

2017

Comprehensive Annual Financial Report

For Fiscal Year Ended March 31, 2017



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



2017 Comprehensive Annual Financial Report

For Fiscal Year Ended March 31, 2017

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



New York State and Local Retirement System

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**New York State
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For its Comprehensive Annual
Financial Report
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March 31, 2016

Executive Director/CEO



Public Pension Coordinating Council

***Public Pension Standards Award
For Funding and Administration
2016***

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 black ink that reads "Alan H. Winkle". The signature is written in a cursive, flowing style.

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, 2017



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, 2017. 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.

We 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, 2016. 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 13 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 and death benefits. At the end of fiscal year 2016-17, there were a total of 1,104,779 members, retirees and beneficiaries, and 3,040 participating employers.

This letter highlights some of the System's operations for the 2016-17 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 last September that employer contribution rates would remain virtually the same in fiscal year 2017-18 compared to fiscal year 2016-17. The average contribution rate for ERS decreased from 15.5 percent of payroll to 15.3 percent of payroll. The average contribution rate for PFRS increased to 24.4 percent from 24.3 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, 2017, the ratios are 94.7 for ERS and 93.5 for PFRS. The traditional funded ratios for ERS and PFRS can be found in this CAFR's Actuarial Section.

Underfunding, together with unwise investment decisions, has created a crisis for many public pension systems across the country. However, NYSLRS remains strong and well-funded because we adhere to our funding policy of collecting what we bill employers, and we follow sound actuarial principles in determining those bills.

In September 2016, the Fund was ranked the third best-funded public pension fund in the nation by S&P Global Rating and in April 2017, the Pew Charitable Trusts ranked NYSLRS as the third best-funded retirement system in the nation.

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, in July 2016, an independent fiduciary and conflict of interest review of the Fund by Funston Advisory Services commended the Fund for its strong policies and ethical management, stating that our office “maintains a very high level of ethical, professional and conflict of interest standards.”

We are responsible for implementing an asset allocation 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. At the end of the 2016-17 fiscal year, the market value of invested assets of the Fund was \$192.41 billion and the Fund posted positive investment performance with a time-weighted rate of return of 11.48 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 7.52 percent in 2017. NYSLRS’s assumed rate of return on investments is 7.0 percent. By taking a conservative 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. The 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.

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, 2017 adequately safeguard the System's assets and provide reasonable assurance regarding the proper recording of financial transactions.

Programs and Initiatives

NYSLRS is currently replacing the information systems it has used for three decades. The first stages of this project are complete. In 2017, NYSLRS introduced Retirement Online, a new self-service website that enables members, retirees and beneficiaries to manage their retirement accounts in a convenient and secure environment.

In 2018, Retirement Online will offer a wide-ranging suite of tools for NYSLRS employers that will help to simplify their work. These upgrades will make it easier to enroll new members, help keep track of loan and service credit deductions, and streamline employer reporting.

These changes will help NYSLRS and its participating employers continue fulfilling the mission of helping to provide a secure retirement for the System's members and retirees.

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 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.

Chairman
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 PBAs

John J. McPadden

President
Retired Public Employees Association, Inc.

Andrew Pallotta

Executive Vice 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, Inc.

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 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

Douglas Phillips

Senior Vice President
Institutional Resources
University of Rochester

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.

Alice M. Connell
Principal
AM Connell Associates, LLC

Louis M. Dubin
Managing Partner
Redbrick LMD

G. Gail Edwards
Chief Financial Officer
The Minto Group

Jo Ann Hanson
President
Avanti Real Estate Corporation

David H. Peirez, Esq.
Senior Partner
Reisman Peirez Reisman & Capobianco, LLP

Michael Giliberto
S. Michael Giliberto & Co., Inc.

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 process 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

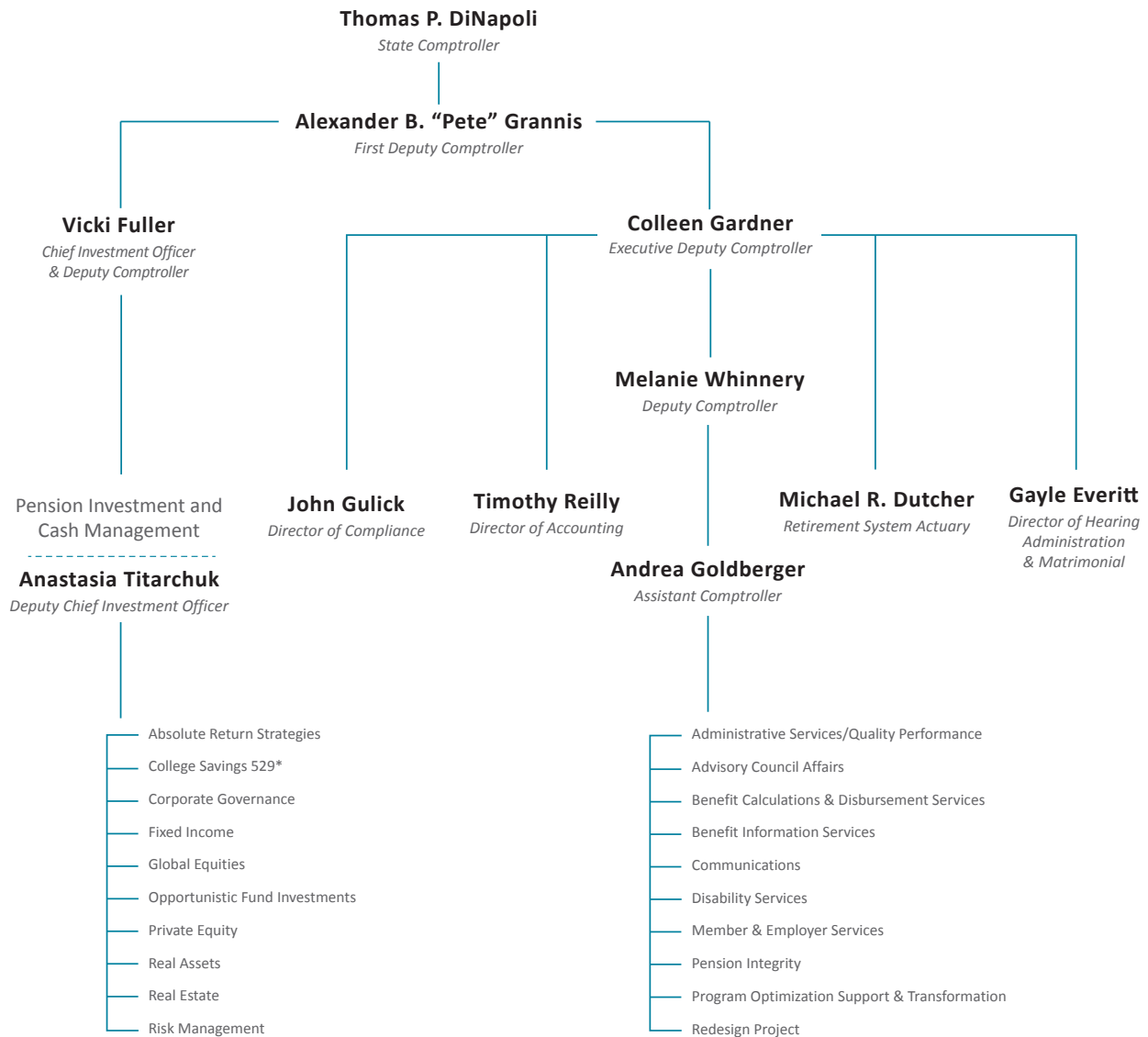
WithumSmith + Brown, PC

Jennifer Mulligan

Business Office Manager/Controller

Questar III BOCES

New York State and Local Retirement System Organization Chart



* College Savings 529 is an independent program within OSC.

Notes:

Information regarding investment managers and consultants can be found in the Investment Section on pages 104, 108, 113 and 117 – 126. 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

Since 1921, NYSLRS members, retirees and beneficiaries and their needs have been the central focus of the work we do. We strive to enhance the services we provide to our customers and anticipate their needs.

Deputy Comptroller Melanie Whinnery, Assistant Comptroller Andrea Goldberger and I are proud of the work NYSLRS has done to improve customer service in fiscal year 2016-17, and we are pleased to share highlights of that work with you.

Retirement Online Brings Changes and Benefits

In early 2017, we introduced *Retirement Online*, our new self-service tool. *Retirement Online* provides a secure and convenient way for our customers to do business with NYSLRS. Members, retirees and beneficiaries can use *Retirement Online* for tasks that once required calling NYSLRS or mailing in a form, such as changing their address, managing beneficiary designations, creating a pension income letter, or taking out a loan. Over time, additional features will be added.

These changes represent a significant customer service improvement. Enabling customers to perform routine transactions online allows more time for NYSLRS staff to focus on work that requires individual attention. Additional features will be rolled out in the future, providing members with real-time, personalized information at their fingertips.

We value our relationship with NYSLRS employers, and supporting their role is one of our priorities. That's why in 2018 we'll be introducing new tools in *Retirement Online* that will bring greater ease and convenience to our employers.

Improving the Member Registration Process

When a new member fills out a membership registration application to join NYSLRS, it is no longer necessary for the application to be notarized. That's good news for our new members and employers, as well as our Member & Employer Services Bureau, which processes 35,000 applications per year.

Previously, between 1,750 and 3,500 membership applications received each year were invalid due to improper notarizations. Removing the notarization requirement eliminates the time spent obtaining properly notarized applications, enabling us to complete registrations more quickly.

Notarizations are still required on other forms such as beneficiary designations, loan applications, and applications for retirement. If a notary's signature is needed, it will be noted on the form. Members can submit beneficiary updates and loan applications via *Retirement Online* without the need for notarization because security protocols are built right in.

In addition, we now accept membership applications from employers by email as well as fax, and no longer require employers to mail hard copies.

Overview of the New York State and Local Retirement System

continued

Report from Executive Deputy Comptroller Colleen Gardner

Expanding the Use of Direct Deposit

Our Benefit Calculations & Disbursement Services (BCDS) Bureau streamlined its processes, which enabled more retirees to receive their first pension payments by direct deposit. These retirees can have their health insurance, child support and union dues immediately taken out of their pension payments.

When this improvement was first implemented, 30 percent of new retirees received their first pension payments via direct deposit. Over the course of the 2016-17 fiscal year, that number has increased to 55 percent. In addition, lump sum payments can now be made by direct deposit.

Increasing Communication

Alternate payees (generally ex-spouses who will receive a share of a member's benefit) are now notified when their former spouses are retiring. BCDS also sends the tax forms and the necessary paperwork to enroll them in direct deposit as soon as possible.

Serving Those Who Served Our Country

Chapter 41 of the Laws of 2016 enables eligible NYSLRS members to buy back up to three years of active military service toward their retirement, regardless of when or where they served. This new law, enacted on May 31, 2016, eliminated certain restrictions on granting retirement credit for military service.

We are committed to serving those who served our country. This was evident when our Member & Employer Services Bureau quickly responded to the increase in applications for military service credit, and, by year's end, finalized more than 7,000 requests from members to buy back military time.

Fighting Fraud

The timely identification of retiree and beneficiary deaths is an important step in identifying and preventing pension fraud. During the last fiscal year, NYSLRS recovered over \$355,000 in disallowed post-death pension disbursements. NYSLRS will continue to search out unreported pensioner deaths and, when inappropriate payments are identified, pursue full restitution.

A major focus of Operation Integrity, a joint partnership with the New York State Attorney General's office launched in 2011, is to root out pension fraud and recoup money stolen from NYSLRS. Our efforts during the past year resulted in the conviction of a Florida woman who stole over \$148,000 in pension benefits by concealing her father's passing from NYSLRS. This arrest and conviction, and others like it, are warnings to all those who might steal from the Fund — we will continue to work aggressively to prosecute anyone attempting to defraud NYSLRS.

Overview of the New York State and Local Retirement System

continued

Report from Executive Deputy Comptroller Colleen Gardner

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 retirees who are performing services for public employers and may be subject to earnings limitations. Over the last fiscal year, our reviews of post-retirement employment uncovered \$1,585,070 in benefit overpayments subject to recovery.

Communicating With Our Customers

By furnishing members with the information they need to help make sound decisions about their financial futures, assisting retirees with questions about their benefits and helping employers with their retirement-related work, we further Comptroller DiNapoli's goal of providing exceptional service.

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

- Answered 330,491 calls and responded to 35,933 emails;
- Assisted 40,773 customers at on-site consultations and 4,734 customers at off-site consultations;
- Delivered presentations to 18,914 members; and
- Assisted 22,225 customers at information tables.

With the security enhancements of *Retirement Online*, a special unit of staff was deployed to assist our customers with signing up for an online account. For the first three months of 2017, Call Center staff helped 3,002 customers set up their new *Retirement Online* accounts.

This year, to help alleviate the wait time to speak with a representative by phone, we added an auto-call back feature to our automated phone system. This new service has been very popular with callers, since they now don't have to wait on hold.

New Laws Enacted in the Past Year that Impact NYSLRS:

Military Credit Eligibility Expanded

Chapter 41 of the Laws of 2016 removes the requirement that military service must have been during specific periods of hostilities in order for NYSLRS members to purchase service credit under Article 20 of the Retirement and Social Security Law. Eligible NYSLRS members may buy up to three years of their military service as long as they have at least five years of creditable service in NYSLRS (other than their military service), have been honorably discharged from active military service, and have **not** received credit for this service in any other public retirement system in New York State.

Overview of the New York State and Local Retirement System

continued

Report from Executive Deputy Comptroller Colleen Gardner

Notary Requirement Removed

Chapter 123 of the Laws of 2016 removes the requirement that ERS and PFRS membership applications be notarized.

Tier 5 Benefits Provided to PFRS Tier 3 Members

Chapter 263 of the Laws of 2016 allows certain PFRS members who joined NYSLRS on or after July 1, 2009 but before January 10, 2010, to select Tier 5 benefits rather than Tier 3 benefits.

World Trade Center Notice Extended

Chapter 326 of the Laws of 2016 extends the deadline for filing a notice of participation in the World Trade Center rescue, recovery or cleanup operation to September 11, 2018. Filing a notice preserves eligibility to apply for disability and accidental death benefits.

Special Accidental Death Benefits Increased

Chapter 347 of the Laws of 2016 increases certain special accidental death benefits paid to widows, widowers or children of police officers and firefighters killed in the line of duty.

Heart Disease Presumption Expanded

Chapter 437 of the Laws of 2016 provides Forest Rangers and Environmental Conservation Police Officers with the same heart disease presumption benefit that is provided to other police officers.

The coming year promises to be an exciting one. *Retirement Online* will continue expanding its online, self-service features for our members, retirees and beneficiaries; our employers will have the opportunity to use *Retirement Online* tools that will make it easier for them to enroll new members, keep track of loan and service credit deductions, and electronically report accurate and timely data.

All of us at NYSLRS are looking to the future with excitement. I look forward to telling you about our successes in 2018.

By the Numbers

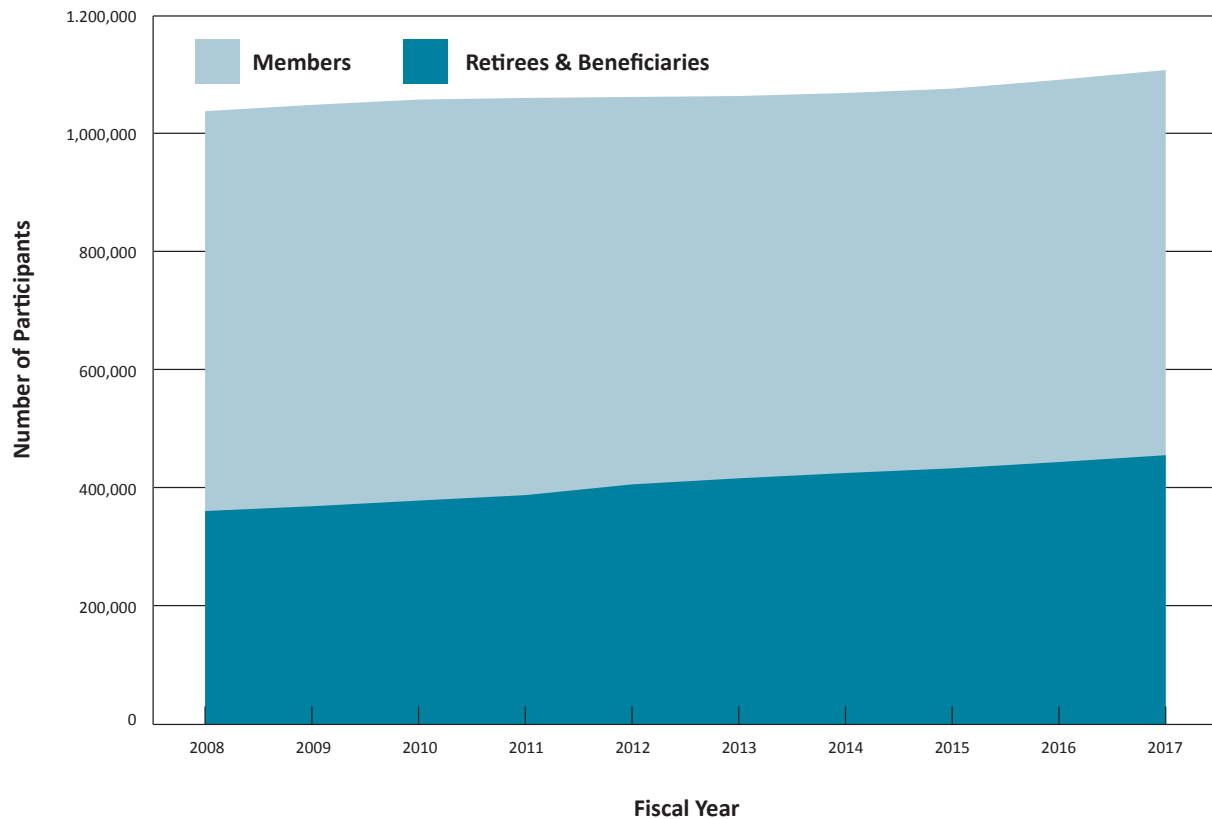
Members and Retirees

There are 1,104,779 participants in the System, including 652,324 members and 452,455 retirees and beneficiaries.

The number of retirees is increasing more quickly than members. For example, in 1997 retirees represented 33 percent of the System's participants. By fiscal year 2017, that number had increased to approximately 41 percent.

The value of the pension plan's fiduciary net position at the end of the fiscal year was \$197.60 billion.

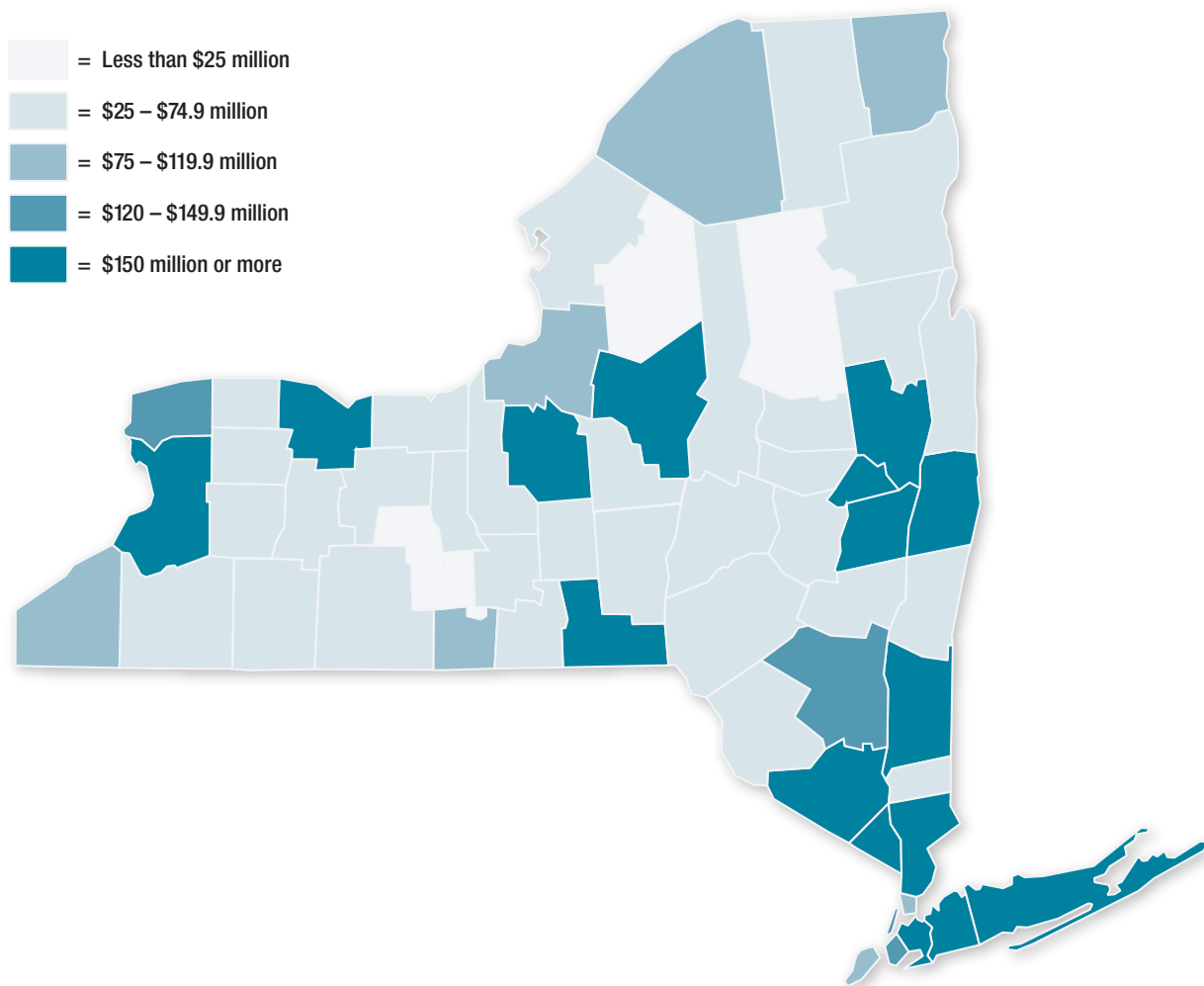
Benefit payments continue to rise, reflecting improvements in final average salaries over the past decades, cost-of-living adjustment (COLA) payments and benefit improvements enacted over the years.



Retirees in New York State

Of the 452,455 retirees and beneficiaries in the System, 355,028 (78 percent) remain New York State residents. As such, benefit payments surpassing \$9.1 billion this year alone reach the State's communities and businesses, representing a significant stimulus to the State's economy.

Benefit Payments by County



Annual Benefit Payments Within New York State

As of March 31, 2017.

County	Recipients	Annual Payments
Albany	18,486	\$ 563,190,335
Allegany	1,649	30,473,101
Bronx	3,587	94,534,288
Broome	7,636	150,062,776
Cattaraugus	3,349	66,716,375
Cayuga	3,111	69,038,376
Chautauqua	4,710	92,599,035
Chemung	3,589	82,432,131
Chenango	2,038	36,627,604
Clinton	4,196	103,513,914
Columbia	2,960	72,859,959
Cortland	1,728	33,226,057
Delaware	1,785	35,007,735
Dutchess	9,489	262,040,526
Erie	29,794	742,071,449
Essex	1,942	39,629,683
Franklin	2,971	67,300,565
Fulton	2,112	42,014,105
Genesee	2,243	48,058,859
Greene	2,421	59,132,123
Hamilton	435	8,558,818
Herkimer	2,378	45,009,562
Jefferson	3,328	70,953,853
Kings	5,703	164,720,716
Lewis	1,160	19,771,644
Livingston	2,894	64,285,348
Madison	2,424	48,298,028
Monroe	16,424	357,123,243
Montgomery	2,353	51,521,730
Nassau	22,869	753,284,025
New York	4,420	138,912,686
Niagara	6,107	135,760,564

County	Recipients	Annual Payments
NY Military	10	\$ 97,954
Oneida	9,753	224,903,669
Onondaga	13,447	299,672,848
Ontario	3,403	70,421,100
Orange	8,930	234,444,244
Orleans	1,538	30,829,470
Oswego	4,175	80,620,503
Otsego	2,167	38,632,203
Putnam	2,341	70,898,817
Queens	6,095	181,144,988
Rensselaer	8,775	248,777,691
Richmond	2,444	76,868,180
Rockland	6,775	201,070,750
Saratoga	10,370	290,226,277
Schenectady	8,197	229,324,750
Schoharie	1,540	34,536,365
Schuyler	812	16,362,992
Seneca	1,455	29,233,391
St. Lawrence	5,100	113,384,089
Steuben	3,217	64,763,646
Suffolk	34,187	1,075,642,277
Sullivan	2,818	67,102,863
Tioga	1,556	27,772,445
Tompkins	2,711	55,353,459
Ulster	5,764	132,017,564
Warren	2,860	63,410,313
Washington	2,657	57,456,221
Wayne	3,278	63,154,693
Westchester	15,528	474,315,207
Wyoming	2,049	44,976,818
Yates	785	14,924,760
Total	355,028	\$ 9,161,069,761

Note: The objective of this chart is to show the relative amounts paid to annuitants in the various locations within New York State. 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. The latter numbers are easier to organize by county than the former.

Annual Benefit Payments Within the United States

As of March 31, 2017.

State	Recipients	Annual Payments
Alabama	805	\$ 13,768,291
Alaska	55	1,005,460
Arizona	2,782	56,903,322
Arkansas	154	2,203,547
California	2,273	39,629,110
Colorado	832	15,791,445
Connecticut	2,241	51,986,258
Delaware	757	18,994,688
Florida	36,544	830,805,911
Georgia	3,727	73,763,185
Guam	2	12,945
Hawaii	111	2,140,742
Idaho	85	1,805,313
Illinois	367	5,906,749
Indiana	273	4,332,102
Iowa	76	1,080,617
Kansas	117	1,878,994
Kentucky	350	5,389,123
Louisiana	179	2,946,074
Maine	586	11,637,449
Maryland	1,444	26,708,718
Massachusetts	1,563	31,192,722
Michigan	356	5,133,145
Minnesota	141	1,851,563
Mississippi	215	3,827,762
Missouri	249	3,564,554
Montana	122	2,227,331

State	Recipients	Annual Payments
Nebraska	59	\$ 786,432
Nevada	1,419	33,418,019
New Hampshire	638	15,424,701
New Jersey	7,466	258,732,218
New Mexico	444	8,007,010
New York	355,028	9,161,069,761
North Carolina	8,693	181,991,001
North Dakota	23	341,456
Ohio	765	11,723,944
Oklahoma	169	2,341,045
Oregon	289	4,880,114
Pennsylvania	4,576	99,421,626
Puerto Rico	466	6,927,491
Rhode Island	254	5,423,061
South Carolina	5,620	128,637,411
South Dakota	70	1,456,618
Tennessee	1,743	38,353,476
Texas	2,139	40,278,430
Utah	147	2,772,473
Vermont	588	11,700,021
Virginia	3,699	72,663,810
Washington	519	9,394,320
Washington, D.C.	112	2,310,495
West Virginia	202	3,481,447
Wisconsin	163	2,573,347
Wyoming	68	1,397,606
Total	451,765	\$ 11,321,994,453

Annual Benefit Payments Outside the United States

As of March 31, 2017.

Total Recipients	Total Annual Payments
690	\$ 10,821,849

Note: The objective of this chart is to show the relative amounts paid to annuitants within the United States and outside the United States. 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. The latter numbers are easier to organize by country and state than the former.

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, 2017, 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, 2017, and the changes in fiduciary net position for the year then ended, in accordance with U.S. generally accepted accounting principles.

KPMG LLP is a Delaware limited liability partnership and the U.S. member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity.



Emphasis of Matter

Adoption of New Accounting Pronouncement

As discussed in note 2(g) to the basic financial statements, in 2017, the System adopted Governmental Accounting Standards Board Statement No. 72, *Fair Value Measurement and Application*. Our opinion is not modified with respect to this matter.

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the management's discussion and analysis and 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 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 21, 2017 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 21, 2017

Management's Discussion and Analysis (Unaudited)

March 31, 2017

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, 2017 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). 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 \$197.60 billion as of March 31, 2017. This amount reflects an increase of \$13.96 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 (depreciation) for the fiscal years ended March 31, 2017 and 2016 is \$16.92 billion and \$(3.93) billion, respectively.

- The System's investments reported a positive money-weighted rate of return, net of investment expense, of 11.40 percent for the fiscal year ended March 31, 2017 and a positive money-weighted rate of return, net of investment expense, of 0.03 percent for the fiscal year ended March 31, 2016.
- Retirement and death benefits paid during fiscal year 2017 to 452,455 annuitants totaled \$11.45 billion, as compared to \$10.91 billion paid to 440,943 annuitants for fiscal year 2016. The increase is primarily due to the number of new retirees.
- Contributions from employers decreased to \$4.79 billion for the fiscal year ended March 31, 2017, from \$5.14 billion for the fiscal year ended March 31, 2016. The decrease in contributions is attributable to lower billing rates.
- The Net Pension Liability (NPL) for ERS was \$9.40 billion for the measurement period ended March 31, 2017 as compared to \$16.05 billion for the measurement period ended March 31, 2016. The fiduciary net position, restricted for pension benefits as of March 31, 2017, was \$168.00 billion, which represents 94.7 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 the PFRS was \$2.07 billion for the measurement period ended March 31, 2017 as compared to \$2.96 billion for the measurement period ended March 31, 2016. The fiduciary net position restricted for pension benefits as of March 31, 2017, was \$29.60 billion, which represents 93.5 percent of the calculated total pension liability for the PFRS. The NPL is allocated to participating employers and reported pursuant to GASB Statements 67 and 68.

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 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 financial statement notes include Description of Plans, Summary of Significant Accounting Policies, System Reserves, Investments, Deposit and Investment Risk Disclosure, Derivatives, Securities Lending Program, Fair Value Measurement, Net Pension Liability of Participating Employers, Federal Income Tax Status, Commitments, and Contingencies.

The required supplementary schedules include: 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 current funding needs as well as future growth requirements of the pension liability. 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 of the pension payments, 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, 2017, as compared to March 31, 2016:

	(Dollars in Thousands)			Percentage Change
	2017	2016	Dollar Change	
Assets:				
Investments	\$ 192,410,603	\$ 178,639,701	\$ 13,770,902	7.7%
Securities lending collateral — invested	4,793,249	11,732,966	(6,939,717)	(59.1)
Receivables and other assets	<u>6,219,937</u>	<u>6,484,158</u>	<u>(264,221)</u>	<u>(4.1)</u>
Total assets	203,423,789	196,856,825	6,566,964	3.3
Liabilities:				
Securities lending obligations	4,801,017	11,741,243	(6,940,226)	(59.1)
Payables and other liabilities	<u>1,020,579</u>	<u>1,475,377</u>	<u>(454,798)</u>	<u>(30.8)</u>
Total liabilities	5,821,596	13,216,620	(7,395,024)	(56.0)
Net position, restricted for pension benefits	\$ 197,602,193	\$ 183,640,205	\$ 13,961,988	7.6%

The fiduciary net position of the System totaled \$197.60 billion as of March 31, 2017, an increase of \$13.96 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, 2017, as compared to March 31, 2016:

	(Dollars in Thousands)			Percentage Change
	2017	2016	Dollar Change	
Domestic equity	\$ 69,851,696	\$ 61,544,070	\$ 8,307,626	13.5%
Global fixed income	44,002,645	44,661,200	(658,555)	(1.5)
International equity	33,836,667	29,211,336	4,625,331	15.8
Private equity	15,348,492	13,961,373	1,387,119	9.9
Real estate	12,937,452	12,639,723	297,729	2.4
Absolute return strategy investments	7,523,769	8,029,411	(505,642)	(6.3)
Short-term investments	5,653,335	5,578,801	74,534	1.3
Opportunistic funds	2,065,686	1,719,316	346,370	20.1
Mortgage loans	800,287	796,403	3,884	0.5
Real assets	390,574	498,068	(107,494)	(21.6)
Total investments	\$ 192,410,603	\$ 178,639,701	\$ 13,770,902	7.7%

The largest percentage increases to the invested assets were in the domestic and international equity portfolios and in opportunistic funds, which represent 36.3 percent, 17.6 percent, and 1.1 percent of the total portfolio, respectively. The equity portfolios increased largely due to positive performance. In opportunistic funds, the growth largely reflected new allocations to bring the portfolio closer to its targeted asset allocation. The Fund continued to add capital to its real assets portfolio to fulfill the targeted asset allocation. However, the asset temporarily decreased due to a redemption of one manager. The decrease in absolute return strategies reflects the Fund's reduced allocation to this asset class. Absolute return strategy investments include equity-oriented long-only global funds of \$2.1 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, 2017, as compared to the year ended March 31, 2016:

	(Dollars in Thousands)			Percentage Change
	2017	2016	Dollar Change	
Additions:				
Net investment income (loss)	\$ 20,225,244	\$ (384,834)	\$ 20,610,078	5,355.6%
Total contributions	5,352,191	5,779,715	(427,524)	(7.4)
Total additions	25,577,435	5,394,881	20,182,554	374.1
Deductions:				
Total benefits paid	(11,508,313)	(11,060,472)	(447,841)	4.0
Administrative expenses	(107,134)	(106,620)	(514)	0.5
Total deductions	(11,615,447)	(11,167,092)	(448,355)	4.0
Net increase (decrease)	13,961,988	(5,772,211)	19,734,199	341.9
Net position, restricted for pension benefits — beginning of year	183,640,205	189,412,416	(5,772,211)	(3.0)
Net position, restricted for pension benefits — end of year	\$ 197,602,193	\$ 183,640,205	\$ 13,961,988	7.6%

The change in net investment income (loss) is primarily attributable to the net appreciation in fair value of investments from 2016 to 2017. This is reflected in the change in the money-weighted rate of return, net of investment expense, from 0.03 percent in 2016 to 11.40 percent in 2017. The decrease in total contributions is attributable to the change in employer billing rates.

