	408	46,035	38,387	139	35,251	32,122
Total	–	–	–	2,459	54,667	28,412	5,070	48,625	26,026	2,678	36,812	19,946	1,431	25,667	14,905
Towns															
Under 10	–	–	–	301	33,887	3,241	798	29,883	3,554	501	26,929	3,520	132	17,496	2,587
10 – 14	–	–	–	528	41,479	6,693	1,400	35,686	6,966	1,026	27,831	6,043	526	21,453	5,463
15 – 19	–	–	–	427	44,329	10,156	1,099	41,275	11,176	873	33,719	10,358	461	25,126	9,240
20 – 24	–	–	–	492	54,819	19,840	1,363	50,627	21,748	1,034	40,134	19,040	498	31,262	16,728
25 – 29	–	–	–	435	62,455	29,568	1,142	57,663	30,671	793	44,356	26,077	332	33,445	21,562
30 – 34	–	–	–	1,194	72,831	45,565	1,207	61,288	39,442	653	47,866	33,194	223	35,110	26,580
35 & Over	–	–	–	1,112	78,593	57,296	1,882	69,576	54,020	600	54,692	44,318	171	39,889	34,077
Total	–	–	–	4,489	62,269	33,323	8,891	51,618	26,860	5,480	38,728	19,277	2,343	28,382	14,818

SERVICE RETIREES — ERS

CONTINUED

Years of Service	Nearest Age														
	Under 55			55 – 64			65 – 74			75 – 84			85 & Over		
	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen
Villages															
Under 10	–	–	–	95	34,265	3,345	221	32,428	3,770	134	25,723	3,419	43	16,294	2,371
10 – 14	–	–	–	184	36,971	5,534	412	34,063	6,592	326	28,422	6,133	176	20,358	5,191
15 – 19	–	–	–	118	49,286	11,300	342	43,175	11,787	252	32,937	10,221	174	23,275	8,788
20 – 24	–	–	–	150	55,170	20,058	406	54,033	23,036	280	41,981	20,037	163	26,163	14,283
25 – 29	–	–	–	108	63,401	28,964	313	58,193	30,966	261	43,788	25,883	116	28,143	18,682
30 – 34	–	–	–	363	71,048	44,480	397	56,318	36,186	208	45,692	31,956	75	32,960	25,577
35 & Over	–	–	–	248	73,217	53,157	521	65,893	51,072	205	52,477	42,984	61	37,959	34,158
Total	–	–	–	1,266	59,198	30,123	2,612	50,845	25,880	1,666	38,690	19,723	808	25,557	13,666
Miscellaneous															
Under 10	–	–	–	862	49,786	\$4,781	1,569	46,610	5,309	664	37,063	4,821	142	25,644	3,887
10 – 14	–	–	–	1,634	50,697	7,967	3,284	45,790	8,763	1,784	37,167	8,079	860	26,469	6,721
15 – 19	–	–	–	1,304	59,247	13,066	2,479	52,794	14,218	1,466	41,703	12,712	631	28,659	10,508
20 – 24	–	–	–	1,450	66,190	23,502	3,533	60,138	25,416	1,829	49,911	23,174	720	33,755	17,971
25 – 29	–	–	–	1,024	70,678	32,634	2,944	67,613	35,541	1,417	54,359	31,457	532	39,363	25,803
30 – 34	–	–	–	2,886	86,679	54,120	2,959	74,779	47,582	1,125	60,527	41,480	387	44,182	33,611
35 & Over	–	–	–	1,630	82,898	59,593	3,347	77,985	60,064	1,267	70,715	57,038	374	55,246	47,503
Total	–	–	–	10,790	70,124	32,901	20,115	62,052	30,257	9,552	50,047	25,350	3,646	34,968	19,309
School Districts															
Under 10	–	–	–	1,415	24,475	2,374	2,910	22,099	2,613	1,653	18,733	2,471	654	11,027	1,819
10 – 14	–	–	–	2,264	29,525	4,728	5,285	27,759	5,398	4,264	22,635	4,909	2,607	15,422	4,064
15 – 19	–	–	–	1,794	34,170	7,885	4,576	31,951	8,687	3,418	27,211	8,427	2,222	17,225	6,624
20 – 24	–	–	–	2,095	41,971	15,774	6,805	39,469	17,015	4,249	31,610	15,208	2,453	20,075	10,983
25 – 29	–	–	–	1,312	47,849	22,464	4,902	44,028	23,583	3,165	33,134	19,826	1,643	22,498	15,207
30 – 34	–	–	–	1,791	59,466	37,040	3,048	48,678	31,249	1,832	37,230	25,765	700	27,025	20,576
35 & Over	–	–	–	977	64,477	46,810	1,991	55,106	42,285	1,034	43,012	34,870	397	31,960	28,379
Total	–	–	–	11,648	41,465	17,411	29,517	37,257	16,489	19,615	29,179	13,482	10,676	19,062	9,751

SERVICE RETIREES — PFRS

This table shows the number (*Number*), average final average salary (*Avg FAS*), and average annual pension benefit prior to option selection, including any cost-of-living adjustment (*Avg Pen*), of surviving Police and Fire Retirement System service retirees on March 31, 2018. Groupings are based on years of service and age, with a breakdown by category of employer.

Years of Service	Nearest Age														
	Under 40			40 – 49			50 – 59			60 – 69			70 & Over		
	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen
State															
Under 10	–	–	–	–	–	–	5	45,103	6,120	4	48,385	22,899	10	23,611	4,630
10 – 14	–	–	–	–	–	–	19	49,610	9,707	26	38,538	8,016	28	18,582	4,526
15 – 19	–	–	–	–	–	–	11	80,202	25,314	12	51,261	15,854	18	30,732	12,661
20 – 24	–	–	–	119	130,984	69,070	446	111,040	59,310	309	73,507	40,556	857	34,284	25,619
25 – 29	–	–	–	9	134,528	79,311	469	132,431	81,384	278	98,681	60,660	374	50,311	35,974
30 – 34	–	–	–	–	–	–	296	141,189	95,874	409	121,828	83,100	411	66,928	49,455
35 & Over	–	–	–	–	–	–	10	134,288	90,077	165	131,439	91,481	225	79,822	62,732
Total	–	–	–	128	131,233	69,790	1,256	124,856	75,155	1,203	102,637	65,642	1,923	49,389	36,532
Counties															
Under 10	–	–	–	–	–	–	5	51,781	5,800	4	50,895	7,219	2	61,377	34,532
10 – 14	–	–	–	–	–	–	7	80,674	15,705	14	48,929	10,343	18	29,242	6,563
15 – 19	–	–	–	–	–	–	–	–	–	6	54,812	16,344	14	38,065	13,307
20 – 24	–	–	–	69	160,264	82,998	368	149,836	79,465	310	97,597	53,565	1,127	54,994	35,948
25 – 29	–	–	–	4	179,430	107,016	363	178,249	110,163	290	141,583	88,875	399	84,440	55,762
30 – 34	–	–	–	–	–	–	290	194,671	133,479	552	162,517	112,956	636	112,084	81,510
35 & Over	–	–	–	–	–	–	8	218,199	152,790	280	184,418	136,193	567	138,249	106,899
Total	–	–	–	73	161,315	84,314	1,041	171,823	104,997	1,456	146,894	98,308	2,763	89,223	63,550
Cities															
Under 10	–	–	–	–	–	–	13	38,444	4,418	7	35,191	5,008	9	47,177	8,996
10 – 14	–	–	–	–	–	–	22	46,938	9,497	78	33,121	7,276	72	18,767	4,388
15 – 19	–	–	–	–	–	–	17	54,953	15,533	47	49,571	15,471	37	23,071	8,179
20 – 24	–	–	–	358	99,322	50,492	1,509	91,728	47,176	1,325	65,333	35,499	1,649	37,544	25,570
25 – 29	–	–	–	15	112,962	62,119	587	104,166	60,897	803	91,846	55,145	814	50,457	33,651
30 – 34	–	–	–	–	–	–	200	122,700	81,403	814	101,989	67,723	995	63,347	46,233
35 & Over	–	–	–	–	–	–	10	95,229	58,816	395	103,722	72,606	746	77,798	61,046
Total	–	–	–	373	99,871	50,960	2,358	96,490	52,729	3,469	83,444	50,865	4,322	52,448	37,436
Towns															
Under 10	–	–	–	–	–	–	9	45,907	5,881	24	30,036	3,989	34	19,538	3,055
10 – 14	–	–	–	–	–	–	13	55,406	10,983	34	35,852	7,023	53	23,796	5,912
15 – 19	–	–	–	–	–	–	10	57,404	16,279	19	47,793	14,295	25	29,774	10,970
20 – 24	–	–	–	132	115,978	58,587	505	99,279	50,485	384	74,547	39,823	361	45,973	29,799
25 – 29	–	–	–	10	117,313	60,872	151	118,752	67,092	205	95,677	55,060	107	59,053	36,996
30 – 34	–	–	–	–	–	–	79	150,236	95,252	193	112,957	74,866	179	80,673	57,244
35 & Over	–	–	–	–	–	–	6	137,619	80,301	117	135,058	93,234	153	98,656	76,087
Total	–	–	–	142	116,072	58,748	773	106,687	56,910	976	90,871	53,835	912	60,438	40,894

SERVICE RETIREES — PFRS

CONTINUED

Years of Service	Nearest Age														
	Under 40			40 – 49			50 – 59			60 – 69			70 & Over		
	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen
Villages															
Under 10	–	–	–	–	–	–	14	32,773	3,978	40	27,172	3,113	35	11,960	1,551
10 – 14	–	–	–	–	–	–	15	46,918	9,204	47	31,861	6,480	65	20,127	5,090
15 – 19	–	–	–	–	–	–	7	52,705	14,919	27	40,689	12,291	38	25,605	9,962
20 – 24	–	–	–	128	103,625	52,193	463	91,788	46,423	357	67,955	36,045	408	42,631	28,097
25 – 29	–	–	–	4	120,007	60,003	158	126,191	69,277	138	91,361	50,212	152	51,342	32,496
30 – 34	–	–	–	–	–	–	55	163,418	101,890	144	127,945	81,899	157	73,117	51,243
35 & Over	–	–	–	–	–	–	1	91,768	47,394	108	143,684	98,616	130	99,135	76,386
Total	–	–	–	132	104,121	52,429	713	102,451	53,842	861	86,519	49,944	985	53,060	35,677
Miscellaneous															
Under 10	–	–	–	–	–	–	6	58,788	7,442	5	69,479	7,654	1	101,364	8,982
10 – 14	–	–	–	–	–	–	2	75,075	15,310	8	49,566	10,484	12	23,771	5,680
15 – 19	–	–	–	–	–	–	5	129,838	35,541	5	60,071	17,851	7	50,456	19,232
20 – 24	–	–	–	45	151,358	80,406	121	138,339	72,992	255	115,464	62,255	330	61,738	39,655
25 – 29	–	–	–	3	141,722	80,490	83	157,912	95,925	211	145,008	89,639	117	91,619	58,255
30 – 34	–	–	–	–	–	–	45	153,053	103,625	168	169,494	116,425	114	127,797	90,428
35 & Over	–	–	–	–	–	–	–	–	–	51	172,142	123,240	89	118,572	91,268
Total	–	–	–	48	150,755	80,411	262	144,600	82,862	703	139,884	86,550	670	85,007	57,531

DISABILITY RETIREES — ERS

This table shows the number (*Number*), average final average salary (*Avg FAS*), and average annual pension benefit prior to option selection, including any cost-of-living adjustment (*Avg Pen*), of surviving Employees' Retirement System disability retirees on March 31, 2018. Groupings are based on years of service and age, with a breakdown by category of employer.

Years of Service	Nearest Age														
	Under 55			55 – 64			65 – 74			75 – 84			85 & Over		
	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen
State															
Under 10	136	40,597	23,800	317	28,099	11,660	305	23,210	12,051	136	19,361	10,931	55	17,708	6,519
10 – 14	408	50,790	21,602	1,003	39,867	14,707	959	32,986	13,424	466	25,449	11,373	165	18,751	9,861
15 – 19	354	57,870	24,508	957	45,755	18,119	962	37,964	17,390	460	29,472	15,441	124	20,353	14,828
20 – 24	201	62,608	28,381	880	51,872	22,768	768	41,722	21,582	362	31,316	20,330	69	19,969	17,313
25 – 29	105	67,899	37,919	649	59,503	32,838	406	44,152	25,673	174	34,011	23,827	33	19,377	18,923
30 – 34	19	66,542	37,308	191	59,235	35,009	191	43,520	28,774	63	34,329	26,667	7	24,679	23,921
35 & Over	–	–	–	23	57,687	36,425	50	43,200	29,712	6	38,455	32,485	–	–	–
Total	1,223	55,362	25,447	4,020	47,161	21,060	3,641	37,263	18,472	1,667	28,613	16,359	453	19,386	12,827
Counties															
Under 10	42	59,405	35,869	62	33,263	15,938	63	26,495	13,371	34	19,060	10,081	15	16,904	8,717
10 – 14	222	57,756	27,815	377	44,970	18,199	355	32,369	12,217	183	24,876	10,250	62	16,990	8,563
15 – 19	195	67,900	34,212	384	49,361	21,315	344	39,291	17,304	159	28,942	14,607	46	20,499	13,176
20 – 24	117	77,666	40,959	358	62,488	31,292	256	42,526	22,337	81	35,507	24,336	21	24,023	19,846
25 – 29	43	88,637	56,636	233	65,852	36,901	136	46,244	27,324	36	32,895	25,269	9	22,941	20,704
30 – 34	4	51,273	23,279	53	66,883	39,712	57	52,725	35,805	11	36,653	28,708	1	36,981	28,069
35 & Over	–	–	–	6	73,506	50,635	11	58,706	40,468	–	–	–	–	–	–
Total	623	66,871	34,789	1,473	54,087	25,963	1,222	38,873	18,865	504	28,305	15,352	154	19,466	12,331
Cities															
Under 10	3	53,150	18,020	17	26,146	9,821	20	24,455	11,265	11	22,006	11,810	7	14,739	12,237
10 – 14	23	48,062	16,384	73	38,939	12,844	72	33,198	11,120	38	23,950	10,408	13	16,710	10,466
15 – 19	21	48,188	16,301	86	42,015	14,382	75	34,833	13,664	33	27,784	12,632	7	16,051	10,240
20 – 24	13	50,968	18,295	57	47,015	18,059	49	36,803	17,494	27	26,962	18,338	6	25,004	19,785
25 – 29	10	55,821	24,108	43	47,896	22,022	48	36,827	20,584	18	31,907	22,040	1	25,207	24,640
30 – 34	1	88,716	43,208	13	56,908	30,022	13	37,575	24,447	3	24,715	15,729	1	12,787	14,237
35 & Over	–	–	–	2	71,083	41,458	2	41,646	26,277	–	–	–	1	22,668	26,997
Total	71	50,512	18,244	291	43,030	16,464	279	34,533	15,292	130	26,504	14,472	36	17,874	13,277
Towns															
Under 10	14	36,087	13,188	14	29,414	12,039	17	28,159	14,650	8	17,428	8,380	7	12,908	7,711
10 – 14	50	48,133	16,512	106	42,831	14,225	80	34,680	13,588	44	26,571	11,676	19	16,926	8,225
15 – 19	46	53,873	18,593	129	47,499	16,596	95	38,414	15,352	37	31,747	13,780	7	23,915	10,928
20 – 24	48	63,165	23,358	104	56,650	21,931	78	41,273	22,062	30	32,704	22,595	10	25,475	22,172
25 – 29	13	70,412	30,699	75	57,865	26,707	43	47,744	27,518	20	35,777	25,770	–	–	–
30 – 34	4	64,892	32,771	29	65,821	37,181	23	47,009	30,908	8	29,636	25,974	1	23,018	23,021
35 & Over	–	–	–	4	69,834	43,234	4	57,321	38,927	1	30,632	22,022	–	–	–
Total	175	54,840	20,096	461	50,974	20,287	340	39,662	19,310	148	30,051	16,984	44	19,480	12,080