Economic Factors and Rates of Return

The Fund announced positive investment performance for the fiscal year ended March 31, 2017, with a time-weighted rate of return of 11.48 percent, a strong increase which reflected the strength of the global equity markets in the second half of the year. Both U.S. and international equity portfolios performed exceptionally well as global growth picked up pace. The Fund's alternative portfolios also added to performance, all having a positive year. Finally, despite talk of higher inflation and raising rates, the Fund's fixed income had a modestly positive year as well. General market volatility remained subdued and the Fund is closely monitoring this complacency in the market. This was the eighth 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, 2017

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Assets:			
Investments (notes 2(b), 4, 5, and 8):			
Domestic equity	\$ 59,321,566	\$ 10,530,130	\$ 69,851,696
Global fixed income	37,369,255	6,633,390	44,002,645
International equity	28,735,796	5,100,871	33,836,667
Private equity	13,034,710	2,313,782	15,348,492
Real estate	10,987,134	1,950,318	12,937,452
Absolute return strategy investments	6,389,562	1,134,207	7,523,769
Short-term investments	4,801,096	852,239	5,653,335
Opportunistic funds	1,754,284	311,402	2,065,686
Mortgage loans	679,644	120,643	800,287
Real assets	331,695	58,879	390,574
Total investments	163,404,742	29,005,861	192,410,603
Securities lending collateral — invested (notes 7 and 8)	4,070,668	722,581	4,793,249
Forward foreign exchange contracts (notes 6 and 8)	94,132	16,709	110,841
Receivables:			
Employers' contributions	3,342,802	455,936	3,798,738
Members' contributions	3,929	135	4,064
Member loans	1,057,543	3,179	1,060,722
Investment income	341,055	60,540	401,595
Investment sales	235,768	41,851	277,619
Other	180,830	128,331	309,161
Total receivables	5,161,927	689,972	5,851,899
Capital assets, at cost, net of accumulated depreciation	218,425	38,772	257,197
Total assets	172,949,894	30,473,895	203,423,789
Liabilities:			
Securities lending obligations (notes 7 and 8)	4,077,265	723,752	4,801,017
Forward foreign exchange contracts (notes 6 and 8)	93,873	16,663	110,536
Accounts payable — investments	434,020	77,043	511,063
Benefits payable	186,005	36,289	222,294
Other liabilities	154,368	22,318	176,686
Total liabilities	4,945,531	876,065	5,821,596
Net position, restricted for pension benefits	\$ 168,004,363	\$ 29,597,830	\$ 197,602,193

See accompanying notes to financial statements.

Basic Financial Statements

continued

Combining Basic Statement of Changes in Fiduciary Net Position

Year Ended March 31, 2017

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Additions:			
Income from investing activities:			
Net appreciation in fair value of investments	\$ 14,387,065	\$ 2,536,138	\$ 16,923,203
Interest income	1,147,400	202,258	1,349,658
Dividend income	1,370,368	241,561	1,611,929
Other income	806,758	142,210	948,968
Less investment expenses	(565,294)	(99,647)	(664,941)
Total income from investing activities	17,146,297	3,022,520	20,168,817
Income from securities lending activities:			
Securities lending income	63,274	11,154	74,428
Securities lending rebates	(10,031)	(1,768)	(11,799)
Less securities lending management fees	(5,273)	(929)	(6,202)
Total income from securities lending activities	47,970	8,457	56,427
Total net investment income	17,194,267	3,030,977	20,225,244
Contributions:			
Employers	3,949,710	837,253	4,786,963
Members	306,218	22,609	328,827
Interest on accounts receivable	123,184	17,068	140,252
Other	77,195	18,954	96,149
Total contributions	4,456,307	895,884	5,352,191
Total additions	21,650,574	3,926,861	25,577,435
Deductions:			
Benefits paid:			
Retirement benefits	(9,532,296)	(1,700,236)	(11,232,532)
Death benefits	(207,976)	(8,174)	(216,150)
Other, net	(65,261)	5,630	(59,631)
Total benefits paid	(9,805,533)	(1,702,780)	(11,508,313)
Administrative expenses	(93,943)	(13,191)	(107,134)
Total deductions	(9,899,476)	(1,715,971)	(11,615,447)
Net increase	11,751,098	2,210,890	13,961,988
Net position, restricted for pension benefits — beginning of year	156,253,265	27,386,940	183,640,205
Net position, restricted for pension benefits — end of year	\$ 168,004,363	\$ 29,597,830	\$ 197,602,193

See accompanying notes to financial statements.

Notes to Financial Statements

March 31, 2017

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. 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, 2017, 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	913	207
Villages	485	375
Other	798	39
School districts	698	–
Total	3,013	687

As of March 31, 2017, the System membership for ERS and PFRS consisted of the following:

	ERS	PFRS
Retirees and beneficiaries currently receiving benefits	417,499	34,956
Active members	496,441	32,332
Inactive members*	120,702	2,849
Total members and benefit recipients	1,034,642	70,137
* 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** N/A
- 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 credit 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, 2017 was approximately 15.5 percent of payroll. The average contribution rate for PFRS for the fiscal year ended March 31, 2017 was approximately 24.3 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, 2017, 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, 2017 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 its pension administration system redesign. As of March 31, 2017, capitalized outlays for the project total \$203.2 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 \$30.67 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, 2017 is \$111.06 million and from local participating employers is \$14 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, 2017 is \$308.21 million and from local participating employers is \$101.15 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, 2017 is \$495.62 million and from local participating employers is \$217.94 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, 2017 is \$692.51 million and from local participating employers is \$139.66 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, 2017 is \$589.18 million and from local participating employers is \$114.25 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 has set an interest rate of 3.21 percent. The amortized amount receivable from the State as of March 31, 2017 is \$326.2 million and from local participating employers is \$61.25 million.

For the annual bill for the fiscal year ended 2017, the statutory amortization threshold is 15.1 percent of payroll for ERS and 23.5 percent for PFRS. The Comptroller has set an interest rate of 2.33 percent. The amortized amount receivable from the State as of March 31, 2017 is zero and from local participating employers is \$6.13 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, 2017 from participating employers is \$197.49 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, 2017 from participating employers is \$168.85 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, 2017 from participating employers is \$124.79 million.

For the annual bill for the fiscal year ended 2017, the alternative amortization threshold is 13 percent of payroll for ERS and 21 percent for PFRS. The Comptroller has set an interest rate of 2.63 percent. The amortized amount receivable as of March 31, 2017 from participating employers is \$92.96 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.

(g) Accounting Pronouncements

Governmental Accounting Standards Board (GASB) Statement No. 72, *Fair Value Measurement and Application*, provides guidance for determining a fair value measurement for financial reporting purposes. This Statement also provides guidance for applying fair value to certain investments and disclosures related to all fair value measurements. The System implemented this standard beginning with the financial statements for the fiscal year ended March 31, 2017.

GASB Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68*, and *Amendments to Certain Provisions of GASB Statements 67 and 68*, addresses the accounting and financial reporting for pensions and related assets that are not within the scope of GASB 68 and amendments to certain provisions of GASB 67 and GASB 68. The System implemented this standard beginning with the financial statements for the fiscal year ended March 31, 2017.

GASB Statement No. 82, *Pension Issues-An Amendment of GASB Statements No. 67, No. 68, and No. 73*, addresses the presentation of payroll measures in required supplementary information (RSI), the selection of assumptions and the treatment of deviations from the guidance in an Actuarial Standard of Practice for financial reporting purposes, and the classification of payments made by employers to satisfy employee (plan member) contribution requirements. The adoption of this statement resulted in a change in classification of member contributions and changes in amounts reported for covered-payroll in the RSI schedules to include only payrolls on which contributions to a pension plan are based.

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, 2017, 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, 2017, the System reserves for ERS and PFRS consisted of the following:

	(Dollars in Thousands)	
	ERS	PFRS
Annuity savings	\$ 4,889	\$ 50,879
Annuity reserve	76,543	11,078
Pension accumulation	67,663,952	12,037,601
Pension reserve	91,437,654	17,419,501
Designated annuitant	53,052	20,621
Loan insurance	2,489	104
Group Life Insurance Plan reserve	100,208	2,940
COESC contributions	8,665,576	55,106
Total	\$ 168,004,363	\$ 29,597,830

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.

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.

(b) Asset Allocation

The following was the adopted asset allocation policy as of March 31, 2017:

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 \$2.10 billion. For investment management purposes, these funds are included in domestic equity and international equity, respectively.	

(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 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 11.40 percent for the year ended March 31, 2017. For internal purposes, the System evaluates investment performance using the time-weighted rate of return, gross of certain investment fees, which was 11.48 percent for the year ended March 31, 2017.

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.

(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, the Division's 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, 2017, 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	\$ 5,161,498	11.7%	6.61
Federal agency	1,086,271	2.5	4.79
Corporate	13,792,200	31.3	6.74
Asset-backed	1,806,853	4.1	1.74
Commercial mortgage-backed	1,844,376	4.2	4.07
Mortgage-backed	4,837,657	10.9	4.30
Collateralized loan obligations	2,938,088	6.7	0.07
Municipal bonds	269,963	0.6	8.60
Core Portfolio	31,736,906	72.0	5.12
Treasury Inflation-Protected Securities (TIPS)	7,875,065	17.9	9.89
Externally managed funds:			
BlackRock Fixed Income	2,230,950	5.1	1.46
Neuberger Berman Fixed Income	1,133,945	2.6	3.69
New Century Advisors	248,873	0.6	8.28
Semper Capital Management	263,350	0.6	3.37
Smith Graham	513,556	1.2	4.30
Total	\$ 44,002,645	100.0%	

(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, 2017, 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	\$ 23,936,794	54.399%
AA	3,174,877	7.215
A	6,525,674	14.830
BAA	5,605,919	12.740
BBB	713,616	1.622
BA	517,220	1.175
BB	25,999	0.059
B	60,052	0.136
CAA	33,989	0.077
CCC	2,098	0.005
CA	1,842	0.004
CC	416	0.001
C	4,389	0.010
Not rated	34,865	0.079
Externally managed funds:*		
BlackRock Fixed Income Range AAA to C & Not Rated	2,230,950	5.070
Neuberger Berman Fixed Income Range AAA to C & Not Rated	1,133,945	2.578
Total	\$ 44,002,645	100.00%
* These externally managed funds are considered part of 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, 2017, 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. 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 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. 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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Foreign investments included in the combining basic statement of fiduciary net position as of March 31, 2017 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	\$ -	\$ -	\$ -	\$ -	\$ 74	\$ 74
Angolan Kwanza	-	-	-	-	120	120
Argentine Peso	15,921	-	-	-	59,906	75,827
Armenian Dram	1,500	-	-	-	-	1,500
Australian Dollar	250,399	383,785	750	69,440	197,293	901,667
Azerbaijani New Manat	5,734	-	-	-	-	5,734
Bahamian Dollar	-	-	-	696	22	718
Bahraini Dinar	527	-	-	-	-	527
Bermudian Dollar	2,676	-	-	-	47,595	50,271
Brazilian Real	23,657	177,547	149	80,931	243,010	525,294
British Pound Sterling	385,887	1,946,705	4,300	404,692	954,626	3,696,210
Bulgarian Lev	-	-	-	-	7,245	7,245
Burmese Kyat	-	-	-	-	10,405	10,405
Cambodian Riel	-	-	-	-	78	78
Canadian Dollar	826,854	346,331	103	1,889	321,486	1,496,663
Cayman Islands Dollar	56,289	-	-	-	2,257,765	2,314,054
Central African CFA Franc	-	-	-	-	113	113
Chilean Peso	70,931	8,680	42	-	1,969	81,622
Chinese Yuan Renminbi	602,657	-	-	287,586	976,876	1,867,119
Colombian Peso	2,957	2,358	-	-	25,920	31,235
Costa Rican Colon	2,075	-	-	-	316	2,391
Croatian Kuna	9,868	-	-	-	-	9,868
Czech Koruna	-	989	147	714	6,526	8,376
Danish Krone	-	287,627	220	58,405	69,128	415,380
Dominican Peso	5,384	-	-	-	12	5,396
Egyptian Pound	2,456	2,168	9	-	3,702	8,335
Euro	467,810	2,720,225	873	949,123	1,549,731	5,687,762
Fijian Dollar	-	-	-	153	-	153
Georgian Lari	-	-	-	-	(5)	(5)
Ghanaian Cedi	3,730	-	-	-	25,351	29,081
Guatemalan Quetzal	1,299	-	-	-	-	1,299
Honduran Lempira	244	-	-	-	-	244
Hong Kong Dollar	122,527	727,167	903	43,854	5,529	899,980
Hungarian Forint	2,598	13,389	276	158	6,308	22,729
Icelandic Krona	-	-	-	-	2,541	2,541
Indian Rupee	-	240,192	1,349	84,156	332,324	658,021
Indonesian Rupiah	10,494	88,008	188	-	50,869	149,559
Iraqi Dinar	3,119	-	-	-	-	3,119
Israeli Shekel	165,509	29,968	10	-	54,873	250,360
Jamaican Dollar	782	-	-	-	-	782
Japanese Yen	203,672	1,745,307	3,428	112,544	185,825	2,250,776
Jordanian Dinar	472	-	-	-	14	486
Kazakhstani Tenge	3,819	-	-	-	296	4,115

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	Fixed Income	Equity	Cash	Real Estate	Private Equity, Opportunistic, Absolute Return Strategy and Real Asset Funds	Total
Kenyan Shilling	\$ 1,716	\$ –	\$ –	\$ –	\$ 13,013	\$ 14,729
Macanese Pataca	–	–	–	–	129	129
Malaysian Ringgit	2,760	93,502	307	–	44,338	140,907
Mauritian Rupee	–	–	–	–	28,687	28,687
Mexican Peso	110,895	74,260	–	4,734	21,345	211,234
Mongolian Togrog	4,720	–	–	–	1	4,721
Moroccan Dirham	759	–	–	–	2,760	3,519
Mozambique Metical	–	–	–	–	1,254	1,254
New Taiwan Dollar	–	382,116	2,861	–	(1,140)	383,837
New Zealand Dollar	2,443	2,372	8	–	10,822	15,645
Nigerian Naira	1,093	–	181	–	50,178	51,452
Norwegian Krone	71,822	79,218	–	332	110,132	261,504
Omani Rial	2,034	–	–	–	(4)	2,030
Panamanian Balboa	2,958	–	–	–	95	3,053
Paraguayan Guarani	843	–	–	–	–	843
Peruvian Nuevo Sol	3,329	811	1	–	22,107	26,248
Philippine Peso	–	13,343	7	–	7,667	21,017
Polish Zloty	–	21,989	165	3,131	51,158	76,443
Qatar Rial	–	5,251	–	–	–	5,251
Romanian Leu	–	–	–	173	1,334	1,507
Russian Ruble	25,240	–	–	2,716	74,556	102,512
Saudi Arabian Riyal	55,855	–	–	–	1,593	57,448
Serbian Dinar	4,825	–	–	–	–	4,825
Singapore Dollar	66,827	200,094	473	79,644	84,516	431,554
South African Rand	4,328	191,826	381	–	17,358	213,893
South Korean Won	222,216	605,254	37	294	35,806	863,607
Sri Lankan Rupee	4,688	–	–	–	7,339	12,027
Swedish Krona	–	322,185	298	196,512	302,427	821,422
Swiss Franc	7,043	859,221	680	27	127,883	994,854
Trinidad and Tobago Dollar	385	–	–	–	–	385
Tanzanian Shilling	–	–	–	–	1,347	1,347
Thai Baht	–	84,552	–	–	(1,187)	83,365
Tunisian Dinar	1,936	–	–	–	–	1,936
Turkish Lira New	47,952	63,483	77	4,358	30,216	146,086
Ukrainian Hryvnia	8,596	–	–	–	2,702	11,298
United Arab Emirates Dirham	55,713	9,251	–	12,098	23,380	100,442
Uruguayan Peso	2,464	–	–	–	(11)	2,453
Venezuelan Bolivar	2,265	–	–	–	14,959	17,224
Vietnamese Dong	622	–	–	–	9,798	10,420
West African CFA Franc	7,800	–	–	–	4,862	12,662
Zambian Kwacha	–	–	–	–	326	326
Other	–	–	–	8,019	1,456	9,475
Total subject to foreign currency risk	3,975,974	11,729,174	18,223	2,406,379	8,501,045	26,630,795
Commingled international equity in U.S. Dollars	–	17,437,093	–	–	–	17,437,093
Other investments in U.S. Dollars	861,045	4,670,401	–	–	4,650,074	10,181,520
Total foreign investments	\$ 4,837,019	\$ 33,836,668	\$ 18,223	\$ 2,406,379	\$ 13,151,119	\$ 54,249,408

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. The System has classified the following as derivatives:

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, 2017 (dollars in thousands):

Currency	Forward Currency Contracts	Spot Currency Contracts	Totals
Australian Dollar	\$ 12,953	\$ 345	\$ 13,298
Brazilian Real	–	(10)	(10)
British Pound Sterling	(2,201)	(2,061)	(4,262)
Canadian Dollar	18,349	(71)	18,278
Chinese Yuan Renminbi	(13,518)	–	(13,518)
Czech Koruna	–	195	195
Danish Krone	–	385	385
Euro	5,471	(7,687)	(2,216)
Hong Kong Dollar	2,358	(2,063)	295
Japanese Yen	31,245	(302)	30,943
Norwegian Krone	–	5,524	5,524
Polish Zloty	–	165	165
Singapore Dollar	(730)	–	(730)
Swedish Krona	–	(2,305)	(2,305)
Swiss Franc	(2,786)	17	(2,769)
U.S. Dollar	(50,836)	7,857	(42,979)
Total	\$ 305	\$ (11)	\$ 294

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, 2017, 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, 2017.

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 fair 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, 2017, the fair value of securities on loan was \$5.47 billion. The associated collateral was \$5.60 billion, of which \$4.80 billion was cash collateral and \$800 million was securities. The cash collateral has been reinvested in other instruments, which had a fair value of \$4.79 billion as of March 31, 2017. The securities lending obligations were \$4.80 billion. The unrealized loss in invested cash collateral on March 31, 2017 was \$7.77 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, 2017 was 21 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 comparable to 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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The table below summarizes assets and liabilities carried at fair value based on levels from the fair value hierarchy as of March 31, 2017, 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	\$ 5,127,824	\$ —	\$ 5,127,824	\$ —
Global fixed income securities	40,637,751	21,008	40,526,743	90,000
Total fixed income securities	45,765,575	21,008	45,654,567	90,000
Equity securities:				
Domestic equities	69,851,696	69,851,696	—	—
International equities	27,426,553	27,423,396	—	3,157
Total equity securities	97,278,249	97,275,092	—	3,157
Mortgages	800,287	—	—	800,287
Private equity	214,391	—	—	214,391
Real estate:				
Direct equity real estate investments	7,432,244	—	—	7,432,244
Real estate private equity	323,733	—	—	323,733
Total real estate	7,755,977	—	—	7,755,977
Securities lending collateral	3,061,914	—	3,061,914	—
Forward foreign exchange contracts	110,841	—	110,841	—
Total investment assets by fair value level	\$ 154,987,234	\$ 97,296,100	\$ 48,827,322	\$ 8,863,812
Investments measured at cost:				
Securities lending collateral	\$ 1,731,335			
Investments measured at Net Asset Value (NAV):				
Global fixed income funds¹	\$ 3,364,894			
Commingled international equity funds²	6,410,114			
Alternative investments:³				
Private equity	15,134,101			
Absolute return strategy investments	7,523,769			
Opportunistic funds	2,065,686			
Real assets	390,574			
Real estate	5,181,475			
Total alternative investments	30,295,605			
Total investments measured at NAV	\$ 40,070,613			
Investment related cash and cash equivalents not included in above	525,511			
Total investment assets	\$ 197,314,693			
Liabilities:				
Investments by fair value level:				
Forward foreign exchange contracts	(110,536)	—	(110,536)	—
Total investment liabilities by fair value level	\$ (110,536)	\$ —	\$ (110,536)	\$ —

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	\$ 3,364,894	\$ —	Daily	0-30 days
Commingled international equity funds ²	6,410,114	—	Daily, Monthly, Quarterly	2-120 days
Alternative investments: ³				
Private equity	15,134,101	12,225,146	N/A	N/A
Absolute return strategy investments	7,523,769	—	Monthly, Quarterly, Annually, Semi-annually	5-120 days
Opportunistic	2,065,686	2,340,070	N/A	N/A
Real assets	390,574	1,067,113	N/A	N/A
Real estate	5,181,475	2,993,779	N/A	N/A
Total investments measured at NAV	\$ 40,070,613	\$ 18,626,108		

¹Global fixed income funds consist of two 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 five 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 (7.8 percent at March 31, 2017) consists of buyout, co-investments, distressed debt and turnaround funds, fund of funds, growth capital, and venture capital. Absolute return strategy investments (3.8 percent at March 31, 2017) consist of investments in strategies including hedged equity, credit, global macro, managed futures, distressed debt, and emerging markets. Opportunistic (1.0 percent at March 31, 2017) consists of investments in both public and private companies, property, and real assets. Real assets (0.2 percent at March 31, 2017) consist of commodities, farmland, inflation-linked bonds, infrastructure, and renewables. Real estate (2.6 percent at March 31, 2017) 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 that 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 detail 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, 2017, were as follows:

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Employers' total pension liability	\$ 177,400,586	\$ 31,670,483	\$ 209,071,069
Fiduciary net position	168,004,363	29,597,830	197,602,193
Employers' net pension liability	\$ 9,396,223	\$ 2,072,653	\$ 11,468,876
Ratio of fiduciary net position to the employers' total pension liability	94.7%	93.5%	94.5%

(a) Actuarial Assumptions

The total pension liability at March 31, 2017 was determined by using an actuarial valuation as of April 1, 2016, with update procedures used to roll forward the total pension liability to March 31, 2017. 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, 2016 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.

Best estimates of arithmetic real rates of return for each major asset class included in the target asset allocation as of March 31, 2017 (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	7.75
Real estate	5.80
Absolute return strategies*	4.00
Opportunistic portfolio	5.89
Real assets	5.54
Bonds and mortgages	1.31
Cash	(0.25)
Inflation-indexed bonds	1.50
* Excludes equity-oriented and long-only funds. For investment management purposes, these funds are included in domestic equity and international equity, respectively.	

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)	\$ 30,009,675	\$ 9,396,223	\$ (8,032,412)
PFRS net pension liability (asset)	\$ 5,875,848	\$ 2,072,653	\$ (1,117,299)

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, 2017, the System had contractual commitments totaling \$12.41 billion to fund future private equity investments, \$4.61 billion to fund future real estate investments, \$2.34 billion for opportunistic funds, and \$1.07 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)

	2017 Employees' Retirement System	2016 Employees' Retirement System	2015 Employees' Retirement System
Total pension liability:			
Service cost	\$ 2,951,979	\$ 2,916,374	\$ 2,989,807
Interest	11,723,859	11,198,823	11,581,437
Difference between expected and actual experience	226,737	(2,378,116)	135,177
Changes in assumptions	—	5,350,157	—
Benefit payments	(9,740,272)	(9,224,904)	(8,829,751)
Other, net	(65,261)	(150,294)	(77,388)
Net change in total pension liability	5,097,042	7,712,040	5,799,282
Total pension liability — beginning	172,303,544	164,591,504	158,792,222
Total pension liability — ending (a)	177,400,586	172,303,544	164,591,504
Fiduciary net position:			
Contributions — employer	3,949,710	4,347,619	4,893,110
Contributions — member	306,218	289,332	272,004
Net investment income (loss)	17,194,267	(327,068)	10,582,102
Benefit payments	(9,740,272)	(9,224,904)	(8,829,751)
Refunds of contributions	(65,261)	(150,294)	(77,388)
Administrative expense	(93,943)	(93,012)	(93,357)
Other additions	200,379	198,333	193,176
Net change in fiduciary net position	11,751,098	(4,959,994)	6,939,896
Fiduciary net position — beginning	156,253,265	161,213,259	154,273,363
Fiduciary net position — ending (b)	168,004,363	156,253,265	161,213,259
Net pension liability — ending (a) – (b)	\$ 9,396,223	\$ 16,050,279	\$ 3,378,245
Ratio of fiduciary net position to total pension liability	94.7%	90.7%	97.9%
Covered-employee payroll*	\$ 26,200,001	\$ 25,644,078	\$ 24,480,045
Net pension liability as a percentage of covered-employee payroll	35.9%	62.6%	13.8%
* Covered-employee payroll for 2016 was restated for compliance with GASB 82.			

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)

	2017 Police and Fire Retirement System	2016 Police and Fire Retirement System	2015 Police and Fire Retirement System
Total pension liability:			
Service cost	\$ 657,407	\$ 628,863	\$ 625,648
Interest	2,065,752	1,935,222	1,997,215
Difference between expected and actual experience	302,375	(537,163)	39,833
Changes in assumptions	–	1,531,662	–
Benefit payments	(1,708,410)	(1,683,580)	(1,606,417)
Other, net	5,632	(1,694)	(158)
Net change in total pension liability	1,322,756	1,873,310	1,056,121
Total pension liability — beginning	30,347,727	28,474,417	27,418,296
Total pension liability — ending (a)	31,670,483	30,347,727	28,474,417
Fiduciary net position:			
Contributions — employer	837,253	792,585	904,339
Contributions — member	22,609	17,297	12,789
Net investment income (loss)	3,030,977	(57,765)	1,862,789
Benefit payments	(1,708,410)	(1,683,580)	(1,606,417)
Refunds of contributions	5,631	(1,694)	(158)
Administrative expense	(13,191)	(13,608)	(13,794)
Other additions	36,021	134,548	37,623
Net change in fiduciary net position	2,210,890	(812,217)	1,197,171
Fiduciary net position — beginning	27,386,940	28,199,157	27,001,986
Fiduciary net position — ending (b)	29,597,830	27,386,940	28,199,157
Net pension liability — ending (a) – (b)	\$ 2,072,653	\$ 2,960,787	\$ 275,260
Ratio of fiduciary net position to total pension liability	93.5%	90.2%	99.0%
Covered-employee payroll*	\$ 3,633,237	\$ 3,526,980	\$ 3,257,100
Net pension liability as a percentage of covered-employee payroll	57.0%	83.9%	8.5%
* Covered-employee payroll for 2016 was restated for compliance with GASB 82.			

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)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
ERS										
Actuarially determined contribution (1)	\$ 3,950	\$ 4,348	\$ 4,893	\$ 5,138	\$ 4,524	\$ 3,879	\$ 3,623	\$ 1,879	\$ 1,963	\$ 2,135
Contributions in relation to the actuarial determined contribution (2)	3,950	4,348	4,893	5,138	4,524	3,879	3,623	1,879	1,963	2,135
Contribution deficiency (excess)	-	-	-	-	-	-	-	-	-	-
Covered-employee payroll (3)	26,200	25,644	24,480	24,361	24,405	24,291	24,389	24,972	24,099	22,779
Contributions as a percentage of covered-employee payroll	15.08%	16.96%	19.99%	21.09%	18.54%	15.97%	14.86%	7.52%	8.15%	9.37%
PFRS										
Actuarially determined contribution (1)	\$ 837	\$ 793	\$ 904	\$ 926	\$ 812	\$ 706	\$ 542	\$ 465	\$ 493	\$ 513
Contributions in relation to the actuarial determined contribution (2)	837	793	904	926	812	706	542	465	493	513
Contribution deficiency (excess)	-	-	-	-	-	-	-	-	-	-
Covered-employee payroll (3)	3,633	3,527	3,257	3,233	3,163	3,191	3,146	3,113	2,970	2,926
Contributions as a percentage of covered-employee payroll	23.04%	22.48%	27.76%	28.64%	25.67%	22.12%	17.23%	14.94%	16.60%	17.53%
(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.										
(3) Covered-employee payroll represents pensionable payroll. Covered-employee payroll for 2016 was restated for compliance with GASB 82.										

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

Required Supplementary Information (Unaudited) *continued*

Schedule of Investment Returns (Unaudited)

	2017	2016	2015
Annual money-weighted rate of return, net of investment expenses*	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, 2017

Changes in Benefit Terms.

There were no significant legislative changes in benefits for the April 1, 2015 actuarial valuation.

Changes of Assumptions.

There were 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, 2015 actuarial valuation.

Methods and Assumptions Used in Calculations of Actuarially Determined Contributions

The April 1, 2015 actuarial valuation determines the employer rates for contributions payable in fiscal year 2017. 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, 2017

(Dollars in Thousands)

	2017
Personal services:	
Salaries	\$ 52,845
Overtime salaries	3,162
Fringe benefits	<u>29,771</u>
Total personal services	85,778
Building occupancy expenses:	
Building, lease, and condominium fees	3,574
Utilities and municipal assessments	92
Office supplies and services	1,199
Telephone	<u>1,157</u>
Total building occupancy expenses	6,022
Computer expenses:	
IT shared services*	<u>8,503</u>
Total computer expenses	8,503
Personal and operating expenses:	
Training	200
Travel and auto expenses — includes pre-retirement seminars	878
Postage — includes member and retiree communication	1,570
Printing — includes member and retiree communication	310
Subscriptions/memberships	<u>132</u>
Total personal and operating expenses	3,090
Professional expenses:	
Audit services	1,223
Medical/clinical services	1,623
Miscellaneous consulting services	<u>895</u>
Total professional expenses	3,741
Total	\$ 107,134
* The System has implemented a shared service, information technology (IT) model within the 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, 2017

(Dollars in Thousands)

	2017
Investment expenses:	
Investment management and incentive fees:	
Absolute return strategy funds*	\$ 193,748
Private equity	185,706
International equity	95,603
Real estate	61,617
Domestic equity	48,929
Opportunistic funds	28,366
Real assets	12,188
Fixed income	12,009
Total investment management and incentive fees	638,166
Investment-related expenses:	
General consulting	4,852
Miscellaneous expenses	3,412
Data processing expenses/licenses	6,191
Private equity consulting and monitoring	1,839
Mortgage loan servicing fees	2,812
Private equity consulting and monitoring	2,408
Legal fees	1,320
Absolute return strategy consulting and monitoring	1,213
Administrative expenses	1,183
Audit and audit-related fees**	552
Real assets consulting and monitoring	428
Opportunistic consulting and monitoring	300
Global equity consulting	126
Domestic equity consulting and monitoring	69
Fixed income consulting	49
Custodial fees	21
Total investment-related expenses	26,775
Total investment expenses	\$ 664,941
* 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.	
** Audit and audit-related fees include expenses incurred for the System's fiduciary review.	

See accompanying independent auditors' report.

Other Supplementary Information

continued

Schedule of Consulting Fees

Year Ended March 31, 2017

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

	Amount	Nature
First Choice Evaluations LLC	\$ 447,175	Medical Services
KPMG LLP	279,755	Audit Services
Funston Advisory Services	272,700	Audit Services
Morgan, Lewis & Bockius, LLP	258,285	Legal Services
Jackson Walker, LLP	257,123	Legal Services
Ernst & Young LLP	254,364	Legal/ Tax Consultant
D & D Medical Associates, PC	244,695	Medical Services
Foster, Pepper & Shefelman, PLLC	233,879	Legal Services
K&L Gates, LLP	186,627	Legal Services
Regional Orthopaedics, PLLC	140,975	Medical Services
Jeffrey M. Meyer MD, PLLC	102,894	Medical Services
CEM Benchmarking, Inc.	90,000	Industry Measurement Survey
Syracuse Orthopedic Specialist PC	89,568	Medical Services
Bernstein Litowitz Berger & Grossman LLP	79,748	Legal Services
Nixon Peabody, LLP	69,409	Legal Services
Seyfarth Shaw, LLP	63,156	Legal Services
Certified Medical Consultants, Inc.	59,445	Medical Services
Seward & Kissel, LLP	45,913	Legal Services
Cox, Castle & Nicholson LLP	44,209	Legal Services
Simaren Corporation	42,962	Security Services
ProHEALTH Care Associates	38,257	Medical Services
Louis Benton, MD	37,900	Medical Services
Leon Sultan	35,045	Medical Services
Michael Lynch	33,460	Medical Services
Steven C Kasarda	31,561	Medical Services
Orrick Herrington & Sutcliffe, LLP	30,421	Legal Services
Pine Bush Mental Health, LLP	29,925	Medical Services
Dalco Reporting Inc	29,793	Medical Services
Grant & Eisenhofer, PA	29,661	Legal Services
Edward A Toriello MD, FACS.	28,221	Medical Services
Riverside Orthopaedic & Sports Medicine Assoc.	26,421	Medical Services
Mark J Fitzmaurice	25,222	Medical 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, 2017, 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 21, 2017.

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*.

KPMG LLP is a Delaware limited liability partnership and the U.S. member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity.



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 21, 2017

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 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, 2017 was 11.48 percent gross of certain investment fees, reflecting the strong performance of the world equity markets in the second part of the year. In general, better global growth overcame earlier concerns surrounding Brexit and a rise of global populism. All asset classes experienced positive performance.

The equity portfolio returned 17.01 percent, the real estate portfolio returned 10.68 percent, the private equity portfolio returned 7.81 percent, the absolute return strategies portfolio returned 7.24 percent, opportunistic funds returned 10.5 percent and real assets returned 11.63 percent. The core fixed income portfolio returned 2.49 percent, the non-core fixed income portfolio returned 11.43 percent and Treasury Inflation-Protected Securities (TIPS) returned 1.31 percent.

The sound investment framework provided by the Fund's asset allocation and diversification policies enabled it to benefit from a better global outlook. With its long-term investment approach, the Fund remains positioned to continue to provide sufficient cash flow to fund pension payments.

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 fair value of assets.

Pension Risk Management

Pension Risk Management (PRM) is a service that is structurally independent from the Fund's internal investment process. A new Chief Investment Risk Officer (CIRO) position was created in 2017 that reports directly to the Chief Investment Officer (CIO) of the Fund and has the ability to elevate risk issues that cannot be resolved internally within PICM to the Comptroller's attention. The PRM program will provide a framework for investment and non-investment risks. Recognizing that calculated risk is unavoidable and indeed necessary in providing adequate investment returns, PRM identifies investment risks within asset classes and, with the CIO, manages risk among asset classes, thus helping the Fund achieve and maintain fully-funded status. PRM will also work to manage non-investment risks, such as operational risk, broker and counterparty risk, liquidity risk, and cyber risk, inasmuch as these risks pertain to 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, 2017, the Fund's \$106.9 billion global public equity portfolio posted a positive 17.01 percent return as compared to a 15.04 percent return for the MSCI All Country World Index. The five-year return for the total public equity portfolio is a positive 10.79 percent. The Fund benefitted from an overweight to U.S. equities, which rose 17.73 percent for the fiscal year. An improving outlook for employment in the U.S., as well as a steadily, though slowly growing economy with little inflation, set the stage for an extended market rally. Optimism on tax relief and regulatory reform fueled an initial post-election rally. Subsequent disappointment in fiscal stimulus was offset by very strong corporate revenue and earnings. The Fund's U.S. equity portfolio grew to \$69.9 billion by the end of the fiscal year.

The Fund's non-U.S. equity portfolio for the fiscal year rose 15.15 percent, outperforming the MSCI ACWI ex U.S. benchmark return of 13.70 percent. The all active global portfolio, in which managers have mandates mixing U.S. and international portfolios, continued to outperform, posting a gain of 17.04 percent as compared to the MSCI ACWI return of 15.04 percent. The Fund's emerging markets portfolio posted its best return in years, improving to 17.47 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 pursue active manager mandates in less efficient markets where active managers have a better opportunity to outperform.

The Fund continued to use minority- and women-owned brokerage service providers when trading internally managed assets. For the fiscal year, these brokers accounted for approximately 37 percent of the total 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 needs for the other asset classes within the Fund.

The core fixed income portfolio uses the Barclays Aggregate Index as a benchmark and seeks to add value through sector weights 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.

The Fund's core long-term fixed income portfolio (excluding TIPS) returned 2.49 percent for the year as compared to 0.44 percent for the Barclays Aggregate Bond Index. The outperformance was primarily the result of two factors: the portfolio's overweight to corporate bonds and the portfolio's underweight to Treasury securities. Additionally, performance was augmented by an 8 percent position in collateralized loan obligations, which are not held in the Barclays Index. The Fund continues to maintain overweight positions in corporate bonds and structured products, while keeping the average credit quality of the core portfolio at A+/Aa3. 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 1.31 percent as compared to the Barclays Capital TIPS Index of 1.48 percent. The duration for the internal TIPS portfolio was longer than the Barclays Index, which accounted for the 17 basis points (bps) of underperformance. Short-term cash investments returned 0.86 percent for the fiscal year. External non-core fixed income gained 11.43 percent for the 2016-2017 fiscal year.

The Fund has 35 approved broker-dealer firms to execute trades in the long-term and short-term fixed income portfolios. Fourteen percent of these trading partners are women-owned or minority-owned firms. Women-owned and minority-owned firms continue to play a central role in the Fund's long-term and short-term fixed income strategy, executing 8 percent of all long-term trades and 12 percent of all short-term broker trades during the 2016-2017 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. The securities lending program earned the Fund \$56 million in revenue for the 2016-2017 fiscal year.

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 to capture excess returns through core-plus/value-add and opportunistic investments.

It 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, 2017, equity real estate represented 6.7 percent of the total Fund and produced a total return of 10.68 percent for the fiscal year. Looking forward, the Fund will continue to invest new capital and to take advantage of the current market 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.

In addition, the Fund will continue to target green investments. Real estate assets are by their nature long-term investments, and the movement toward green investments is a sound investment policy. 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. Staff understands 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 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 effectively manage the current portfolio investments 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 multifamily housing and the revitalization of deteriorated or obsolete housing units.

Since the inception of this program, 18,603 units representing \$746.6 million in investment have been completed and 2,723 are in the pipeline. In the 2016-2017 fiscal year, the Fund invested in affordable housing throughout the State, including Albany, Dutchess, Erie, Nassau, Onondaga, 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 beneficiaries and retirees.

Helping NY/Equity Real Estate Investments

Beyond the CPC program discussed above, the Fund 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 property values. New York properties, particularly those that are in central business districts, have rebounded in value from the recent economic downturn as investors seek to buy stabilized, in-fill assets in gateway cities such as New York.

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, 2017, the private equity program generated a one-year total return of 7.81 percent. The program has generated an 11.01 percent five-year return and an 8.83 percent ten-year return.

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 exploit those long-term commitments and alignment of interests by making additional co-investments alongside select managers on improved economic terms. During the past year, the Fund made 22 co-investments totaling over \$290 million in invested capital in carefully chosen portfolio companies alongside Fund managers. This compares to 11 co-investments totaling approximately \$190 million in the prior fiscal year. The Fund has established co-investment programs focused on opportunities sourced from its core private equity portfolio, emerging manager program, and In-State investments.

Finally, in accordance with the Comptroller's stated goal of providing all disclosures required and necessary to enable the public and financial community to gain an understanding of the System's financial activities, the Private Equity Program is reporting additional analysis this year of the fees, expenses, and profit sharing (carried interest) that the Program paid to its managers during the past year (please refer to the Private Equity — Fee, Expense and Carried Interest Analysis in the Investments section of the CAFR). This is the first time profit sharing (carried interest) has been reported by the Program, although returns to the Program have always been reported net of all fees, expenses and profit sharing (carried interest). We will continue to report this information in future years.

Absolute Return Strategies

The investment goals for the absolute return strategies program are 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, 2017, consists of roughly 25 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, 2017, the absolute return strategies portfolio generated a positive return of 7.24 percent for the fiscal year, as compared to the HFRI Fund of Funds Composite Index return of 6.27 percent.

Opportunistic Funds

The opportunistic portfolio invests across a broad range of investment strategies that do not fit neatly into traditionally defined asset classes, or that share characteristics of multiple asset classes. The portfolio includes investments across the capital structures of both public and private companies, as well as 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 portfolio's objectives are to provide diversification to the overall Fund portfolio, preserve investment capital, and increase total portfolio return with low correlation to other asset classes.

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 differentiated risk factors 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. As of March 31, 2017, the portfolio has generated a one-year total return of 10.5 percent.

Real Assets

The Real Assets portfolio is the Fund's newest alternative asset allocation, having first launched in 2014. Since inception, the Real Assets portfolio has made investments in a diverse basket of assets including commodities, farmland, inflation-linked bonds, infrastructure and renewables. Currently, most of our activity is focused on infrastructure transactions, given the size and risk profile of the opportunity set. 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.

The portfolio is still in its early stages, and the Real Assets portfolio allocation was 0.2 percent of the Fund's total assets at fiscal year end. The modest weight is due to the portfolio's conservative deployment approach and a manager transition. However, we expect the portfolio's assets to grow as underlying strategies develop. To date, we have committed \$1.45 billion to real asset strategies. Capital deployment will also be augmented by recent additions to investment staff, allocations to secondaries, open-ended vehicles and potential strategic partners.

Real asset investments offer exposure to varied return sources, including capital appreciation and cash flow from income. The diversified approach reduces realized volatility and allows the portfolio to benefit from long-term growth investment themes. These themes, such as the global growth in protein-based diets, will play out over multiple economic cycles. These investments will have a longer duration and an implicit focus on sustainable practices.

As of the fiscal year ended March 31, 2017, the portfolio returned 11.63 percent. These results were attributed to strength in the energy markets and the broader commodity markets. As the portfolio continues to develop, we expect sub-asset classes, including infrastructure, to contribute meaningfully to performance.

In terms of future initiatives, staff is examining co-investment opportunities, which will provide real asset exposures at lower fees. Staff is also in the process of developing a custom benchmark to provide robust portfolio monitoring.

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 a goal of making at least 25 percent of its loans to women- or minority-owned businesses. NYBDC also has an active Veteran's Loan Program where New York business owners who serve in the Guard or the Reserve, along with honorably-discharged former active duty members, can access small business loans.

The 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 1,139 loans totaling \$393 million to businesses that employ over 23,100 New Yorkers. During the fiscal year ended March 31, 2017, NYBDC made 31 loans totaling \$16.0 million.

Financing for Businesses in New York State

In 2000, the Fund initiated the In-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 that are often overlooked by investment professionals in this asset class, the program is also proving to be an important contributor to the State's economy. The In-State Program provides a model for how the pension 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, 2017, the Fund's private equity portfolio included investments in over 400 New York businesses with a fair value of \$1.9 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 \$16.7 billion as of December 31, 2016 (the most recent data available). Included in the Fund's New York State portfolio are: 901D in Airmont, Multisorb in Buffalo, 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, 2017, the Fund had over \$550 million of remaining commitments available for investment. Commitments to this program totaled \$1.6 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 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;
- *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*, three special situations funds that make equity and credit investments alongside other private equity managers investing in New York;
- *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; and
- *Wheatley Partners*, a technology venture fund with a focus on information and medical technology located in New York City and Long Island.

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

In March 2017, the Fund published its inaugural Environmental, Social and Governance (ESG) Report, articulating the Fund's ESG milestones and detailing the process the Fund is following to implement its ESG investment philosophy. The Report highlights the Fund's newly established, systematic ESG integration strategy across asset classes — including identifying material ESG factors for each investment and developing a risk management framework to guide due diligence in evaluating external managers' ESG polices and performance. This information is now required in investment memos and helps guide ESG discussions within the Fund's Internal Investment Committee (IIC) meetings.

In 2015, the Fund and Mercer Consulting released a tailored report that assessed the potential risks from climate change to the Fund's portfolio. The Fund continues to evaluate the recommendations contained in the report and implement them when appropriate. Starting in 2015, the Fund collaborated with Goldman Sachs Asset Management, a strategic partner, to study the carbon footprint of the Fund's public equities portfolio, using corporate emission data from the Carbon Disclosure Project (CDP). In 2016, the study showed that the carbon footprint of the Fund's public equities portfolio was approximately 11 percent below that of our blended benchmark (75 percent Russell 3000/25 percent MSCI ACWI [All Country World Index ex U.S.]). The Fund will continue to assess climate risk in the global equities portfolio by performing carbon footprint analysis annually.

The Fund has committed more than \$5 billion to sustainable strategies, including an investment in a scalable \$2 billion Russell 1000 low carbon index. The low carbon index is weighted toward companies with lower carbon emissions that have comparable earnings, reducing the portfolio's carbon emission footprint by over 70 percent below that of the benchmark, without risk to the returns on investment. An integral part of this investment is the Fund's ongoing active engagement program tailored to the index. The Fund participated in CDP's Carbon Action, a joint initiative of over 300 investors representing \$25 trillion, which seeks to accelerate company action on emission reduction and energy efficiency. The Fund continues to urge portfolio companies to take strong action by setting emission reduction targets and investing in emission reduction projects. The Fund also wrote to the companies in the Russell 1000 that did not report climate data to CDP, asking them to respond to the CDP questionnaire. After closing CDP's reporting cycle in 2016, there were 40 companies in the Russell 1000 that were new responders to CDP's climate change questionnaire in 2016, representing 1.85 percent of market cap of the Russell 1000.

The Fund updated the guidelines for its \$1.5 billion Sustainable Investment Program (SIP), defining sustainable investing for the Fund and enumerating criteria, including best-in-class managers and strategies that identify macro trends or themes, such as Climate and Environment, Human Rights & Social Inclusion and Economic Development. All SIP investments will be held to the same investment criteria as all of the Fund's other investments.

Comptroller DiNapoli's role as a fiduciary keeps him engaged in discussions and negotiations with management and Boards of Directors of companies in the Fund's portfolio regarding corporate governance and accountability. During the fiscal year ended March 31, 2017, the corporate governance staff monitored the Fund's portfolio companies for compliance with industry best practices to assure that: (i) the Fund's investments were not subject to undue risks; and (ii) the Fund's portfolio companies were being managed in a sustainable fashion to help ensure long-term value. Further, the Fund actively sought reforms that aimed to enhance corporate risk oversight and management, transparency and accountability. Staff also voted over 3,000 proxies in-house for the Fund's domestic public equity portfolio.

The following shareholder engagements were initiated during the 2016-2017 fiscal year:

- **Board Accountability and Diversity:** The Comptroller continued to file proposals requesting that boards adopt best practices that make them more accountable to shareholders. The Fund filed three proposals promoting diversity in board selection, which were withdrawn upon agreement.
- **Environmental Management:** Nine resolutions were filed with companies on the issue of climate change management, including disclosing analysis of the impacts of a two degree Celsius rise in global average temperatures (known as "2 degree scenario analysis"), deforestation risk management, and setting green house gas (GHG) emission reduction goals. The proposals on 2 degree scenario analysis received historic high votes at Exxon (62 percent) and PPL Corporation (56 percent). An additional nine proposals filed by the Fund asked companies to publish their sustainability reporting, four of which were withdrawn with agreement with the companies, and one of which received 52 percent support. The Fund filed one resolution with an oil and mining company asking the company to commit to placing an independent director with environmental expertise on its board. The Fund also took action related to the Dakota Pipeline issue, filing a resolution asking an oil and gas company that has invested in the project to disclose its due diligence process used to identify environmental and social risks, including indigenous rights risk.

- **Political Spending Disclosure:** Resolutions were filed at 15 portfolio companies asking for annual disclosure of political contributions made with corporate funds. Resolutions at three companies were withdrawn when the companies agreed to make the requested disclosures. Building on the Fund's 2013 Books and Records request success, whereby Qualcomm established a new policy on disclosure of political contributions, a suit was filed in the Delaware Court of Chancery seeking disclosure of political spending from Oracle Corporation. The company subsequently agreed to make the requested disclosures to the Fund.
- **Global Labor Standards/Workers' Rights:** The Fund submitted, and subsequently withdrew with agreement, three resolutions to portfolio companies in the retail and apparel industry designed to promote improved labor and environmental standards in their foreign and domestic operations and those of their significant suppliers.
- **Executive Compensation:** Six resolutions were filed at portfolio companies asking for transparency and effectiveness of executive pay practices, five of which were withdrawn with agreement.
- **Execution Drugs:** The Fund submitted, and subsequently withdrew with agreement, one resolution calling for restricting the sale of drugs that can be used in executions.
- **Public Policy:** The Fund continued with its public policy advocacy efforts, writing to regulators and elected officials about a wide variety of topics, including climate risk, ESG disclosure and diversity and inclusion.

Investment Results

Based on Fair Values as of March 31, 2017.

	Annualized Rate of Return			
	1 Year	3 Years	5 Years	10 Years
Total Fund	11.48%	6.17%	8.35%	5.59%
Global Equity	17.01	7.13	10.79	5.76
MSCI All Country World Index Free	15.04	5.08	8.37	4.00
Private Equity	7.81	8.70	11.01	8.83
Cambridge U.S. Private Equity Index	13.25	9.97	13.00	9.94
Real Estate	10.68	11.40	12.76	4.26
National Council of Real Estate Investment Fiduciaries (NCREIF)	7.97	11.02	10.92	6.93
Absolute Return Strategy	7.24	2.63	5.09	2.98
HFRX Global Hedge Fund Index	7.48	(0.51)	1.34	(0.55)
Opportunistic Funds	4.76	5.24	6.27	–
Real Assets	11.63	–	–	–
U.S. CPI +5	2.40	–	–	–
Treasury Inflation-Indexed Securities	1.31	2.27	1.56	5.03
Barclays Capital U.S. TIPS Index	1.48	2.03	0.97	4.24
Core Fixed Income	2.49	3.03	2.53	4.52
Barclays Capital Aggregate Bond Index	0.44	2.68	2.34	4.27
Non Core Fixed Income	11.43	–	–	–
Non Core Fixed Income Blended Benchmark	10.49	–	–	–
Short-Term Investments	0.86	0.72	0.57	1.09

These figures are for investment management purposes and may not agree with audited statements. Due to reported timing differences, actual results may differ from reported results.

Investment return calculations were prepared using a time-weighted rate of return. Private Equity, Real Estate and Real Assets are reported on a three-month lag; Opportunistic and Absolute Return Strategy on a one-month lag (adjusted by cash flows).

Investment Summary

The following table summarizes the fair values of Fund investments by asset type for March 31, 2017 and 2016 (Dollars In Thousands).

Asset Type	Fair Value March 31, 2017	Percentage of Total Fair Value	Fair Value March 31, 2016	Percentage of Total Fair Value
Domestic Equity	\$ 69,851,696	36.3%	\$ 61,544,070	34.5%
Global Fixed Income	44,002,645	22.9	44,661,200	25.0
International Equity	33,836,667	17.6	29,211,336	16.4
Private Equity	15,348,492	8.0	13,961,373	7.8
Real Estate	12,937,452	6.7	12,639,723	7.1
Absolute Return Strategy	7,523,769	3.9	8,029,411	4.5
Short-term Investments	5,653,335	2.9	5,578,801	3.1
Opportunistic Funds	2,065,686	1.1	1,719,316	1.0
Mortgage Loans	800,287	0.4	796,403	0.4
Real Assets	390,574	0.2	498,068	0.3
Total Investments	\$ 192,410,603	100.0%	\$ 178,639,701	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, 2017

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

Asset liability studies, conducted periodically with help from an investment consultant, identify the optimal mix of assets to meet the growth requirements of 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, 2017	Current Interim Policy	Long-Term Policy Allocation
Equity			
Domestic Equity	36.8%	36.0%	36.0%
International Equity	18.9	15.0	14.0
Alternatives			
Private Equity	7.7%	9.0%	10.0%
Real Estate	6.7	8.0	10.0
Absolute Return Strategy	2.9	3.0	2.0
Opportunistic Portfolio	1.0	2.0	3.0
Real Asset	0.2	2.0	3.0
Bonds & Mortgages	19.8%	20.0%	17.0%
Cash	1.7%	1.0%	1.0%
Inflation-Indexed Bonds	4.3%	4.0%	4.0%

Note: A detailed listing of the New York State and Local Retirement System's assets as of March 31, 2017, is on our website at www.osc.state.ny.us.

Global Equity Performance

For the Fiscal Year Ending March 31, 2017.

	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	\$ 106,896.6	17.01%	7.13%	10.79%	5.76%			
MSCI All Country World Index Free		15.04%	5.08%	8.37%	4.00%			
Total Large Cap Composite	\$ 47,887.1	17.20%	10.30%	13.22%	7.34%	2/1/83	11.21%	11.20%
CRF Large Cap Index Fund	40,255.5	17.56	10.47	13.30	7.56	8/1/78	11.62	11.59
CRF High Efficiency Defensive Index Fund	2,871.3	13.42	–	–	–	1/1/16	14.31	13.76
CRF Low Emission Index Fund	2,262.4	17.14	–	–	–	1/1/16	14.37	14.65
Aronson+Johnson+Ortiz	1,343.1	15.60	6.50	12.40	6.42	12/1/04	7.96	7.49
Eagle Capital	609.6	21.76	–	–	–	9/1/14	9.13	8.87
Piedmont Investment Advisors	545.1	10.71	7.99	11.21	–	3/1/10	11.43	13.74
Russell Top 200 (S&P 500 To 1/1/16)		17.57%	10.27%	13.24%	7.48%			
Total Mid Cap Composite	\$ 15,760.6	16.76%	6.89%	11.77%	8.03%	7/1/91	11.69%	12.30%
CRF Midcap Index Fund	13,520.1	16.87	8.00	12.57	8.66	11/1/91	11.93	11.94
Progress Investment	1,088.6	16.40	5.27	10.48	6.98	9/1/94	11.22	11.08
Apex Capital	392.4	16.85	5.16	11.14	–	3/1/08	11.02	10.00
First Pacific	321.1	16.42	(2.58)	–	–	11/1/12	3.18	14.35
Iridian Asset	438.5	13.78	–	–	–	1/8/15	5.50	7.81
Russell Midcap (S&P 400 Mid Cap To 1/1/16)		17.03%	7.63%	12.24%	8.45%			
Total Small Cap Composite	\$ 5,866.0	25.98%	7.69%	13.06%	8.33%	7/1/91	10.58%	10.20%
CRF Small Cap Index Fund	2,027.6	25.70	7.78	13.08	8.30	10/1/05	8.88	8.74
Brown Capital	1,119.5	27.62	11.99	17.45	14.54	9/1/94	14.98	9.36
EARNEST Partners	989.2	26.60	10.11	14.42	8.65	6/1/01	10.71	9.05
Systematic Financial	488.8	26.24	3.79	11.43	6.57	9/1/02	9.77	10.20
Leading Edge	439.7	23.52	–	–	–	4/1/15	5.63	6.72
Artisan Partners	396.5	25.02	6.16	–	–	8/28/13	9.21	9.23
PENN Capital	346.6	30.28	3.19	–	–	9/1/13	4.74	8.72
Ariel Microcap	58.1	18.34	(7.48)	–	–	11/1/13	(6.16)	9.02
Russell 2000 Index		26.22%	7.22%	12.35%	7.12%			
Total Long-Only Alpha Composite	\$ 1,117.5	13.27%	7.83%	12.90%	–	9/1/11	14.60%	8.24%
Valueact Capital Partners II, LP	595.0	15.17	6.03	12.67	–	9/1/11	14.23	8.24
Triam Partners Strategic Fund II, LP	194.3	10.98	8.62	–	–	1/1/13	11.95	8.00
Triam Partners Strategic Investment Fund-N, LP	260.3	11.02	–	–	–	2/1/15	9.29	6.31
Triam Partners Strategic Fund I, LP	67.8	12.81	7.07	11.36	–	10/1/11	13.70	9.64
HFRI Event Driven Activist Index		12.63%	5.88%	9.28%	–			

Note: Benchmarks for all accounts will vary according to mandate.

Global Equity Performance

continued

For the Fiscal Year Ending March 31, 2017.

	Total Assets (Dollars in Millions)	Annualized Rate of Return			Inception Date	Since Inception Performance	Benchmark Performance*
		1 Year	3 Years	5 Years			
Total Progress Composite	\$ 1,088.6	16.40%	5.27%	10.48%	9/1/94	11.22%	11.08%
Affinity Investment	162.6	17.49	–	–	9/23/14	5.00	7.96
AH Lisanti	61.8	18.94	–	–	7/1/14	6.42	6.80
Channing Capital Mid-Cap	137.4	15.60	8.65	14.61	7/1/05	8.83	9.05
Channing Capital SMID	50.8	–	–	–	3/1/17	0.61	1.35
Denali Advisors	165.5	20.97	10.10	15.97	3/1/08	11.28	9.96
Hahn Capital Management	136.1	14.01	6.07	–	8/1/13	7.46	10.84
Monarch Partners	159.4	17.03	4.45	–	8/1/13	7.86	9.85
Piedmont Investment Advisors	84.7	–	–	–	3/1/17	(0.07)	1.09
Piermont Capital	42.0	–	–	–	5/1/16	17.03	18.63
Stoneridge	88.2	17.12	–	–	7/1/14	0.22	6.80
Progress Composite Benchmark		19.12%	8.53%	13.10%			
Total FIS Composite	\$ 1,089.2	14.40%	4.44%	–	10/1/13	6.45%	6.79%
Ativo Capital Management	31.3	12.59	1.73	–	10/1/13	2.44	1.41
BRC Investment Management	75.2	14.66	6.39	–	10/1/13	9.24	11.30
Change Global Investment	40.4	–	–	–	3/1/17	(0.01)	(1.19)
Decatur Capital Management	86.9	14.98	9.65	–	10/1/13	12.82	13.10
Denali Advisors LLC	194.5	–	–	–	6/1/16	16.46	14.98
FIS Frontier Market	16.8	31.91	6.63	–	10/1/13	5.68	2.46
FIS Global Tactical Account	212.3	11.14	4.72	–	10/1/13	6.58	6.79
Global Alpha Capital Management	69.9	15.82	8.90	–	10/1/13	12.11	5.77
Lombardia Capital Management	63.3	29.40	3.68	–	10/1/13	6.15	2.22
Martin Investment Management	55.4	7.63	–	–	12/1/14	2.42	1.58
Osmosis Investment Management	70.2	14.58	–	–	11/1/15	7.82	3.64
Redwood Investments	103.6	17.12	–	–	4/1/15	6.10	8.64
Redwood Investments EAFE + Canada	68.1	–	–	–	3/1/17	(0.22)	(0.74)
MSCI All Country World Index Free		15.04%	5.08%	8.37%			
Total Leading Edge	\$ 439.7	23.52%	–	–	4/1/15	5.63%	6.72%
Channing Capital Management	69.2	29.33	–	–	4/1/15	8.44	9.26
Granite Investment Partners	61.7	26.22	–	–	4/1/15	6.18	6.72
Matarin Capital Management	71.6	23.04	–	–	4/1/15	8.01	6.72
Nicholas Investment Partners	29.9	21.80	–	–	4/1/15	(0.31)	4.14
Palisades Investment Partners	39.9	20.55	–	–	4/1/15	5.94	6.72
Phocas Financial Corporation	68.1	23.99	–	–	4/1/15	7.62	9.26
Redwood Investments SCGR	38.6	19.20	–	–	4/1/15	6.19	4.14
Rice Hall James	34.3	24.72	–	–	4/1/15	7.54	4.14
Stoneridge Investment Partners	26.5	15.15	–	–	4/1/15	(4.55)	4.14
Russell 2000 Index		26.22%	7.22%	12.35%			

* Benchmarks for all accounts will vary according to mandate.

Global Equity Performance

continued

For the Fiscal Year Ending March 31, 2017.

	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	\$ 1,203.5	15.59%	3.83%	9.34%	2.02%	11/1/99	6.77%	4.67%
Generation Investment	1,178.1	22.65	13.21	15.91	–	4/8/09	17.68	12.84
Templeton Investment	1,600.7	16.55	2.85	10.09	–	3/1/11	8.38	7.27
T. Rowe Price	1,056.0	21.87	10.07	12.59	–	3/1/11	10.52	7.27
FIS Group	1,089.2	14.40	4.44	–	–	10/1/13	6.45	6.79
FTSE Environmental Technology 50	117.8	8.18	0.95	8.57	–	11/1/09	2.97	2.77
Goldman Sachs	2,242.0	15.55	–	–	–	1/1/15	4.67	4.37
Rockefeller	329.8	15.48	–	–	–	2/23/15	4.47	3.93
MSCI All Country World Index Free		15.04%	5.08%	8.37%	4.00%			
Acadian Asset Management	\$ 1,674.4	17.46%	3.28%	7.49%	2.02%	11/1/04	6.99%	5.55%
Baillie Gifford	2,106.8	11.19	2.34	8.16	4.48	2/1/99	5.74	3.91
Blackrock ACWI Ex U.S.	10,042.6	13.48	0.81	4.62	1.63	11/1/04	5.82	5.56
Wellington Management	1,128.5	9.52	–	–	–	3/1/16	14.47	16.44
MSCI ACW Ex U.S. IMI		13.01%	0.82%	4.66%	1.59%			
Capital Guardian	\$ 1,419.7	11.72%	0.59%	6.57%	2.04%	9/1/89	7.17%	4.50%
Mondrian Investment	1,557.0	11.42	1.10	6.37	1.95	1/1/98	6.80	4.62
Baring International A/P	930.9	12.00	0.66	6.20	2.09	4/1/02	6.78	5.74
Blackrock MSCI Europe	4,627.8	21.76	–	–	–	8/27/15	10.38	4.90
MSCI EAFE Index		11.67%	0.50%	5.83%	1.05%			
Morgan Stanley Emerging Markets	\$ 984.4	14.65%	1.85%	2.54%	2.68%	11/1/93	7.21%	5.92%
Genesis Investment Management	671.6	15.66	1.44	2.71	–	3/1/12	2.20	0.12
Morgan Stanley Frontier Markets	163.0	16.28	–	–	–	11/1/15	6.32	4.56
Quantitative Management Associates	1,082.0	17.94	1.92	1.93	–	2/1/12	2.56	1.25
Rock Creek Emerging Markets Fund	489.3	25.77	(0.41)	–	–	10/1/13	(0.66)	0.69
MSCI Emerging Markets Index		17.21%	1.18%	0.81%	2.72%			
Cevian Capital II, LP	\$ 530.3	24.85%	5.73%	9.20%	–	9/1/11	12.48%	8.24%
HFRI Event Driven Activist Index		12.63%	5.88%	9.28%	–			

* Benchmarks for all accounts will vary according to mandate.

Domestic Equity Portfolio — Ten Largest Holdings

For the Fiscal Year Ending March 31, 2017.

Company	Shares	Fair Value	Percentage of Domestic Equity
Apple, Inc.	15,562,892	\$ 2,235,765,065	3.2%
Microsoft Corp.	24,893,404	1,639,479,587	2.3
Johnson & Johnson	8,076,644	1,005,946,010	1.4
Amazon.com, Inc.	1,119,053	992,085,247	1.4
J.P. Morgan Chase & Company	11,024,405	968,383,735	1.4
Exxon Mobil Corp.	11,669,859	957,045,137	1.4
Facebook, Inc.	6,597,764	937,212,376	1.3
Berkshire Hathaway, Inc. - Class B	5,469,344	911,630,258	1.3
Alphabet, Inc. - Class C	960,343	796,662,139	1.1
Alphabet, Inc. - Class A	912,611	773,711,606	1.1

Note: A detailed listing of the New York State and Local Retirement System's assets as of March 31, 2017 is on our website at www.osc.state.ny.us.

Fixed Income Portfolio and Comparison

As of March 31, 2017.

Sector	Fair Value (Dollars in Millions)	Fair Value Percentage	Effective Duration	Current Yield
Treasury	\$ 5,161.5	16.3%	6.61	2.85%
Federal Agency	1,086.3	3.4	4.79	1.85
Corporate	13,792.2	43.5	6.74	3.68
Asset-Backed	1,806.9	5.7	1.74	2.60
Commercial Mortgage-Backed	1,844.4	5.8	4.07	3.86
Mortgage-Backed	4,837.7	15.2	4.30	3.49
Collateralized Loan Obligations	2,938.1	9.3	0.07	2.71
Municipal Bonds	270.0	0.9	8.60	4.84
Totals	\$ 31,736.9	100.0%	5.12	3.29%
TIPS	\$ 7,875.1		9.89	1.74%
Externally Managed Funds:				
Blackrock	\$ 2,231.0		1.46	5.30%
Neuberger Berman	\$ 1,133.9		3.69	4.27%
New Century Advisors	\$ 248.9		8.28	0.74%
Semper Capital	\$ 263.4		3.37	3.22%
Smith Graham	\$ 513.6		4.30	2.70%

Fixed Income Performance

As of March 31, 2017.

	Common Retirement Fund — Annual Rate of Return		
	1 Year	3 Years	5 Years
Common Retirement Fund — Core	2.49%	3.21%	2.75%
Treasury	(2.76)	2.24	1.78
Federal Agency	(0.06)	1.99	1.69
Corporate	4.39	4.16	3.73
Asset-Backed	2.85	1.85	N/A
Commerical Mortgage-Backed	1.57	2.51	3.51
Mortgage-Backed	0.91	2.90	2.31
Collateralized Loan Obligations	7.77	N/A	N/A
Barclays Capital Aggregate Bond Index	0.44%	2.68%	2.34%
Common Retirement Fund — TIPS	1.31%	2.27%	1.56%
Salomon Smith Barney — TIPS Index	1.48%	2.03%	0.97%

Fixed Income Portfolio — Ten Largest Holdings

As of March 31, 2017.