DISABILITY RETIREES — ERS

CONTINUED

Years of Service	Nearest Age														
	Under 55			55 – 64			65 – 74			75 – 84			85 & Over		
	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen
Villages															
Under 10	2	46,447	16,496	8	32,368	11,958	5	21,108	13,616	5	18,267	9,919	–	–	–
10 – 14	22	48,048	16,338	29	45,084	15,490	26	29,638	12,083	14	26,583	12,082	2	17,956	7,646
15 – 19	15	56,274	18,865	30	48,850	16,885	27	33,667	15,812	12	34,066	15,552	2	19,921	9,313
20 – 24	10	51,548	19,244	33	57,160	22,006	17	38,874	20,697	12	29,368	20,390	5	26,325	20,344
25 – 29	9	74,364	33,100	20	63,190	28,957	13	42,773	21,658	10	32,397	20,836	2	28,452	30,542
30 – 34	1	104,515	51,029	8	61,364	33,135	9	57,436	36,652	7	30,388	24,442	1	28,767	27,258
35 & Over	–	–	–	1	58,962	36,860	–	–	–	–	–	–	–	–	–
Total	59	55,650	20,623	129	52,185	20,610	97	36,278	18,273	60	29,357	17,158	12	24,421	18,665
Miscellaneous															
Under 10	10	39,794	13,884	47	34,647	13,980	28	26,637	11,656	20	23,950	10,476	10	20,883	8,096
10 – 14	68	45,406	15,673	215	46,649	15,173	199	41,631	13,321	70	30,299	11,992	22	20,825	9,688
15 – 19	60	54,414	18,500	202	50,896	17,423	211	42,249	15,479	64	32,801	14,261	8	24,558	12,934
20 – 24	40	62,310	22,528	174	54,803	20,506	96	47,188	19,592	29	31,675	16,105	8	22,382	17,298
25 – 29	29	66,773	29,224	114	56,545	25,684	54	48,094	26,854	14	42,604	31,344	3	31,949	24,158
30 – 34	6	51,661	26,817	44	60,621	32,512	21	60,534	37,405	9	44,960	33,441	3	36,739	31,280
35 & Over	–	–	–	1	48,296	29,336	6	46,356	34,974	1	28,043	21,912	–	–	–
Total	213	53,939	19,831	797	50,987	19,316	615	43,287	17,186	207	32,111	15,413	54	23,121	13,005
School Districts															
Under 10	6	23,197	8,723	35	22,598	8,640	45	18,265	7,850	45	15,951	6,760	23	14,864	7,821
10 – 14	88	39,560	13,533	359	31,074	9,935	335	28,382	8,978	187	22,453	7,850	55	14,013	6,235
15 – 19	47	45,496	15,335	276	36,813	12,317	334	32,945	11,556	118	26,894	10,753	41	14,503	9,153
20 – 24	39	43,594	16,088	197	41,886	15,702	109	33,973	15,177	67	26,524	14,193	5	26,128	17,286
25 – 29	20	59,478	25,985	100	48,882	21,990	62	37,390	19,381	25	27,043	18,585	6	23,587	17,312
30 – 34	5	58,445	29,352	32	53,135	28,236	24	45,065	27,114	2	39,505	25,633	–	–	–
35 & Over	–	–	–	4	56,230	34,158	3	51,776	33,188	1	22,658	19,281	–	–	–
Total	205	43,613	15,892	1,003	37,061	13,560	912	31,350	11,871	445	23,921	10,173	130	15,226	8,372

DISABILITY RETIREES — PFRS

This table shows the number (*Number*), average final average salary (*Avg FAS*), and average annual pension benefit prior to option selection, including any cost-of-living adjustment (*Avg Pen*), of surviving Police and Fire Retirement System disability retirees on March 31, 2018. Groupings are based on years of service and age, with a breakdown by category of employer.

Years of Service	Nearest Age														
	Under 40			40 – 49			50 – 59			60 – 69			70 & Over		
	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen
State															
Under 10	1	86,025	43,408	23	72,026	47,056	39	43,480	27,556	33	27,175	19,611	24	16,800	18,883
10 – 14	2	112,865	84,754	13	98,677	51,852	33	64,396	38,067	33	38,602	25,410	55	19,638	21,694
15 – 19	–	–	–	14	118,161	76,790	43	79,485	47,772	37	49,217	30,741	98	25,514	24,045
20 – 24	–	–	–	8	117,736	74,067	49	105,110	70,249	22	65,958	40,350	89	41,236	32,726
25 – 29	–	–	–	1	128,770	96,578	25	134,433	90,925	32	93,616	62,420	40	51,100	38,742
30 – 34	–	–	–	–	–	–	2	121,092	86,177	22	121,667	86,605	16	54,849	45,348
35 & Over	–	–	–	–	–	–	–	–	–	2	136,480	99,478	14	79,460	63,200
Total	3	103,918	70,972	59	96,005	59,670	191	83,728	53,784	181	62,918	42,058	336	34,785	29,986
Counties															
Under 10	1	89,295	66,971	20	98,332	64,171	23	59,170	35,862	21	44,042	35,453	31	21,833	31,805
10 – 14	7	132,074	80,870	35	123,143	84,445	77	96,395	66,222	61	50,290	39,375	104	32,451	32,392
15 – 19	–	–	–	49	135,601	92,654	90	113,562	80,953	80	62,595	49,476	191	46,618	41,594
20 – 24	–	–	–	12	163,805	108,111	132	136,927	93,057	82	95,345	70,716	253	62,090	51,564
25 – 29	–	–	–	–	–	–	58	154,701	108,986	44	126,148	89,417	76	70,458	56,315
30 – 34	–	–	–	–	–	–	9	185,988	139,535	25	136,898	100,139	31	103,674	79,227
35 & Over	–	–	–	–	–	–	–	–	–	4	154,645	116,613	22	126,143	97,511
Total	8	126,727	79,133	116	128,334	86,865	389	122,686	85,014	317	83,312	62,484	708	56,509	48,342
Cities															
Under 10	9	81,344	52,059	31	63,945	40,167	62	50,912	33,408	38	32,353	24,038	17	17,945	22,171
10 – 14	11	87,783	54,151	70	79,243	49,155	122	61,236	38,062	111	38,978	27,134	84	22,601	22,440
15 – 19	–	–	–	60	88,242	52,810	177	72,450	45,633	138	46,029	32,647	121	30,226	26,914
20 – 24	–	–	–	21	100,721	59,860	177	92,316	58,166	173	60,511	40,882	224	40,234	33,447
25 – 29	–	–	–	–	–	–	70	98,840	61,574	110	81,557	54,376	141	45,755	35,995
30 – 34	–	–	–	–	–	–	13	98,330	61,693	54	88,512	61,220	86	53,914	40,303
35 & Over	–	–	–	–	–	–	–	–	–	17	101,619	69,749	27	65,117	49,263
Total	20	84,886	53,210	182	82,082	50,064	621	77,275	48,630	641	59,056	40,524	700	39,599	32,689
Towns															
Under 10	3	93,183	63,511	17	74,897	50,805	26	56,037	35,072	18	37,311	24,692	6	18,617	22,490
10 – 14	2	122,125	77,167	28	95,049	59,205	43	64,543	40,239	42	45,833	29,704	34	26,738	24,539
15 – 19	–	–	–	24	101,967	66,862	45	86,555	56,772	30	49,402	35,689	47	34,689	30,977
20 – 24	–	–	–	11	118,826	78,905	62	104,993	71,033	67	69,594	47,999	49	49,631	39,703
25 – 29	–	–	–	2	138,462	103,846	21	116,933	71,703	34	89,366	62,630	15	61,480	48,133
30 – 34	–	–	–	–	–	–	4	139,846	81,650	16	125,373	87,559	11	80,454	57,596
35 & Over	–	–	–	–	–	–	–	–	–	–	–	–	4	128,010	98,314
Total	5	104,760	68,973	82	97,144	63,436	201	87,820	56,882	207	66,598	45,937	166	44,592	36,864

DISABILITY RETIREES — PFRS

CONTINUED

Years of Service	Nearest Age														
	Under 40			40 – 49			50 – 59			60 – 69			70 & Over		
	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen	Number	Avg FAS	Avg Pen
Villages															
Under 10	2	67,962	51,427	16	72,779	47,845	19	50,234	31,008	27	31,386	24,089	12	16,705	21,428
10 – 14	3	87,928	49,320	22	89,048	55,893	42	73,284	48,702	34	43,979	30,140	34	26,474	23,965
15 – 19	–	–	–	18	103,060	62,608	71	88,255	56,580	42	57,766	39,464	53	37,880	32,702
20 – 24	–	–	–	9	122,289	70,140	50	94,876	61,854	42	74,458	50,619	45	45,089	35,864
25 – 29	–	–	–	–	–	–	17	142,731	90,385	25	89,254	58,040	17	53,460	42,723
30 – 34	–	–	–	–	–	–	1	170,059	90,698	11	133,173	85,281	7	69,925	53,265
35 & Over	–	–	–	–	–	–	–	–	–	4	122,114	61,408	5	77,167	50,728
Total	5	79,942	50,163	65	93,526	57,744	200	88,194	56,859	185	65,302	43,748	173	40,008	33,363
Miscellaneous															
Under 10	2	105,363	65,372	13	82,935	57,190	15	62,910	39,974	14	45,583	31,823	6	54,442	47,985
10 – 14	–	–	–	31	114,506	80,200	29	101,068	70,208	26	62,954	41,421	8	41,563	29,745
15 – 19	–	–	–	17	130,201	84,357	19	123,490	86,295	38	75,121	53,331	28	50,613	41,675
20 – 24	–	–	–	8	133,671	71,571	40	142,376	97,935	67	105,032	75,005	28	75,686	58,782
25 – 29	–	–	–	–	–	–	7	152,724	99,121	39	135,511	97,132	12	87,220	65,578
30 – 34	–	–	–	–	–	–	–	–	–	9	152,695	111,067	4	137,104	101,913
35 & Over	–	–	–	–	–	–	–	–	–	2	140,507	106,101	4	114,739	92,121
Total	2	105,363	65,372	69	114,647	75,888	110	118,046	80,786	195	97,984	69,612	90	69,439	54,464

NEW OPTION SELECTIONS

This table shows the number (*Number*), and the total amount paid in annual benefits after option selection and any partial lump sum distribution* (*\$ Amount*), of new retirees during the given fiscal year. Groupings are based on option selected, with breakdowns by retirement system and member gender.

Options	2014		2015		2016		2017		2018	
	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount
ERS Females										
Single Life Allowance**	6,795	143,422,357	6,320	142,513,916	7,683	182,550,124	7,413	183,872,745	8,852	209,575,192
Cash Refund	20	473,751	19	561,834	19	685,299	7	234,374	16	580,262
Joint Allowance — Full	763	11,629,185	588	8,007,103	715	12,033,549	803	13,434,417	1,050	16,771,815
Joint Allowance — Half	128	3,073,482	124	3,115,553	137	3,495,837	131	3,357,590	147	4,065,239
Five Year Certain	112	2,345,998	123	2,979,134	136	3,039,451	109	2,729,206	142	3,612,207
Ten Year Certain	296	5,363,546	208	4,043,326	273	5,215,831	361	8,035,482	439	9,949,556
Pop-Up — Full	1,239	25,390,149	1,097	23,550,358	1,402	29,934,874	1,696	40,354,572	2,413	58,537,182
Pop-Up — Half	693	20,361,320	678	20,062,741	800	24,575,129	789	25,869,734	1,046	34,464,128
Other (Option 4)	590	17,789,997	559	18,418,160	687	23,740,784	660	22,628,793	776	28,321,409
Total	10,636	229,849,789	9,716	223,252,128	11,852	285,270,881	11,969	300,516,917	14,881	365,876,993
ERS Males										
Single Life Allowance**	3,328	96,281,163	2,997	88,942,511	3,613	113,480,787	3,397	108,315,670	4,416	135,424,027
Cash Refund	9	236,241	9	311,243	4	127,476	6	242,131	8	95,032
Joint Allowance — Full	1,738	46,047,124	1,475	40,833,756	1,778	54,076,972	1,742	54,862,090	2,300	71,932,738
Joint Allowance — Half	244	9,002,641	233	8,521,708	281	11,080,053	219	9,282,560	303	12,609,739
Five Year Certain	77	2,024,955	52	1,617,199	80	2,708,720	66	1,910,993	89	2,895,753
Ten Year Certain	193	4,696,445	172	4,932,061	207	7,085,157	206	5,973,927	321	10,313,589
Pop-Up — Full	1,724	50,437,559	1,651	51,382,784	2,074	66,784,431	2,452	83,670,111	3,237	113,230,443
Pop-Up — Half	624	23,815,933	624	24,050,864	736	29,476,086	741	31,599,049	894	41,086,014
Other (Option 4)	857	34,791,727	804	33,899,200	1,010	43,559,235	886	39,641,518	1,040	47,525,434
Total	8,794	267,333,792	8,017	254,491,330	9,783	328,378,921	9,715	335,498,055	12,608	435,112,773
PFRS Females										
Single Life Allowance**	65	4,294,738	64	4,451,492	62	4,622,315	85	6,071,215	75	5,769,780
Cash Refund	—	—	—	—	—	—	—	—	—	—
Joint Allowance — Full	4	196,548	1	146,116	2	117,042	4	288,938	5	329,517
Joint Allowance — Half	3	150,200	3	169,021	4	344,922	3	259,007	1	88,083
Five Year Certain	1	75,517	—	—	—	—	2	220,344	1	89,883
Ten Year Certain	5	248,602	4	312,565	1	88,018	6	406,985	6	395,390
Pop-Up — Full	10	500,175	10	434,592	10	625,473	13	878,840	12	629,577
Pop-Up — Half	5	214,516	11	624,942	5	321,668	9	654,009	8	416,178
Other (Option 4)	4	388,118	2	162,922	8	629,196	8	714,073	1	115,472
Total	97	6,068,418	95	6,301,653	92	6,748,638	130	9,493,415	109	7,833,885
PFRS Males										
Single Life Allowance**	409	26,754,924	354	24,590,267	320	22,112,233	499	35,551,463	433	31,209,987
Cash Refund	2	239,734	1	87,958	—	—	—	—	—	—
Joint Allowance — Full	156	9,699,880	136	8,872,941	105	6,873,667	232	16,971,860	272	20,499,283
Joint Allowance — Half	52	4,013,396	46	3,585,725	45	3,825,860	84	7,826,713	46	3,635,453
Five Year Certain	6	338,162	3	372,785	3	202,398	6	387,703	9	514,073
Ten Year Certain	36	2,689,781	24	1,530,830	24	1,817,821	39	2,722,041	33	2,622,059
Pop-Up — Full	226	12,069,140	157	9,271,264	146	8,746,372	399	25,316,535	468	33,096,113
Pop-Up — Half	108	7,075,973	86	5,813,128	86	6,921,576	185	15,082,654	146	11,290,976
Other (Option 4)	143	11,641,329	124	9,765,795	154	12,564,460	222	19,064,090	229	19,787,409
Total	1,138	74,522,324	931	63,890,698	883	63,064,391	1,666	122,923,063	1,636	122,655,356