Issue	Fair Value (Dollars in Millions)	Percentage of Fixed Income
Treasury Inflation Indexed Securities Due 4/15/29	\$ 1,263.6	3.11%
Treasury Inflation Indexed Securities Due 1/15/25	871.3	2.14
Treasury Inflation Indexed Securities Due 2/15/46	850.9	2.09
Treasury Bonds Due 11/30/2021	720.3	1.77
Treasury Inflation Indexed Securities Due 1/15/19	684.0	1.68
Treasury Inflation Indexed Securities Due 4/15/28	673.4	1.66
Treasury Inflation Indexed Securities Due 7/15/18	669.6	1.65
Treasury Inflation Indexed Securities Due 7/15/19	624.6	1.54
Treasury Inflation Indexed Securities Due 2/15/42	576.4	1.42
Treasury Bonds Due 12/15/2019	563.9	1.39
Total	\$ 7,498.0	18.45%

Real Estate Portfolio

As of March 31, 2017.

	Equity Amount	Percentage	Mortgage Amount	Percentage
Property Diversification				
Industrial/R&D	\$ 1,160,508,999	9.0%	\$ –	0.0%
Land for Development	–	0.0	–	0.0
Lodging	461,713,166	3.6	–	0.0
Office	4,074,721,930	31.5	52,955,815	6.6
Other	1,904,550,815	14.7	–	0.0
Residential	1,926,922,603	14.9	405,731,625	50.7
Retail	3,398,496,812	26.3	341,599,314	42.7
Total	\$ 12,926,914,325	100.0%	\$ 800,286,753	100.0%
Regional Diversification				
Northeast	\$ 2,718,888,027	21.0%	\$ 800,286,753	100.0%
Mideast	973,431,906	7.5	–	0.0
Southeast	1,099,655,003	8.5	–	0.0
Southwest	1,427,375,792	11.0	–	0.0
Midwest	961,854,536	7.4	–	0.0
Mountain	317,321,377	2.5	–	0.0
Pacific	3,037,216,055	23.5	–	0.0
Other	2,391,171,629	18.5	–	0.0
Total	\$ 12,926,914,325	100.0%	\$ 800,286,753	100.0%

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

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)
77	\$ 13.9	\$ 10.9	\$ 3.9	\$ 9.4	\$ 13.2

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, 2017.

	Number of Partnerships	Capital Committed	Capital Contributed	Net Asset Value	Cumulative Distributions	Total Value
Private Equity Funds						
Buyout	144	\$ 25,773,089,922	\$ 21,129,233,471	\$ 8,616,590,163	\$ 23,151,426,141	\$ 31,768,016,304
Distressed/Turnaround	21	2,586,226,157	1,957,654,877	836,570,509	1,852,093,054	2,688,663,563
Growth	42	6,061,317,600	4,159,115,551	3,027,591,559	2,947,150,781	5,974,742,340
Venture	43	3,388,755,304	3,041,655,588	1,312,531,851	2,693,845,934	4,006,377,785
Special Situations	41	5,394,779,719	4,618,363,690	1,488,350,880	4,601,670,080	6,090,020,960
Other	N/A	N/A	66,856,808	66,856,808	N/A	66,856,808
Total	291	\$ 43,204,168,702	\$ 34,972,879,985	\$ 15,348,491,770	\$ 35,246,185,990	\$ 50,594,677,760
Absolute Return Strategy Funds						
Equity Long-Bias	5	N/A	N/A	\$ 1,597,764,295	N/A	\$ 1,597,764,295
Equity Long-Short	6	N/A	N/A	1,149,165,019	N/A	1,149,165,019
Event Driven	16	N/A	N/A	1,455,641,291	N/A	1,455,641,291
Fund of Funds	4	N/A	N/A	712,473,856	N/A	712,473,856
Quantitative	1	N/A	N/A	131,178,536	N/A	131,178,536
Relative Value	2	N/A	N/A	495,459,727	N/A	495,459,727
Structured Credit	2	N/A	N/A	451,390,206	N/A	451,390,206
Tactical Trading	7	N/A	N/A	1,530,696,222	N/A	1,530,696,222
Total	43			\$ 7,523,769,152		\$ 7,523,769,152
Opportunistic Funds	20	\$ 4,480,000,000	\$ 2,276,882,042	\$ 2,065,686,142	\$ 572,024,696	\$ 2,637,710,838
Real Assets	7	\$ 1,850,000,000	\$ 783,565,504	\$ 390,573,505	\$ 365,928,194	\$ 756,501,699
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, 2017.

Manager	Management Fees	Incentive Fees	Total
Apex Capital Management, Inc.	\$ 1,830,791	\$ -	\$ 1,830,791
Ariel Investments, LLC	472,621	-	472,621
Aronson + Johnson + Ortiz, LP	1,229,932	-	1,229,932
Artisan Partners, LP	3,707,823	-	3,707,823
Brown Capital Management, Inc.	7,745,815	-	7,745,815
Eagle Capital Management, LLC	4,206,395	-	4,206,395
EARNEST Partners, LLC	3,285,114	-	3,285,114
First Pacific Advisors, LLC	2,120,284	-	2,120,284
FIS Group, Inc.	4,345,875	-	4,345,875
Goldman Sachs Asset Management	610,375	-	610,375
Iridian Asset Management, LLC	2,251,147	-	2,251,147
Leading Edge Investment Advisors, LP	3,113,323	-	3,113,323
Lombardia Capital Partners, LLC	688,965	-	688,965
PENN Capital Management Company, Inc.	1,676,567	-	1,676,567
Piedmont Investment Advisors, LLC	1,085,322	-	1,085,322
Progress Investment Management Company	6,438,051	-	6,438,051
Russell Investments Group, LLC	1,447,358	-	1,447,358
Systematic Financial Management, LP	2,673,322	-	2,673,322
Total	\$ 48,929,080	\$ -	\$ 48,929,080

Domestic Equity Commissions — Internally Managed

For the Fiscal Year Ended March 31, 2017.

Broker	Shares	Commission \$ U.S.
Barclays Capital, Inc.	9,656,567	\$ 184,023
Bloomberg Tradebook, LLC	10,965,612	219,312
C.L. King & Associates, Inc.	3,801,600	76,032
Cabrera Capital Markets, Inc.	746,618	14,932
CastleOak Securities, LP	7,345,000	146,900
Citigroup Global Markets, Inc.	6,597,900	131,958
Convergex Group, LLC	7,283,837	123,426
Credit Suisse Securities, Ltd.	6,609,668	132,193
Goldman Sachs & Company	9,153,695	182,026
Great Pacific Securities, Inc.	8,603,976	172,080
Guzman & Company	9,723,621	194,472
Instinet	7,968,582	159,372
Investment Technology Group	7,480,598	149,612
J.P. Morgan Securities, LLC	7,011,563	140,231
Jefferies & Company, Inc.	6,383,816	127,676
Knight Equity Markets, LP	8,685,841	173,717
Liquidnet, Inc.	9,349,042	93,490
Loop Capital Markets, LLC	9,326,914	186,538
Merrill Lynch Pierce Fenner & Smith, Inc.	7,671,586	153,432
Morgan Stanley & Company, Inc.	8,756,079	175,122
Samuel A. Ramirez & Company, Inc.	23,000	460
Sanford C. Bernstein & Company, LLC	7,054,865	141,097
Siebert Cisneros Shank & Company, LLC	6,066,751	121,335
Sturdivant & Company, Inc.	9,074,276	181,486
Weeden & Company	8,590,683	166,972
Wells Fargo Securities, LLC	2,156,411	43,128
Williams Capital Group, LP	10,861,494	217,230
Total	196,949,595	\$ 3,808,252

Domestic Equity Commissions — Externally Managed

For the Fiscal Year Ended March 31, 2017.

Broker	Shares	Commission \$ U.S.
Abel Noser Corp.	3,037,705	\$ 136,622
Academy Securities, Inc.	105,716	1,867
American Portfolios Financial Services, Inc.	31,280	1,564
Ancora Securities, Inc.	115,200	5,760
Auerbach Grayson & Company, Inc.	752,436	6,739
Avondale Partners, LLC	151,652	5,321
B. Riley & Company, LLC	595,063	19,073
Baird, Robert W. & Company, Inc.	4,224,996	158,509
Barclays Capital, Inc.	20,111,302	425,649
Barrington Research Associates, Inc.	9,297	279
Bay Crest Partners, LLC	3,995	80
Baypoint Trading, LLC	4,635,720	115,166
Blair, William & Company	1,786,078	71,745
Blaylock & Company, Inc.	12,223	357
Bloomberg Tradebook, LLC	318,820	7,741
BMO Capital Markets Corp.	456,518	16,235
BNY Brokerage	1,504,780	39,521
Brean Capital, LLC	238,526	8,062
Broadcort Capital Corp.	109,927	4,102
Buckingham Research Group, Inc.	378,801	17,614
C. L. King & Associates, Inc.	3,024,533	58,783
Cabrera Capital Markets, Inc.	2,716,692	54,693
Cantor Fitzgerald & Company	8,531,507	202,996
Capital Institutional Services, Inc.	4,240,021	186,633
Celadon Financial Group, LLC	2,060,900	17,518
Cerebrum Financial Services, LLC	4,701	188
Cheevers & Company	2,919,995	72,762
Citation Group	5,626,617	208,072
Citigroup Global Markets, Inc.	1,113,853	29,457
CJS Securities, Inc.	74,000	3,700
CLSA Americas, LLC	95,898	2,877
Collins Stewart, LLC	1,141,049	46,512
Compass Point Research & Trading, LLC	305,933	11,308
Concept Capital Markets, LLC	45,917	1,378
Convergex Group, LLC	10,365,293	340,000
Cornerstone Macro, LLC	664,345	24,828
Cowen & Company, LLC	1,312,519	45,424

Broker	Shares	Commission \$ U.S.
Craig-Hallum Capital Group, LLC	504,597	\$ 16,727
Credit Research & Trading Capital Group, LLC	243,436	7,364
Credit Suisse Securities, Ltd.	3,289,993	93,091
Cuttone & Company, Inc.	242,751	4,855
CV Brokerage, Inc.	543,669	21,747
Davidson, D. A. & Company, Inc.	68,009	2,315
Deutsche Bank Securities, Inc.	9,072,507	119,613
Dougherty & Company, LLC	195,174	6,723
Drexel Hamilton, LLC	1,128,706	31,880
FBN Securities, Inc.	845	34
Ferris, Baker Watts, Inc.	1,351	10
Fidelity Capital Markets	2,448,075	30,601
FIG Partners, LLC	78,991	1,580
First Analysis Securities Corp.	5,368	161
Fox River Execution Technology, LLC	940,300	4,702
Friedman Billings & Ramsey	647,314	18,911
Gabelli & Company	16,240	812
Goldman Sachs & Company	4,908,720	81,219
Guggenheim Securities, LLC	307,313	13,675
Guzman & Company	1,316,967	19,225
Hibernia Southcoast Capital, Inc.	11,106	444
Imperial Capital, LLC	30,291	1,056
Instinet	10,747,092	191,326
Investment Technology Group	26,920,397	398,104
ISI Group, Inc.	7,234,664	110,512
Island Trader Securities, Inc.	1,326,995	28,279
Ivy Securities, Inc.	9,523,638	378,820
J.P. Morgan Securities, LLC	9,982,857	150,347
Janney Montgomery Scott, Inc.	195,471	6,593
Jefferies & Company, Inc.	2,002,852	70,167
JMP Securities	1,180,670	42,096
JNK Securities, Inc.	1,858,218	23,918
Johnson Rice & Company, LLC	492,190	14,990
Jones Trading Institutional Services, LLC	12,871,025	453,623
Keefe Bruyette & Wood, Inc.	974,861	34,600
KeyBanc Capital Markets, Inc.	2,091,696	77,504
Knight Direct, LLC	76,530	534

Domestic Equity Commissions — Externally Managed

continued

Broker	Shares	Commission \$ U.S.
Knight Equity Markets, LP	83,404	\$ 2,096
Ladenburg Thalmann & Company, Inc.	10,730	322
Leerink Swann & Company	391,354	14,641
Liquidnet, Inc.	32,794,395	521,295
Longbow Securities, LLC	238,874	8,362
Loop Capital Markets, LLC	16,490,879	305,882
Luminex Trading and Analytics, LLC	94,657	239
M. Ramsey King Securities, Inc.	769,913	35,856
Macquarie Securities (USA), Inc.	352,052	12,683
Maxim Group	124,065	4,545
Merrill Lynch Pierce Fenner & Smith, Inc.	1,138,293	37,208
Mischler Financial Group, Inc.	544,014	14,143
Mizuho Securities USA, Inc.	41,310	1,785
MKM Partners, LLC	209,263	8,549
Monness, Crespi, Hardt & Company, Inc.	334,288	16,714
Morgan Stanley & Company, Inc.	3,671,114	149,260
National Financial Services Corp.	389,349	13,049
Needham & Company, LLC	3,319,484	113,900
Noble International Investments, Inc.	55,602	2,157
North South Capital, LLC	284,845	6,164
Northland Securities, Inc.	71,619	2,792
O'Neil, William & Company, Inc.	17,365	695
Oppenheimer & Company, Inc.	687,975	29,401
OTR Global Trading, LLC	19,160	958
Penserra Securities, Inc.	1,944,191	18,113
Pershing, LLC	51,136	1,376
Piper Jaffray	925,948	36,901
Raymond James & Associates, Inc.	3,104,568	113,245
RBC Capital Markets	5,879,068	202,361
Rosenblatt Securities, Inc.	606,472	7,697
Roth Capital Partners, Inc.	421,369	14,565
Russell Investments Group, LLC	427,377	8,545
Samuel A. Ramirez & Company, Inc.	522,451	3,918
Sandler O'Neill & Partners, LP	754,675	24,014
Sanford C. Bernstein & Company, LLC	1,285,527	49,414
Scotia Capital, Inc.	185,578	7,838
Scott & Stringfellow, Inc.	133,172	5,463

Broker	Shares	Commission \$ U.S.
Seaport Group Securities, LLC	847,297	\$ 22,300
Security Capital Brokerage, Inc.	1,890,472	75,238
SG Americas Securities, LLC	4,687,719	43,486
SIDCO/ITG, Inc.	236,805	8,622
Sidoti & Company, LLC	1,394,540	55,008
State Street Global Markets, LLC	1,802,711	23,965
Stephens, Inc.	1,331,214	53,345
Sterne Agee & Leach, Inc.	2,498,170	95,603
Stifel Nicolaus & Company, Inc.	6,256,123	200,226
Strategas Securities, LLC	577,417	20,588
Stuart Frankel & Company, Inc.	173,690	6,948
Sturdivant & Company, Inc.	16,772	671
SunTrust Capital Markets, Inc.	1,892,026	70,478
The Benchmark Company, LLC	861,564	28,786
The Vertical Trading Group, LLC	34,468	1,281
Themis Trading, LLC	1,361,799	17,023
Topeka Capital Markets, Inc.	829,111	27,618
Trading Block Holdings, Inc.	264,884	10,595
UBS Securities, LLC	929,868	25,128
Valdes & Moreno, Inc.	766,682	30,292
Vandham Securities Corp.	14,061	422
Verint Systems, Inc.	931,915	36,427
Wedbush Securities, Inc.	1,486,397	53,126
Weeden & Company	1,306,602	21,824
Wells Fargo Securities, LLC	3,331,431	91,991
Williams Capital Group, LP	6,778,917	157,775
Wolfe Research Securities	39,230	1,962
Yamner & Company, Inc.	348,157	3,482
Total	317,570,265	\$ 7,787,649

International Equity Management Fees

For the Fiscal Year Ended March 31, 2017.

Broker	Management Fees	Incentive Fees	Total
Acadian Asset Management, LLC	\$ 5,178,806	\$ –	\$ 5,178,806
Baillie Gifford Overseas, Ltd.	5,376,616	–	5,376,616
Baring Asset Management	2,409,031	–	2,409,031
BlackRock Institutional Trust Company, NA	4,814,444	–	4,814,444
Brandes Investment Partners, LP	4,151,992	–	4,151,992
Capital Guardian Trust Company	4,558,957	–	4,558,957
Consilium Frontier Equity Fund, LP	147,899	–	147,899
Generation Investment Management, LLP	8,518,010	10,935,043	19,453,053
Genesis Investment Management, LLP	4,457,081	–	4,457,081
Goldman Sachs Asset Management	14,209,944	–	14,209,944
Mondrian Investment Partners, Inc.	4,438,847	–	4,438,847
Morgan Stanley Emerging Markets Fund, Inc.	7,034,538	–	7,034,538
Morgan Stanley Investment Management, Inc.	1,533,511	–	1,533,511
Quantitative Management Associates, LLC	2,729,148	–	2,729,148
Rockefeller & Company Asset Management	1,838,692	–	1,838,692
T. Rowe Price Associates, Inc.	3,955,958	–	3,955,958
Templeton Investment Counsel, LLC	4,284,341	–	4,284,341
Wellington Management Company, LLP	5,030,413	–	5,030,413
Total	\$ 84,668,228	\$ 10,935,043	\$ 95,603,271

International Equity Commissions — Internally Managed

For the Fiscal Year Ended March 31, 2017.

Broker	Shares	Commission \$ U.S.
Barclays Capital, Inc.	474,591	\$ 4,339
J.P. Morgan Securities, LLC	4,023,491	21,699
Jefferies & Company, Inc.	664,106	13,282
Total	5,162,188	\$ 39,320

International Equity Commissions — Externally Managed

For the Fiscal Year Ended March 31, 2017.

Broker	Shares	Commission \$ U.S.
ABG Securities	161,833	\$ 3,621
Access Securities, Inc.	90,658	8
Allen & Company, Inc.	93,443	2,770
Ancora Securities, Inc.	301,683	11,232
Arqaam Securities, LLC	6,282	479
Atlantic Equities, LLP	10,611	579
Auerbach Grayson & Company, Inc.	38,633	846
Axis Capital, Ltd.	58,008	2,516
B. Riley & Company, LLC	185,930	7,437
Baader Bank AG	42,411	3,047
Baird, Robert W. & Company, Inc.	600,035	22,145
Banca IMI Securities Corp.	18,444	469
Banco Bradesco S.A.	271,672	3,373
Banco Itau	2,770,772	15,715
Banco BTG Pactual S.A.	3,691,947	8,098
Banco Portugues de Investimento	28,124	615
Banco Santander	3,637,472	13,438
Bank am Bellevue	3,905	177
Bank Vontobel AG	2,517	137
Barclays Capital, Inc.	8,552,255	98,925
Batucha Securites and Investments, Ltd.	5,117	489
Bay Crest Partners, LLC	338,346	3,249
Beacon Capital	66,400	2,490
Berenberg Bank	897,509	13,559
BGC Brokers, LP	74,731	108
Blair, William & Company	635,868	31,329
Bloomberg Tradebook, LLC	52,975	861
BMO Capital Markets Corp.	1,780,236	51,687
BMO Nesbitt Burns Securities, Ltd	236,000	8,850
BNP Paribas Securities Corp.	22,918,268	127,194
BNY Brokerage	25,062,488	100,393
BOE Securities, Inc.	35,391	1,416
Brean Capital, LLC	143,520	5,741
Brockhouse & Cooper, Inc.	2,410,114	15,427
BTIG, LLC	3,952,984	52,430
B-Trade Services, LLC	26,808	201
Buckingham Research Group, Inc.	29,700	1,188

Broker	Shares	Commission \$ U.S.
Cabrera Capital Markets, Inc.	506,390	\$ 11,769
Canaccord Adams, Inc.	162,041	6,382
Cantor Fitzgerald & Company	11,095,838	71,994
Capital Institutional Services, Inc.	345,191	10,676
Carnegie Fondkommission	53,031	2,326
Cheevers & Company	67,800	1,356
China International Corp.	13,769,200	15,531
CIBC World Markets Corp.	23,983	196
Citibank	107,763	1,436
CITIC Securities Brokerage (HK), Ltd.	59,390,657	2,264
Citigroup Global Markets, Inc.	114,457,736	675,029
Clearview Trading Advisors, Inc.	62,079	1,669
COL Financial Group, Inc.	4,885,279	1,447
Compass Point Research & Trading, LLC	84,500	2,535
Concordia S.A. CVMCC	76,730	626
Corredores Davivienda S.A.	50,852,538	1,057
Cowen & Company, LLC	6,857,120	89,474
Credit Agricole S.A.	34,536,213	60,455
Credit Lyonnais Securities, Inc.	25,467,067	136,083
Credit Suisse Securities, Ltd.	66,453,961	787,008
Crest Depository, Ltd.	23,226	925
CV Brokerage, Inc.	254,068	5,081
D. Carnegie & Company AB	55,918	1,543
Daewoo Securities	7,328	699
Daiwa Securities America, Inc.	12,599,750	82,231
Danske Bank A/S	2,170,460	41,770
Davy Securities, Ltd.	284,172	2,807
Deutsche Bank Securities, Inc.	290,541,597	546,131
DNB ASA	190,962	12,068
Dougherty & Company, LLC	309,388	12,376
Drexel Hamilton, LLC	7,656	161
Dundee Securities Corp.	4,700	65
Edelweiss Securities	31,744	807
EFG Eurobank Securities S.A.	46,736	1,112
Erste Bank	44,415	1,603
Euroclear	102,399	530
Equita SIM S.p.A	4,890	237

International Equity Commissions — Externally Managed

continued

Broker	Shares	Commission \$ U.S.
Evans and Partners Pty, Ltd	17,955	\$ 529
Evercore Group, LLC	16,347	514
Exane, SA	12,085,602	70,837
Exco Securities, Ltd.	2,373,713	209
FBN Securities, Inc.	77,517	2,326
Fidentiis Equities S.V.S.A.	250,202	483
Financial Brokerage Group (FBG)	19,003	703
First New York Securities, LLC	818,758	8,188
Flow Corretora de Mercadorias, Ltda.	65,137	1,074
Fox River Execution Technology, LLC	2,523,154	19,480
Friedman Billings & Ramsey	10,618	407
Global Hunter Securities, LLC	41,750	1,670
Goldman Sachs & Company	34,340,368	433,758
Goodbody Stockbrokers	133,192	611
Green Street Advisors, Inc.	456,963	5,789
Griffiths McBurney & Partners	10,000	263
Guzman & Company	201,000	804
Helvea S.A.	360,860	7,864
Hibernia Southcoast Capital, Inc.	222,880	8,764
HSBC Securities, Inc.	29,385,459	132,615
ICAP Group	375,142	3,224
ICICI Brokerage Services Mumbai	100,877	2,536
IEX Group, Inc.	2,912,205	29,122
IM Trust S.A. Corredores De Bolsa	5,560	1,148
India Infoline, Ltd.	372,315	14,720
ING Bank N.V.	8,975	183
Instinet	179,811,411	316,791
Intesa Sanpaolo S.p.A.	208,140	2,667
Investec Henderson Crosthwaite Securities	5,586,317	22,801
Investec Securities, Ltd. Johannesburg	179,173	1,542
Investment Technology Group	63,505,160	308,927
ISI Group, Inc.	3,409,231	72,455
Island Trader Securities, Inc.	387,267	14,231
Ivy Securities, Inc.	102,779	2,442
J.P. Morgan Securities, LLC	269,018,910	604,284
Janney Montgomery Scott, Inc.	21,490	752
Jefferies & Company, Inc.	20,419,162	161,973

Broker	Shares	Commission \$ U.S.
JM Financial Institutional Securities, Ltd	61,390	\$ 1,598
JMP Securities	7,001	280
Johnson Rice & Company, LLC	213,430	8,156
Jones & Associates, Inc.	463,967	8,160
Jonestrading Institutional Services, LLC	161,748	3,704
KAS Bank N.V.	30,434	588
Kallpa Securities S.A.B.	975,569	1,831
KBC Securities N.V.	2,876	40
Keefe Bruyette & Wood, Inc.	218,290	7,725
Kempen & Company N.V.	121,645	1,381
Kepler Cheuvreux S.A.	1,623,566	34,378
KeyBanc Capital Markets, Inc.	865,821	32,959
KGI Securities Company, Ltd.	34,000	171
Knight Equity Markets, LP	2,591,183	16,959
Korea Investment & Securities Company	139,178	7,525
Kotak Securities, Ltd.	38,782	802
Leerink Swann & Company	59,674	1,448
Liquidnet, Inc.	35,742,607	293,284
Longbow Securities, LLC	492,433	19,697
Loop Capital Markets, LLC	2,934,283	19,601
Luminex Trading & Analytics, LLC	615,674	1,541
Macquarie Equities, Ltd.	53,574,147	189,689
Mainfirst Bank AG	1,356,708	10,201
Maxim Group	71,655	2,838
Mediobanca S.p.A.	1,834,655	6,466
Merrill Lynch Pierce Fenner & Smith, Inc.	160,237,038	788,912
Mirae Asset Securities Company, Ltd.	58,621	1,904
Mischler Financial Group, Inc.	1,563,815	3,800
Mitsubishi UFJ Securities Holdings Co., Ltd	851,560	30,764
Mizuho Securities	3,744,088	62,775
MKM Partners, LLC	356,276	7,035
Morgan Stanley & Company, Inc.	83,314,179	567,389
Motilal Oswal Securities, Ltd.	59,117	1,109
National Bank Financial, Inc.	65,145	1,770
National Financial Services Corp.	91,369	3,505
Natixis S.A.	36,568	3,617
Needham & Company, LLC	431,683	17,024

International Equity Commissions — Externally Managed

continued

Broker	Shares	Commission \$ U.S.
Nomura Securities International, Inc.	2,061,913	\$ 42,911
Nordea Bank AB	3,746	73
Numis Securities, Ltd.	938,013	11,578
O'Neil, William & Company, Inc.	56	1
Oddo Securities	42,093	4,037
Oppenheimer & Company, Inc.	174,089	5,888
Pacific Crest Securities	1,858	56
Panmure Gordon	899,981	4,473
Parel Paris	11,741	359
Pareto Fonds A/S	37,139	470
Peel Hunt, LLP	324,173	709
Penserra Securities, Inc.	2,055,226	15,929
Pershing, LLC	10,851,954	19,851
Peters & Company, Ltd.	26,428	807
Pictet Global Markets (UK), Ltd.	17,317	804
Piper Jaffray	1,196,915	47,408
Princeton Securities Group, LLC	503,820	8,817
PT Mandiri Sekuritas	983,700	627
Pulse Trading, LLC	5,100	51
Raymond James & Associates, Inc.	646,316	24,801
RBC Capital Markets	9,573,574	112,550
Redburn Partners, LLP	6,789,369	68,961
Renaissance Capital Holdings, Ltd.	3,970,107	7,617
Renaissance Macro Securities, LLC	69,375	2,428
Robert Fleming & Company	352,248	18,438
Rosenblatt Securities, Inc.	612,190	9,183
Russell Investments Group, LLC	180	7
Samsung Securities	10,344	4,461
Sandler O'Neill & Partners, LP	141,500	2,193
Sanford C. Bernstein & Company, LLC	50,490,355	281,710
Santander Investment Securities, Inc.	738,800	9,782
Schroders Salomon Smith Barney	84,000	200
Scotia Capital, Inc.	1,212,617	18,852
Scott & Stringfellow, Inc.	2,100	84
SEB Copenhagen	112,473	2,435
SG Americas Securities, LLC	276,271,211	305,881
Shenyin & Wanguo Securities Company, Ltd	89,500	133

Broker	Shares	Commission \$ U.S.
Skandinaviska Enskilda Banken AB	16,800	\$ 350
SMBC Nikko Securities	1,775,246	54,956
Societe Generale Securities Corp.	30,716,721	143,644
Southwest Securities, Inc.	33,456	335
Spark Capital Advisors (India) Private, Ltd.	89,759	1,972
Sprott Securities, Ltd.	20,000	593
Standard Bank	4,815	86
State Street Bank & Trust Company	296,484	4,957
State Street Global Markets, LLC	553,088	6,761
Stephens, Inc.	390,117	14,942
Stifel Nicolaus & Company, Inc.	596,798	24,239
Strategas Securities, LLC	143,979	3,901
Sturdivant & Company, Inc.	168,326	4,727
SunTrust Capital Markets, Inc.	14,689	588
Susquehanna Financial Group, LLLP	697,921	27,736
Svenska Handelsbanken AB	323,439	15,410
TD Securities, Inc.	864,568	25,358
The Benchmark Company, LLC	212,767	7,132
The Nigerian Stock Exchange	9,408,523	219
Themis Trading, LLC	882,116	11,091
Toronto Dominion Bank	175,200	4,631
Tudor, Pickering, Holt & Company	139,844	5,594
UBS Securities, LLC	224,367,034	654,391
UOB Kay Hian Pte, Ltd.	485,900	978
Wall Street Access Corp.	148,297	1,186
Wedbush Securities, Inc.	85,949	2,455
Weeden & Company	5,967,831	38,571
Wells Fargo Securities, LLC	1,619,499	49,560
Williams Capital Group, LP	2,580,283	18,435
Wolfe Research Securities	178,253	5,379
Woori Investment & Securities Company, Ltd.	304	570
Wunderlich Securities, Inc.	55,850	2,234
XP Investimentos	67,624	907
Zannex Securities	194,002	2,518
Total	2,414,619,386	\$ 9,789,981

Global Fixed Income Management Fees

For the Fiscal Year Ended March 31, 2017.

Manager	Management Fees	Incentive Fees	Total
BlackRock Institutional Trust Company, NA	\$ 7,484,188	\$ –	\$ 7,484,188
Neuberger Berman Fixed Income, LLC	2,703,699	–	2,703,699
New Century Advisors, LLC	97,023	–	97,023
Semper Capital Management, LP	924,695	–	924,695
Smith Graham & Company Investment Advisors, LP	799,319	–	799,319
Total	\$ 12,008,924	\$ –	\$ 12,008,924

Long-Term Domestic Bond Transactions — Internally Managed

For the Fiscal Year Ended March 31, 2017.

Summarized by Broker or Direct Issuer.

Long-Term Broker	Par \$ U.S.
Amherst Pierpont	\$ 167,016,000
Bank of America Merrill Lynch	1,454,587,591
Barclay Investment	398,000,000
Barclays Capital, Inc.	1,266,331,289
BNP Paribas Securities Corp.	205,000,000
Cantor Fitzgerald & Company	102,873,000
CastleOak Securities, LP	117,905,000
Citigroup Global Markets, Inc.	1,784,982,000
Credit Suisse Securities, Ltd.	705,320,500
Deutsche Bank Securities, Inc.	610,318,000
Development Corp. for Israel	35,000,000
First Tennessee Securities Corp.	65,000,000
Goldman Sachs & Company	972,587,007
Great Pacific Securities, Inc.	626,405,000
Guggenheim Securities, LLC	21,000,000
HSBC Securities, Inc.	1,019,000,000
J.P. Morgan Securities, LLC	1,632,190,746
Jefferies & Company, Inc.	449,399,000
Loop Capital Markets, LLC	44,000,000
Mesirow Financial, Inc.	15,000,000
Mitsubishi UFJ Securities (USA), Inc.	16,000,000
Mizuho Securities USA, Inc.	29,600,000
Morgan Stanley & Company, Inc.	2,087,535,509
RBC Capital Markets	614,281,500
Siebert Cisneros Shank & Company, LLC	11,100,000
SMBC Nikko Securities	90,000,000
Societe Generale Securities Corp.	15,180,000
Stifel Nicolaus & Company, Inc.	23,060,000
SunTrust Capital Markets, Inc.	94,000,000
Susquehanna Financial Group, LLLP	57,540,000
Toronto Dominion Securities (USA), Inc.	123,669,000
U.S. Bancorp Investments, Inc.	29,160,000
UBS Securities, LLC	998,000,000
Wells Fargo Securities, LLC	1,980,452,000
Williams Capital Group, LP	600,490,000
Total	\$ 18,461,983,142

Long-Term Domestic Bond Transactions — Externally Managed

For the Fiscal Year Ended March 31, 2017.

Summarized by Broker or Direct Issuer.

Long-Term Broker	Par \$ U.S.
Amherst Pierpont	\$ 19,610,326
Auriga USA, LLC	4,090,419
Baird, Robert W. & Company, Inc.	3,356,369
Bank of America Merrill Lynch	771,339,285
Barclays Capital, Inc.	574,883,197
Bay Crest Partners, LLC	5,526,000
Brean Capital, LLC	3,154,022
Brownstone Investment Group, LLC	8,859,983
Cabrera Capital Markets, Inc.	60,535,000
Cantor Fitzgerald & Company	17,902,807
Capital Institutional Services, Inc.	123,090,000
CapRok Capital, LLC	33,625,376
CastleOak Securities, LP	4,947,648
Citigroup Global Markets, Inc.	1,099,830,633
Credit Suisse Securities, Ltd.	544,334,527
Daiwa Securities America, Inc.	5,620,000
Deutsche Bank Securities, Inc.	83,953,421
Duncan-Williams, Inc.	416,960
Goldman Sachs & Company	80,818,399
Guggenheim Securities, LLC	14,031,787
Hilltop Securities, Inc.	17,291,574
HSBC Securities, Inc.	42,655,000
Janney Montgomery Scott, Inc.	943,000
Jefferies & Company, Inc.	56,050,000
J.P. Morgan Securities, LLC	527,937,205
KeyBanc Capital Markets, Inc.	8,000,000
KGS-Alpha Capital Markets, LP	322,354
Loop Capital Markets, LLC	6,275,000
MarketAxess	6,960,000
Mesirow Financial, Inc.	26,825,424
Mizuho Securities USA, Inc.	4,907,107
Morgan Stanley & Company, Inc.	47,585,329
Nomura Securities International, Inc.	1,955,466
Odeon Capital Group, LLC	9,895,161
Performance Trust Capital Partners, LLC	3,187,621
Raymond James & Associates, Inc.	10,284,215
RBS Securities, Inc.	32,750,000

Long-Term Broker	Par \$ U.S.
R.W. Pressprich & Company, Inc.	839,831
Samuel A. Ramirez & Company, Inc.	2,993,321
Sandler O'Neill & Partners, LP	2,864,057
Seaport Securities Corp.	1,912,000
Sierra Pacific Securities, LLC	753,679
Societe Generale Securities Corp.	17,400,000
Stephens, Inc.	2,722,993
Stifel Nicolaus & Company, Inc.	14,049,792
StormHarbour Securities, LP	768,177
SunTrust Capital Markets, Inc.	22,340,000
Susquehanna Financial Group, LLLP	1,875,000
TD Securities, Inc.	50,175,000
Wells Fargo Securities, LLC	233,026,354
Total	\$ 4,615,470,819

Short-Term Domestic Bond Transactions — Internally Managed

For the Fiscal Year Ended March 31, 2017.

Summarized by Broker or Direct Issuer.

Short-Term Broker	Par \$ U.S.
Amherst Pierpont	\$ 18,076,000
Bank of America Merrill Lynch	8,073,699,000
Bank of New York Mellon	8,538,262,000
Barclays Capital, Inc.	3,703,224,000
BNP Paribas Securities Corp.	2,325,920,000
CastleOak Securities, LP	10,195,149,000
Citigroup Global Markets, Inc.	16,666,608,000
Credit Suisse Securities, Ltd.	8,263,561,000
Deutsche Bank Securities, Inc.	178,025,000
Exxon Asset Management Company	284,338,000
First Tennessee Securities Corp.	569,968,000
Goldman Sachs & Company	517,107,000
Great Pacific Securities, Inc.	4,869,317,000
Guggenheim Securities, LLC	26,031,490,000
HSBC Securities, Inc.	6,375,000
J.P. Morgan Securities, LLC	15,109,221,000
Jefferies & Company, Inc.	78,010,000
Mitsubishi UFJ Securities (USA), Inc.	1,527,932,000
Morgan Stanley & Company, Inc.	197,882,000
Prudential Financial, Inc.	475,000,000
RBC Capital Markets	35,533,540,000
SunTrust Capital Markets, Inc.	10,000,000
Toronto Dominion Securities (USA), Inc.	582,384,000
Toyota Motor Credit Corp.	375,244,000
UBS Securities, LLC	3,009,975,000
Wells Fargo Securities, LLC	956,675,000
Williams Capital Group, LP	3,285,716,000
Total	\$ 151,382,698,000

Real Estate Management and Incentive Fees (Expensed)

For the Fiscal Year Ended March 31, 2017.

Manager	Management Fees	Incentive Fees	Total
ARES Management	\$ 3,964,717	\$ –	\$ 3,964,717
Artemis Real Estate Partners, LLC	6,433,033	–	6,433,033
Blackstone Real Estate Advisors	10,030,571	–	10,030,571
Brookfield Strategic Real Estate Partners II GP, LP	6,173,918	–	6,173,918
Carlyle Group	1,082,605	–	1,082,605
Cherokee Advisers, LLC	947,993	–	947,993
CIF-H GP, LLC (Cayuga Lake Fund, LP)	1,301,470	–	1,301,470
CIF-V GP, LLC (Seneca Lake Fund, LP)	51,158	–	51,158
CIM Group, LP	5,017,168	–	5,017,168
Clarion Partners	3,833,710	–	3,833,710
Cypress Grove International Management, LLC	223,084	–	223,084
Franklin Templeton Institutional, LLC (Lake Montauk)	1,567,539	–	1,567,539
Heitman Capital Management, LLC	6,341,161	2,247,770	8,588,931
J.P. Morgan Investment Management, Inc.	2,620,664	805,253	3,425,917
Lake Hempstead Fund, LP	103,724	–	103,724
Lake Success Fund, LP	153,695	–	153,695
LaSalle Investment Management, Inc.	1,545,787	–	1,545,787
Metropolitan Workforce Housing Fund, LLC	324,667	–	324,667
Morgan Stanley Group	251,231	–	251,231
NIAM VI GP, Inc.	774,464	–	774,464
Redwood Grove International Management, LLC	531,104	–	531,104
Rockpoint Real Estate Funds	971,231	–	971,231
Westbrook Realty Management	4,319,225	–	4,319,225
Total	\$ 58,563,919	\$ 3,053,023.00	\$ 61,616,942

Real Estate Management and Incentive Fees (Capitalized)

For the Fiscal Year Ended March 31, 2017.

Manager	Management Fees	Incentive Fees	Total
ACA Advisors (Aetos)	\$ 21,449	\$ –	\$ 21,449
ARA Fund Management (MIP), Ltd.	1,366,556	–	1,366,556
ARES Management	618,768	–	618,768
BCP Strategic Partners (Beacon)	1,293,178	–	1,293,178
Blackstone Real Estate Advisors	3,915,553	–	3,915,553
City Investment Fund Associates, LLC	110,716	–	110,716
Clarion Partners	1,540,553	–	1,540,553
Colony Advisors, LLC	1,089,099	–	1,089,099
Heitman Capital Management, LLC	1,500,000	–	1,500,000
J.P. Morgan Investment Management, Inc.	1,457,336	–	1,457,336
Kimex	80,247	–	80,247
LaSalle Investment Management, Inc.	680,301	–	680,301
LSP (Lone Star)	150,660	–	150,660
MetLife Investment Advisors, LLC	2,682,711	–	2,682,711
Praedium	15,232	–	15,232
PGIM Fund Management, Ltd.	549,614	–	549,614
Redwood Grove International Management B, LLC (RGI Co-Investment Fund)	159,783	–	159,783
Stockbridge Real Estate Funds	1,957,893	–	1,957,893
Warburg Pincus, LLC	63,058	–	63,058
Total	\$ 19,252,708	\$ –	\$ 19,252,708

Private Equity Management Fees (Expensed)

For the Fiscal Year Ended March 31, 2017.

Manager	Management Fees
57 Stars, LLC	\$ 185,147
Access Capital Advisors, LLC	895,067
ACON Investments, LLC	4,968,854
Affinity Equity Partners, Ltd.	2,595,395
African Capital Alliance, Ltd.	848,842
Aisling Capital, LLC	373,202
Apollo Management, LP	7,159,451
ARES Management, LP	2,471,839
Ascent Biomedical Ventures	222,069
Asia Alternatives Management, LLC	2,578,573
Blackstone Group, LP	6,032,330
Brait Capital Partners, Ltd.	343,603
Bridgepoint Capital Ltd.	3,363,023
Brookfield Asset Management, Inc.	3,454,338
Carlyle Group, LP	1,120,885
CCMP Capital Advisors, LP	1,864,116
Centerbridge Partners, LP	4,556,048
Cinven Capital Management, Ltd.	369,418
Clearlake Capital Group, LP	1,503,971
Contour Venture Partners	943,062
CVC Capital Partners, Ltd.	10,247,905
DeltaPoint Capital Management, LLC	250,970
Draper Fisher Jurvetson	532,125
EQT Partners	5,714,765
Ethos Private Equity	56,105
Fairview Capital Partners, Inc.	589,549
Falcon Investment Advisors, LLC	265,061
Farol Asset Management, LP	2,023,282
FIMI Opportunity Funds	658,863
Founders Equity, Inc.	688,672
FountainVest Partners (Asia), Ltd.	1,318,716
Francisco Partners Management, L.P.	698,330
Freeman, Spogli & Company	1,598,786
GCM Grosvenor Capital Management, LP	632,591
GenNx360 Capital Partners	2,500,194
Gilde, LP	264,358
Graycliff Partners, LP	875,000
Hamilton Lane Advisors, LLC	4,939,517
HarbourVest Partners, LLC	487,500

Manager	Management Fees
Helios Investment Partners, LLP	\$ 3,000,000
Hellman & Friedman Investors, Inc.	2,405,265
High Peaks Venture Partners	1,041,960
Hony Capital, Ltd.	8,118,313
Hudson Clean Energy Partners	287,332
InterMedia Advisors, LLC	506,003
J.P. Morgan Partners, LLC	2,820,103
Kelso & Company	1,112,026
KKR & Company, LP	4,116,265
KSL Capital Partners, LLC	4,416,138
Leonard Green & Partners, LP	157,531
Levine Leichtman Capital Partners, Inc.	49,086
Lindsay Goldberg & Company, LLC	5,638,880
Lion Capital, LLP	364,728
Madison Dearborn Partners, Inc.	54,504
Muller & Monroe Asset Management, LLC	1,075,087
Neuberger Berman Group, LLC	2,135,553
New Mountain Capital, LLC	221,879
Nordic Capital	1,670,816
Paladin Capital Group	159,636
Palladium Equity Partners	1,486,642
Patria Investments, Ltd.	676,419
Performance Equity Management, LLC	890,781
Pine Brook Road Partners, LLC	2,328,081
Providence Equity Partners, LLC	1,579,426
Quadrangle Group, LLC	425,888
RRJ Management (HK), Ltd	1,452,065
Searchlight Capital Partners	5,164,607
Snow Phipps Group, LLC	3,104,740
SoftBank Capital	837,998
StepStone Group, LP	270,875
Summer Street Capital Partners, LLC	852,539
TA Associates Management, LP	3,644,220
Thoma Bravo, LLC	3,084,453
TPG Capital, LP	9,725,226
Tribeca Venture Partners, LLC	651,263
Trillium Group, LLC	120,863
Vista Equity Partners, LLC	24,012,583
Warburg Pincus, LLC	5,854,703
Total	\$ 185,705,999

Private Equity Management Fees (Capitalized)

For the Fiscal Year Ended March 31, 2017.

Manager	Management Fees
Apollo Management, LP	\$ 469,797
Ardian	52
Ascent Biomedical Ventures	154,211
Avenue Capital Group	526,236
Bridgepoint Capital Ltd.	1,088
Centerbridge Partners, LP	574,158
Cerberus Capital Management, LP	109,913
Clearwater Capital Partners, LLC	1,422,301
Easton Capital Investment Group	79,898
Fairview Capital Partners, Inc.	35,951
First Albany, Inc.	167,449
Hamilton Lane Advisors, LLC	985,751
HarbourVest Partners, LLC	1,435,094
Hudson Clean Energy Partners, LP	909,060
IK Investment Partners	3,007,211
Institutional Venture Partners	1,083,048
Irving Place Capital	9,386
JMI Equity	634,602
Leonard Green & Partners, LP	16,098
Lion Capital, LLP	17,308
NCH Capital Inc.	674,194
Oaktree Capital Management, LP	2,046,064
RRJ Management (HK), Ltd	6,499,999
SAIF Partners	1,779,604
SoftBank Capital	352,205
The Cypress Group LLC	50,777
TPG Capital, LP	240,008
Tribeca Venture Partners, LLC	151,516
VCFA Group	576,408
Warburg Pincus, LLC	2,065,126
Total	\$ 26,074,513

Private Equity — Fee, Expense and Carried Interest Analysis*

For the Fiscal Year Ended March 31, 2017.

Total Expenses	
Net Management Fees	\$ 211,780,512
Partnership Expenses	<u>81,189,928</u>
Total Expenses	\$ 292,970,440
Ratio — Total Expenses/Total Private Equity Allocation	0.94%
Total Profit Sharing (Carried Interest)	
Profit Sharing (Carried Interest)	\$ <u>197,271,808</u>
Total Profit Sharing	\$ 197,271,808
Ratio — Total Profit Sharing/Total Actively Invested Private Equity Allocation	1.05%
Total Expenses + Profit Sharing (Carried Interest)	
Total Expenses	\$ 292,970,440
Total Profit Sharing	<u>197,271,808</u>
Total Expenses and Profit Sharing (Carried Interest)	\$ 490,242,248
Total Private Equity Allocation	
Unfunded Capital Commitments	\$ 12,410,492,310
Net Asset Value (NAV) as of 3/31/2017	<u>15,348,491,770</u>
Distributions for FY 2017	<u>3,500,073,821</u>
Total Private Equity Allocation	\$ 31,259,057,901
Ratio — Total Expenses + Profit Sharing/Total Private Equity Allocation	1.57%
Total Actively Invested Private Equity Allocation	
Net Asset Value (NAV) as of 3/31/2017	\$ 15,348,491,770
Distributions for FY 2017	<u>3,500,073,821</u>
Total Actively Invested Private Equity Allocation	\$ 18,848,565,591
Ratio — Total Expenses + Profit Sharing/Total Actively Invested Private Equity Allocation	2.60%

*The profit sharing and partnership expenses were compiled based on information provided directly by the General Partner or calculated by the CRF's consultant applying NYSCRF's pro-rata ownership to carried interest and/or distribution and expense information provided in the Audited Financial Statements and Quarterly Financial Statements. General Partner provided materials consist of partners' capital statements, 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, 2017.

Manager	Management Fees	Incentive Fees	Total
Angelo, Gordon & Company, LP	\$ 1,674,502	\$ 1,777,162	\$ 3,451,664
Bain Capital, LP	1,693,647	–	1,693,647
Brevan Howard Asset Management, LLP	1,774,779	–	1,774,779
Bridgewater Associates, LP	1,328,607	–	1,328,607
Brigade Capital Management, LLC	2,125,080	6,639,017	8,764,097
Caspian Capital Management, LLC	3,252,570	–	3,252,570
Cevian Capital, LLP	7,234,604	2,838,240	10,072,844
D.E. Shaw and Company, LP	13,149,084	7,193,431	20,342,515
Discovery Capital Management, LLC	4,696,778	2,424,988	7,121,766
Fortress Investment Group, LLC	1,023,113	–	1,023,113
Graticule Asset Management Asia, LP	4,501,041	4,885,181	9,386,222
HBK Capital Management, LP	4,140,742	4,919,479	9,060,221
Highfields Associates, LLC	3,874,602	4,271,125	8,145,727
Highland Capital Management, LP	483	–	483
Horizon Asset, Ltd	2,522,373	40,394	2,562,767
King Street Capital Management, LP	3,350,483	636,987	3,987,470
Knighthood Capital Management LLC	2,353,344	–	2,353,344
Lansdowne Partners, Ltd	3,640,787	–	3,640,787
Marathon Asset Management, LP	365	–	365
Mariner Investment Group, LLC	867,592	878,736	1,746,328
Marshall Wace, LLP	4,709,672	1,396,151	6,105,823
Mezzacappa Management, LLC	24,945	–	24,945
Oxford Asset Management, LLP	2,566,038	–	2,566,038
Och-Ziff Capital Management Group, LLC	4,394,151	2,624,230	7,018,381
Paulson & Co., Inc.	1,494,459	–	1,494,459
Pharo Management, LLC	3,109,847	2,722,212	5,832,059
Pine River Capital Management, LP	3,179,214	–	3,179,214
Rock Creek Group, LP	2,959,870	–	2,959,870
Schultze Asset Management, LLC	90,965	5,938	96,903
Stark Investments, LP	5,028	–	5,028
Systematica Investments, Ltd	1,589,103	6,247	1,595,350
Tilden Park Capital Management, LP	3,800,943	7,985,368	11,786,311
Triam Fund Management, LP	6,627,983	5,978,752	12,606,735
ValueAct Capital Management, LP	5,769,530	32,997,968	38,767,498
Total	\$ 103,526,324	\$ 90,221,606	\$ 193,747,930

Opportunistic Funds Management and Incentive Fees (Expensed)

For the Fiscal Year Ended March 31, 2017.

Manager	Management Fees	Incentive Fees	Total
ADV Partners, Ltd.	\$ 1,250,000	\$ –	\$ 1,250,000
Blackstone Group, LP	4,093,298	2,236,444	6,329,742
Clearlake Capital Group, LP	876,535	–	876,535
Finisterre Capital, LLP	2,047,804	2,944,888	4,992,692
Invesco, Ltd.	250,909	3,952,298	4,203,207
Landmark Partners, LLC	231,169	–	231,169
Pacific Alternative Asset Management Company, LLC	3,068,380	–	3,068,380
Pine Street Alternative Asset Management, LLC	2,573,335	160,591	2,733,926
Stellex Capital Management, LP	2,485,861	–	2,485,861
TPG Capital, LP	763,286	1,431,305	2,194,591
Total	\$ 17,640,577	\$ 10,725,526	\$ 28,366,103

Opportunistic Funds Management and Incentive Fees (Capitalized)

For the Fiscal Year Ended March 31, 2017.

Manager	Management Fees
Landmark Partners, LLC	\$ 3,705,612
TPG Capital, LP	4,001,384
Total	\$ 7,706,996

Real Assets Management Fees (Expensed)

For the Fiscal Year Ended March 31, 2017.

Manager	Management Fees
Brookfield Asset Management, Inc.	\$ 3,086,189
Kayne Anderson Capital Advisors, LP	1,430,284
KKR & Company, LP	604,321
Morgan Stanley Investment Management, Ltd.	2,324,104
Patria Investments, Ltd.	2,062,500
TIAA-CREF	1,834,439
Wellington Management Company, LLP	845,706
Total	\$ 12,187,543

Consultant and Advisor Fees

For the Fiscal Year Ended March 31, 2017.

Albourne America, LLC	\$ 769,333
Bard Consulting, LLC	50,000
FX Transparency, LLC	43,750
Hamilton Lane Advisors, LLC	1,875,000
J.P. Morgan Asset Management, Inc.	48,995
J.P. Morgan Investment Management, Inc.	1,204,913
McKinsey & Company, Inc.	3,771,250
Mosaic Global Partners Inc.	343,750
Pavillion Alternatives Group, LLC	484,310
Pension Consulting Alliance, Inc.	353,750
RV Kuhns & Associates, Inc.	820,000
Stockbridge Risk Management, Inc.	13,640
The Bank of New York Mellon	871,235
The Townsend Group	565,090
Wilshire Associates, Inc.	69,014
Total	\$ 11,284,030

Actuarial

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Statement of the Actuary

September 30, 2017

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 various plan provisions can be found at the beginning of the Notes to Financial Statements. The System's 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, 2016 and determined the employer contribution rates for February 1, 2018. 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) factors. 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 trustee of the System, has established an Office of Internal Audit to help him fulfill his fiduciary objectives.

The April 1, 2015 valuation for determining the February 1, 2017 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 Financial Statements, I prepared the Net Pension Liability of Participating Employers and, while I prepared the employer contribution rates that determined the 2017 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, 2017.

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 subsequently 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 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 Retirement 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 2017 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	
		ERS	PFRS		
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	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

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

Selected Actuarial Assumptions Used in the April 1, 2015 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	Male Clerk	Female Clerk	PFRS
55	50	37	28
60	69	46	48
70	136	106	134
80	440	313	469

Disability Retirees — Mortality

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

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, 2015 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, 2015 valuation of the System and the Group Life Insurance Plan (GLIP) for fiscal year 2017, the difference between market and actuarial values of smoothed investments was:

	Investments (Dollars in Millions)
Actuarial Value	\$ 179,261
Market Value	<u>184,502</u>
Difference	\$ (5,241)

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 fiscal year end 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, 2014 valuation for fiscal year end (FYE) 2016 billing and the April 1, 2015 valuation for fiscal year end 2017 billing.

	FYE 2016 Billing*	FYE 2017 Billing*
	(Dollars in Millions)	
ERS		
Actuarial Assets		
Actuarial Value of Present Assets:		
Held for Current Retirees & Beneficiaries	\$ 85,528	\$ 90,163
Held for Members	51,995	57,877
Member Contributions	<u>8,462</u>	<u>8,608</u>
Total	\$ 145,985	\$ 156,648
Actuarial Present Value of Prospective Contributions:		
From Employers	\$ 35,217	\$ 31,751
From Members	<u>2,005</u>	<u>2,251</u>
Total	\$ 37,222	\$ 34,002
Total Actuarial Assets	\$ 183,207	\$ 190,650
Actuarial Liabilities		
Actuarial Present Value of Benefits for Current Retirees & Beneficiaries:		
Service Retirement Benefits	\$ 81,299	\$ 85,790
Disability Retirement Benefits	4,116	4,261
Death Benefits	<u>112</u>	<u>113</u>
Total	\$ 85,527	\$ 90,163
Actuarial Present Value of Benefits for Members:		
Service Retirement Benefits	\$ 94,303	\$ 97,481
Disability Retirement Benefits	1,791	1,653
Death Benefits	1,182	941
Other	<u>403</u>	<u>411</u>
Total	\$ 97,679	\$ 100,487
Total Actuarial Liabilities	\$ 183,206	\$ 190,650
* Numbers may not add up due to rounding.		

Actuarial Valuation Balance Sheets

continued

	FYE 2016 Billing*	FYE 2017 Billing*
	(Dollars in Millions)	
PFRS		
Actuarial Assets		
Actuarial Value of Present Assets:		
Held for Current Retirees & Beneficiaries	\$ 15,958	\$ 17,072
Held for Members	9,506	10,238
Member Contributions	<u>10</u>	<u>20</u>
Total	\$ 25,474	\$ 27,330
Actuarial Present Value of Prospective Contributions:		
From Employers	\$ 7,517	\$ 7,428
From Members	<u>229</u>	<u>291</u>
Total	\$ 7,746	\$ 7,719
Total Actuarial Assets	\$ 33,220	\$ 35,049
Actuarial Liabilities		
Actuarial Present Value of Benefits for Current Retirees & Beneficiaries:		
Service Retirement Benefits	\$ 12,863	\$ 13,738
Disability Retirement Benefits	2,933	3,161
Death Benefits	<u>162</u>	<u>173</u>
Total	\$ 15,958	\$ 17,072
Actuarial Present Value of Benefits for Members:		
Service Retirement Benefits	\$ 15,357	\$ 16,194
Disability Retirement Benefits	1,595	1,503
Death Benefits	302	270
Other	<u>8</u>	<u>10</u>
Total	\$ 17,262	\$ 17,978
Total Actuarial Liabilities	\$ 33,220	\$ 35,049
* Numbers may not add up due to rounding.		

New York Public Employees' Group Life Insurance Plan

Actuarial Assets	2016	2017
	(Dollars in Millions)	
Assets		
Investments	\$ 151	\$ 138
Premiums Receivable	-	-
Total Assets	\$ 151	\$ 138
Liabilities		
Managed Overdraft (cash)	5	6
Claims Being Processed	32	29
Claims Unreported	16	18
Reserve for Mortality Fluctuations	98	85
Total Liabilities	\$ 151	\$ 138

Local Government Employers’ Final Contribution Rates for Select Plans

The following contribution rates are for the fiscal year ending March 31, 2017, and assume a February 1, 2017 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	10.7	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	19.6	17.6	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	21.6	19.6	n/a	n/a	n/a
25-year plans						
Sheriffs and Deputies	89-a	24.3	22.7	n/a	n/a	n/a
Article 14B Sheriffs — 25-year	551	22.8	22.4	20.3	17.8	13.0
Article 14B Sheriffs — 25-year + 1/60th	551-e	24.1	23.9	21.7	19.4	14.6
full service for 1/60th	551-ee	25.0	24.8	22.6	20.2	15.1
County Law Enforcement	89-e, etc.	24.8	24.5	18.3	15.7	11.0
20-year plans						
Sheriffs and Deputies	89-b	27.7	22.4	n/a	n/a	n/a
additional 1/60th	89-b(m)	27.9	23.7	n/a	n/a	n/a
Article 14B Sheriffs — 20-year	552	28.1	27.9	25.4	23.0	18.0
Article 14B Sheriffs — 20-year + 1/60th	553	28.1	27.9	25.9	23.7	19.0
full service for 1/60th	553b	29.2	29.0	26.9	24.7	19.8
Detective Investigators	89-d	27.1	26.8	n/a	n/a	n/a
additional 1/60th	89-d(m)	27.2	27.0	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	11.9	10.4	10.4	6.8	2.9
Guaranteed Benefits	375-e	18.6	15.4	15.4	11.4	7.1
Career	375-g	20.3	16.8	16.8	12.8	8.4
New Career	375-i	21.0	17.3	17.3	13.2	8.6
Improved Career	375-j	21.0	17.3	17.3	13.2	8.6
25-year plans						
Contributory	384	n/a	n/a	n/a	15.9	11.2
additional 1/60th	384(f)	n/a	n/a	n/a	17.3	12.4
Non-Contributory	384	20.9	20.2	20.2	19.3	17.7
additional 1/60th	384(f)	22.0	21.8	21.8	20.8	19.0
20-year plans						
Contributory	384-d	n/a	n/a	n/a	19.5	14.5
additional 1/60th	384-e	n/a	n/a	n/a	20.2	15.1
Non-contributory	384-d	24.7	24.1	23.8	22.9	21.0
additional 1/60th	384-e	25.0	24.8	23.8	23.7	21.7
* Age-based plans in Tier 5 and Tier 6 are contributory.						

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									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
ERS										
Guaranteed Benefits (75-e)										
Tier 1	10.9	9.7	8.4	13.8	19.4	22.9	25.8	24.8	22.6	19.6
Tier 2	9.9	8.8	7.6	12.5	17.5	20.7	23.3	22.5	20.5	17.6
Career (75-g)										
Tier 1	11.5	10.3	8.9	14.6	20.4	24.1	27.3	26.3	24.0	20.7
Tier 2	10.5	9.4	8.1	13.3	18.6	22.0	24.9	24.0	21.9	18.7
New Career (75-i)										
Tier 1	12.0	10.7	9.2	15.2	21.3	25.2	28.5	27.4	25.0	21.6
Tier 2	11.0	9.8	8.5	13.9	19.5	23.0	26.0	25.1	22.9	19.6
Article 14/15 — Tier 3	8.8	7.9	6.9	11.2	15.6	18.4	20.8	20.1	18.6	15.8
Article 15 — Tier 4	8.8	7.9	6.9	11.2	15.6	18.4	20.8	20.1	18.6	15.8
Article 15 — Tier 5	—	—	—	—	12.6	14.9	16.7	16.4	15.3	13.0
Article 15 — Tier 6	—	—	—	—	—	9.9	11.3	10.8	10.4	9.2

Contribution Rate Trend for Local Governments

continued

Plan Name (Section)	Percentage of Payroll									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
PFRS										
Guaranteed Benefits (375-e)										
Tier 1	11.9	11.2	10.8	13.2	16.1	19.6	22.1	21.4	19.4	18.6
Tiers 2 & 3	9.7	9.5	9.2	11.1	13.0	16.2	18.1	17.8	16.1	15.4
Tier 5*	—	—	—	—	9.3	11.8	13.0	12.7	12.1	11.4
Tier 6*	—	—	—	—	—	7.0	7.3	7.2	6.4	7.1
Career (375-g)										
Tier 1	13.0	12.3	11.8	14.4	17.6	21.3	24.1	23.4	21.2	20.3
Tiers 2 & 3	10.7	10.4	10.0	12.1	14.2	17.6	19.7	19.4	17.6	16.8
Tier 5*	—	—	—	—	10.4	13.1	14.5	14.2	13.5	12.8
Tier 6*	—	—	—	—	—	8.2	8.6	8.5	7.6	8.4
New Career (375-i)										
Tier 1	13.5	12.7	12.2	14.9	18.1	22.1	24.9	24.2	21.9	21.0
Tiers 2 & 3	10.9	10.7	10.3	12.5	14.6	18.1	20.3	19.9	18.1	17.3
Tier 5*	—	—	—	—	10.8	13.6	15.1	14.7	14.0	13.2
Tier 6*	—	—	—	—	—	8.5	8.9	8.7	7.9	8.6
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
Tier 6	—	—	—	—	—	11.4	12.3	12.0	11.2	11.2
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
Tier 6	—	—	—	—	—	12.8	13.8	13.3	12.4	12.4
25-Year (384) — Non-Contributory										
Tier 1	13.3	12.5	11.9	14.7	17.7	21.2	24.0	23.2	21.2	20.9
Tiers 2 & 3	13.2	12.5	11.9	14.7	17.6	21.2	23.9	23.1	21.0	20.2
Tier 5	—	—	—	—	16.9	20.4	22.9	22.1	20.1	19.3
Tier 6	—	—	—	—	—	18.4	20.4	19.6	17.9	17.7
25-Year + 1/60ths (384(f)) — Non-Contributory										
Tier 1	13.8	12.9	12.4	15.2	19.2	23.1	26.1	25.1	22.7	22.0
Tiers 2 & 3	13.3	12.7	12.2	15.0	19.0	22.9	25.9	24.8	22.5	21.8
Tier 5	—	—	—	—	18.3	21.9	24.7	23.7	21.5	20.8
Tier 6	—	—	—	—	—	19.9	22.0	21.1	19.2	19.0
* Age-based plans in Tier 5 and Tier 6 are contributory.										

Contribution Rate Trend for Local Governments

continued

Plan Name (Section)	Percentage of Payroll									
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
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
Tier 6	—	—	—	—	—	14.6	16.0	15.4	14.3	14.5
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
Tier 6	—	—	—	—	—	14.9	16.3	15.6	14.5	15.1
20-Year (384-d) — Non-Contributory										
Tier 1	15.5	14.9	14.2	17.4	21.5	25.7	29.2	28.0	25.4	24.7
Tier 2	14.7	14.5	13.8	16.8	20.9	25.1	28.4	27.3	24.7	24.1
Tier 3	—	—	—	—	20.4	24.2	27.5	26.1	24.4	23.8
Tier 5	—	—	—	—	20.0	24.1	27.1	26.1	23.6	22.9
Tier 6	—	—	—	—	—	21.6	24.1	23.1	21.0	21.0
20-Year + 1/60ths (384-e) — Non-Contributory										
Tier 1										
1990-1998 elections (avg.)	26.7	20.5	19.9	23.1	21.8	26.1	29.6	28.4	25.8	25.0
all other years	15.9	15.1	14.5	17.7	21.8	26.1	29.6	28.4	25.8	25.0
Tier 2										
1990-1998 elections (avg.)	17.1	15.9	15.3	18.4	21.2	25.4	28.8	27.6	25.1	24.8
all other years	15.7	15.0	14.4	17.5	21.2	25.4	28.8	27.6	25.1	24.8
Tier 3	—	—	—	—	20.4	24.2	27.5	26.1	24.4	23.8
Tier 5	—	—	—	—	20.3	24.4	27.5	26.3	23.9	23.7
Tier 6	—	—	—	—	—	22.0	24.4	23.3	21.3	21.7

Employer Contributions

Contributions 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. In 2005, 2006 and 2007, employers could amortize a portion of their contributions. 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 2016 and 2017. (Dollars in Millions)

	2017 Contribution			2016 Contribution		
	Salary	Contribution	Average Rate	Salary	Contribution	Average Rate
ERS						
Tier 1	\$ 176	\$ 38	21.8%	\$ 215	\$ 54	25.2%
Tier 2	205	41	19.9	250	58	23.2
Tiers 3 & 4	20,301	3,336	16.4	20,779	3,990	19.2
Tier 5	1,453	197	13.5	1,431	227	15.9
Tier 6	4,064	395	9.7	2,969	324	10.9
Total	\$ 26,200	\$ 4,007	15.3%	\$ 25,644	\$ 4,653	18.1%
PFRS						
Tier 1	\$ 7	\$ 2	28.3%	\$ 9	\$ 3	29.4%
Tier 2	3,077	776	25.2	3,097	792	25.6
Tier 3	15	3	22.4	13	3	23.1
Tier 5	145	30	20.6	127	27	21.1
Tier 6	389	59	15.2	280	41	14.7
Total	\$ 3,633	\$ 870	23.9%	\$ 3,527	\$ 866	24.5%

Deficiency contributions for Fiscal Year 2017 (as of February 1, 2017) totaled \$1,508,500.

Incentive contributions ceased after Fiscal Year 2016.

*Numbers may not add up due to rounding.