* In 2018, seven ERS retirees selected partial lump sums, which totaled \$638,756, and 162 PFRS retirees selected partial lump sums, which totaled \$29,561,986.

** Includes Single Life Allowance figures and Option ½.

OPTION SELECTION — TOTAL PAYMENTS

This table shows the number (*Number*), and the total amount paid in annual benefits after option selection and any partial lump sum distribution* (*\$ Amount*), of surviving retirees on March 31 of the given year. Groupings are based on option selected, with breakdowns by retirement system and member gender.

Options	2014		2015		2016		2017		2018	
	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount
ERS Females										
Single Life Allowance**	137,143	2,199,495,808	139,436	2,301,148,172	142,738	2,439,709,589	145,621	2,576,016,448	150,277	2,739,135,518
Cash Refund	7,611	93,452,340	7,116	90,210,442	6,590	87,017,005	6,107	83,233,943	5,714	80,322,054
Joint Allowance — Full	8,947	103,313,062	9,255	108,355,697	9,680	117,472,217	10,183	127,899,065	10,913	141,398,327
Joint Allowance — Half	2,718	48,593,182	2,722	50,311,548	2,742	52,664,945	2,769	54,789,535	2,807	57,380,922
Five Year Certain	4,041	62,599,394	3,999	64,218,334	3,948	65,278,096	3,886	66,210,411	3,862	67,906,786
Ten Year Certain	6,687	89,939,370	6,656	91,970,160	6,654	94,602,238	6,743	99,655,096	6,940	107,287,519
Pop-Up — Full	15,285	258,136,457	16,151	279,589,915	17,261	306,609,960	18,662	343,869,918	20,800	399,772,716
Pop-Up — Half	12,955	285,932,247	13,367	302,832,057	13,851	323,518,033	14,316	345,395,206	15,051	375,601,607
Other (Option 4)	5,218	142,916,829	5,702	160,017,110	6,304	182,213,350	6,861	202,888,985	7,533	229,338,653
Total	200,605	3,284,378,690	204,404	3,448,653,436	209,768	3,669,085,432	215,148	3,899,958,607	223,897	4,198,144,103
ERS Males										
Single Life Allowance**	60,859	1,511,993,719	61,693	1,564,822,972	62,964	1,639,051,171	64,058	1,707,602,045	66,276	1,803,709,752
Cash Refund	4,667	97,809,143	4,357	93,603,693	4,011	88,404,869	3,696	83,476,833	3,441	78,804,268
Joint Allowance — Full	29,291	699,932,285	29,636	721,763,534	30,276	756,073,178	30,795	788,151,000	31,961	839,107,754
Joint Allowance — Half	8,743	271,788,909	8,571	272,110,655	8,419	274,645,486	8,229	274,227,687	8,135	277,712,944
Five Year Certain	1,958	45,763,720	1,917	45,841,030	1,871	46,354,166	1,842	46,702,985	1,830	47,617,006
Ten Year Certain	4,589	100,426,526	4,552	102,446,498	4,564	106,314,614	4,567	108,728,127	4,683	115,864,288
Pop-Up — Full	23,761	625,938,791	24,925	668,777,757	26,450	725,671,552	28,304	798,701,377	30,932	900,951,147
Pop-Up — Half	13,309	445,943,369	13,537	460,462,999	13,892	481,396,053	14,241	504,090,575	14,760	536,626,853
Other (Option 4)	8,336	321,539,065	8,969	351,108,729	9,814	390,307,216	10,541	426,193,527	11,411	469,149,907
Total	155,513	4,121,135,528	158,157	4,280,937,867	162,261	4,508,218,305	166,273	4,737,874,156	173,429	5,069,543,917
PFRS Females										
Single Life Allowance**	803	41,227,459	863	45,682,000	919	50,244,911	998	56,133,650	1,071	62,012,419
Cash Refund	5	295,261	5	295,261	5	295,261	5	295,261	5	295,261
Joint Allowance — Full	47	1,887,708	48	2,076,810	47	2,071,752	51	2,360,691	55	2,661,736
Joint Allowance — Half	20	1,034,320	23	1,203,342	27	1,548,818	30	1,807,825	31	1,904,049
Five Year Certain	14	723,914	14	723,914	14	723,914	16	944,258	17	1,034,142
Ten Year Certain	85	4,551,912	89	4,905,198	90	4,995,739	95	5,349,217	101	5,744,608
Pop-Up — Full	133	6,586,394	143	7,029,555	152	7,598,667	165	8,484,706	176	9,100,567
Pop-Up — Half	74	3,594,146	85	4,223,475	90	4,566,055	98	5,205,253	105	5,615,901
Other (Option 4)	29	2,050,867	31	2,216,352	38	2,782,268	46	3,514,927	47	3,642,814
Total	1,210	61,951,983	1,301	68,355,906	1,382	74,827,385	1,504	84,095,788	1,608	92,011,497
PFRS Males										
Single Life Allowance**	15,209	566,215,055	15,154	582,235,830	15,042	594,625,064	15,088	620,012,783	15,090	641,656,655
Cash Refund	1,521	49,735,195	1,465	48,293,210	1,396	46,766,372	1,349	45,479,028	1,271	43,185,558
Joint Allowance — Full	2,929	134,264,050	3,021	141,254,474	3,084	146,707,445	3,258	161,342,953	3,459	179,355,572
Joint Allowance — Half	1,392	72,447,011	1,406	75,063,474	1,422	77,666,165	1,456	83,747,797	1,461	86,401,483
Five Year Certain	368	13,765,390	362	13,971,786	354	13,899,664	345	13,749,301	345	13,967,834
Ten Year Certain	1,407	52,696,182	1,396	53,234,819	1,375	53,781,392	1,375	55,505,892	1,371	57,290,017
Pop-Up — Full	3,133	141,182,490	3,260	149,724,858	3,374	157,327,923	3,733	181,480,456	4,159	214,127,077
Pop-Up — Half	2,587	150,482,065	2,634	154,828,074	2,682	160,406,683	2,821	173,548,925	2,920	183,945,752
Other (Option 4)	1,404	106,245,733	1,516	115,219,264	1,662	127,363,319	1,870	145,785,609	2,085	165,413,074
Total	29,950	1,287,033,170	30,214	1,333,825,789	30,391	1,378,544,027	31,295	1,480,652,744	32,161	1,585,343,023

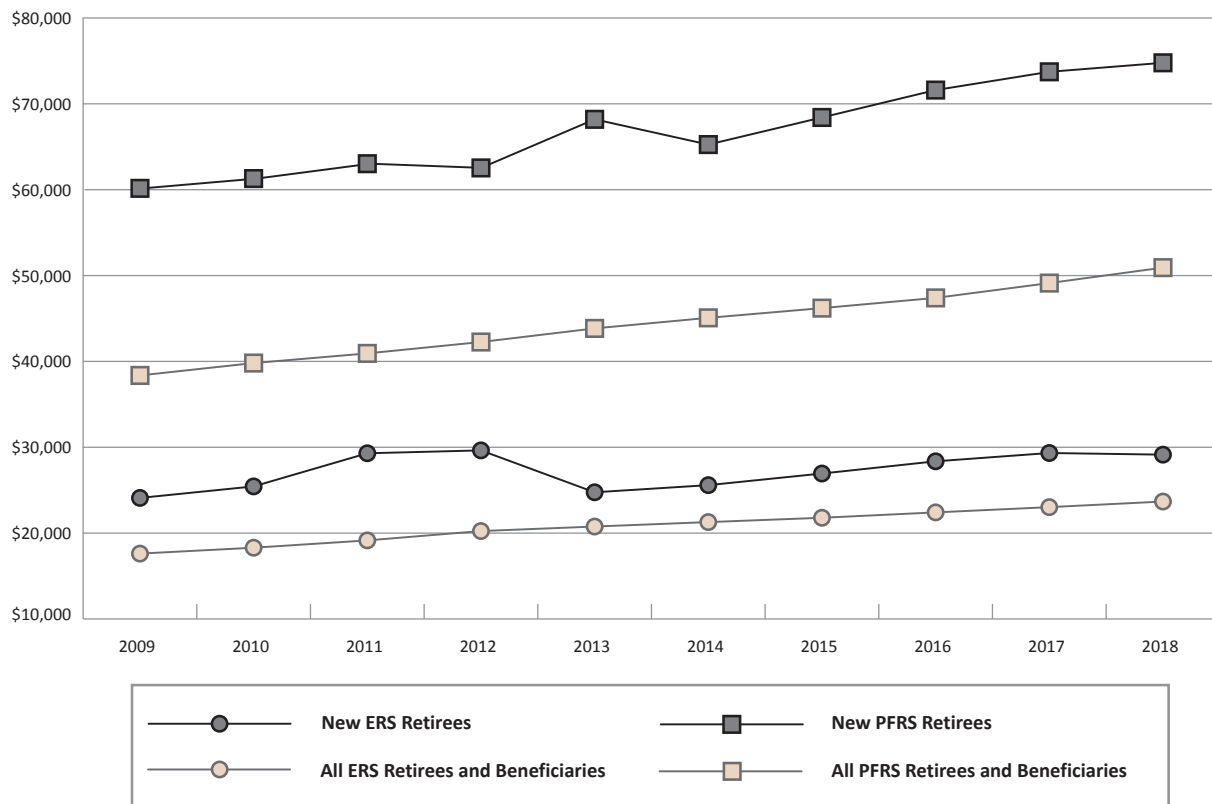
* In the four years since this program began, 12 ERS retirees have selected partial lump sums, which totaled approximately \$1,399,026. In the 10 years since this program began, 1,377 PFRS retirees have selected partial lump sums, which totaled \$170,678,570.

** Includes Single Life Allowance figures and Option ½.

AVERAGE PENSION BENEFITS PAID DURING YEAR SHOWN

This table shows the average annual benefit payments to all retirees and beneficiaries receiving benefits during the year compared with average annual benefit payments to new retirees during the year. The benefit consists of actual payments — after option selection and any partial lump sum distribution, plus any cost-of-living adjustment. A breakdown is provided by retirement system. The marked line graph (below) represents these pension benefits over the past 10 years.

Year	ERS		PFRS	
	All Retirees & Beneficiaries	New Retirees	All Retirees & Beneficiaries	New Retirees
2009	\$ 17,615	\$ 24,100	\$ 38,367	\$ 60,158
2010	18,300	25,441	39,808	61,295
2011	19,151	29,300	40,932	63,026
2012	20,241	29,636	42,259	62,535
2013	20,766	24,756	43,844	68,197
2014	21,285	25,588	45,074	65,256
2015	21,788	26,941	46,207	68,414
2016	22,415	28,364	47,397	71,603
2017	23,026	29,331	49,123	73,729
2018	23,680	29,139	50,922	74,779



AVERAGE BENEFIT PAY TYPES

NEW BENEFITS: ERS

This table shows the number of retirements granted (*Number*), the average monthly retirement allowance prior to option selection or any partial lump sum distribution (*Monthly Allowance*), and average final average salary (*Average FAS*) of members retiring during the fiscal year ending March 31, 2018. Groupings are based on years of service, with a breakdown by retirement type.

Years of Service	Number	Monthly Allowance	Average FAS
Service Retirements			
Under 5	18	\$ 47	\$ 10,666
5 – 9	1,800	345	37,197
10 – 14	4,104	693	46,270
15 – 19	3,172	1,069	50,209
20 – 24	3,991	2,039	59,286
25 – 29	4,017	3,033	71,498
30 – 34	5,954	4,047	78,809
35 – 39	2,843	4,628	80,234
40 & Over	844	5,958	89,635
Total	26,743	\$ 2,597	\$ \$64,058
Ordinary Disability Retirements			
Under 5	2	\$ 682	\$ 24,749
5 – 9	15	1,352	52,935
10 – 14	183	1,290	52,032
15 – 19	212	1,465	55,152
20 – 24	122	1,948	64,552
25 – 29	95	2,283	61,554
30 – 34	41	2,786	65,040
35 – 39	6	3,345	69,348
40 & Over	1	3,771	60,338
Total	677	\$ 1,715	\$ 57,494
Performance of Duty Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	4	4,036	64,968
10 – 14	15	5,394	87,850
15 – 19	20	5,651	90,814
20 – 24	11	5,684	93,222
25 – 29	10	6,681	107,070
30 – 34	5	6,482	104,017
35 – 39	2	8,235	133,464
40 & Over	–	–	–
Total	67	\$ 5,795	\$ 93,687
Accidental Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	–	–	–
10 – 14	–	–	–
15 – 19	2	3,259	52,149
20 – 24	–	–	–
25 – 29	–	–	–
30 – 34	–	–	–
35 – 39	–	–	–
40 & Over	–	–	–
Total	2	\$ 3,259	\$ 52,149

AVERAGE BENEFIT PAY TYPES

CONTINUED

NEW BENEFITS: PFRS

This table shows the number of retirements granted (*Number*), the average monthly retirement allowance prior to option selection or any partial lump sum distribution (*Monthly Allowance*), and the average final average salary (*Average FAS*) of members retiring during the fiscal year ending March 31, 2018. Groupings are based on years of service, with a breakdown by retirement type.