Employer Contributions

continued

Final Employer Contributions by Employer Type*

Attributable to fiscal year 2017 costs only. (Dollars in Millions)

Employer	Normal	Administrative	GLIP	Total
ERS				
State	\$ 1,602	\$ 43	\$ 38	\$ 1,684
Counties	689	18	15	722
Cities	103	3	3	109
Towns	229	6	6	242
Villages	71	2	2	75
Miscellaneous	605	18	18	640
Schools	507	14	14	536
Total	\$ 3,805	\$ 105	\$ 97	\$ 4,007
PFRS				
State	\$ 169	\$ 4	\$ —	\$ 173
Counties	198	4	—	202
Cities	241	5	—	246
Towns	91	2	—	93
Villages	73	2	—	74
Miscellaneous	80	2	—	81
Total	\$ 852	\$ 18	\$ —	\$ 870

Employer Contributions by Tier*

(Dollars in Millions)

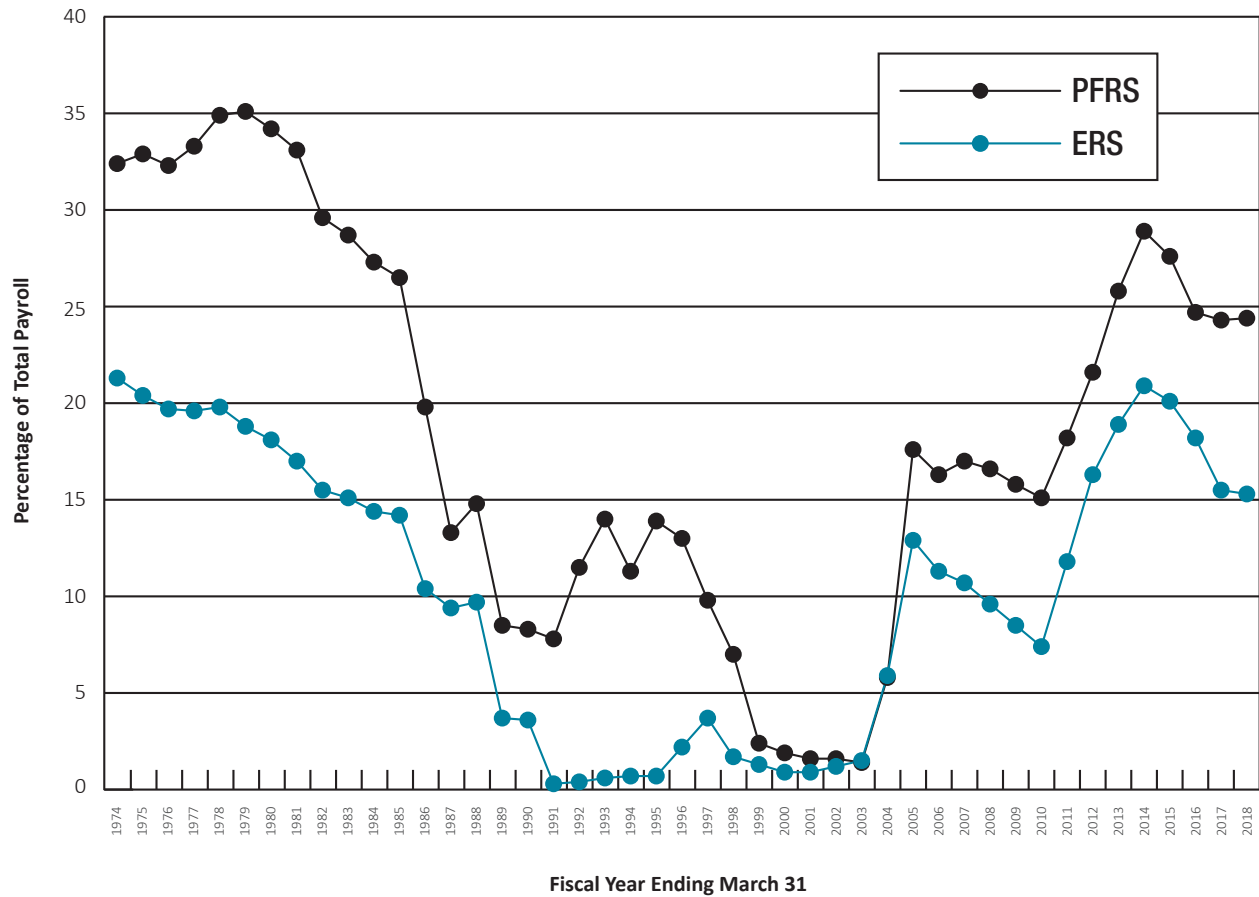
	2017 (as of February 1, 2017)		2016 (as of February 1, 2016)	
	Employer Contributions Attributable to Year	Percentage	Employer Contributions Attributable to Year	Percentage
ERS				
Tier 1	\$ 38	1.0%	\$ 54	1.2%
Tier 2	41	1.0	58	1.2
Tiers 3 & 4	3,336	83.2	3,990	85.8
Tier 5	197	4.9	227	4.9
Tier 6	395	9.9	324	7.0
Total	\$ 4,007	100.0%	\$ 4,653	100.0%
PFRS				
Tier 1	\$ 2	0.2%	\$ 3	0.3%
Tier 2	776	89.2	792	91.5
Tier 3	3	0.4	3	0.4
Tier 5	30	3.4	27	3.1
Tier 6	59	6.8	41	4.8
Total	\$ 870	100.0%	\$ 866	100.0%

*Numbers may not add up due to rounding.

Historical Trends (Rates as a Percentage of Salary, 1974 – 2018)

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 enactments 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								
2007	2009	2,316	93	(147)	n/a	n/a	(91)	2,171
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
PFRS								
2007	2009	476	22	(24)	n/a	n/a	12	486
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

* 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					
4/1/07	\$ 133,135	\$ 121,116	\$ 114,525	116.2%	105.8%
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
PFRS					
4/1/07	\$ 23,490	\$ 21,379	\$ 20,074	117.0%	106.5%
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

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								
4/1/07	\$ 7,112	\$ 51,231	\$ 56,182	\$ 114,525	\$ 121,116	100.0%	100.0%	111.7%
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
PFRS								
4/1/07	\$ 22	\$ 10,638	\$ 9,414	\$ 20,074	\$ 21,379	100.0%	100.0%	113.9%
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

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				
2007	519,203	\$ 22,018	5.3%	\$ 42,408
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
PFRS				
2007	32,811	\$ 2,825	4.2%	\$ 86,099
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

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								
2007	19,780	12,504	\$ 453,890,020	\$ 144,683,098	321,113	\$ 5,608,443,749	5.83%	\$ 17,466
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
PFRS								
2007	1,230	685	\$ 74,195,781	\$ 18,847,992	28,953	\$ 1,095,527,432	5.32%	\$ 37,838
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

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

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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
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)
2008	\$ 265,676	\$ 2,648,448	\$ 116,112	\$ 3,163,728	\$ 6,193,964
ERS	263,098	2,134,954	98,703	2,690,533	5,187,288
PFRS	2,578	513,494	17,409	473,195	1,006,676

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

Schedule of Investment Income/(Loss)

(Dollars in Thousands)

	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Net Change in Fair Value of Investments	\$ 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)	\$ (1,287,032)
Interest	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	1,976,372
Dividends	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	2,060,063
Real Estate and Mortgages	531,225	491,949	414,345	353,821	382,315	239,038	97,844	155,974	194,517	8,872
Alternative Investments	230,919	174,552	174,850	259,960	377,664	170,225	234,940	109,603	49,646	150,360
Security Lending Income	74,428	52,878	35,639	28,381	32,617	33,323	31,328	62,224	545,934	1,335,474
International	153,368	360,723	137,227	220,090	146,314	153,157	46,127	5,748	23,223	379,185
Miscellaneous Income	33,456	1,461	(40,881)	17,187	(247,988)	(44,790)	(57,241)	81,669	(44,810)	47,318
Security Lending Expenses	(18,001)	(5,278)	(3,563)	(2,838)	(3,261)	(3,332)	(2,744)	(2,080)	(367,584)	(1,217,664)
Investment Expenses	(664,941)	(565,845)	(585,066)	(574,915)	(469,752)	(423,528)	(446,863)	(364,478)	(362,748)	(289,220)
Net Investment Income/(Loss)	\$ 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)	\$ 3,163,728

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
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
2008	\$ 6,142,751	\$ 511,069	\$ 181,693	\$ 29,841	\$ 90,304	\$ 17,680	\$ 6,973,338
ERS	5,135,670	418,423	169,688	27,919	78,849	17,896	5,848,445
PFRS	1,007,081	92,646	12,005	1,922	11,455	(216)	1,124,893

Schedule of Total Changes in Fiduciary Net Position

(Dollars in Thousands)

Year Ending	Member Contributions	Employer Contributions	Other Income	Investment Income/(Loss)	Total
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)
2008	\$ 265,676	\$ 2,648,448	\$ 116,112	\$ 3,163,728	\$ 6,193,964
ERS	263,098	2,134,954	98,703	2,690,533	5,187,288
PFRS	2,578	513,494	17,409	473,195	1,006,676

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
\$ 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)
\$ 6,142,751	\$ 511,069	\$ 181,693	\$ 29,841	\$ 90,304	\$ 17,680	\$ 6,973,338	\$ (779,374)
5,135,670	418,423	169,688	27,919	78,849	17,896	5,848,445	(661,157)
1,007,081	92,646	12,005	1,922	11,455	(216)	1,124,893	(118,217)

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, 2017. 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	–	–	–	1,079	44,966	4,282	2,139	42,253	5,034	872	34,873	4,640	500	19,841	3,265
10 – 14	–	–	–	3,277	40,227	6,304	7,827	37,104	7,209	4,398	32,613	7,189	2,745	24,933	6,666
15 – 19	–	–	–	2,108	48,527	10,682	4,968	45,865	12,493	3,785	37,544	11,754	2,242	28,187	10,741
20 – 24	–	–	–	2,414	60,307	21,712	7,764	56,269	24,231	5,793	43,880	21,103	3,217	32,660	18,351
25 – 29	1,212	85,043	42,224	6,254	73,540	36,004	9,893	62,125	33,244	5,776	47,610	28,667	2,375	35,756	24,516
30 – 34	91	96,167	47,672	9,580	75,725	46,621	12,519	65,323	42,212	5,308	51,168	36,036	1,708	40,100	31,562
35 & Over	2	87,346	43,187	7,828	71,437	51,741	18,643	67,508	52,270	5,880	58,315	47,823	1,836	48,992	43,744
Total	1,305	85,822	42,606	32,540	66,773	36,172	63,753	58,608	33,711	31,812	45,883	26,420	14,623	33,508	20,208
Counties															
Under 10	–	–	–	970	39,491	3,801	1,909	36,436	4,233	835	31,340	4,170	304	17,551	3,065
10 – 14	–	–	–	2,147	38,533	6,098	4,941	35,147	6,788	2,987	29,254	6,481	1,788	21,953	5,850
15 – 19	–	–	–	1,314	44,152	9,791	3,354	41,513	11,250	2,403	34,818	10,905	1,678	24,711	9,386
20 – 24	261	81,684	42,512	1,854	53,782	20,747	4,929	49,920	21,637	3,150	39,065	18,942	1,696	29,469	16,168
25 – 29	514	95,665	48,704	2,266	69,241	34,032	4,335	55,454	29,655	2,504	43,665	26,161	1,090	32,924	22,130
30 – 34	22	100,214	53,770	3,752	67,423	42,205	4,560	58,017	37,580	1,786	46,953	33,032	535	36,317	28,213
35 & Over	–	–	–	2,652	65,729	48,181	5,788	65,366	50,461	1,592	56,679	46,546	465	42,979	38,040
Total	797	91,212	46,816	14,955	57,703	28,843	29,816	50,704	26,093	15,257	39,569	20,143	7,556	27,969	14,752
Cities															
Under 10	–	–	–	124	35,880	3,494	297	32,941	3,880	145	26,361	3,460	75	14,578	2,537
10 – 14	–	–	–	349	35,457	5,401	784	31,077	6,025	474	26,326	5,938	289	19,433	5,135
15 – 19	–	–	–	217	39,913	8,922	522	38,966	10,644	358	30,658	9,554	275	21,694	8,491
20 – 24	–	–	–	228	49,038	17,458	641	47,703	20,221	422	35,628	17,192	265	25,594	14,029
25 – 29	–	–	–	217	58,095	26,865	642	52,382	27,911	419	37,903	23,219	236	27,673	19,487
30 – 34	–	–	–	702	60,679	38,010	819	54,128	35,032	384	42,405	30,286	166	30,736	24,640
35 & Over	–	–	–	550	63,057	46,304	1,162	57,521	44,470	373	44,084	36,875	144	33,487	30,922
Total	–	–	–	2,387	53,016	27,740	4,867	47,229	25,206	2,575	35,309	19,070	1,450	24,767	14,392
Towns															
Under 10	–	–	–	291	32,366	3,154	779	29,860	3,542	441	25,871	3,395	126	17,453	2,638
10 – 14	–	–	–	512	38,780	6,239	1,390	34,294	6,679	980	27,249	5,995	521	20,673	5,282
15 – 19	–	–	–	383	42,987	9,742	1,091	39,946	10,861	841	32,635	10,105	472	24,751	9,097
20 – 24	–	–	–	439	53,860	19,566	1,316	49,319	21,222	1,006	38,617	18,493	454	30,257	16,317
25 – 29	–	–	–	393	62,880	29,688	1,118	55,972	29,905	774	42,728	25,235	319	31,258	20,453
30 – 34	–	–	–	1,033	71,117	44,522	1,162	58,900	37,964	614	45,776	32,008	198	34,823	26,230
35 & Over	–	–	–	1,176	77,691	57,284	1,751	67,654	52,518	529	51,721	42,090	157	38,827	33,319
Total	–	–	–	4,227	61,255	33,465	8,607	49,831	25,715	5,185	37,212	18,500	2,247	27,303	14,123

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	–	–	–	84	33,773	3,180	220	31,552	3,690	127	25,109	3,355	41	15,950	2,337
10 – 14	–	–	–	171	35,940	5,475	402	32,417	6,246	317	27,997	6,118	171	18,885	4,976
15 – 19	–	–	–	113	47,310	10,785	327	42,025	11,488	246	32,507	10,150	173	22,014	8,475
20 – 24	–	–	–	139	55,705	20,128	381	51,289	21,824	281	40,414	19,404	161	24,963	13,604
25 – 29	–	–	–	123	60,310	27,785	312	56,399	30,153	250	41,527	24,797	121	28,455	18,754
30 – 34	–	–	–	317	69,377	43,499	378	53,674	34,645	193	43,794	30,918	67	32,292	25,156
35 & Over	–	–	–	266	71,823	52,661	488	64,775	50,208	191	49,903	41,007	58	37,025	33,583
Total	–	–	–	1,213	58,192	30,037	2,508	48,944	24,880	1,605	37,248	18,887	792	24,577	13,265
Miscellaneous															
Under 10	–	–	–	814	49,635	4,734	1,505	45,476	5,171	559	36,712	4,798	141	22,738	3,560
10 – 14	–	–	–	1,499	48,916	7,679	3,155	43,997	8,423	1,683	36,706	8,043	811	25,174	6,471
15 – 19	–	–	–	1,166	58,318	12,724	2,390	51,299	13,824	1,393	40,441	12,401	602	27,441	10,188
20 – 24	–	–	–	1,399	64,863	22,812	3,455	59,186	25,104	1,643	47,967	22,345	694	33,332	17,786
25 – 29	–	–	–	996	70,738	32,705	2,816	66,248	34,905	1,267	52,830	30,843	509	38,166	25,352
30 – 34	–	–	–	2,541	85,199	53,267	2,701	72,774	46,380	1,011	58,000	40,003	371	43,469	33,286
35 & Over	–	–	–	1,618	81,609	59,281	3,211	77,082	59,469	1,117	68,977	55,796	357	53,039	45,760
Total	–	–	–	10,033	68,918	32,488	19,233	60,571	29,566	8,673	48,434	24,449	3,485	33,791	18,886
School Districts															
Under 10	–	–	–	1,342	24,284	2,341	2,829	21,604	2,553	1,448	18,430	2,458	684	10,213	1,740
10 – 14	–	–	–	2,112	29,135	4,688	5,109	26,919	5,209	4,146	22,058	4,833	2,588	14,713	3,928
15 – 19	–	–	–	1,635	33,537	7,726	4,331	31,158	8,464	3,328	26,474	8,280	2,197	16,400	6,419
20 – 24	–	–	–	1,931	40,791	15,233	6,548	38,848	16,755	4,018	30,293	14,684	2,388	19,121	10,527
25 – 29	–	–	–	1,273	47,632	22,357	4,720	43,015	23,094	3,042	31,739	19,147	1,562	21,759	14,766
30 – 34	–	–	–	1,590	57,673	35,969	2,894	47,199	30,371	1,689	35,920	24,980	656	26,179	20,063
35 & Over	–	–	–	987	63,730	46,754	1,863	52,971	40,699	927	41,749	33,934	392	31,881	28,462
Total	–	–	–	10,870	40,751	17,193	28,294	36,272	16,008	18,598	28,169	13,015	10,467	18,192	9,361

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, 2017. 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	–	–	–	–	–	–	4	46,380	6,600	3	24,462	2,769	10	23,611	4,578
10 – 14	–	–	–	–	–	–	15	47,307	9,446	24	38,552	8,070	27	15,578	3,817
15 – 19	–	–	–	–	–	–	12	76,908	24,012	11	47,255	14,193	18	29,197	11,979
20 – 24	–	–	–	119	127,312	67,283	435	107,315	57,344	287	69,148	38,332	888	33,487	25,276
25 – 29	–	–	–	10	141,732	84,882	432	129,974	80,050	262	94,035	57,828	382	48,501	35,010
30 – 34	–	–	–	–	–	–	246	139,736	95,206	384	115,974	78,778	396	64,246	47,945
35 & Over	–	–	–	–	–	–	18	145,913	99,628	154	125,917	88,568	216	77,881	61,318
Total	–	–	–	129	128,429	68,647	1,162	121,902	73,319	1,125	97,712	62,578	1,937	47,346	35,320
Counties															
Under 10	–	–	–	–	–	–	3	48,655	5,441	5	45,961	6,405	1	96,529	65,523
10 – 14	–	–	–	–	–	–	8	69,266	13,762	14	41,911	9,036	17	29,097	6,545
15 – 19	–	–	–	–	–	–	1	73,636	18,900	9	48,184	14,917	10	35,449	12,821
20 – 24	–	–	–	72	158,655	81,647	336	144,739	76,461	371	89,613	49,807	1,084	52,926	34,993
25 – 29	–	–	–	8	178,195	107,033	336	174,910	108,194	298	135,439	85,061	387	80,870	53,537
30 – 34	–	–	–	–	–	–	198	191,324	130,699	593	154,236	107,356	565	106,856	77,930
35 & Over	–	–	–	–	–	–	5	211,924	148,347	333	179,388	133,800	502	132,833	102,650
Total	–	–	–	80	160,609	84,185	887	165,860	100,123	1,623	139,282	93,861	2,566	84,439	60,217
Cities															
Under 10	–	–	–	–	–	–	10	38,017	4,912	5	26,693	3,879	8	49,096	9,350
10 – 14	–	–	–	–	–	–	28	47,179	9,409	79	31,011	6,850	66	18,253	4,330
15 – 19	–	–	–	–	–	–	25	54,539	15,252	41	46,495	14,698	35	22,391	8,007
20 – 24	–	–	–	385	98,246	49,889	1,418	88,532	45,597	1,330	61,981	33,921	1,568	36,172	24,994
25 – 29	–	–	–	21	109,659	59,711	558	103,309	60,531	777	88,212	52,815	813	48,015	32,257
30 – 34	–	–	–	–	–	–	168	122,196	80,405	807	97,001	64,329	958	60,749	44,620
35 & Over	–	–	–	–	–	–	11	99,065	62,767	420	101,600	72,310	718	74,210	58,495
Total	–	–	–	406	98,836	50,397	2,218	93,719	51,093	3,459	79,912	49,031	4,166	50,315	36,198
Towns															
Under 10	–	–	–	–	–	–	7	41,433	5,392	23	29,271	3,962	33	18,203	2,855
10 – 14	–	–	–	–	–	–	10	54,112	10,820	36	35,648	7,139	49	22,888	5,631
15 – 19	–	–	–	–	–	–	8	56,981	16,272	17	45,325	13,992	26	29,592	10,838
20 – 24	–	–	–	113	110,088	55,810	501	97,007	49,404	362	71,055	38,050	353	44,619	29,225
25 – 29	–	–	–	6	106,308	55,200	147	116,330	65,328	190	91,659	52,792	107	54,356	34,479
30 – 34	–	–	–	–	–	–	44	140,394	87,846	211	109,991	73,357	158	77,657	55,254
35 & Over	–	–	–	–	–	–	4	142,625	91,005	116	127,832	89,439	141	96,245	74,667
Total	–	–	–	119	109,897	55,779	721	102,269	53,897	955	87,854	52,611	867	57,553	39,118

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	–	–	–	–	–	–	16	28,275	3,586	32	26,674	2,989	41	11,322	1,489
10 – 14	–	–	–	–	–	–	15	46,416	8,996	48	30,431	6,444	58	19,579	4,922
15 – 19	–	–	–	–	–	–	7	55,797	14,746	29	38,015	12,251	35	24,107	9,292
20 – 24	–	–	–	130	100,431	50,768	444	89,176	45,032	351	65,960	35,207	405	41,273	27,462
25 – 29	–	–	–	7	130,133	68,014	154	122,728	67,027	129	89,250	49,441	156	49,112	31,393
30 – 34	–	–	–	–	–	–	39	149,931	94,069	141	122,865	78,739	152	69,407	48,861
35 & Over	–	–	–	–	–	–	2	83,042	58,129	112	138,901	95,853	117	98,478	76,495
Total	–	–	–	137	101,949	51,650	677	97,558	50,808	842	84,279	49,089	964	50,718	34,303
Miscellaneous															
Under 10	–	–	–	–	–	–	4	70,238	7,799	4	58,522	6,415	1	101,364	8,875
10 – 14	–	–	–	–	–	–	1	71,999	15,540	9	44,847	9,537	10	19,407	4,804
15 – 19	–	–	–	–	–	–	4	132,534	37,553	6	55,108	16,437	6	53,817	20,706
20 – 24	–	–	–	30	144,857	75,714	125	138,620	72,871	280	110,102	59,398	311	53,584	36,271
25 – 29	–	–	–	4	196,587	115,868	89	154,926	94,674	204	143,443	88,639	109	87,078	55,290
30 – 34	–	–	–	–	–	–	38	148,327	100,188	168	169,575	116,384	98	116,861	82,870
35 & Over	–	–	–	–	–	–	1	152,264	106,585	51	173,429	124,173	89	114,047	88,025
Total	–	–	–	34	150,943	80,438	262	144,228	82,617	722	136,278	84,223	624	77,527	53,596

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, 2017. 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	155	37,569	21,274	321	27,536	11,465	292	22,507	11,995	138	18,647	9,861	52	16,988	7,422
10 – 14	429	48,130	20,537	989	38,804	14,375	965	31,952	13,101	441	24,769	11,257	159	18,675	9,475
15 – 19	367	53,458	22,962	941	44,381	17,566	966	36,799	16,971	443	28,352	15,029	120	18,684	14,123
20 – 24	250	61,082	27,279	860	50,225	22,057	789	40,602	21,374	314	30,142	19,769	73	18,934	16,210
25 – 29	116	65,300	35,978	644	57,488	31,263	396	42,507	24,928	151	32,651	23,446	32	17,511	17,290
30 – 34	23	65,609	37,639	194	54,595	31,813	174	42,974	28,557	59	33,665	26,198	8	24,758	23,333
35 & Over	–	–	–	26	52,116	32,006	46	42,750	29,370	6	38,455	32,269	–	–	–
Total	1,340	52,570	24,175	3,975	45,570	20,260	3,628	36,181	18,080	1,552	27,492	15,767	444	18,548	12,411
Counties															
Under 10	48	57,636	34,884	63	31,340	14,236	64	25,729	12,853	32	17,787	9,210	17	16,970	7,544
10 – 14	222	55,537	26,216	371	43,270	17,327	357	31,679	12,033	181	23,680	9,587	53	15,471	8,354
15 – 19	198	66,035	33,167	388	47,724	20,244	330	37,927	16,634	154	28,577	15,107	40	19,414	12,278
20 – 24	129	76,857	41,693	352	59,412	29,415	242	41,099	21,901	75	34,434	23,976	19	24,212	21,256
25 – 29	49	81,231	48,241	228	63,109	34,904	123	44,617	27,144	37	31,864	24,657	6	20,852	18,647
30 – 34	5	71,326	33,325	52	62,665	37,758	52	53,317	36,376	11	34,442	27,192	1	15,837	21,035
35 & Over	–	–	–	8	54,582	35,088	7	61,727	44,395	–	–	–	–	–	–
Total	651	65,165	33,748	1,462	51,670	24,443	1,175	37,541	18,254	490	27,340	15,033	136	18,279	11,757
Cities															
Under 10	3	53,150	17,889	17	26,146	9,719	22	24,685	10,776	10	19,628	12,852	7	17,217	11,304
10 – 14	26	47,229	16,163	72	37,347	12,193	75	31,587	11,031	37	23,596	9,878	12	16,971	12,218
15 – 19	20	47,274	15,992	87	41,175	14,245	78	33,851	13,213	30	26,729	12,560	8	13,476	7,919
20 – 24	19	53,580	19,497	56	43,712	17,153	47	36,435	17,205	25	24,627	18,689	5	20,820	15,579
25 – 29	10	56,707	24,371	43	44,539	21,236	46	35,846	20,673	13	31,029	20,952	2	16,729	22,205
30 – 34	3	78,823	39,541	13	52,382	28,591	11	36,324	23,235	3	24,715	15,554	3	14,532	14,396
35 & Over	–	–	–	3	61,614	35,962	1	40,615	26,973	–	–	–	1	22,668	26,781
Total	81	51,290	18,846	291	41,047	15,930	280	33,407	14,776	118	25,122	14,043	38	16,731	12,668
Towns															
Under 10	15	36,336	13,247	14	27,875	10,940	16	28,776	15,423	8	17,428	8,500	8	13,952	7,093
10 – 14	53	46,804	16,058	99	40,977	13,857	82	32,969	13,134	42	25,609	11,100	17	17,405	8,162
15 – 19	49	54,053	18,517	128	47,329	16,434	93	37,094	14,888	40	32,191	13,818	8	17,293	10,586
20 – 24	52	60,900	22,416	100	53,965	21,069	76	41,104	22,465	30	30,495	22,639	7	25,091	20,583
25 – 29	22	67,462	29,549	70	57,800	27,034	46	45,189	26,698	16	35,565	24,880	1	14,593	11,471
30 – 34	7	72,966	37,060	31	63,830	36,669	23	45,088	29,033	6	28,499	26,261	1	23,018	22,805
35 & Over	–	–	–	5	71,765	44,280	5	42,568	30,172	1	30,632	21,806	–	–	–
Total	198	54,727	20,365	447	49,855	20,103	341	38,317	18,951	143	29,288	16,388	42	18,074	10,918

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	16,418	8	32,368	11,829	7	21,721	11,846	3	14,944	11,154	–	–	–
10 – 14	24	49,239	16,652	27	42,680	14,215	28	27,871	12,011	14	24,489	11,088	4	16,953	9,704
15 – 19	13	55,454	18,712	29	48,279	16,754	28	34,051	16,217	10	29,416	14,548	1	7,524	3,546
20 – 24	10	49,858	18,542	34	57,791	22,940	17	36,509	18,653	11	27,794	22,206	5	24,690	14,683
25 – 29	12	71,514	31,316	18	61,633	28,413	14	42,016	22,342	8	30,268	18,864	2	28,452	30,326
30 – 34	–	–	–	11	59,921	33,661	8	55,275	34,731	7	30,555	25,564	–	–	–
35 & Over	–	–	–	1	58,962	36,644	–	–	–	–	–	–	–	–	–
Total	61	54,955	20,278	128	51,592	20,802	102	34,676	17,461	53	27,238	17,138	12	21,308	14,702
Miscellaneous															
Under 10	13	34,501	11,971	46	35,855	14,312	30	24,813	11,055	23	22,663	10,405	7	19,842	9,848
10 – 14	74	44,326	15,273	223	45,576	14,843	187	41,566	13,345	71	28,572	10,869	19	16,411	10,617
15 – 19	63	53,668	18,130	211	49,452	17,024	205	40,997	15,229	45	29,255	12,879	8	24,192	13,483
20 – 24	48	62,658	22,683	167	53,627	20,099	92	47,052	19,683	27	28,832	15,140	7	23,266	18,455
25 – 29	34	63,454	27,596	104	53,629	24,646	52	50,402	27,792	16	40,711	31,205	2	25,583	24,199
30 – 34	6	72,652	38,434	44	55,688	29,790	20	60,084	37,625	8	47,018	36,719	2	35,729	27,562
35 & Over	–	–	–	2	40,825	25,715	5	48,956	37,248	1	28,043	21,696	–	–	–
Total	238	53,406	19,688	797	49,325	18,623	591	42,839	17,164	191	29,845	14,733	45	20,661	13,583
School Districts															
Under 10	8	23,733	8,582	38	21,368	8,349	43	18,505	8,051	45	15,876	6,858	19	14,399	7,892
10 – 14	108	38,174	13,029	348	30,412	9,782	328	27,467	8,640	172	22,217	7,589	59	13,380	6,140
15 – 19	47	48,069	16,181	278	35,853	11,989	330	32,681	11,458	103	25,062	10,628	37	13,149	8,531
20 – 24	48	44,768	16,434	181	40,699	15,280	110	33,406	14,976	60	26,163	14,094	5	24,596	16,260
25 – 29	23	53,486	23,174	95	48,269	21,872	58	35,482	18,294	23	27,555	18,935	7	22,182	16,939
30 – 34	3	66,942	34,224	34	51,433	27,047	22	45,266	27,171	2	39,505	25,417	–	–	–
35 & Over	1	50,782	29,835	2	54,629	34,449	3	51,776	32,972	1	22,658	19,065	–	–	–
Total	238	42,868	15,507	976	36,038	13,203	894	30,731	11,596	406	23,208	9,999	127	14,392	8,092

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, 2017. 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	74,842	47,417	24	72,447	46,646	39	40,771	25,296	34	24,942	18,644	20	15,153	18,573
10 – 14	3	108,056	72,909	14	95,213	51,763	34	60,082	35,337	32	37,557	24,836	54	18,806	21,235
15 – 19	–	–	–	17	113,202	73,762	43	75,245	43,900	38	47,443	29,624	103	24,737	23,612
20 – 24	–	–	–	8	118,527	82,577	43	101,912	67,640	26	63,465	39,248	86	40,656	32,411
25 – 29	–	–	–	2	147,471	99,484	20	127,387	87,471	31	89,494	58,599	38	49,496	37,693
30 – 34	–	–	–	–	–	–	1	122,886	82,268	21	114,463	81,262	15	51,540	42,713
35 & Over	–	–	–	–	–	–	–	–	–	2	136,480	99,172	14	79,460	62,984
Total	8	87,297	56,977	65	95,989	60,888	180	77,340	48,977	184	59,532	39,653	330	33,725	29,371
Counties															
Under 10	1	89,295	66,971	21	91,375	58,250	21	55,962	34,605	21	41,508	35,290	29	21,601	32,052
10 – 14	7	129,448	79,496	36	114,010	80,872	70	92,671	63,023	74	44,232	36,417	91	32,270	32,762
15 – 19	–	–	–	52	130,773	91,655	86	110,011	78,416	97	59,421	48,107	178	45,653	40,805
20 – 24	–	–	–	14	155,543	105,850	118	132,813	91,302	104	86,521	65,114	230	60,333	50,412
25 – 29	–	–	–	7	161,824	111,905	52	153,966	106,178	42	115,674	84,323	73	69,610	55,446
30 – 34	–	–	–	–	–	–	6	185,471	139,104	31	134,594	97,333	26	95,594	74,139
35 & Over	–	–	–	–	–	–	–	–	–	5	158,372	119,672	20	116,141	90,678
Total	8	124,429	77,930	130	124,106	85,892	353	118,737	82,186	374	76,817	58,908	647	54,800	47,230
Cities															
Under 10	8	83,378	52,214	36	61,706	40,076	56	47,974	31,053	38	31,956	23,801	15	15,801	21,671
10 – 14	10	84,175	55,291	67	74,165	46,400	119	58,253	35,948	116	37,142	26,297	74	20,675	21,868
15 – 19	–	–	–	65	88,056	52,651	167	69,652	44,164	144	44,645	31,884	115	28,799	26,383
20 – 24	–	–	–	28	99,432	60,809	167	88,114	55,515	188	57,178	39,099	205	39,036	32,924
25 – 29	–	–	–	1	89,499	44,749	71	98,870	63,078	104	78,500	52,645	142	44,659	35,377
30 – 34	–	–	–	–	–	–	10	94,676	63,272	53	87,440	60,118	95	52,020	39,464
35 & Over	–	–	–	–	–	–	–	–	–	15	94,148	62,591	26	64,369	49,482
Total	18	83,821	53,924	197	80,141	49,347	590	74,461	47,075	658	56,097	38,749	672	38,747	32,420
Towns															
Under 10	1	111,724	84,153	18	75,253	49,008	26	53,338	33,949	16	35,540	23,425	7	17,864	21,275
10 – 14	–	–	–	26	90,107	58,016	44	64,433	39,438	43	44,822	29,338	33	26,327	24,692
15 – 19	1	109,281	81,961	25	102,413	66,026	43	81,940	54,094	31	48,109	35,390	46	34,462	30,807
20 – 24	–	–	–	10	118,634	76,979	63	98,606	66,844	66	68,126	46,540	45	46,035	38,218
25 – 29	–	–	–	1	170,775	128,081	20	107,804	65,206	31	90,596	64,063	15	61,480	47,917
30 – 34	–	–	–	–	–	–	3	169,708	118,729	14	115,622	79,265	11	81,382	58,189
35 & Over	–	–	–	–	–	–	–	–	–	–	–	–	4	128,010	98,098
Total	2	110,503	83,057	80	95,185	61,738	199	83,531	54,349	201	64,233	44,282	161	43,355	36,347