Years of Service	Number	Monthly Allowance	Average FAS
Service Retirements			
Under 5	–	\$ –	\$ –
5 – 9	28	664	46,528
10 – 14	32	766	48,839
15 – 19	12	1,945	79,816
20 – 24	528	5,300	122,262
25 – 29	329	6,568	132,794
30 – 34	508	8,762	155,679
35 – 39	87	8,304	148,031
40 & Over	45	8,563	144,136
Total	1,569	\$ 6,746	\$ 134,172
Ordinary Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	–	–	–
10 – 14	3	2,856	102,838
15 – 19	2	3,379	120,587
20 – 24	2	3,752	107,503
25 – 29	–	–	–
30 – 34	1	7,558	170,059
35 – 39	–	–	–
40 & Over	–	–	–
Total	8	\$ 3,799	\$ 116,844
Performance of Duty Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	5	3,322	79,745
10 – 14	25	4,560	109,369
15 – 19	18	4,569	109,609
20 – 24	20	5,392	128,523
25 – 29	10	4,813	115,407
30 – 34	5	5,326	125,981
35 – 39	3	5,240	125,783
40 & Over	–	–	–
Total	86	\$ 4,781	\$ 114,392
Accidental Disability Retirements			
Under 5	2	\$ 4,545	\$ 72,730
5 – 9	9	5,831	93,311
10 – 14	16	7,731	125,873
15 – 19	18	7,741	123,714
20 – 24	20	8,877	146,167
25 – 29	12	8,006	129,212
30 – 34	4	8,055	128,883
35 – 39	1	8,717	139,472
40 & Over	–	–	–
Total	82	\$ 7,794	\$ 126,280

NEW BENEFITS — SERVICE RETIREMENTS BY AGE AND SERVICE

This table shows the number of retirements granted (*Number*), the average annual retirement allowance prior to option selection or any partial lump sum distribution (*Allowance*), and the average allowance as a percentage of the average final average salary (%) of new service retirees during the fiscal year ending March 31, 2018. Groupings are based on years of service and age at retirement, within each retirement system.

Years of Service	Age at Retirement											
	50 – 59			60 – 64			65 – 69			70 & Over		
	Number	Allowance	%	Number	Allowance	%	Number	Allowance	%	Number	Allowance	%
ERS												
Under 5	–	\$ –	–	–	\$ –	–	3	\$ 665	5	15	\$ 566	6
5 – 9	624	3,348	9	532	4,430	11	445	4,827	12	199	4,360	13
10 – 14	1,292	6,366	14	1,285	8,810	19	1,068	9,687	20	459	9,308	20
15 – 19	856	10,361	20	1,108	13,214	27	816	14,571	28	392	13,532	28
20 – 24	867	21,024	34	1,572	24,972	42	1,099	25,809	43	453	26,127	43
25 – 29	1,305	37,770	46	1,565	35,581	52	797	36,355	54	350	35,076	54
30 – 34	2,873	48,689	61	2,070	49,399	62	720	46,127	62	291	47,470	63
35 – 39	1,318	52,243	69	1,001	57,753	70	363	61,039	71	161	56,291	71
40 & Over	30	56,450	74	327	61,795	77	270	74,560	80	217	84,423	85
Total	9,165	\$ 32,421	44	9,460	\$ 32,086	45	5,581	\$ 28,171	42	2,537	\$ 29,863	43

Years of Service	Age at Retirement											
	40 – 49			50 – 54			55 – 59			60 & Over		
	Number	Allowance	%	Number	Allowance	%	Number	Allowance	%	Number	Allowance	%
PFRS												
Under 5	–	\$ –	–	–	\$ –	–	–	\$ –	–	–	\$ –	–
5 – 9	–	–	–	–	–	–	22	5,237	11	6	18,024	21
10 – 14	–	–	–	–	–	–	24	9,826	18	8	7,324	19
15 – 19	–	–	–	–	–	–	8	24,478	29	4	21,079	30
20 – 24	275	62,675	51	161	67,577	53	65	59,115	51	27	60,233	51
25 – 29	26	74,178	57	179	83,088	59	97	75,857	60	27	65,712	57
30 – 34	–	–	–	101	109,817	67	291	105,712	67	116	99,653	68
35 – 39	–	–	–	–	–	–	17	96,445	64	70	100,432	67
40 & Over	–	–	–	–	–	–	1	47,394	52	44	104,018	71
Total	301	\$ 63,669	52	441	\$ 83,547	59	525	\$ 84,184	58	302	\$ 88,802	63

NEW BENEFITS — ACCIDENTAL AND ORDINARY DEATH

ACCIDENTAL DEATH BENEFITS

During the fiscal year ending March 31, 2018, the Employees' Retirement System approved two accidental death benefits, which averaged \$22,229 annually. The Police and Fire Retirement System approved four accidental death benefits, which averaged \$67,336 annually.

ORDINARY DEATH BENEFITS

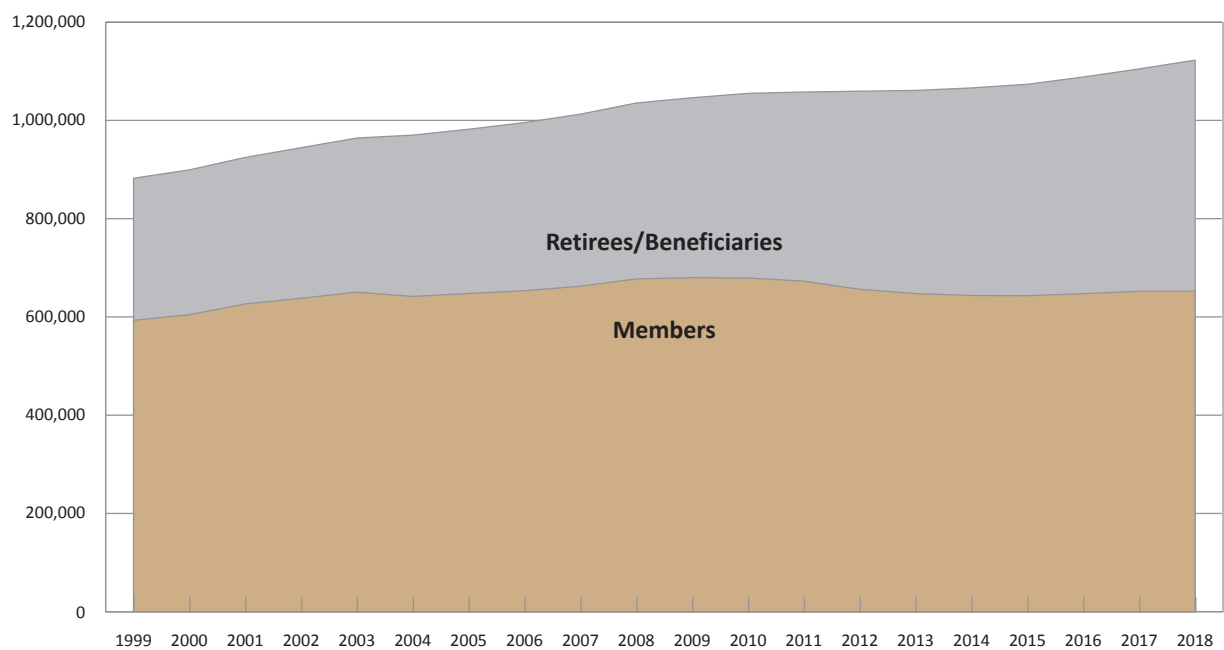
This table shows the number of retirements granted (*Number*), the average benefit paid (*Average Benefit*), and the average benefit paid as a percentage of average final average salary (*Percentage of Salary*) of new ordinary death beneficiaries during the fiscal year ending March 31, 2018. Groupings are based on years of service, with a breakdown by retirement system.

Years of Service	ERS			PFRS		
	Number	Average Benefit	Percentage of Salary	Number	Average Benefit	Percentage of Salary
Under 5	95	\$ 72,271	185.2	–	\$ –	–
5 – 9	120	137,112	275.0	4	280,000	300.5
10 – 14	221	115,672	235.4	8	347,063	262.4
15 – 19	140	140,569	246.3	4	293,250	300.6
20 – 24	102	166,269	261.2	5	855,097	626.0
25 – 29	77	204,395	277.0	–	–	–
30 – 34	52	216,067	289.2	2	1,158,235	872.8
35 – 39	15	277,632	302.6	–	–	–
40 & Over	6	277,931	366.3	–	–	–
Total	828	\$ 142,908	249.8	23	\$ 507,020	407.8

COMBINED SYSTEM PARTICIPANTS

This table shows participant counts for ERS and PFRS combined. Members represent those participants not currently collecting a benefit, while Retirees/Beneficiaries represent those currently collecting a benefit. The total participants column represents the sum of the member and retiree/beneficiary counts. The percentage changed column shows the percentage change increase or decrease in counts calculated on a year-over-year basis. The stacked line graph (below) represents these counts over the prior 20 years.

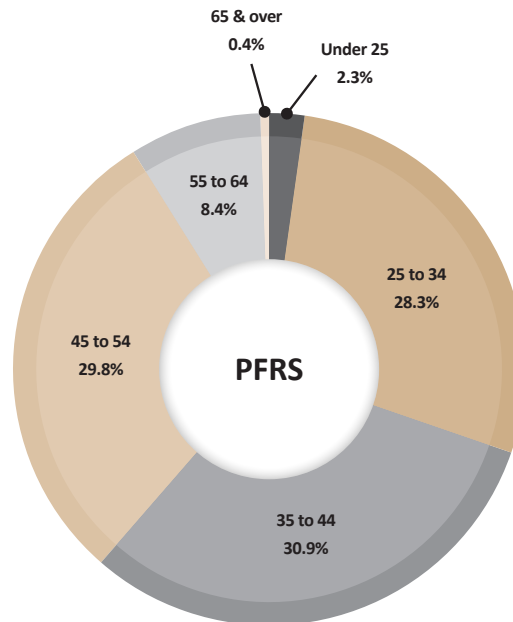
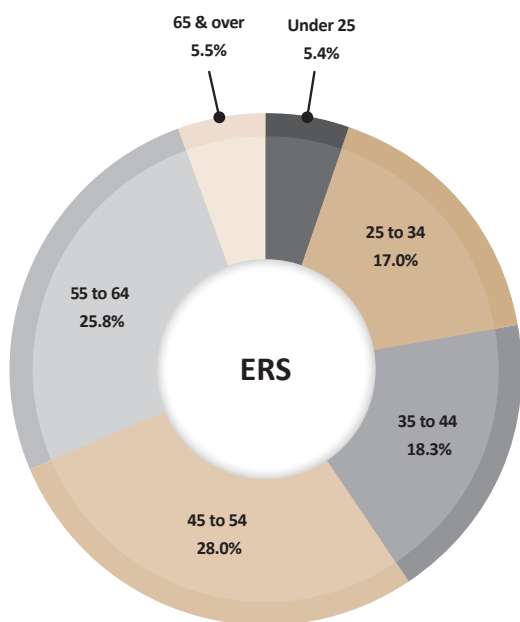
Fiscal Year	Members	Percentage Changed	Retirees/ Beneficiaries	Percentage Changed	Total Participants	Percentage Changed
1999	593,188	2	289,046	2	882,234	2
2000	604,479	2	294,835	2	899,314	2
2001	626,565	4	298,078	1	924,643	3
2002	637,896	2	306,604	3	944,500	2
2003	650,543	2	313,597	2	964,140	2
2004	641,721	(1)	328,357	5	970,078	1
2005	647,758	1	334,251	2	982,009	1
2006	653,291	1	342,245	2	995,536	1
2007	662,633	1	350,066	2	1,012,699	2
2008	677,321	2	358,109	2	1,035,430	2
2009	679,908	0	366,178	2	1,046,086	1
2010	679,217	0	375,803	3	1,055,020	1
2011	672,723	(1)	385,031	2	1,057,754	0
2012	656,224	(2)	403,174	5	1,059,398	0
2013	647,574	(1)	413,436	3	1,061,010	0
2014	643,659	(1)	422,405	2	1,066,064	0
2015	643,178	0	430,308	2	1,073,486	1
2016	647,399	1	440,943	2	1,088,342	1
2017	652,324	1	452,455	3	1,104,779	2
2018	652,030	0	470,596	4	1,122,626	2



MEMBERSHIP BY AGE AND YEARS OF SERVICE

This table shows membership counts (*Number*) and percentage of the system total membership count (*Percentage*) as of the fiscal year ending March 31, 2018. Groupings are based on age and years of service, with a breakdown by retirement system.

Age	Years of Service											
	Total		0 – 4		5 – 9		10 – 19		20 – 29		30 & Over	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
ERS												
Under 25	33,534	5.4	33,381	5.4	153	–	–	–	–	–	–	–
25 – 34	104,650	17.0	78,765	12.8	19,219	3.1	6,666	1.1	–	–	–	–
35 – 44	113,049	18.3	43,904	7.1	24,855	4.0	41,522	6.7	2,768	0.4	–	–
45 – 54	172,807	28.0	39,206	6.4	29,809	4.8	60,403	9.8	35,179	5.7	8,210	1.3
55 – 64	159,214	25.8	24,120	3.9	22,504	3.6	55,338	9.0	36,258	5.9	20,994	3.4
65 & Over	33,652	5.5	5,089	0.8	5,051	0.8	11,572	1.9	7,187	1.2	4,753	0.8
Total	616,906	100.0	224,465	36.4	101,591	16.5	175,501	28.4	81,392	13.2	33,957	5.5
PFRS												
Under 25	791	2.3	788	2.2	3	–	–	–	–	–	–	–
25 – 34	9,929	28.3	6,364	18.1	2,527	7.2	1,038	3.0	–	–	–	–
35 – 44	10,864	30.9	1,399	4.0	1,643	4.7	7,144	20.3	678	1.9	–	–
45 – 54	10,467	29.8	318	0.9	620	1.8	3,391	9.7	5,471	15.6	667	1.9
55 – 64	2,948	8.4	87	0.2	209	0.6	291	0.8	830	2.4	1,531	4.4
65 & Over	125	0.4	22	0.1	22	0.1	18	0.1	6	–	57	0.2
Total	35,124	100.0	8,978	25.6	5,024	14.3	11,882	33.8	6,985	19.9	2,255	6.4



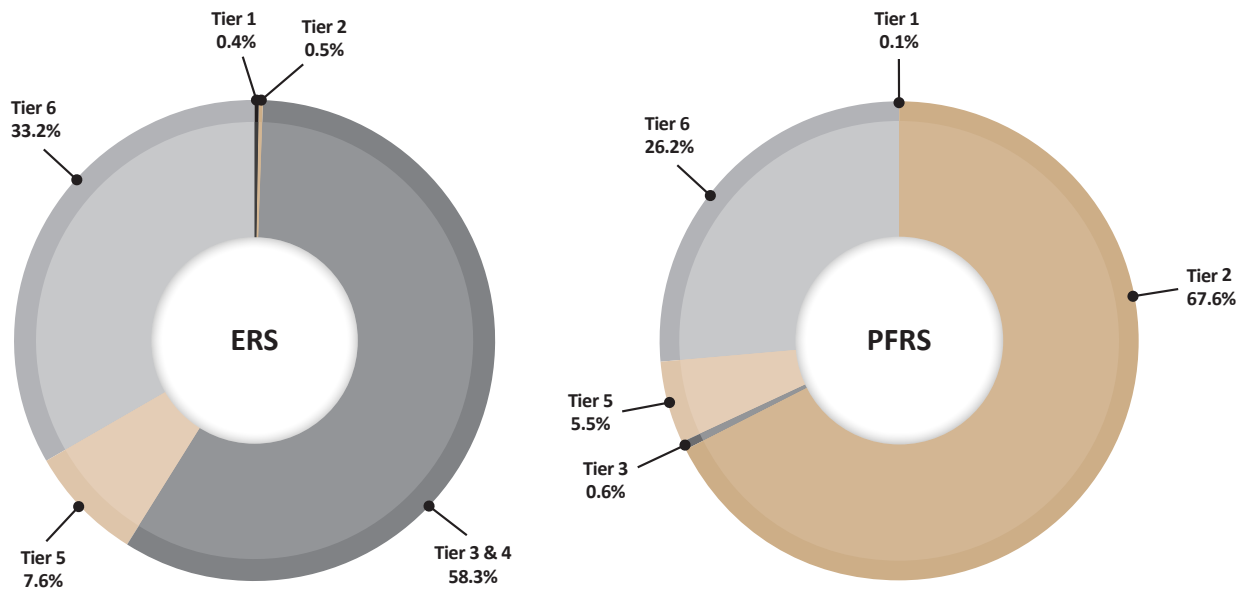
Note: Percentages may not sum to 100% due to rounding.

MEMBERSHIP BY TIER

This table shows membership counts (*Number*) and percentage of the system total membership count (*Percentage*) as of the fiscal year ending March 31, 2018. Groupings are based on tier, with a breakdown by retirement system.

	ERS		PFRS		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Tier 1	2,313	0.4	40	0.1	2,353	0.4
Tier 2	2,817	0.5	23,733	67.6	26,550	4.1
Tiers 3 & 4*	359,712	58.3	222	0.6	359,934	55.2
Tier 5	47,044	7.6	1,919	5.5	48,963	7.5
Tier 6	205,020	33.2	9,210	26.2	214,230	32.9
Total	616,906	100.0	35,124	100.0	652,030	100.0

* There is no Tier 4 in the Police and Fire Retirement System.



Note: Percentages may not sum to 100% due to rounding.

MEMBERSHIP BY STATUS

This table shows membership counts by status — active or inactive — as of the fiscal year ending March 31, 2018, with a breakdown by retirement system. Active status means the member was reported on payroll at the fiscal year end. Inactive status means the member was not reported on payroll (including pending retirement and pending deaths) at the fiscal year end. The sum of these two statuses represent the total membership count for the system.

	ERS			PFRS		
	Active	Inactive	Total	Active	Inactive	Total
2009	530,023	113,677	643,700	33,052	3,156	36,208
2010	529,466	114,409	643,875	32,449	2,893	35,342
2011	513,092	124,829	637,921	31,659	3,143	34,802
2012	505,575	116,532	622,107	31,024	3,093	34,117
2013	498,266	115,664	613,930	30,780	2,864	33,644
2014	493,209	116,356	609,565	31,218	2,876	34,094
2015	491,558	117,079	608,637	31,372	3,169	34,541
2016	494,411	117,883	612,294	31,720	3,385	35,105
2017	496,441	120,702	617,143	32,332	2,849	35,181
2018	500,945	115,961	616,906	32,470	2,654	35,124

NUMBER OF EMPLOYERS

As of March 31, 2018.

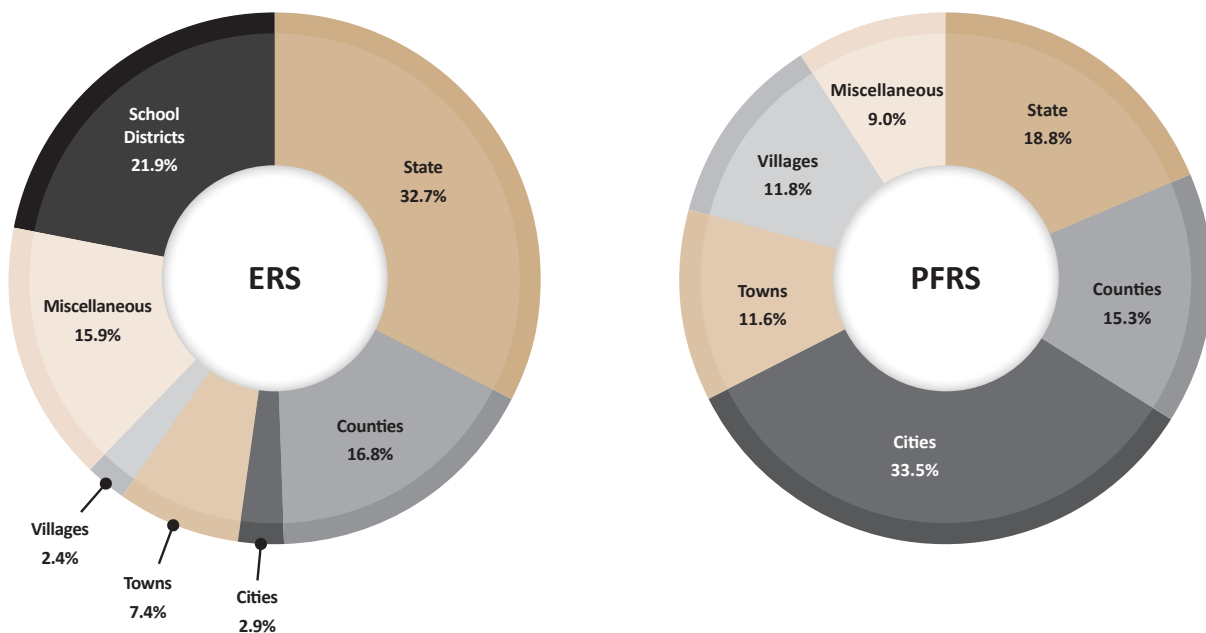
Category	ERS	PFRS
State	1	1
Counties	57	4
Cities	61	61
Towns	914	207
Villages	483	372
Miscellaneous	802	39
School Districts	699	0
Total*	3,017	684

* Please note that some ERS employers are also PFRS employers. Therefore the total of ERS employers and PFRS employers above will not equal the total number of NYSLRS participating employers.

MEMBERSHIP BY EMPLOYER TYPE

This table shows total and active membership counts, grouped by primary employer type as of the fiscal year ending March 31, 2018, with a breakdown by retirement system. Active status means the member was reported on payroll at the fiscal year end.

	ERS		PFRS		Total	
	Total	Active	Total	Active	Total	Active
State	201,912	171,357	6,606	6,143	208,518	177,500
Counties	103,438	82,139	5,386	5,238	108,824	87,377
Cities	18,138	14,428	11,757	10,987	29,895	25,415
Towns	45,897	35,501	4,061	3,647	49,958	39,148
Villages	14,615	11,169	4,160	3,465	18,775	14,634
Miscellaneous	98,035	76,634	3,154	2,990	101,189	79,624
School Districts	134,871	109,717	–	–	134,871	109,717
Total	616,906	500,945	35,124	32,470	652,030	533,415



Note: Numbers may not add up due to rounding. A detailed listing of employers as of March 31, 2018 is available on our website at www.osc.state.ny.us/retire/employers/index.php.

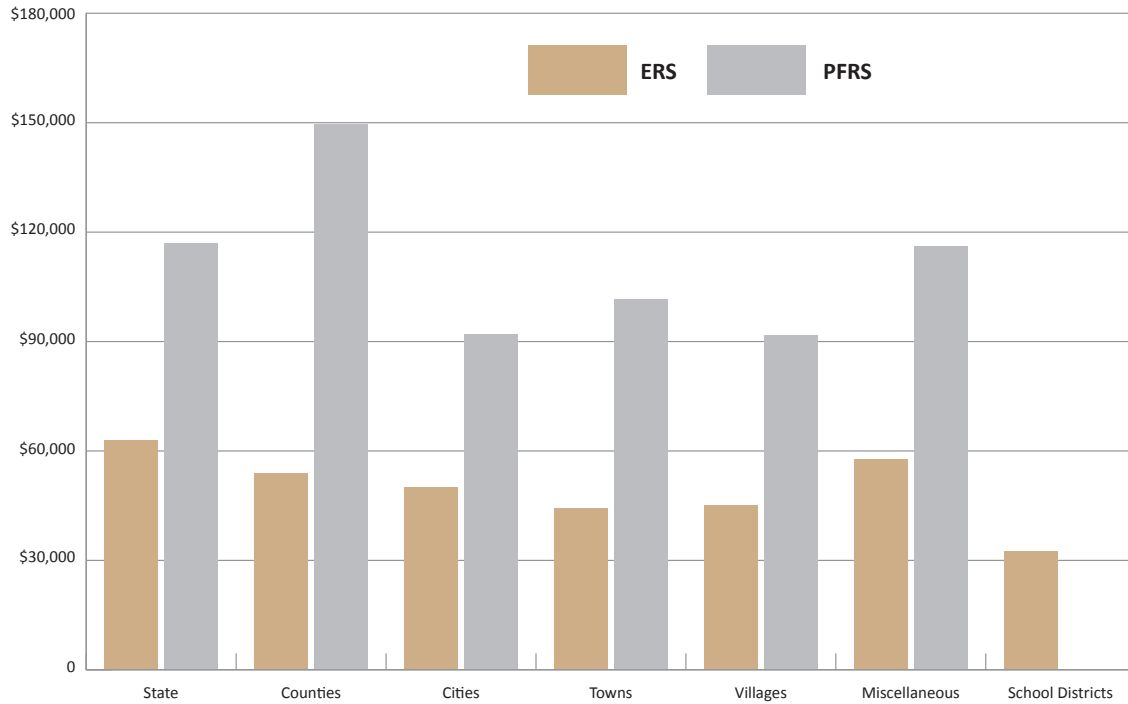
AVERAGE SALARY BY EMPLOYER TYPE

This table shows the average salary (*Average Salary*), membership counts (*Total Members**), and total salary (*Total Salaries*) for active members as of the fiscal year ending March 31, 2018. Groupings are based on primary employer type, with a breakdown by retirement system. Active status means the member was reported on payroll at the fiscal year end.

	Average Salary	Total Members*	Total Salaries
ERS			
State	\$ 62,791	171,357	\$ 10,759,640,176
Counties	53,809	82,139	4,419,784,158
Cities	50,019	14,428	721,678,599
Towns	44,337	35,501	1,574,025,538
Villages	45,073	11,169	503,422,800
Miscellaneous	57,800	76,634	4,429,431,812
School Districts	32,490	109,717	3,564,686,532
Total	\$ 51,847	500,945	\$ 25,972,669,614
PFRS			
State	\$ 116,822	6,143	\$ 717,637,488
Counties	149,442	5,238	782,777,510
Cities	92,058	10,987	1,011,437,374
Towns	101,597	3,647	370,524,244
Villages	91,773	3,465	317,994,171
Miscellaneous	116,211	2,990	347,471,805
Total	\$ 109,265	32,470	\$ 3,547,842,592

* Active members receiving salary.

The bar graph below represents the average salary by retirement system for each primary employer type.



MEMBERS AND SALARIES BY PLAN — ERS

These tables show membership counts (*Members*) and total salary (*Total Salaries*) for active members in the Employees' Retirement System, as of the fiscal year ending March 31, 2018. Groupings are based on plan, with a breakdown by tier. Active status means the member was reported on payroll at the end of the fiscal year.