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	72,314	47,029	14	65,458	41,987	22	47,520	29,290	27	30,171	23,947	11	14,338	20,712
10 – 14	2	71,178	43,201	23	85,833	54,050	44	71,228	46,496	34	39,089	28,690	30	25,760	23,884
15 – 19	2	110,472	55,236	22	97,780	61,356	61	84,254	53,628	48	55,855	39,232	47	35,621	30,974
20 – 24	–	–	–	8	110,181	69,817	54	91,183	58,677	40	70,728	49,060	42	43,524	35,496
25 – 29	–	–	–	–	–	–	14	131,168	79,920	23	86,747	56,588	17	53,460	42,774
30 – 34	–	–	–	–	–	–	1	146,686	110,015	8	140,698	89,247	7	69,925	53,049
35 & Over	–	–	–	–	–	–	–	–	–	2	82,151	41,562	5	77,167	50,512
Total	6	84,655	48,489	67	88,406	55,811	196	82,785	52,852	182	60,104	41,573	159	39,100	32,969
Miscellaneous															
Under 10	2	105,176	65,232	14	79,507	53,648	14	61,216	38,620	17	41,875	31,122	1	18,242	28,985
10 – 14	–	–	–	31	113,503	82,824	26	98,934	66,948	26	61,420	40,763	7	42,112	29,386
15 – 19	–	–	–	17	125,678	82,790	17	119,127	84,663	48	70,498	50,901	22	45,588	37,690
20 – 24	–	–	–	3	126,987	74,166	47	133,895	93,007	62	99,155	71,130	22	67,688	52,667
25 – 29	–	–	–	–	–	–	8	139,508	91,443	37	130,264	93,711	10	92,773	69,846
30 – 34	–	–	–	–	–	–	1	163,801	81,901	9	151,249	114,593	4	119,744	89,685
35 & Over	–	–	–	–	–	–	–	–	–	1	153,924	116,667	4	114,739	91,905
Total	2	105,176	65,232	65	109,987	76,131	113	115,287	78,809	200	90,876	65,288	70	66,725	52,105

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	2013		2014		2015		2016		2017	
	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount
ERS Females										
Single Life Allowance**	7,066	145,987,536	6,795	143,422,357	6,320	142,513,916	7,683	182,550,124	7,413	183,872,745
Cash Refund	26	931,274	20	473,751	19	561,834	19	685,299	7	234,374
Joint Allowance — Full	699	9,574,166	763	11,629,185	588	8,007,103	715	12,033,549	803	13,434,417
Joint Allowance — Half	132	3,476,859	128	3,073,482	124	3,115,553	137	3,495,837	131	3,357,590
Five Year Certain	149	3,346,546	112	2,345,998	123	2,979,134	136	3,039,451	109	2,729,206
Ten Year Certain	296	5,513,983	296	5,363,546	208	4,043,326	273	5,215,831	361	8,035,482
Pop-Up — Full	1,194	22,353,822	1,239	25,390,149	1,097	23,550,358	1,402	29,934,874	1,696	40,354,572
Pop-Up — Half	705	19,919,224	693	20,361,320	678	20,062,741	800	24,575,129	789	25,869,734
Other (Option 4)	526	15,976,185	590	17,789,997	559	18,418,160	687	23,740,784	660	22,628,793
Total	10,793	227,079,599	10,636	229,849,789	9,716	223,252,128	11,852	285,270,881	11,969	300,516,917
ERS Males										
Single Life Allowance**	3,314	91,200,227	3,328	96,281,163	2,997	88,942,511	3,613	113,480,787	3,397	108,315,670
Cash Refund	16	777,752	9	236,241	9	311,243	4	127,476	6	242,131
Joint Allowance — Full	1,798	45,969,725	1,738	46,047,124	1,475	40,833,756	1,778	54,076,972	1,742	54,862,090
Joint Allowance — Half	236	8,353,592	244	9,002,641	233	8,521,708	281	11,080,053	219	9,282,560
Five Year Certain	93	2,575,856	77	2,024,955	52	1,617,199	80	2,708,720	66	1,910,993
Ten Year Certain	208	5,481,097	193	4,696,445	172	4,932,061	207	7,085,157	206	5,973,927
Pop-Up — Full	1,726	49,381,516	1,724	50,437,559	1,651	51,382,784	2,074	66,784,431	2,452	83,670,111
Pop-Up — Half	616	23,124,767	624	23,815,933	624	24,050,864	736	29,476,086	741	31,599,049
Other (Option 4)	768	30,476,297	857	34,791,727	804	33,899,200	1,010	43,559,235	886	39,641,518
Total	8,775	257,340,833	8,794	267,333,792	8,017	254,491,330	9,783	328,378,921	9,715	335,498,055
PFRS Females										
Single Life Allowance**	105	6,768,155	65	4,294,738	64	4,451,492	62	4,622,315	85	6,071,215
Cash Refund	—	—	—	—	—	—	—	—	—	—
Joint Allowance — Full	5	202,829	4	196,548	1	146,116	2	117,042	4	288,938
Joint Allowance — Half	3	256,284	3	150,200	3	169,021	4	344,922	3	259,007
Five Year Certain	1	93,215	1	75,517	—	—	—	—	2	220,344
Ten Year Certain	9	764,107	5	248,602	4	312,565	1	88,018	6	406,985
Pop-Up — Full	11	696,482	10	500,175	10	434,592	10	625,473	13	878,840
Pop-Up — Half	4	176,756	5	214,516	11	624,942	5	321,668	9	654,009
Other (Option 4)	4	236,218	4	388,118	2	162,922	8	629,196	8	714,073
Total	142	9,194,052	97	6,068,418	95	6,301,653	92	6,748,638	130	9,493,415
PFRS Males										
Single Life Allowance**	456	30,408,806	409	26,754,924	354	24,590,267	320	22,112,233	499	35,551,463
Cash Refund	1	78,836	2	239,734	1	87,958	—	—	—	—
Joint Allowance — Full	167	12,048,353	156	9,699,880	136	8,872,941	105	6,873,667	232	16,971,860
Joint Allowance — Half	67	5,694,946	52	4,013,396	46	3,585,725	45	3,825,860	84	7,826,713
Five Year Certain	11	810,791	6	338,162	3	372,785	3	202,398	6	387,703
Ten Year Certain	47	2,801,198	36	2,689,781	24	1,530,830	24	1,817,821	39	2,722,041
Pop-Up — Full	219	12,422,440	226	12,069,140	157	9,271,264	146	8,746,372	399	25,316,535
Pop-Up — Half	166	11,990,873	108	7,075,973	86	5,813,128	86	6,921,576	185	15,082,654
Other (Option 4)	144	11,388,742	143	11,641,329	124	9,765,795	154	12,564,460	222	19,064,090
Total	1,278	87,644,989	1,138	74,522,324	931	63,890,698	883	63,064,391	1,666	122,923,063
* In 2017, three ERS retirees selected partial lump sum payments which totaled \$326,756 and 192 PFRS retirees selected partial lump sums which totaled \$31,083,946.										
** Includes Option 0 and Option ½.										

Option Selection — Total Payments

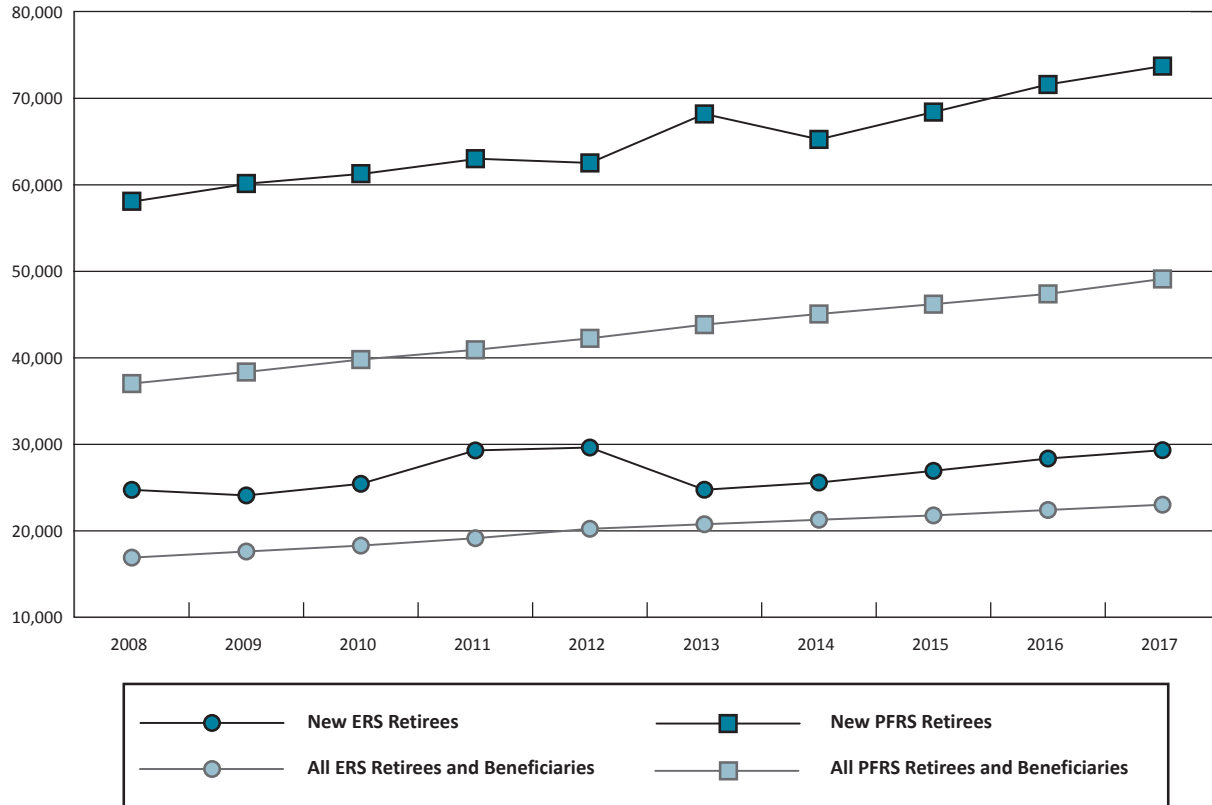
This table shows the number (*Number*), and the total amount paid in annual benefits after option selection and any partial lump sum distribution* (*\$ Amount*), of surviving retirees on March 31 of the given year. Groupings are based on option selected, with breakdowns by retirement system and member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

Options	2013		2014		2015		2016		2017	
	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount
ERS Females										
Single Life Allowance**	134,734	2,097,523,060	137,143	2,199,495,808	139,436	2,301,148,172	142,738	2,439,709,589	145,621	2,576,016,448
Cash Refund	8,205	97,167,869	7,611	93,452,340	7,116	90,210,442	6,590	87,017,005	6,107	83,233,943
Joint Allowance — Full	8,472	94,438,499	8,947	103,313,062	9,255	108,355,697	9,680	117,472,217	10,183	127,899,065
Joint Allowance — Half	2,694	46,678,830	2,718	48,593,182	2,722	50,311,548	2,742	52,664,945	2,769	54,789,535
Five Year Certain	4,133	62,301,500	4,041	62,599,394	3,999	64,218,334	3,948	65,278,096	3,886	66,210,411
Ten Year Certain	6,669	86,834,748	6,687	89,939,370	6,656	91,970,160	6,654	94,602,238	6,743	99,655,096
Pop-Up — Full	14,280	234,957,928	15,285	258,136,457	16,151	279,589,915	17,261	306,609,960	18,662	343,869,918
Pop-Up — Half	12,537	269,247,425	12,955	285,932,247	13,367	302,832,057	13,851	323,518,033	14,316	345,395,206
Other (Option 4)	4,692	126,307,424	5,218	142,916,829	5,702	160,017,110	6,304	182,213,350	6,861	202,888,985
Total	196,416	3,115,457,282	200,605	3,284,378,690	204,404	3,448,653,436	209,768	3,669,085,432	215,148	3,899,958,607
ERS Males										
Single Life Allowance**	59,788	1,449,117,701	60,859	1,511,993,719	61,693	1,564,822,972	62,964	1,639,051,171	64,058	1,707,602,045
Cash Refund	5,043	102,915,632	4,667	97,809,143	4,357	93,603,693	4,011	88,404,869	3,696	83,476,833
Joint Allowance — Full	28,746	673,789,024	29,291	699,932,285	29,636	721,763,534	30,276	756,073,178	30,795	788,151,000
Joint Allowance — Half	8,876	270,583,032	8,743	271,788,909	8,571	272,110,655	8,419	274,645,486	8,229	274,227,687
Five Year Certain	2,003	45,773,736	1,958	45,763,720	1,917	45,841,030	1,871	46,354,166	1,842	46,702,985
Ten Year Certain	4,643	99,670,379	4,589	100,426,526	4,552	102,446,498	4,564	106,314,614	4,567	108,728,127
Pop-Up — Full	22,536	584,081,845	23,761	625,938,791	24,925	668,777,757	26,450	725,671,552	28,304	798,701,377
Pop-Up — Half	13,052	430,283,454	13,309	445,943,369	13,537	460,462,999	13,892	481,396,053	14,241	504,090,575
Other (Option 4)	7,600	289,382,235	8,336	321,539,065	8,969	351,108,729	9,814	390,307,216	10,541	426,193,527
Total	152,287	3,945,597,038	155,513	4,121,135,528	158,157	4,280,937,867	162,261	4,508,218,305	166,273	4,737,874,156
PFRS Females										
Single Life Allowance**	743	37,098,117	803	41,227,459	863	45,682,000	919	50,244,911	998	56,133,650
Cash Refund	5	295,261	5	295,261	5	295,261	5	295,261	5	295,261
Joint Allowance — Full	44	1,698,300	47	1,887,708	48	2,076,810	47	2,071,752	51	2,360,691
Joint Allowance — Half	16	825,479	20	1,034,320	23	1,203,342	27	1,548,818	30	1,807,825
Five Year Certain	13	648,397	14	723,914	14	723,914	14	723,914	16	944,258
Ten Year Certain	80	4,307,112	85	4,551,912	89	4,905,198	90	4,995,739	95	5,349,217
Pop-Up — Full	123	6,086,218	133	6,586,394	143	7,029,555	152	7,598,667	165	8,484,706
Pop-Up — Half	70	3,410,624	74	3,594,146	85	4,223,475	90	4,566,055	98	5,205,253
Other (Option 4)	25	1,662,583	29	2,050,867	31	2,216,352	38	2,782,268	46	3,514,927
Total	1,119	56,032,092	1,210	61,951,983	1,301	68,355,906	1,382	74,827,385	1,504	84,095,788
PFRS Males										
Single Life Allowance**	15,210	547,056,375	15,209	566,215,055	15,154	582,235,830	15,042	594,625,064	15,088	620,012,783
Cash Refund	1,601	51,632,893	1,521	49,735,195	1,465	48,293,210	1,396	46,766,372	1,349	45,479,028
Joint Allowance — Full	2,825	126,043,453	2,929	134,264,050	3,021	141,254,474	3,084	146,707,445	3,258	161,342,953
Joint Allowance — Half	1,381	69,844,520	1,392	72,447,011	1,406	75,063,474	1,422	77,666,165	1,456	83,747,797
Five Year Certain	377	13,799,772	368	13,765,390	362	13,971,786	354	13,899,664	345	13,749,301
Ten Year Certain	1,409	51,045,019	1,407	52,696,182	1,396	53,234,819	1,375	53,781,392	1,375	55,505,892
Pop-Up — Full	2,940	129,993,076	3,133	141,182,490	3,260	149,724,858	3,374	157,327,923	3,733	181,480,456
Pop-Up — Half	2,517	144,819,757	2,587	150,482,065	2,634	154,828,074	2,682	160,406,683	2,821	173,548,925
Other (Option 4)	1,269	95,023,807	1,404	106,245,733	1,516	115,219,264	1,662	127,363,319	1,870	145,785,609
Total	29,529	1,229,258,672	29,950	1,287,033,170	30,214	1,333,825,789	30,391	1,378,544,027	31,295	1,480,652,744
* In the three years since this program began, 5 ERS retirees have selected partial lump sum payments which totaled approximately \$760,270. In the nine years since this program began, 1,215 PFRS retirees have selected partial lump sum payments which totaled approximately \$141,116,584.										
** Includes Option 0 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 prior 10 years.

Year	ERS		PFRS	
	All Retirees & Beneficiaries	New Retirees	All Retirees & Beneficiaries	New Retirees
2008	\$ 16,909	\$ 24,744	\$ 37,030	\$ 58,106
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



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, 2017. 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	6	\$ 58	\$ 15,926
5 – 9	1,331	372	39,793
10 – 14	2,937	682	44,898
15 – 19	2,417	1,078	50,718
20 – 24	3,212	2,023	59,014
25 – 29	3,252	3,011	70,728
30 – 34	4,781	3,900	75,780
35 – 39	2,560	4,500	77,548
40 & Over	583	5,854	87,745
Total	21,079	\$ 2,608	\$ 63,526
Ordinary Disability Retirements			
Under 5	4	\$ 859	\$ 32,924
5 – 9	8	1,534	55,307
10 – 14	174	1,322	51,805
15 – 19	163	1,503	55,634
20 – 24	89	1,834	60,846
25 – 29	80	2,277	61,391
30 – 34	33	2,826	65,151
35 – 39	1	3,456	73,014
40 & Over	–	–	–
Total	552	\$ 1,690	\$ 56,533
Performance of Duty Disability Retirements			
Under 5	2	\$ 2,536	\$ 48,322
5 – 9	6	4,571	73,372
10 – 14	7	5,934	95,405
15 – 19	11	5,183	86,409
20 – 24	12	5,465	90,230
25 – 29	12	6,863	110,458
30 – 34	2	7,873	126,176
35 – 39	–	–	–
40 & Over	–	–	–
Total	52	\$ 5,668	\$ 92,612
Accidental Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	–	–	–
10 – 14	–	–	–
15 – 19	–	–	–
20 – 24	–	–	–
25 – 29	–	–	–
30 – 34	1	2,689	74,068
35 – 39	–	–	–
40 & Over	–	–	–
Total	1	\$ 2,689	\$ 74,068

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, 2017. 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	17	430	40,476
10 – 14	38	858	52,320
15 – 19	27	1,646	66,439
20 – 24	536	5,012	116,333
25 – 29	400	6,715	133,825
30 – 34	487	8,601	153,361
35 – 39	133	8,363	148,999
40 & Over	45	9,171	145,712
Total	1,683	\$ 6,637	\$ 131,560
Ordinary Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	–	–	–
10 – 14	3	3,537	114,628
15 – 19	1	2,393	86,179
20 – 24	–	–	–
25 – 29	–	–	–
30 – 34	–	–	–
35 – 39	–	–	–
40 & Over	–	–	–
Total	4	\$ 3,251	\$ 107,516
Performance of Duty Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	1	4,618	110,839
10 – 14	8	4,019	96,470
15 – 19	19	4,365	104,644
20 – 24	9	4,461	106,753
25 – 29	12	4,764	114,219
30 – 34	1	4,316	103,596
35 – 39	–	–	–
40 & Over	–	–	–
Total	50	\$ 4,427	\$ 106,117
Accidental Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	4	5,325	85,214
10 – 14	13	6,309	103,658
15 – 19	16	8,017	130,229
20 – 24	13	7,291	122,336
25 – 29	9	9,731	155,601
30 – 34	4	9,561	152,979
35 – 39	–	–	–
40 & Over	–	–	–
Total	59	\$ 7,664	\$ 124,996

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, 2017. 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	–	\$ –	–	–	\$ –	–	2	\$ 533	4	4	\$ 782	4
5 – 9	418	3,584	9	402	4,841	12	343	5,213	12	168	4,270	12
10 – 14	840	6,089	15	976	8,697	19	763	9,666	20	358	8,579	20
15 – 19	639	10,164	20	811	13,127	27	670	14,524	28	297	14,843	28
20 – 24	700	20,963	34	1,270	24,369	42	884	26,166	43	358	25,777	43
25 – 29	966	37,285	46	1,325	35,561	52	700	35,841	54	261	35,646	54
30 – 34	2,353	47,340	62	1,631	46,481	62	563	46,109	62	234	45,439	62
35 – 39	1,225	49,705	69	903	57,288	70	313	59,900	71	119	57,890	71
40 & Over	25	61,423	75	255	63,472	78	178	69,095	80	125	87,522	85
Total	7,166	\$ 33,159	46	7,573	\$ 32,071	46	4,416	\$ 28,107	42	1,924	\$ 28,687	42

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	–	–	–	–	–	–	15	5,528	13	2	2,408	10
10 – 14	–	–	–	–	–	–	33	10,694	20	5	7,689	19
15 – 19	–	–	–	–	–	–	20	19,841	28	7	19,504	29
20 – 24	298	59,391	51	152	60,723	52	61	64,084	51	25	56,070	50
25 – 29	33	80,094	57	202	80,114	59	141	83,696	60	24	66,909	62
30 – 34	–	–	–	104	112,659	67	232	104,396	67	151	94,897	67
35 – 39	–	–	–	–	–	–	26	101,471	67	107	100,098	67
40 & Over	–	–	–	–	–	–	–	–	–	45	110,054	74
Total	331	\$ 61,455	52	458	\$ 81,069	59	528	\$ 82,199	57	366	\$ 90,655	65

New Benefits — Accidental and Ordinary Death

Accidental Death Benefits

During the fiscal year ending March 31, 2017, the Employees' Retirement System approved three accidental death benefits, which averaged \$31,788. The Police and Fire Retirement System approved two accidental death benefits, which averaged \$115,766 annually.

Ordinary Death Benefits

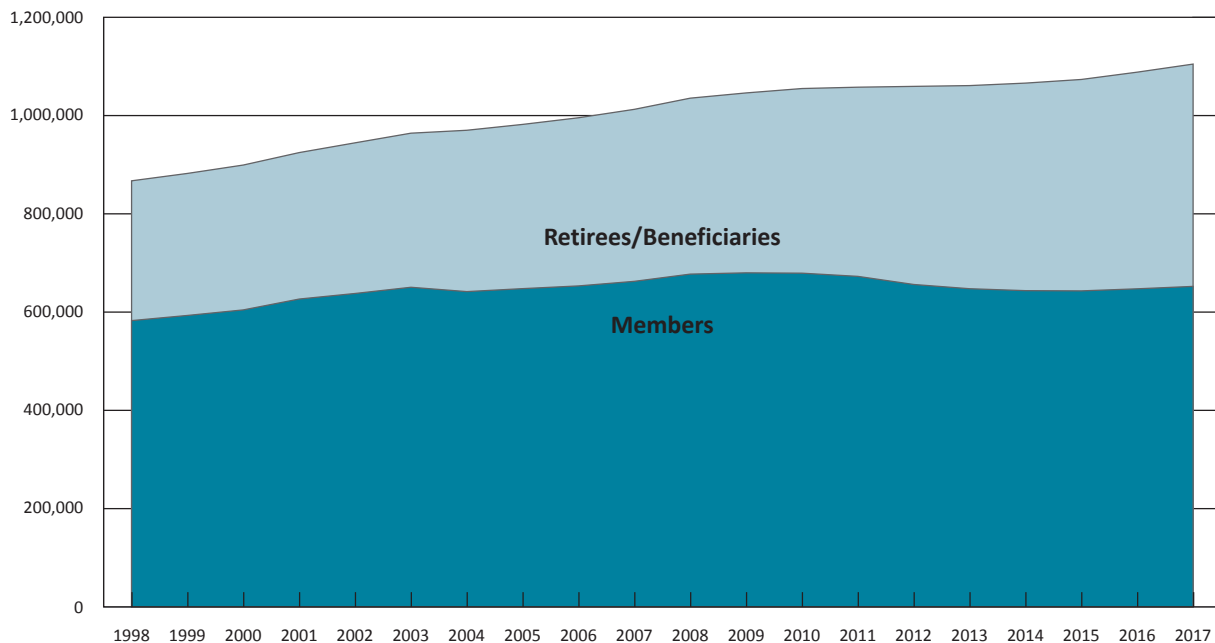
This table shows the number of retirements granted (*Number*), the average benefit paid (*Average Benefit*), and the average benefit paid as a percentage of average final average salary (*Percentage of Salary*) of new ordinary death beneficiaries during the fiscal year ending March 31, 2017. Groupings 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	102	\$ 74,150	204.2	4	\$ 153,250	300.8
5 – 9	135	128,202	284.6	3	325,000	300.3
10 – 14	233	120,478	239.0	6	148,464	250.8
15 – 19	159	133,390	247.6	6	359,000	294.3
20 – 24	88	153,947	257.8	1	1,020,636	746.7
25 – 29	88	175,885	276.5	2	1,061,471	764.3
30 – 34	48	186,367	288.7	2	1,038,173	883.2
35 – 39	17	201,582	298.8	1	1,100,634	742.8
40 & Over	15	507,068	703.0	–	–	–
Total	885	\$ 139,158	260.8	25	\$ 438,134	406.3

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 represents the sum of the member and retiree/beneficiary counts. Percentage changed shows the percent 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.

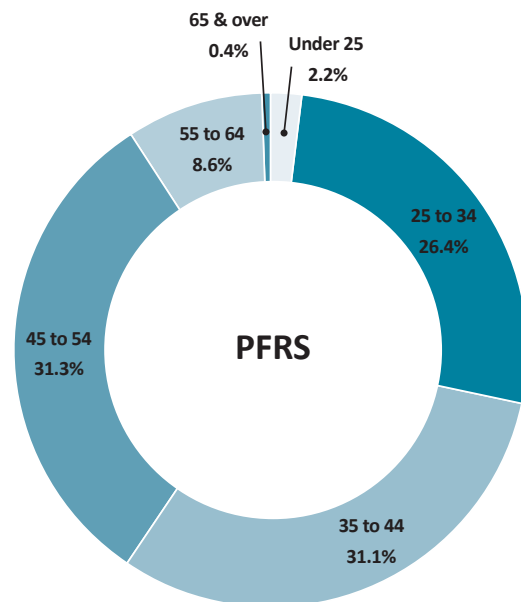
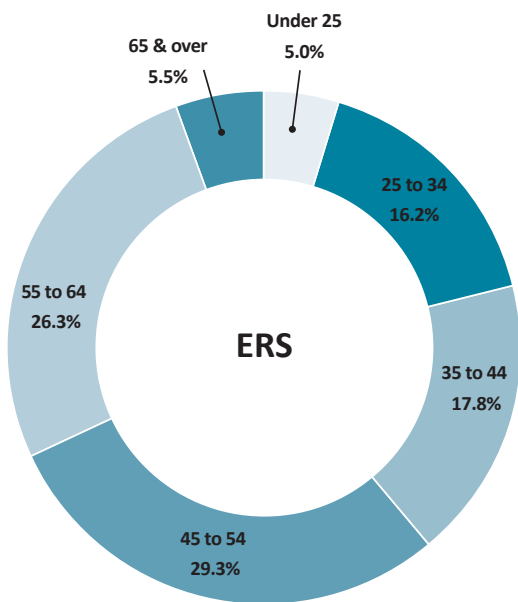
Fiscal Year	Members	Percentage Changed	Retirees/Beneficiaries	Percentage Changed	Total Participants	Percentage Changed
1998	582,689	1	284,515	1	867,204	1
1999	593,188	2	289,046	2	882,234	2
2000	604,479	2	294,835	2	899,314	2
2001	626,565	4	298,078	1	924,643	3
2002	637,896	2	306,604	3	944,500	2
2003	650,543	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



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, 2017. Groupings are based on age and years of service, with a breakdown by 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	30,800	5.0	30,680	5.0	120	–	–	–	–	–	–	–
25 – 34	99,881	16.2	73,884	12.0	19,453	3.2	6,544	1.1	–	–	–	–
35 – 44	109,638	17.8	40,923	6.6	25,960	4.2	40,094	6.5	2,661	0.4	–	–
45 – 54	180,563	29.3	38,635	6.3	32,750	5.3	62,594	10.1	38,027	6.2	8,557	1.4
55 – 64	162,400	26.3	22,603	3.7	23,728	3.8	55,837	9.0	37,817	6.1	22,415	3.6
65 & Over	33,861	5.5	4,815	0.8	5,129	0.8	11,555	1.9	7,459	1.2	4,903	0.8
Total	617,143	100.0	211,540	34.3	107,140	17.4	176,624	28.6	85,964	13.9	35,875	5.8
PFRS												
Under 25	763	2.2	761	2.2	2	–	–	–	–	–	–	–
25 – 34	9,302	26.4	5,986	17.0	2,414	6.9	902	2.6	–	–	–	–
35 – 44	10,939	31.1	1,470	4.2	1,784	5.1	7,074	20.1	611	1.7	–	–
45 – 54	11,024	31.3	341	1.0	715	2.0	3,398	9.7	5,781	16.4	789	2.2
55 – 64	3,012	8.6	92	0.3	187	0.5	313	0.9	836	2.4	1,584	4.5
65 & Over	141	0.4	24	0.1	20	0.1	18	0.1	5	–	74	0.2
Total	35,181	100.0	8,674	24.7	5,122	14.6	11,705	33.3	7,233	20.6	2,447	7.0



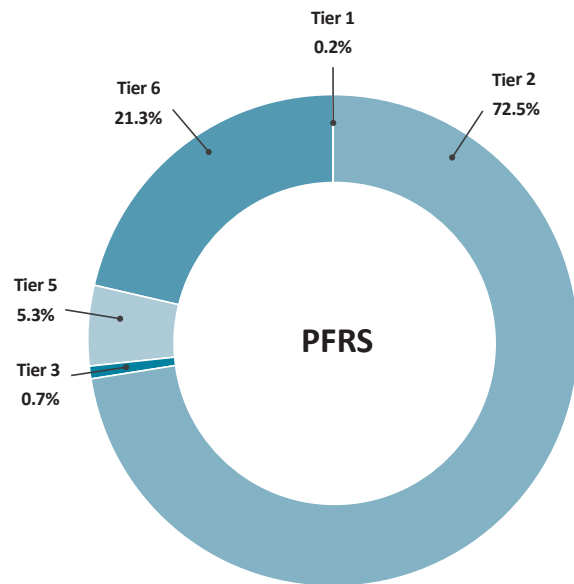
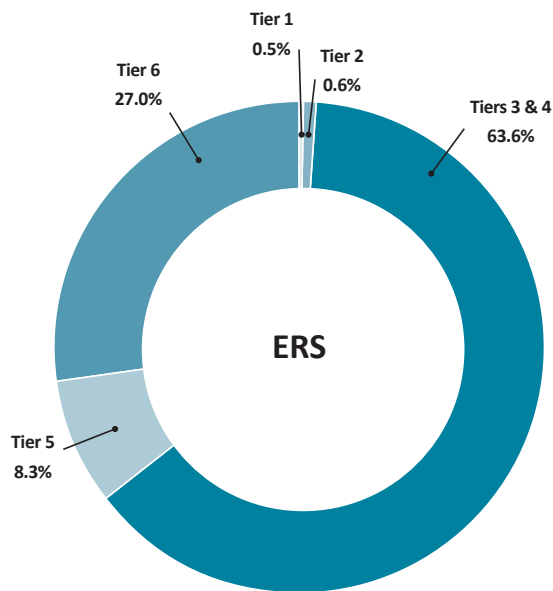
Note: Percentages may not sum to 100% due to rounding.

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, 2017. Groupings are based on tier, with a breakdown by system.

	ERS		PFRS		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Tier 1	3,241	0.5	54	0.2	3,295	0.5
Tier 2	3,668	0.6	25,518	72.5	29,186	4.5
Tiers 3 & 4*	392,464	63.6	235	0.7	392,699	60.2
Tier 5	51,238	8.3	1,880	5.3	53,118	8.1
Tier 6	166,532	27.0	7,494	21.3	174,026	26.7
Total	617,143	100.0	35,181	100.0	652,324	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, 2017, with a breakdown by 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
2008	528,435	112,684	641,119	33,089	3,113	36,202
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

Number of Employers

As of March 31, 2017.