Plan	Tier 1		Tier 2	
	Members	Total Salaries	Members	Total Salaries
Age 55/60 Contributory	3	\$ 49,194	3	\$ 145,770
Age 55 75-c	13	488,273	21	785,838
Age 55 75-e	5	378,434	7	232,767
Age 55 75-g	25	1,266,384	29	1,504,502
Age 55 75-h	709	60,584,593	795	67,183,921
Age 55 75-i	959	53,396,639	1,261	71,696,613
Regular Correction Officers/Security Hospital Treatment Asst. ¼ Disability	-	-	-	-
Correction Officers 89	8	776,101	9	915,856
Sheriffs 89-a	1	125,561	-	-
Sheriffs 89-b	-	-	-	-
Sheriffs 89-b(m)	-	-	-	-
Investigators 89-d	-	-	-	-
Investigators 89-d(m)	2	381,544	-	-
Sheriffs — 551	-	-	2	187,906
Sheriffs — 551e	-	-	-	-
Sheriffs — 552	-	-	-	-
Sheriffs — 553	1	118,409	-	-
Legislators 80-a	3	201,046	-	-
Unified Court Peace Officers	-	-	17	1,933,516
25-Year Correction Officers/Sheriffs/Office of Mental Health	7	754,310	9	844,544
25-Year 1/60 Peace Officers, Amb Med Techs, Paramedics	1	133,655	1	138,466
Total	1,737	\$ 118,654,145	2,154	\$ 145,569,699

MEMBERS AND SALARIES BY PLAN — ERS

CONTINUED

Plan	Tier 3 & 4		Tier 5		Tier 6	
	Members	Total Salaries	Members	Total Salaries	Members	Total Salaries*
Article 14 & 15	271,437	\$ 16,626,597,806	29,076	\$ 1,327,656,186	156,593	\$ 4,650,737,983
Regular Correction Officers/Security Hospital Treatment Asst. ¼ Disability	387	35,226,355	24	1,755,707	101	6,204,786
Article 14 Correction Officers	12,856	1,109,996,591	907	61,474,302	7,088	364,750,230
Sheriffs — 551	212	18,928,726	11	643,654	63	3,379,279
Sheriffs — 551e	62	4,195,445	8	454,757	26	1,042,240
Sherrifs — 552	363	29,645,855	34	2,167,173	137	6,276,121
Sheriffs — 553	1,333	132,870,580	155	12,217,965	469	24,957,165
Unified Court Peace Officers	5,129	464,587,174	249	17,516,869	795	42,981,137
25-Year Correction Officers/Sheriffs/Office of Mental Health	5,935	552,906,188	662	51,302,444	2,719	130,832,092
25-Year 1/60 Peace Officers, Paramedics	11	730,815	1	23,872	5	198,569
20-Year 1/60 Investigators	17	3,364,029	1	121,476	1	106,297
Westchester County Criminal Investigators	23	3,261,567	1	138,562	5	512,162
25-Year 1/60 ¼ Accidental Disability Amb Med Techs	115	13,605,460	5	468,863	3	216,518
25-Year ¼ Accidental Disability Fire Marshalls	31	4,015,609	4	377,161	—	—
Total	297,911	\$ 18,999,932,199	31,138	\$ 1,476,318,992	168,005	\$ 5,232,194,578

* Reportable Tier 6 salaries are capped at the Governor's salary, which was \$179,000 for fiscal year 2018.

There may be plans with no member count and salary greater than zero. Members who work for multiple employers may receive salary under multiple plans but will only be counted once, under their primary plan.

MEMBERS AND SALARIES BY PLAN — PFRS

These tables show membership counts (*Members*) and total salary (*Total Salaries*) for active members in the Police and Fire Retirement System, as of the fiscal year ending March 31, 2018. Groupings are based on plan, with a breakdown by tier and contributory status. Active status means the member was reported on payroll at the end of the fiscal year.

Plan	Tier 1		Tier 2		Tier 3	
	Members	Total Salaries	Members	Total Salaries	Members	Total Salaries
Age 55/60 Basic	–	\$ –	27	\$ 303,525	2	\$ 41,643
Age 55 375-c	–	–	109	2,575,151	1	10,364
Age 55 375-e	–	–	31	801,810	–	–
Age 55 375-g	1	111,573	31	861,311	1	12,570
Age 55 375-h	–	–	2	148,568	–	–
Age 55 375-i	5	509,771	127	8,077,187	3	129,699
Age 55 375-j	1	189,336	3	385,574	–	–
State Police 381-b	–	–	3,505	488,017,887	7	732,087
Regional Park Police 383-a	–	–	156	14,255,468	1	69,398
EnCon Police 383-b	–	–	215	22,333,843	1	75,026
Forest Ranger 383-c	–	–	104	10,239,562	2	152,101
SUNY Police 384-d	–	–	264	22,750,566	10	781,812
25-Year 384	–	–	37	1,897,352	16	1,669,869
25-Year 384(f)	–	–	84	9,929,005	71	6,208,167
20-Year 384-d	1	114,329	6,348	692,395,188	54	4,342,375
20-Year 1/60 384-e	16	3,017,757	10,911	1,567,415,203	34	2,959,403
Total	24	\$ 3,942,766	21,954	\$ 2,842,387,203	203	\$ 17,184,514

MEMBERS AND SALARIES BY PLAN — PFRS

CONTINUED

Tier 5 Contributory		Tier 5 Non-Contributory		Tier 6 Contributory		Tier 6 Non-Contributory	
Members	Total Salaries	Members	Total Salaries	Members	Total Salaries*	Members	Total Salaries*
2	\$ 27,375	–	\$ –	17	\$ 185,563	–	\$ –
13	120,598	–	–	51	862,665	–	–
9	258,352	–	–	33	830,361	–	–
4	16,808	–	–	12	257,245	–	–
–	–	–	–	–	–	–	–
7	559,037	–	–	41	2,016,383	–	–
–	–	–	–	–	–	–	–
98	10,151,758	–	–	1,323	121,533,543	–	–
6	443,040	–	–	108	5,887,270	–	–
8	596,210	–	–	83	5,207,029	–	–
2	173,409	–	–	32	1,841,119	–	–
54	4,274,877	–	–	174	8,845,832	–	–
9	389,969	–	–	37	2,094,557	–	–
7	893,472	6	867,850	13	1,069,352	4	323,630
581	48,828,018	108	8,377,497	2,596	143,443,099	4	330,486
749	73,576,915	89	8,501,350	3,965	226,310,363	44	5,233,082
1,549	\$ 140,309,837	203	\$ 17,746,698	8,485	\$ 520,384,377	52	\$ 5,887,198

* Reportable Tier 6 salaries are capped at the Governor's salary, which was \$179,000 for fiscal year 2018.

There may be plans with no member count and salary greater than zero. Members who work for multiple employers may receive salary under multiple plans but will only be counted once, under their primary plan.

RETIREES AND BENEFICIARIES BY AGE

This table shows retiree and beneficiary counts as of the fiscal year ending March 31, 2018, grouped by age, with a breakdown by retirement system.

Age	ERS			PFRS		
	Retirees & Beneficiaries	Retirees	Beneficiaries	Retirees & Beneficiaries	Retirees	Beneficiaries
0 – 25	163	–	163	14	–	14
26 – 30	227	1	226	6	–	6
31 – 35	313	10	303	22	12	10
36 – 40	490	63	427	65	47	18
41 – 45	789	257	532	329	300	29
46 – 50	2,034	1,251	783	1,719	1,671	48
51 – 55	6,670	5,505	1,165	3,953	3,845	108
56 – 60	36,864	34,848	2,016	4,838	4,687	151
61 – 65	70,313	67,038	3,275	4,957	4,743	214
66 – 70	95,979	91,392	4,587	6,277	5,934	343
71 – 75	81,882	76,363	5,519	5,807	5,410	397
76 – 80	55,252	49,910	5,342	3,894	3,564	330
81 – 85	39,150	34,088	5,062	2,263	1,982	281
86 – 90	26,578	22,337	4,241	1,277	1,100	177
91 – 95	13,460	10,820	2,640	523	408	115
96 – 100	3,815	3,028	787	90	59	31
101+	574	415	159	9	7	2
Total	434,553	397,326	37,227	36,043	33,769	2,274

RETIREES AND BENEFICIARIES — ERS

This table shows the number (*Number*), the average annual modified pension benefit prior to option selection and without any cost-of-living adjustment (*Average Option 0 Benefit w/o COLA*), and the average cost-of-living adjustment (*Average COLA*) of surviving Employees' Retirement System retirees and beneficiaries* as of March 31, 2018. Groupings are based on fiscal year of member retirement. The modified pension benefit has been reduced for any partial lump sum distribution.

Year of Retirement	Number	Average Option 0 Benefit w/o COLA	Average COLA*	Total
1955	–	\$ –	\$ –	\$ –
1956	1	1,529	4,915	6,444
1957	–	–	–	–
1958	–	–	–	–
1959	1	3,518	9,994	13,512
1960	2	4,397	3,925	8,322
1961	–	–	–	–
1962	–	–	–	–
1963	2	2,112	7,307	9,419
1964	2	4,520	3,338	7,858
1965	2	7,302	19,067	26,368
1966	6	2,869	7,400	10,269
1967	4	2,356	6,371	8,727
1968	3	1,265	2,051	3,317
1969	9	1,680	2,951	4,631
1970	22	2,833	3,823	6,656
1971	31	4,142	4,816	8,958
1972	41	4,968	4,733	9,701
1973	86	4,743	4,929	9,673
1974	114	5,985	5,663	11,648
1975	146	5,584	5,157	10,741
1976	275	5,241	4,372	9,612
1977	402	5,593	4,742	10,335
1978	479	5,795	4,746	10,541
1979	631	5,539	4,331	9,871
1980	847	5,717	3,896	9,612
1981	1,039	5,772	3,289	9,061
1982	1,308	6,583	3,338	9,921
1983	1,402	6,808	3,277	10,084
1984	2,166	8,810	3,709	12,519
1985	2,123	8,508	3,476	11,984
1986	2,775	9,281	3,480	12,761
1987	3,095	10,048	3,622	13,670

Year of Retirement	Number	Average Option 0 Benefit w/o COLA	Average COLA*	Total
1988	3,219	\$ 10,936	\$ 3,599	\$ 14,535
1989	3,771	11,774	3,507	15,281
1990	4,443	13,273	3,438	16,712
1991	7,233	17,236	3,717	20,953
1992	6,941	14,431	3,194	17,625
1993	5,737	15,152	3,026	18,179
1994	5,329	15,059	2,817	17,876
1995	6,649	16,027	2,799	18,826
1996	11,991	20,839	3,036	23,875
1997	10,988	19,354	2,696	22,050
1998	8,474	17,154	2,242	19,396
1999	9,343	16,834	2,083	18,917
2000	11,282	18,140	1,991	20,131
2001	12,192	21,709	2,011	23,720
2002	10,178	19,622	1,777	21,399
2003	22,439	28,397	1,820	30,217
2004	11,308	19,674	1,364	21,038
2005	13,747	21,735	1,252	22,988
2006	15,214	22,590	1,110	23,700
2007	15,942	24,982	1,000	25,982
2008	16,441	26,689	866	27,554
2009	15,325	26,724	701	27,425
2010	17,590	28,333	570	28,902
2011	27,230	34,615	456	35,072
2012	17,506	27,401	288	27,689
2013	17,632	27,059	171	27,230
2014	19,192	27,982	–	27,982
2015	20,309	29,246	–	29,246
2016	20,649	30,849	–	30,849
2017	20,810	31,613	–	31,613
2018	20,493	\$ 31,596	\$ –	\$ 31,596

* 7,942 of the 37,227 beneficiaries are not eligible for COLA and are not included in the above counts.

RETIREES AND BENEFICIARIES — PFRS

This table shows the number (*Number*), the average annual modified pension benefit prior to option selection and without any cost-of-living adjustment (*Average Option 0 Benefit w/o COLA*), and the average cost-of-living adjustment (*Average COLA*) of surviving Police and Fire Retirement System retirees and beneficiaries* as of March 31, 2018. Groupings are based on fiscal year of member retirement. The modified pension benefit has been reduced for any partial lump sum distribution.

Year of Retirement	Number	Average Option 0 w/o COLA	Average COLA*	Total
1955	2	\$ 2,482	\$ 7,911	\$ 10,393
1956	1	3,614	22,005	25,619
1957	–	–	–	–
1958	–	–	–	–
1959	–	–	–	–
1960	1	3,478	19,736	23,214
1961	–	–	–	–
1962	–	–	–	–
1963	1	4,134	18,231	22,365
1964	–	–	–	–
1965	2	5,365	10,796	16,160
1966	2	4,280	13,914	18,194
1967	6	5,690	9,176	14,866
1968	6	5,309	12,273	17,582
1969	7	5,134	11,251	16,385
1970	14	6,000	11,333	17,332
1971	17	7,311	12,550	19,862
1972	57	7,370	12,255	19,625
1973	59	7,685	12,031	19,716
1974	81	7,867	12,404	20,271
1975	61	8,617	11,360	19,977
1976	77	9,768	11,840	21,608
1977	160	10,732	12,199	22,931
1978	157	10,859	11,861	22,720
1979	227	11,310	10,921	22,232
1980	231	12,369	9,963	22,332
1981	212	13,399	9,016	22,415
1982	305	14,722	8,381	23,103
1983	324	15,709	8,030	23,739
1984	325	17,624	8,109	25,733
1985	388	19,285	7,634	26,920
1986	581	20,679	7,443	28,122
1987	611	22,693	7,363	30,056

Year of Retirement	Number	Average Option 0 w/o COLA	Average COLA*	Total
1988	750	\$ 24,586	\$ 6,950	\$ 31,536
1989	784	24,950	6,606	31,556
1990	812	27,672	6,025	33,697
1991	930	30,700	5,536	36,236
1992	1,025	34,996	4,986	39,983
1993	951	33,911	4,664	38,574
1994	858	33,170	4,272	37,442
1995	753	37,649	3,797	41,447
1996	760	36,636	3,561	40,197
1997	741	40,529	3,272	43,802
1998	709	39,198	2,852	42,050
1999	743	40,424	2,711	43,135
2000	876	47,264	2,398	49,662
2001	1,083	52,672	2,296	54,968
2002	938	53,221	2,052	55,274
2003	1,254	60,824	1,836	62,660
2004	1,192	58,151	1,633	59,785
2005	1,084	58,573	1,344	59,917
2006	1,095	59,326	1,108	60,434
2007	1,099	60,448	931	61,380
2008	1,123	62,737	699	63,435
2009	1,065	66,076	539	66,615
2010	1,102	68,138	432	68,570
2011	1,253	68,600	307	68,907
2012	1,214	70,287	199	70,485
2013	1,223	69,041	111	69,152
2014	1,221	72,320	–	72,320
2015	1,320	74,927	–	74,927
2016	1,271	78,199	–	78,199
2017	1,208	79,413	–	79,413
2018	1,260	\$ 80,500	\$ –	\$ 80,500

* 431 of the 2,274 beneficiaries are not eligible for COLA and are not included in the above counts.

LOCAL GOVERNMENT SALARIES AND BILLINGS — ERS

The contribution amounts shown below are due February 1st preceding the fiscal year end (FYE).

FYE	Salaries	Contributions	Normal	Deficiency	GLIP	Administrative
Counties						
2009	\$ 4,377,722,306	\$ 386,066,989	\$ 357,016,093	\$ -	\$ 11,534,099	\$ 17,516,797
2010	4,440,975,009	348,633,573	319,242,145	-	15,718,947	13,672,481
2011	4,400,173,486	559,214,523	525,419,127	-	15,589,216	18,206,180
2012	4,443,930,817	776,404,451	748,265,831	-	14,983,770	13,154,850
2013	4,373,201,590	869,913,388	836,809,946	-	15,242,472	17,860,970
2014	4,336,303,275	961,029,407	932,736,131	-	15,028,728	13,264,548
2015	4,268,067,445	916,967,766	884,569,811	-	14,822,845	17,575,110
2016	4,268,067,445	764,800,462	729,885,087	-	17,843,119	17,072,256
2017	4,442,433,004	718,015,326	685,263,761	-	14,981,831	17,769,734
2018	4,526,327,445	719,117,404	685,809,717	-	15,202,362	18,105,325
Cities						
2009	669,808,943	54,817,726	50,114,905	-	2,015,498	2,687,323
2010	672,358,993	49,473,203	44,600,856	-	2,784,205	2,088,142
2011	660,882,586	78,687,818	73,186,068	-	2,750,875	2,750,875
2012	663,784,626	107,570,937	102,977,843	-	2,624,624	1,968,470
2013	657,761,044	124,229,355	118,894,947	-	2,667,204	2,667,204
2014	673,091,884	137,981,259	133,304,614	-	2,672,375	2,004,270
2015	679,974,366	134,647,196	129,157,994	-	2,744,601	2,744,601
2016	679,974,366	118,631,364	112,511,612	-	3,399,861	2,719,891
2017	711,933,076	106,482,115	100,786,663	-	2,847,726	2,847,726
2018	742,043,938	108,756,209	102,819,863	-	2,968,173	2,968,173
Towns						
2009	1,465,224,022	120,574,358	109,598,831	695,659	4,404,475	5,875,393
2010	1,483,730,590	108,762,029	97,393,459	717,958	6,084,843	4,565,769
2011	1,483,142,934	174,236,832	161,410,776	687,246	6,068,074	6,070,736
2012	1,499,756,171	243,005,724	232,009,841	701,186	5,881,293	4,413,404
2013	1,523,144,059	282,487,748	269,746,224	730,975	6,003,677	6,006,872
2014	1,514,279,860	320,436,350	308,991,586	729,377	6,121,687	4,593,700
2015	1,541,087,303	304,935,776	292,018,266	704,881	6,104,792	6,107,837
2016	1,541,087,303	277,193,215	262,917,719	409,489	7,701,640	6,164,367
2017	1,579,960,510	240,525,450	227,504,169	384,233	6,317,184	6,319,864
2018	1,615,922,678	241,429,341	228,132,484	372,380	6,460,806	6,463,671
Villages						
2009	444,961,775	36,293,410	32,947,899	231,780	1,334,454	1,779,277
2010	452,674,761	32,980,639	29,491,939	243,794	1,854,239	1,390,667
2011	453,586,842	53,044,335	49,083,776	251,569	1,854,495	1,854,495
2012	456,923,176	75,242,014	71,732,124	359,252	1,800,376	1,350,262
2013	464,343,459	84,603,712	80,734,045	210,055	1,829,806	1,829,806
2014	468,173,558	96,707,532	93,193,118	224,737	1,879,811	1,409,866
2015	475,868,379	93,000,032	88,986,865	214,831	1,899,168	1,899,168
2016	475,868,379	84,779,246	80,364,318	134,970	2,377,750	1,902,208
2017	492,146,116	74,142,234	70,095,276	109,818	1,968,570	1,968,570
2018	505,159,356	74,546,172	70,399,418	105,502	2,020,626	2,020,626

LOCAL GOVERNMENT SALARIES AND BILLINGS — ERS CONTINUED

FYE	Salaries	Contributions	Normal	Deficiency	GLIP	Administrative
Miscellaneous						
2009	\$ 3,877,365,154	\$ 307,150,742	\$ 279,817,198	\$ 1,031,567	\$ 11,272,265	\$ 15,029,712
2010	4,053,679,047	288,402,076	258,729,069	1,396,742	16,157,869	12,118,396
2011	4,009,081,340	476,258,246	441,882,050	1,123,038	16,626,579	16,626,579
2012	4,074,206,349	705,637,232	676,397,501	1,117,975	16,069,562	12,052,194
2013	3,971,661,743	749,635,292	716,057,300	835,444	16,371,274	16,371,274
2014	3,968,529,764	826,997,637	797,752,084	791,616	16,258,823	12,195,114
2015	4,016,329,736	786,826,716	753,471,524	785,464	16,284,864	16,284,864
2016	4,016,329,736	692,441,164	656,011,033	285,120	20,080,556	16,064,455
2017	4,218,674,267	624,983,230	590,938,378	295,426	16,874,713	16,874,713
2018	4,400,266,244	636,996,945	601,504,023	292,092	17,600,415	17,600,415
School Districts						
2009	3,179,510,771	258,982,162	236,727,573	107,511	9,491,589	12,655,489
2010	3,277,959,694	237,870,801	214,479,105	111,442	13,303,002	9,977,252
2011	3,299,608,584	387,560,100	360,157,255	414,165	13,494,340	13,494,340
2012	3,363,257,728	530,456,512	507,067,857	433,238	13,117,370	9,838,047
2013	3,295,559,464	623,154,200	595,786,408	426,060	13,470,866	13,470,866
2014	3,295,866,762	685,241,928	661,805,954	135,753	13,314,400	9,985,821
2015	3,337,348,846	654,771,133	627,945,059	139,518	13,343,278	13,343,278
2016	3,337,348,846	593,311,380	563,142,438	134,423	16,685,833	13,348,686
2017	3,463,921,681	524,114,526	496,273,503	129,599	13,855,712	13,855,712
2018	3,591,452,866	533,074,424	504,209,323	133,487	14,365,807	14,365,807

For the FYEs 2009-2015, the contribution amounts include the normal cost of benefits including supplemental pensions and, in some cases, the Retirement Incentive Program, Deficiency Contributions, the Group Life Insurance Plan (GLIP), and the administrative cost of the System for the fiscal year.

For FYE 2016, and all subsequent FYEs, the contribution amounts include the normal cost of benefits including supplemental pensions, Deficiency Contributions, GLIP, the administrative cost of the System for the fiscal year, and accounting adjustments. Accounting adjustments include prior year adjustments, prepayment discounts, and reconciliation of actual versus estimated salary amounts.

Legislation enacted in July 2015 (Chapter 94, Laws of 2015) requires the System to use prior year actual salaries rather than current year estimated salaries in the calculation of required contributions. This change eliminates the need for reconciliation of actual versus estimated salaries, the result of which is reflected in the FYE 2016 salaries.

LOCAL GOVERNMENT SALARIES AND BILLINGS — PFRS

The contribution amounts shown below are due February 1st preceding the fiscal year end (FYE).

FYE	Salaries	Contributions	Normal	Deficiency	GLIP	Administrative
Counties						
2009	\$ 705,233,176	\$ 117,939,533	\$ 115,751,728	\$ -	\$ -	\$ 2,187,805
2010	691,324,895	113,345,262	109,684,666	-	-	3,660,596
2011	774,589,528	128,266,705	124,105,246	-	693,576	3,467,883
2012	741,170,663	165,977,875	162,848,546	-	-	3,129,329
2013	750,476,797	186,487,909	182,070,522	-	736,230	3,681,157
2014	742,952,940	215,606,426	212,605,235	-	-	3,001,191
2015	748,062,218	204,532,593	200,811,227	-	744,273	2,977,093
2016	748,062,218	183,660,699	180,668,452	-	-	2,992,247
2017	813,351,565	197,749,660	193,682,901	-	-	4,066,759
2018	837,536,191	205,595,002	201,407,318	-	837,538	3,350,146
Cities						
2009	878,117,139	151,071,141	148,374,256	-	-	2,696,885
2010	898,507,065	146,455,535	141,869,364	-	-	4,586,171
2011	896,261,192	171,091,657	165,609,925	-	913,625	4,568,107
2012	919,665,789	202,376,328	198,704,804	-	-	3,671,524
2013	904,451,691	242,732,696	237,147,463	-	930,870	4,654,363
2014	940,121,957	270,589,638	266,868,512	-	-	3,721,126
2015	935,625,377	266,374,021	261,525,612	-	969,687	3,878,722
2016	935,625,377	220,521,730	216,779,231	-	-	3,742,499
2017	1,012,327,983	244,289,630	239,227,991	-	-	5,061,639
2018	1,032,008,361	249,454,963	244,294,924	-	1,032,013	4,128,026
Towns						
2009	321,618,843	53,509,018	52,550,766	-	-	958,252
2010	324,877,420	52,903,830	51,226,025	-	-	1,677,805
2011	333,981,112	60,280,009	58,310,352	-	328,283	1,641,374
2012	345,481,241	74,297,961	72,943,723	-	-	1,354,238
2013	344,465,630	90,102,480	88,024,012	-	346,422	1,732,046
2014	351,821,273	101,830,050	100,430,452	-	-	1,399,598
2015	361,105,021	99,600,409	97,809,899	-	358,100	1,432,410
2016	361,105,021	103,194,597	101,750,184	-	-	1,444,413
2017	375,409,567	91,053,202	89,176,144	-	-	1,877,058
2018	385,731,210	94,187,748	92,259,099	-	385,724	1,542,925
Villages						
2009	271,083,935	41,155,426	40,339,680	-	-	815,746
2010	279,110,145	41,046,994	39,630,908	-	-	1,416,086
2011	284,144,385	49,801,862	48,105,170	-	282,784	1,413,908
2012	288,899,267	61,448,733	60,286,366	-	-	1,162,367
2013	289,479,125	72,871,202	71,130,551	-	290,108	1,450,543
2014	296,688,354	83,549,031	82,367,874	-	-	1,181,157
2015	298,766,157	81,460,417	79,943,884	-	303,296	1,213,237
2016	298,766,157	69,981,037	68,788,007	-	-	1,193,030
2017	316,804,801	73,308,396	71,724,373	-	-	1,584,023
2018	323,473,812	75,751,635	74,134,267	-	323,456	1,293,912

LOCAL GOVERNMENT SALARIES AND BILLINGS — PFRS CONTINUED

FYE	Salaries	Contributions	Normal	Deficiency	GLIP	Administrative
<i>Miscellaneous</i>						
2009	\$ 278,364,071	\$ 44,753,630	\$ 43,917,335	\$ —	\$ —	\$ 836,295
2010	276,719,595	44,766,923	43,309,191	—	—	1,457,732
2011	277,823,751	51,630,642	49,951,567	—	279,846	1,399,229
2012	305,193,545	60,344,419	59,216,144	—	—	1,128,275
2013	303,608,075	77,558,504	75,734,743	—	303,957	1,519,804
2014	324,198,568	88,966,389	87,744,530	—	—	1,221,859
2015	322,131,168	89,840,321	88,189,827	—	330,099	1,320,395
2016	322,131,168	73,328,115	72,039,593	—	—	1,288,522
2017	332,682,130	78,709,281	77,045,873	—	—	1,663,408
2018	345,926,023	82,341,868	80,612,241	—	345,923	1,383,704

For the FYEs 2009-2015, the contribution amounts include the normal cost of benefits including supplemental pensions and, in some cases, the Retirement Incentive Program, Deficiency Contributions, the Group Life Insurance Plan (GLIP), and the administrative cost of the System for the fiscal year.

For FYE 2016, and all subsequent FYEs, the contribution amounts include the normal cost of benefits including supplemental pensions, Deficiency Contributions, GLIP, the administrative cost of the System for the fiscal year, and accounting adjustments. Accounting adjustments include prior year adjustments, prepayment discounts, and reconciliation of actual versus estimated salary amounts.

Legislation enacted in July 2015 (Chapter 94, Laws of 2015) requires the System to use prior year actual salaries rather than current year estimated salaries in the calculation of required contributions. This change eliminates the need for reconciliation of actual versus estimated salaries, the result of which is reflected in the FYE 2016 salaries.

CONTRIBUTIONS RECORDED, 2009 – 2018

(Dollars in Millions)

Contributions recorded are the amounts presented in the System’s financial statements and include employer costs plus or minus any adjustments in amounts receivable and changes resulting from legislation.

Year Ended 3/31	Employer Contributions*	Member Contributions
2009		
Total	\$ 2,456.2	\$ 273.3
State	889.2	
Local	1,567.0	
2010		
Total	\$ 2,344.2	\$ 284.3
State	897.5	
Local	1,446.7	
2011		
Total	\$ 4,164.6	\$ 286.2
State	1,759.0	
Local	2,405.6	
2012		
Total	\$ 4,585.2	\$ 273.2
State	1,785.6	
Local	2,799.6	
2013		
Total	\$ 5,336.0	\$ 269.1
State	1,950.1	
Local	3,385.9	
* Includes employer premiums to Group Term Life Insurance Plan.		

Year Ended 3/31	Employer Contributions*	Member Contributions
2014		
Total	\$ 6,064.1	\$ 281.4
State	2,372.7	
Local	3,691.4	
2015		
Total	\$ 5,797.4	\$ 284.8
State	2,263.0	
Local	3,534.4	
2016		
Total	\$ 5,140.2	\$ 306.6
State	1,958.4	
Local	3,181.8	
2017		
Total	\$ 4,787.0	\$ 328.8
State	1,813.6	
Local	2,973.4	
2018		
Total	\$ 4,823.3	\$ 349.4
State	1,802.1	
Local	3,021.2	
* Includes employer premiums to Group Term Life Insurance Plan.		