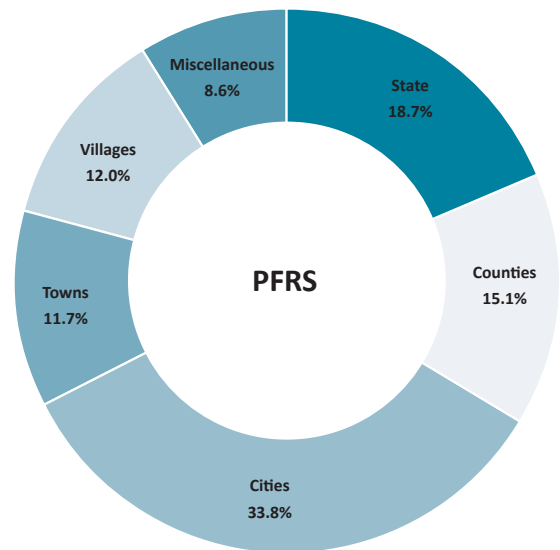
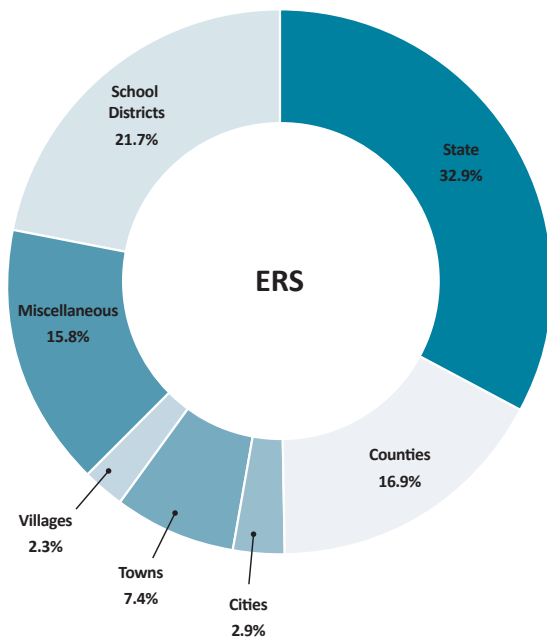
Category	ERS	PFRS
State	1	1
Counties	57	4
Cities	61	61
Towns	913	207
Villages	485	375
Miscellaneous	798	39
School Districts	698	0
Total*	3,013	687

* 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, 2017, with a breakdown by 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	203,317	170,153	6,596	6,186	209,913	176,339
Counties	104,452	82,212	5,323	5,147	109,775	87,359
Cities	18,146	14,308	11,880	11,030	30,026	25,338
Towns	45,608	35,126	4,127	3,663	49,735	38,789
Villages	14,474	11,049	4,213	3,434	18,687	14,483
Miscellaneous	97,376	75,675	3,042	2,872	100,418	78,547
School Districts	133,770	107,918	–	–	133,770	107,918
Total	617,143	496,441	35,181	32,332	652,324	528,773



Note: Numbers may not add up due to rounding. A detailed listing of employers as of March 31, 2017 is available on our website at www.osc.state.ny.us/retire/employers/index.php.

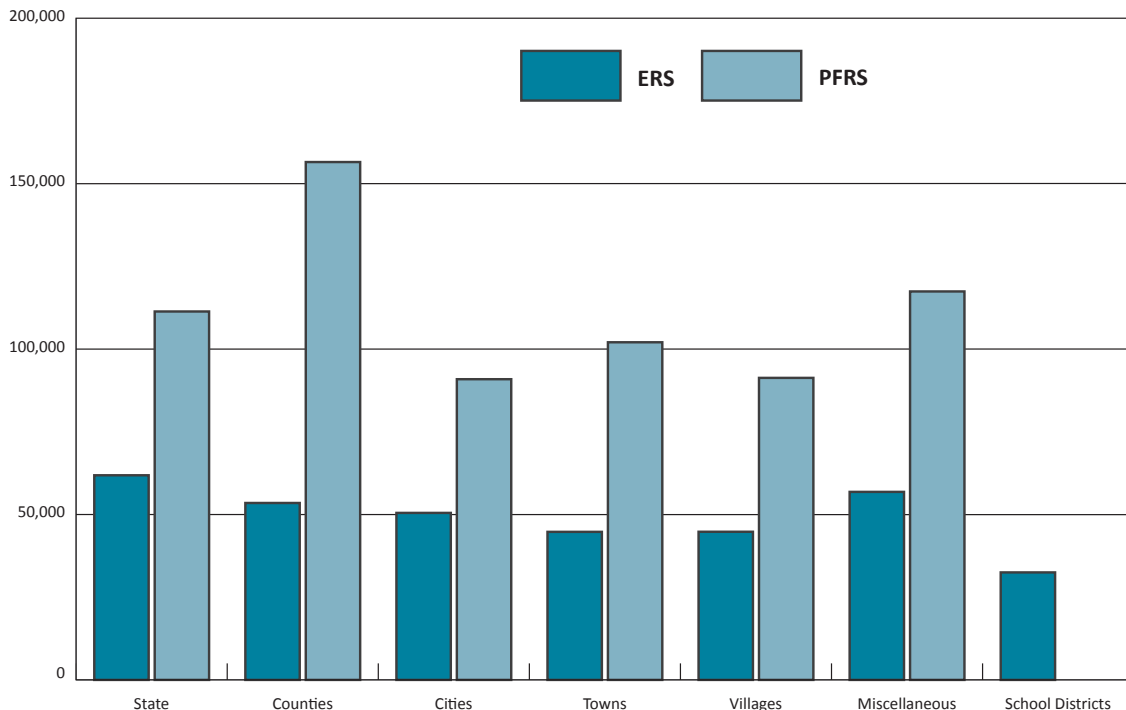
Average Salary by Employer Type

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, 2017. Groupings are based on primary employer type, with a breakdown by system. Active status means the member was reported on payroll at the fiscal year end.

	Average Salary	Total Members*	Total Salaries
ERS			
State	\$ 61,859	170,153	\$ 10,525,418,062
Counties	53,486	82,212	4,397,221,839
Cities	50,487	14,308	722,367,958
Towns	44,759	35,126	1,572,206,085
Villages	44,785	11,049	494,825,261
Miscellaneous	56,839	75,675	4,301,274,979
School Districts	32,496	107,918	3,506,904,015
Total	\$ 51,406	496,441	\$ 25,520,218,199
PFRS			
State	\$ 111,370	6,186	\$ 688,936,423
Counties	156,546	5,147	805,743,750
Cities	90,899	11,030	1,002,618,901
Towns	102,064	3,663	373,860,360
Villages	91,301	3,434	313,528,326
Miscellaneous	117,428	2,872	337,252,175
Total	\$ 108,930	32,332	\$ 3,521,939,935

* Active members receiving salary.

The bar graph below represents the average salary by 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, 2017. 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	\$ 35,042	4	\$ 147,502
Age 55 75-c	18	625,709	26	1,003,835
Age 55 75-e	5	363,983	10	269,421
Age 55 75-g	34	1,640,025	42	2,103,808
Age 55 75-h	900	76,825,772	1,012	81,744,408
Age 55 75-i	1,251	69,937,767	1,581	90,010,201
Regular Correction Officers/SHTA ¼ Disability	–	–	–	–
Correction Officers 89	12	1,203,352	15	1,420,466
Sheriffs 89-a	1	125,293	–	–
Sheriffs 89-b	–	–	–	–
Sheriffs 89-b(m)	–	–	–	–
Investigators 89-d	–	–	–	–
Investigators 89-d(m)	2	334,821	–	–
Sheriffs — 551	–	–	2	185,391
Sheriffs — 551e	–	–	–	–
Sheriffs — 552	–	–	–	–
Sheriffs — 553	1	116,659	2	232,165
Legislators 80-a	2	192,000	–	–
Unified Court Peace Officers	–	–	19	2,061,946
25-Year Correction Officers/Sheriffs/Office of Mental Health	11	943,935	15	1,422,174
25-Year 1/60 Peace Officers, Amb Med Techs, Paramedics	1	117,715	2	239,426
Total	2,241	\$ 152,462,075	2,730	\$ 180,840,744

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	290,881	\$ 17,245,983,536	30,869	\$ 1,307,520,867	130,147	\$ 3,598,860,328
Regular Correction Officers/SHTA ¼ Disability	403	37,155,055	26	1,864,698	85	4,604,451
Article 14 Correction Officers	13,834	1,176,226,804	898	59,732,250	5,953	289,488,328
Sheriffs — 551	225	20,304,497	10	487,306	67	2,980,213
Sheriffs — 551e	58	3,932,357	7	419,050	20	812,171
Sherrifs — 552	381	31,272,309	33	2,040,430	100	4,935,957
Sheriffs — 553	1,367	135,195,393	148	10,977,906	361	17,632,263
Unified Court Peace Officers	5,318	456,814,638	239	15,451,968	519	26,447,411
25-Year Correction Officers/Sheriffs/Office of Mental Health	6,269	559,273,711	647	48,658,215	2,384	102,068,556
25-Year 1/60 Peace Officers, Paramedics	11	751,701	–	–	2	50,454
20-Year 1/60 Investigators	16	2,803,767	1	107,236	–	–
Westchester County Criminal Investigators	22	2,946,056	1	137,581	1	100,960
25-Year 1/60 ¼ Accidental Disability Amb Med Techs	118	13,386,524	5	465,251	4	205,626
25-Year ¼ Accidental Disability Fire Marshalls	36	4,460,947	4	358,610	–	–
Total	318,939	\$ 19,690,507,293	32,888	\$ 1,448,221,368	139,643	\$ 4,048,186,719

* Reportable Tier 6 salaries are capped at the Governor’s salary, which was \$179,000 for fiscal year 2017.

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, 2017. 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	–	\$ –	35	\$ 413,585	2	\$ 34,056
Age 55 375-c	–	–	110	2,631,407	1	8,856
Age 55 375-e	–	–	31	762,788	–	–
Age 55 375-g	–	–	33	833,618	1	15,785
Age 55 375-h	–	–	2	119,164	–	–
Age 55 375-i	7	824,416	131	8,599,479	4	124,242
Age 55 375-j	1	191,305	3	356,300	–	–
State Police 381-b	–	–	3,724	500,010,420	2	195,741
Regional Park Police 383-a	–	–	172	15,361,127	2	77,184
EnCon Police 383-b	–	–	234	23,743,654	1	76,686
Forest Ranger 383-c	–	–	107	10,455,808	1	89,013
SUNY Police 384-d	–	–	278	23,060,861	11	729,681
25-Year 384	–	–	42	2,053,248	16	1,625,938
25-Year 384(f)	–	–	85	10,184,674	69	5,622,409
20-Year 384-d	2	322,288	6,768	721,306,872	51	3,878,249
20-Year 1/60 384-e	22	4,206,788	11,658	1,647,456,698	33	2,744,511
Total	32	\$ 5,544,798	23,413	\$ 2,967,349,704	194	\$ 15,222,352

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*
5	\$ 35,339	–	\$ –	17	\$ 179,437	–	\$ –
14	127,050	–	–	39	747,526	–	–
7	184,101	–	–	19	539,157	–	–
1	32,608	–	–	13	237,251	–	–
–	–	–	–	1	41,385	–	–
7	486,236	–	–	40	1,904,504	–	–
–	–	–	–	–	–	–	–
82	7,749,684	–	–	1,196	88,032,369	–	–
5	357,473	–	–	90	4,834,362	–	–
6	436,456	–	–	60	3,290,059	–	–
2	153,269	–	–	44	1,550,068	–	–
57	4,325,359	–	–	122	5,237,438	–	–
11	580,499	–	–	39	1,846,173	–	–
5	594,116	6	782,799	13	896,018	4	307,081
571	45,125,100	121	8,700,494	2,209	108,902,112	6	381,269
675	67,321,525	90	8,367,564	3,074	165,000,481	42	4,536,720
1,448	\$ 127,508,815	217	\$ 17,850,857	6,976	\$ 383,238,340	52	\$ 5,225,070

* Reportable Tier 6 salaries are capped at the Governor's salary, which was \$179,000 for fiscal year 2017.

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, 2017, grouped by age, with a breakdown by system.

Age	ERS			PFRS		
	Retirees & Beneficiaries	Retirees	Beneficiaries	Retirees & Beneficiaries	Retirees	Beneficiaries
0 – 25	171	–	171	13	–	13
26 – 30	226	1	225	7	1	6
31 – 35	304	13	291	19	9	10
36 – 40	451	60	391	67	48	19
41 – 45	785	263	522	307	281	26
46 – 50	2,066	1,273	793	1,749	1,700	49
51 – 55	6,376	5,196	1,180	3,785	3,686	99
56 – 60	35,234	33,192	2,042	4,356	4,211	145
61 – 65	68,783	65,600	3,183	5,072	4,869	203
66 – 70	96,194	91,496	4,698	6,641	6,292	349
71 – 75	73,506	68,469	5,037	5,288	4,921	367
76 – 80	51,942	46,881	5,061	3,655	3,362	293
81 – 85	38,229	33,351	4,878	2,145	1,880	265
86 – 90	26,197	21,971	4,226	1,279	1,101	178
91 – 95	12,962	10,492	2,470	468	369	99
96 – 100	3,578	2,808	770	95	65	30
101+	495	355	140	10	4	6
Total	417,499	381,421	36,078	34,956	32,799	2,157

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, 2017. 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
1954	–	\$ –	\$ –	\$ –
1955	1	2,107	6,652	8,759
1956	2	1,145	2,424	3,569
1957	–	–	–	–
1958	–	–	–	–
1959	1	3,518	9,886	13,404
1960	2	4,397	11,693	16,090
1961	–	–	–	–
1962	1	2,659	5,947	8,606
1963	3	2,379	9,145	11,524
1964	2	4,520	3,288	7,808
1965	2	7,302	18,930	26,231
1966	9	2,912	6,352	9,264
1967	5	2,377	6,949	9,326
1968	6	2,209	1,410	3,619
1969	11	1,547	2,436	3,982
1970	29	3,259	4,542	7,801
1971	37	5,039	5,507	10,546
1972	60	4,354	4,538	8,892
1973	106	5,108	5,296	10,404
1974	141	5,829	5,537	11,366
1975	202	5,259	4,610	9,869
1976	341	5,123	4,515	9,638
1977	492	5,249	4,490	9,739
1978	586	5,600	4,500	10,100
1979	745	5,614	4,468	10,082
1980	1,009	5,646	3,870	9,516
1981	1,232	5,730	3,327	9,057
1982	1,515	6,475	3,333	9,808
1983	1,623	6,764	3,205	9,969
1984	2,546	8,804	3,807	12,612
1985	2,398	8,492	3,494	11,986
1986	3,129	9,288	3,456	12,744

Year of Retirement	Number	Average Option 0 Benefit w/o COLA	Average COLA*	Total
1987	3,442	\$ 9,979	\$ 3,575	\$ 13,553
1988	3,541	10,895	3,555	14,450
1989	4,124	11,697	3,467	15,164
1990	4,795	13,264	3,381	16,645
1991	7,759	17,225	3,632	20,856
1992	7,421	14,383	3,112	17,495
1993	6,101	15,068	2,923	17,991
1994	5,630	15,008	2,720	17,727
1995	6,980	15,933	2,692	18,625
1996	12,478	20,753	2,908	23,660
1997	11,379	19,299	2,567	21,866
1998	8,742	17,048	2,119	19,167
1999	9,652	16,764	1,958	18,722
2000	11,578	18,054	1,862	19,916
2001	12,479	21,694	1,869	23,562
2002	10,422	19,551	1,634	21,184
2003	22,803	28,308	1,657	29,965
2004	11,477	19,608	1,228	20,836
2005	13,975	21,702	1,108	22,810
2006	15,423	22,551	963	23,514
2007	16,124	24,896	845	25,741
2008	16,650	26,619	703	27,323
2009	15,486	26,667	544	27,211
2010	17,739	28,267	410	28,677
2011	27,443	34,565	278	34,843
2012	17,649	27,362	151	27,513
2013	17,757	27,029	–	27,029
2014	19,312	27,907	–	27,907
2015	20,378	29,199	–	29,199
2016	20,375	30,972	–	30,972
2017	14,555	\$ 31,857	\$ –	\$ 31,857

* 7,594 of the 36,078 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, 2017. 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
1954	1	\$ 2,357	\$ 15,076	\$ 17,433
1955	2	2,482	7,808	10,290
1956	1	3,614	21,789	25,403
1957	-	-	-	-
1958	-	-	-	-
1959	-	-	-	-
1960	1	3,478	19,520	22,998
1961	1	2,435	6,929	9,364
1962	-	-	-	-
1963	1	4,134	18,015	22,149
1964	-	-	-	-
1965	2	5,365	10,688	16,052
1966	2	4,280	13,723	18,003
1967	6	5,690	13,412	19,102
1968	6	5,309	13,387	18,696
1969	8	5,098	11,196	16,295
1970	16	6,024	11,578	17,602
1971	18	7,213	12,303	19,516
1972	72	7,316	12,005	19,321
1973	66	7,658	12,595	20,254
1974	101	7,999	12,177	20,176
1975	77	8,483	11,730	20,213
1976	93	9,780	11,930	21,710
1977	173	10,663	12,230	22,893
1978	175	10,810	11,833	22,643
1979	249	11,388	11,082	22,470
1980	250	12,374	9,762	22,136
1981	235	13,292	8,718	22,010
1982	325	14,892	8,274	23,167
1983	351	15,872	7,969	23,841
1984	348	17,688	7,937	25,626
1985	419	19,085	7,432	26,517
1986	622	20,725	7,177	27,902

Year of Retirement	Number	Average Option 0 w/o COLA	Average COLA*	Total
1987	649	\$ 22,770	\$ 7,226	\$ 29,996
1988	784	24,609	6,846	31,456
1989	814	24,990	6,444	31,434
1990	836	27,757	5,880	33,637
1991	955	30,678	5,377	36,055
1992	1,053	35,028	4,822	39,851
1993	983	33,779	4,491	38,270
1994	874	33,060	4,078	37,138
1995	768	37,723	3,652	41,374
1996	775	36,655	3,393	40,049
1997	757	40,497	3,083	43,580
1998	726	39,315	2,667	41,982
1999	752	40,503	2,534	43,037
2000	885	47,134	2,208	49,343
2001	1,089	52,658	2,100	54,757
2002	947	53,092	1,858	54,949
2003	1,265	60,726	1,632	62,358
2004	1,196	58,088	1,434	59,521
2005	1,090	58,483	1,146	59,629
2006	1,096	59,370	912	60,282
2007	1,103	60,407	736	61,143
2008	1,126	62,825	494	63,320
2009	1,067	66,078	410	66,488
2010	1,104	68,067	308	68,375
2011	1,254	68,566	191	68,757
2012	1,217	70,180	97	70,277
2013	1,225	68,913	-	68,913
2014	1,220	72,145	-	72,145
2015	1,319	74,779	-	74,779
2016	1,242	78,124	-	78,124
2017	765	\$ 77,669	\$ -	\$ 77,669

* 399 of the 2,157 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						
2008	\$ 4,216,431,872	\$ 422,160,637	\$ 394,084,911	\$ -	\$ 11,157,933	\$ 16,917,793
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
Cities						
2008	648,030,721	61,051,722	56,528,107	-	1,938,692	2,584,923
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
Towns						
2008	1,417,734,849	131,248,138	120,766,233	677,721	4,200,582	5,603,602
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
Villages						
2008	427,838,001	39,705,557	36,476,385	243,599	1,279,527	1,706,046
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

Local Government Salaries and Billings — ERS

continued

FYE	Salaries	Contributions	Normal	Deficiency	GLIP	Administrative
Miscellaneous						
2008	\$ 3,612,130,156	\$ 333,088,130	\$ 307,009,697	\$ 1,016,328	\$ 10,741,056	\$ 14,321,049
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
School Districts						
2008	3,028,665,963	276,852,420	255,641,659	94,016	9,050,047	12,066,698
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

For the FYEs 2008-2015, 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						
2008	\$ 705,089,650	\$ 120,646,667	\$ 117,816,582	\$ -	\$ 707,521	\$ 2,122,564
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
Cities						
2008	862,509,071	142,311,942	138,966,064	-	836,467	2,509,411
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
Towns						
2008	307,058,431	51,073,666	49,853,332	-	305,084	915,250
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
Villages						
2008	260,713,425	40,875,275	39,828,283	-	261,751	785,241
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

Local Government Salaries and Billings — PFRS

continued

FYE	Salaries	Contributions	Normal	Deficiency	GLIP	Administrative
Miscellaneous						
2008	\$ 266,355,184	\$ 44,355,212	\$ 43,330,386	\$ -	\$ 256,207	\$ 768,619
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

For the FYEs 2008-2015, 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, 2008 – 2017

(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
2008		
Total	\$ 2,648.5	\$ 265.7
State	1,007.8	
Local	1,640.7	
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	
* Includes employer premiums to Group Term Life Insurance Plan.		

Year Ended 3/31	Employer Contributions*	Member Contributions
2013		
Total	\$ 5,336.0	\$ 269.1
State	1,950.1	
Local	3,385.9	
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	
* Includes employer premiums to Group Term Life Insurance Plan.		

20-Year Summary*

	2017	2016	2015	2014	2013	2012	2011	2010	2009
Total Participants	1,104,779	1,088,342	1,073,486	1,066,064	1,061,010	1,059,398	1,057,754	1,055,020	1,046,086
Number of Members	652,324	647,399	643,178	643,659	647,574	656,224	672,723	679,217	679,908
ERS (a)	617,143	612,294	608,637	609,565	613,930	622,107	637,921	643,875	643,700
State	203,317	202,153	201,194	201,192	202,570	203,274	213,089	216,582	219,741
Counties	104,452	104,756	105,582	106,688	108,302	111,051	114,111	115,722	116,515
Cities	18,146	18,048	18,079	18,182	18,176	18,420	18,667	18,897	18,893
Towns	45,608	45,450	44,826	44,676	44,407	44,644	44,416	44,361	43,403
Villages	14,474	14,256	14,129	14,073	14,040	14,051	14,165	14,150	14,000
Miscellaneous	97,376	95,759	94,341	94,396	95,199	97,225	98,115	97,960	97,272
School Districts	133,770	131,872	130,486	130,358	131,236	133,442	135,358	136,203	133,876
PFRS (a)	35,181	35,105	34,541	34,094	33,644	34,117	34,802	35,342	36,208
State	6,596	6,309	6,009	5,792	5,630	5,548	5,779	5,973	6,222
Counties	5,323	5,348	5,179	5,003	5,076	5,372	5,499	5,560	5,841
Cities	11,880	12,018	11,856	11,812	11,868	11,974	12,137	12,289	12,433
Towns	4,127	4,182	4,196	4,162	4,153	4,178	4,205	4,249	4,340
Villages	4,213	4,340	4,343	4,330	4,370	4,433	4,512	4,547	4,592
Miscellaneous	3,042	2,908	2,958	2,995	2,547	2,612	2,670	2,724	2,780
Members by Tier (b)									
ERS Tier 1	3,241	3,809	4,520	5,249	6,230	7,551	10,718	13,395	16,829
ERS Tier 2	3,668	4,420	5,375	6,297	7,538	9,222	12,911	15,651	18,097
ERS Tiers 3 through 6	610,234	604,065	598,742	598,019	600,162	605,334	614,292	614,829	608,774
PFRS Tier 1	54	77	92	123	172	230	304	393	576
PFRS Tier 2	25,518	27,364	28,179	29,188	30,295	31,830	33,091	34,261	35,632
PFRS Tiers 3, 5 & 6	9,609	7,664	6,270	4,783	3,177	2,057	1,407	688	0
Retirees & Beneficiaries	452,455	440,943	430,308	422,405	413,436	403,174	385,031	375,803	366,178
ERS	417,499	407,112	396,781	389,288	380,899	371,468	353,940	345,106	336,273
PFRS	34,956	33,831	33,527	33,117	32,537	31,706	31,091	30,697	29,905
Employers	3,040	3,040	3,032	3,027	3,029	3,040	3,039	3,035	3,026
ERS	3,013	3,010	3,006	3,002	3,004	3,016	3,016	3,011	3,001
PFRS	687	686	682	681	681	682	681	681	683
Benefit Payments (c)	\$ 11,448.7	\$ 10,908.5	\$ 10,436.2	\$ 9,898.8	\$ 9,450.2	\$ 8,862.8	\$ 8,464.6	\$ 7,663.1	\$ 7,212.1
Retirement Allowances	10,617.5	10,113.8	9,651.2	9,098.4	8,669.8	8,109.3	7,717.0	6,931.8	6,497.1
Death Benefits (Lump Sum)	216.2	188.2	183.1	203.8	194.2	185.0	192.3	183.0	180.5
COLA Payments	615.0	606.5	601.9	596.6	586.2	568.5	555.3	548.3	534.5
# of Service Retirements	22,762	21,984	18,039	19,702	19,962	28,259	19,092	19,193	17,979
# of Death Benefits Paid	915	751	900	810	844	879	984	955	935
# of Disability Retirements	718	626	720	963	1,026	1,161	844	1,421	1,020
Employer Contributions	\$ 4,787.0	\$ 5,140.2	\$ 5,797.4	\$ 6,064.1	\$ 5,336.1	\$ 4,585.2	\$ 4,164.5	\$ 2,344.2	\$ 2,456.2
ERS	3,858.6	4,232.4	4,802.2	5,045.6	4,435.6	3,790.6	3,525.8	1,785.5	1,898.7
PFRS	837.3	792.6	901.0	926.3	808.5	706.4	538.8	465.0	492.8
Group Life Insurance Plan	91.1	115.2	94.2	92.2	92.0	88.2	99.9	93.7	64.7
Rate (as a % of Salary) (d)									
ERS	15.5%	18.2%	20.1%	20.9%	18.9%	16.3%	11.9%	7.4%	8.5%
PFRS	24.3%	24.7%	27.6%	28.9%	25.8%	21.6%	18.2%	15.1%	15.8%
Employee Contributions	\$ 328.8	\$ 306.6	\$ 284.8	\$ 281.4	\$ 269.1	\$ 273.2	\$ 286.2	\$ 284.3	\$ 273.3
ERS	306.2	289.3	272.0	273.5	264.8	268.5	284.5	282.8	269.0
PFRS	22.6	17.3	12.8	7.9	4.3	4.7	1.7	1.5	4.3
Investments (e)	\$ 192,410.6	\$ 178,639.7	\$ 184,502.0	\$ 176,835.1	\$ 160,660.8	\$ 150,658.9	\$ 147,237.0	\$ 132,500.2	\$ 108,960.7
Equities	103,688.4	90,755.4	94,293.5	93,191.7	83,049.5	79,059.2	79,945.0	72,674.0	47,871.0
Global Fixed Income	44,002.6	44,661.2	47,652.2	41,410.6	38,559.5	33,440.5	31,037.9	33,726.1	36,541.6
Commercial Mortgages	800.3	796.4	852.9	853.9	812.7	803.0	851.3	845.7	710.2
Short-Term Investments	5,653.3	5,578.8	5,252.5	6,592.8	6,461.3	7,397.7	8,360.2	3,086.1	3,826.7
Private Equity	15,348.5	13,961.4	14,247.4	14,369.8	14,072.6	14,925.9	14,620.4	12,584.0	10,563.7
Equity Real Estate	12,937.4	12,639.7	12,123.4	12,529.3	11,195.4	9,339.5	7,631.0	5,551.1	7,066.5
Absolute Return Strategy	7,523.8	8,029.4	8,388.8	7,406.1	6,124.7	5,165.7	4,215.5	3,553.3	2,381.0
Opportunistic Funds	2,065.7	1,719.3	1,292.2	480.9	385.1	527.4	575.7	479.9	0.0
Other	390.6	498.1	399.1	0.0	0.0	0.0	0.0	0.0	0.0
Rate of Return (f)	11.5%	0.2%	7.2%	13.0%	10.4%	6.0%	14.6%	25.9%	(26.4)%
Core Fixed Income	2.5%	1.8%	5.5%	(0.5)%	4.7%	9.0%	8.0%	7.4%	2.4%
Equity Investments	14.8%	(0.4)%	8.3%	19.1%	12.5%	4.9%	17.1%	41.3%	(30.8)%
Administrative Cost	\$ 107.1	\$ 106.6	\$ 107.2	\$ 105.7	\$ 105.7	\$ 100.6	\$ 101.3	\$ 100.0	\$ 99.2
Financial Statement Assets	\$ 197,602.2	\$ 183,640.2	\$ 189,412.4	\$ 181,275.3	\$ 164,221.8	\$ 153,394.4	\$ 149,548.6	\$ 134,251.7	\$ 110,937.8

20-Year Summary*

continued

2008	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998
1,035,430	1,012,699	995,536	982,009	970,078	964,140	944,500	924,643	899,314	882,234	867,204
677,321	662,633	653,291	647,758	641,721	650,543	637,896	626,565	604,479	593,188	582,689
641,119	626,923	617,989	612,410	606,155	614,555	602,428	590,959	569,369	558,236	547,805
220,216	215,296	211,041	208,899	207,641	216,005	216,507	222,343	216,347	216,380	214,628
117,084	115,944	115,472	118,006	117,514	119,319	118,318	119,638	115,576	113,856	112,792
18,992	18,843	18,891	18,979	18,933	19,637	19,671	19,551	19,148	18,966	18,907
43,203	41,989	41,393	40,561	39,841	39,395	38,063	37,121	35,882	35,056	34,764
13,891	13,597	13,388	13,106	12,878	12,823	12,360	11,969	11,509	11,279	11,087
95,601	92,736	90,879	86,791	85,732	85,708	81,752	69,968	67,212	64,218	62,176
132,132	128,518	126,925	126,068	123,616	121,668	115,757	110,369	103,695	98,481	93,451
36,202	35,710	35,302	35,348	35,566	35,988	35,468	35,606	35,110	34,952	34,884
6,223	6,219	5,955	6,038	5,898	5,802	5,679	5,534	5,279	5,232	5,195
5,898	5,873	5,850	5,833	5,814	5,901	6,029	6,176	6,267	6,338	6,332
12,414	12,206	12,147	12,113	12,374	12,541	12,612	12,781	12,660	12,552	12,579
4,364	4,295	4,261	4,217	4,231	4,233	4,191	4,180	4,163	4,149	4,139
4,621	4,591	4,641	4,653	4,732	4,867	4,795	4,805	4,727	4,699	4,683
2,682	2,526	2,448	2,494	2,517	2,644	2,162	2,130	2,014	1,982	1,956
20,513	25,053	29,492	34,980	39,622	50,032	56,541	60,736	57,657	64,173	69,942
20,315	22,458	24,263	25,938	27,398	30,122	31,981	32,914	32,641	34,296	36,061
600,291	579,412	564,234	551,492	539,135	534,401	513,906	497,309	479,071	459,767	441,802
745	924	1,143	1,503	2,076	2,597	3,260	3,927	4,469	4,997	5,537
35,457	34,786	34,159	33,845	33,490	33,391	32,208	31,679	30,641	29,955	29,347
0	0	0	0	0	0	0	0	0	0	0
358,109	350,066	342,245	334,251	328,357	313,597	306,604	298,078	294,835	289,046	284,515
328,726	321,113	313,837	306,531	301,528	287,341	280,997	273,147	270,333	264,899	260,751
29,383	28,953	28,408	27,720	26,829	26,256	25,607	24,931	24,502	24,147	23,764
3,021	3,010	3,001	2,993	2,985	2,968	2,922	2,897	2,860	2,843	2,809
2,995	2,983	2,974	2,967	2,959	2,943	2,917	2,890	2,853	2,836	2,813
683	683	685	684	684	681	679	678	678	679	678
\$ 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	\$ 3,305.0
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	3,071.6
181.7	164.6	161.2	161.9	157.3	148.4	151.8	152.9	142.8	123.0	125.7
511.1	495.9	479.1	471.8	468.1	462.9	464.5	336.1	162.3	141.9	107.7
17,261	16,390	16,827	14,533	23,655	16,078	17,499	11,640	14,470	12,675	11,932
1,014	832	932	1,041	1,025	1,019	1,068	1,005	1,026	956	974
950	1,227	1,267	1,463	1,103	1,064	1,038	1,079	1,189	1,356	938
\$ 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	\$ 462.6
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	280.1
510.6	502.5	433.4	455.3	158.4	66.3	47.3	49.0	62.0	50.1	125.1
64.3	100.1	77.3	75.0	75.8	60.1	37.4	34.8	19.5	48.4	57.4
9.6%	10.7%	11.3%	12.9%	5.9%	1.5%	1.2%	0.9%	0.9%	1.3%	1.7%
16.6%	17.0%	16.3%	17.6%	5.8%	1.4%	1.6%	1.6%	1.9%	2.4%	7.0%
\$ 265.7	\$ 250.2	\$ 241.2	\$ 227.3	\$ 221.9	\$ 219.2	\$ 210.2	\$ 319.1	\$ 422.7	\$ 399.8	\$ 369.4
263.1	247.2	237.7	224.5	217.4	214.1	206.0	317.4	422.0	398.7	368.8
2.6	2.9	3.5	2.8	4.5	5.1	4.2	1.7	0.7	1.1	0.6
\$ 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	\$ 104,921.8
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	63,348.7
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	32,451.7
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	1,635.0
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	1,927.0
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	2,671.7
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	2,887.7
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	0.0
2.6%	12.6%	14.6%	8.5%	28.8%	(10.2)%	2.8%	(8.7)%	17.8%	8.8%	30.4%
8.6%	6.0%	1.7%	3.0%	8.9%	16.8%	4.3%	14.1%	1.3%	6.6%	15.6%
0.9%	15.0%	19.1%	10.6%	42.8%	(24.3)%	2.9%	(20.3)%	25.3%	10.1%	47.2%
\$ 90.3	\$ 79.8	\$ 78.5	\$ 65.3	\$ 69.6	\$ 67.5	\$ 66.6	\$ 57.8	\$ 50.7	\$ 52.6	\$ 49.1
\$ 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	\$ 106,319.2

Notes to 20-Year Summary

* Combined Systems, 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