20-YEAR SUMMARY*

	2018	2017	2016	2015	2014	2013	2012	2011	2010
Total Participants	1,122,626	1,104,779	1,088,342	1,073,486	1,066,064	1,061,010	1,059,398	1,057,754	1,055,020
Number of Members	652,030	652,324	647,399	643,178	643,659	647,574	656,224	672,723	679,217
ERS (a)	616,906	617,143	612,294	608,637	609,565	613,930	622,107	637,921	643,875
State	201,912	203,317	202,153	201,194	201,192	202,570	203,274	213,089	216,582
Counties	103,438	104,452	104,756	105,582	106,688	108,302	111,051	114,111	115,722
Cities	18,138	18,146	18,048	18,079	18,182	18,176	18,420	18,667	18,897
Towns	45,897	45,608	45,450	44,826	44,676	44,407	44,644	44,416	44,361
Villages	14,615	14,474	14,256	14,129	14,073	14,040	14,051	14,165	14,150
Miscellaneous	98,035	97,376	95,759	94,341	94,396	95,199	97,225	98,115	97,960
School Districts	134,871	133,770	131,872	130,486	130,358	131,236	133,442	135,358	136,203
PFRS (a)	35,124	35,181	35,105	34,541	34,094	33,644	34,117	34,802	35,342
State	6,606	6,596	6,309	6,009	5,792	5,630	5,548	5,779	5,973
Counties	5,386	5,323	5,348	5,179	5,003	5,076	5,372	5,499	5,560
Cities	11,757	11,880	12,018	11,856	11,812	11,868	11,974	12,137	12,289
Towns	4,061	4,127	4,182	4,196	4,162	4,153	4,178	4,205	4,249
Villages	4,160	4,213	4,340	4,343	4,330	4,370	4,433	4,512	4,547
Miscellaneous	3,154	3,042	2,908	2,958	2,995	2,547	2,612	2,670	2,724
Members by Tier (b)									
ERS Tier 1	2,313	3,241	3,809	4,520	5,249	6,230	7,551	10,718	13,395
ERS Tier 2	2,817	3,668	4,420	5,375	6,297	7,538	9,222	12,911	15,651
ERS Tiers 3 through 6	611,776	610,234	604,065	598,742	598,019	600,162	605,334	614,292	614,829
PFRS Tier 1	40	54	77	92	123	172	230	304	393
PFRS Tier 2	23,733	25,518	27,364	28,179	29,188	30,295	31,830	33,091	34,261
PFRS Tiers 3, 5 & 6	11,351	9,609	7,664	6,270	4,783	3,177	2,057	1,407	688
Retirees & Beneficiaries	470,596	452,455	440,943	430,308	422,405	413,436	403,174	385,031	375,803
ERS	434,553	417,499	407,112	396,781	389,288	380,899	371,468	353,940	345,106
PFRS	36,043	34,956	33,831	33,527	33,117	32,537	31,706	31,091	30,697
Employers	3,044	3,040	3,040	3,032	3,027	3,029	3,040	3,039	3,035
ERS	3,017	3,013	3,010	3,006	3,002	3,004	3,016	3,016	3,011
PFRS	684	687	686	682	681	681	682	681	681
Benefit Payments (c)	\$ 12,027.3	\$ 11,448.7	\$ 10,908.5	\$ 10,436.2	\$ 9,898.8	\$ 9,450.2	\$ 8,862.8	\$ 8,464.6	\$ 7,663.1
Retirement Allowances	11,197.8	10,617.5	10,113.8	9,651.2	9,098.4	8,669.8	8,109.3	7,717.0	6,931.8
Death Benefits (Lump Sum)	201.2	216.2	188.2	183.1	203.8	194.2	185.0	192.3	183.0
COLA Payments	628.3	615.0	606.5	601.9	596.6	586.2	568.5	555.3	548.3
# of Service Retirements	28,312	22,762	21,984	18,039	19,702	19,962	28,259	19,092	19,193
# of Death Benefits Paid	857	915	751	900	810	844	879	984	955
# of Disability Retirements	922	718	626	720	963	1,026	1,161	844	1,421
Employer Contributions	\$ 4,823.3	\$ 4,787.0	\$ 5,140.2	\$ 5,797.4	\$ 6,064.1	\$ 5,336.1	\$ 4,585.2	\$ 4,164.5	\$ 2,344.2
ERS	3,852.5	3,858.6	4,232.4	4,802.2	5,045.6	4,435.6	3,790.6	3,525.8	1,785.5
PFRS	869.8	837.3	792.6	901.0	926.3	808.5	706.4	538.8	465.0
Group Life Insurance Plan	101.0	91.1	115.2	94.2	92.2	92.0	88.2	99.9	93.7
Rate (as a % of Salary) (d)									
ERS	15.3%	15.5%	18.2%	20.1%	20.9%	18.9%	16.3%	11.9%	7.4%
PFRS	24.4%	24.3%	24.7%	27.6%	28.9%	25.8%	21.6%	18.2%	15.1%
Employee Contributions	\$ 349.4	\$ 328.8	\$ 306.6	\$ 284.8	\$ 281.4	\$ 269.1	\$ 273.2	\$ 286.2	\$ 284.3
ERS	318.4	306.2	289.3	272.0	273.5	264.8	268.5	284.5	282.8
PFRS	31.0	22.6	17.3	12.8	7.9	4.3	4.7	1.7	1.5
Investments (e)	\$ 207,416.0	\$ 192,410.6	\$ 178,639.7	\$ 184,502.0	\$ 176,835.1	\$ 160,660.8	\$ 150,658.9	\$ 147,237.0	\$ 132,500.2
Equities	114,797.1	103,688.4	90,755.4	94,293.5	93,191.7	83,049.5	79,059.2	79,945.0	72,674.0
Global Fixed Income	44,820.8	44,002.6	44,661.2	47,652.2	41,410.6	38,559.5	33,440.5	31,037.9	33,726.1
Commercial Mortgages	843.4	800.3	796.4	852.9	853.9	812.7	803.0	851.3	845.7
Short-Term Investments	3,366.6	5,653.3	5,578.8	5,252.5	6,592.8	6,461.3	7,397.7	8,360.2	3,086.1
Private Equity	17,500.5	15,348.5	13,961.4	14,247.4	14,369.8	14,072.6	14,925.9	14,620.4	12,584.0
Equity Real Estate	14,182.7	12,937.4	12,639.7	12,123.4	12,529.3	11,195.4	9,339.5	7,631.0	5,551.1
Absolute Return Strategy	7,879.3	7,523.8	8,029.4	8,388.8	7,406.1	6,124.7	5,165.7	4,215.5	3,553.3
Opportunistic Funds	2,507.0	2,065.7	1,719.3	1,292.2	480.9	385.1	527.4	575.7	479.9
Other	1,518.6	390.6	498.1	399.1	0.0	0.0	0.0	0.0	0.0
Rate of Return (f)	11.4%	11.5%	0.2%	7.2%	13.0%	10.4%	6.0%	14.6%	25.9%
Core Fixed Income	2.1%	2.5%	1.8%	5.5%	(0.5)%	4.7%	9.0%	8.0%	7.4%
Equity Investments	14.5%	14.8%	(0.4)%	8.3%	19.1%	12.5%	4.9%	17.1%	41.3%
Administrative Cost	\$ 122.8	\$ 107.1	\$ 106.6	\$ 107.2	\$ 105.7	\$ 105.7	\$ 100.6	\$ 101.3	\$ 100.0
Financial Statement Assets	\$ 212,076.8	\$ 197,602.2	\$ 183,640.2	\$ 189,412.4	\$ 181,275.3	\$ 164,221.8	\$ 153,394.4	\$ 149,548.6	\$ 134,251.7

20-YEAR SUMMARY*

CONTINUED

2009	2008	2007	2006	2005	2004	2003	2002	2001	2000	1999
1,046,086	1,035,430	1,012,699	995,536	982,009	970,078	964,140	944,500	924,643	899,314	882,234
679,908	677,321	662,633	653,291	647,758	641,721	650,543	637,896	626,565	604,479	593,188
643,700	641,119	626,923	617,989	612,410	606,155	614,555	602,428	590,959	569,369	558,236
219,741	220,216	215,296	211,041	208,899	207,641	216,005	216,507	222,343	216,347	216,380
116,515	117,084	115,944	115,472	118,006	117,514	119,319	118,318	119,638	115,576	113,856
18,893	18,992	18,843	18,891	18,979	18,933	19,637	19,671	19,551	19,148	18,966
43,403	43,203	41,989	41,393	40,561	39,841	39,395	38,063	37,121	35,882	35,056
14,000	13,891	13,597	13,388	13,106	12,878	12,823	12,360	11,969	11,509	11,279
97,272	95,601	92,736	90,879	86,791	85,732	85,708	81,752	69,968	67,212	64,218
133,876	132,132	128,518	126,925	126,068	123,616	121,668	115,757	110,369	103,695	98,481
36,208	36,202	35,710	35,302	35,348	35,566	35,988	35,468	35,606	35,110	34,952
6,222	6,223	6,219	5,955	6,038	5,898	5,802	5,679	5,534	5,279	5,232
5,841	5,898	5,873	5,850	5,833	5,814	5,901	6,029	6,176	6,267	6,338
12,433	12,414	12,206	12,147	12,113	12,374	12,541	12,612	12,781	12,660	12,552
4,340	4,364	4,295	4,261	4,217	4,231	4,233	4,191	4,180	4,163	4,149
4,592	4,621	4,591	4,641	4,653	4,732	4,867	4,795	4,805	4,727	4,699
2,780	2,682	2,526	2,448	2,494	2,517	2,644	2,162	2,130	2,014	1,982
16,829	20,513	25,053	29,492	34,980	39,622	50,032	56,541	60,736	57,657	64,173
18,097	20,315	22,458	24,263	25,938	27,398	30,122	31,981	32,914	32,641	34,296
608,774	600,291	579,412	564,234	551,492	539,135	534,401	513,906	497,309	479,071	459,767
576	745	924	1,143	1,503	2,076	2,597	3,260	3,927	4,469	4,997
35,632	35,457	34,786	34,159	33,845	33,490	33,391	32,208	31,679	30,641	29,955
0	0	0	0	0	0	0	0	0	0	0
366,178	358,109	350,066	342,245	334,251	328,357	313,597	306,604	298,078	294,835	289,046
336,273	328,726	321,113	313,837	306,531	301,528	287,341	280,997	273,147	270,333	264,899
29,905	29,383	28,953	28,408	27,720	26,829	26,256	25,607	24,931	24,502	24,147
3,026	3,021	3,010	3,001	2,993	2,985	2,968	2,922	2,897	2,860	2,843
3,001	2,995	2,983	2,974	2,967	2,959	2,943	2,917	2,890	2,853	2,836
683	683	683	685	684	684	681	679	678	678	679
\$ 7,212.1	\$ 6,835.6	\$ 6,383.4	\$ 6,028.9	\$ 5,674.7	\$ 5,347.5	\$ 4,984.6	\$ 4,488.3	\$ 4,181.0	\$ 3,720.2	\$ 3,482.0
6,497.1	6,142.8	5,722.9	5,388.6	5,041.0	4,722.1	4,373.3	3,872.0	3,619.9	3,415.1	3,217.1
180.5	181.7	164.6	161.2	161.9	157.3	148.4	151.8	152.9	142.8	123.0
534.5	511.1	495.9	479.1	471.8	468.1	462.9	464.5	336.1	162.3	141.9
17,979	17,261	16,390	16,827	14,533	23,655	16,078	17,499	11,640	14,470	12,675
935	1,014	832	932	1,041	1,025	1,019	1,068	1,005	1,026	956
1,020	950	1,227	1,267	1,463	1,103	1,064	1,038	1,079	1,189	1,356
\$ 2,456.2	\$ 2,648.4	\$ 2,718.6	\$ 2,782.2	\$ 2,964.8	\$ 1,286.5	\$ 651.9	\$ 263.8	\$ 214.8	\$ 164.5	\$ 291.7
1,898.7	2,073.5	2,116.0	2,271.4	2,434.5	1,052.3	525.5	179.1	131.0	83.0	193.2
492.8	510.6	502.5	433.4	455.3	158.4	66.3	47.3	49.0	62.0	50.1
64.7	64.3	100.1	77.3	75.0	75.8	60.1	37.4	34.8	19.5	48.4
8.5%	9.6%	10.7%	11.3%	12.9%	5.9%	1.5%	1.2%	0.9%	0.9%	1.3%
15.8%	16.6%	17.0%	16.3%	17.6%	5.8%	1.4%	1.6%	1.6%	1.9%	2.4%
\$ 273.3	\$ 265.7	\$ 250.2	\$ 241.2	\$ 227.3	\$ 221.9	\$ 219.2	\$ 210.2	\$ 319.1	\$ 422.7	\$ 399.8
269.0	263.1	247.2	237.7	224.5	217.4	214.1	206.0	317.4	422.0	398.7
4.3	2.6	2.9	3.5	2.8	4.5	5.1	4.2	1.7	0.7	1.1
\$ 108,960.7	\$ 153,877.7	\$ 154,575.5	\$ 140,453.3	\$ 126,083.5	\$ 119,245.0	\$ 95,598.3	\$ 111,168.5	\$ 112,432.9	\$ 127,138.9	\$ 111,008.7
47,871.0	83,153.7	90,119.7	88,550.9	80,917.2	74,876.5	51,357.0	66,375.5	63,661.7	82,733.6	66,397.8
36,541.6	36,571.4	33,536.2	28,889.0	29,310.8	29,691.2	32,019.7	31,839.2	35,305.7	31,764.3	34,307.9
710.2	772.4	889.7	1,162.7	1,281.9	1,530.0	1,723.6	1,628.7	1,835.8	1,318.6	1,509.5
3,826.7	6,443.1	8,551.1	6,619.3	2,602.5	1,879.1	771.2	1,429.0	992.0	2,238.3	2,541.8
10,563.7	12,699.4	10,044.8	8,284.8	6,832.4	6,738.8	5,564.8	5,579.5	5,941.6	5,385.9	3,159.8
7,066.5	8,909.4	6,752.7	5,430.7	4,634.0	4,529.4	4,162.0	4,316.6	4,696.0	3,698.1	3,091.8
2,381.0	5,328.3	4,681.3	1,516.0	504.7	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(26.4)%	2.6%	12.6%	14.6%	8.5%	28.8%	(10.2)%	2.8%	(8.7)%	17.8%	8.8%
2.4%	8.6%	6.0%	1.7%	3.0%	8.9%	16.8%	4.3%	14.1%	1.3%	6.6%
(30.8)%	0.9%	15.0%	19.1%	10.6%	42.8%	(24.3)%	2.9%	(20.3)%	25.3%	10.1%
\$ 99.2	\$ 90.3	\$ 79.8	\$ 78.5	\$ 65.3	\$ 69.6	\$ 67.5	\$ 66.6	\$ 57.8	\$ 50.7	\$ 52.6
\$ 110,937.8	\$ 155,845.9	\$ 156,625.2	\$ 142,620.1	\$ 128,037.7	\$ 120,799.0	\$ 97,372.7	\$ 112,724.9	\$ 114,043.5	\$ 128,889.4	\$ 112,723.1

NOTES TO 20-YEAR SUMMARY

* Combined ERS and PFRS, unless noted; dollars in millions; data as of March 31 fiscal year end.

- (a) Includes active members and inactive members identified with their last employer.
- (b) Tier 3 through 6 membership statistics are combined. Tier 6 was enacted on April 1, 2012.
- (c) Total does not include Employee Contributions Refunded or Other Benefits found in the Financial Statements.
- (d) Beginning in the 2006 fiscal year, all rates assume a February 1 payment date prior to the close of the fiscal year. Previous years assume rates based on a December 15 payment date. Contributions include normal, administrative, retirement incentive and deficiency costs.
- (e) Investments for 1995 and later years are shown at (and rate of return is calculated on) fair value as required by GASB 25, which the System adopted that year.
- (f) Generally, the Rate of Return is calculated on a time-weighted, gross-of-fees basis.



Office of the New York State Comptroller
Thomas P. DiNapoli

