

2020

COMPREHENSIVE ANNUAL FINANCIAL REPORT

For Fiscal Year Ended March 31, 2020



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

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For Fiscal Year Ended March 31, 2020

New York State and Local Retirement System

Employees' Retirement System

Police and Fire Retirement System

A pension trust fund of the State of New York

Prepared by the staff of the



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PROFESSIONAL AWARDS



Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

New York State and Local Retirement System

For its Comprehensive Annual
Financial Report
for the Fiscal Year Ended

March 31, 2019

Executive Director/CEO



Public Pension Coordinating Council

***Public Pension Standards Award
For Funding and Administration
2019***

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".

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/retirement

September 30, 2020



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, 2020.

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.

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. 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 complements 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.

I am proud that 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, 2019. 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 16 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 2019-20, the System had a total of 1,160,743 members, retirees and beneficiaries, and 2,962 participating employers.

The following highlights some of the System's operations for the 2019-20 fiscal year.

COVID-19

The COVID-19 pandemic has created a serious public health crisis, and the economic impact to our State will likely be felt for a long time to come. The volatility and uncertainty in the markets will persist until this public health crisis is resolved. Fortunately, the Fund entered this crisis as one of the strongest public pension funds in the nation, and remains well positioned to weather these challenging times.

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.

In August 2019, the System announced the fiscal year 2020-21 estimated average contribution rates for participating employers. The ERS average rate will remain 14.6 percent of payroll. The PFRS average rate will be 24.4 percent of payroll, a slight increase of 0.9 percent.

In June 2019, the Pew Charitable Trusts once again ranked NYSLRS as one of the best-funded public pension plans in the nation.

For the fiscal year ended March 31, 2020, fiduciary plan position represented 86.39 percent of total pension liability for ERS and 84.86 percent for PFRS. This is a decrease from fiscal year ended March 31, 2019, when fiduciary plan position represented 96.27 percent of total pension liability for ERS and 95.09 percent for PFRS. The decrease can be attributed to the market downturn at the end of the fiscal year due to the COVID-19 pandemic. The traditional funded ratios for ERS and PFRS can be found in the CAFR's Actuarial Section.

While the disruptions that the COVID-19 pandemic has caused are unsettling, the National Conference on Public Employee Retirement Systems noted that public pension systems like ours have the capacity to keep paying benefits, in spite of economic challenges like the coronavirus. NYSLRS remains vigilant about maintaining an industry-leading funded status, recognizing that more than one million members, retirees and their families rely on us for their financial security in retirement.

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

INVESTMENTS

The Fund's primary objective is to provide the means to pay benefits to the participants and beneficiaries of the System through an investment program designed to protect and enhance the long-term value of the assets. Fund investments are made consistent with the "prudence" and "exclusive benefit" fiduciary standards of investment. Additionally, we have adopted policies and practices to ensure that the Fund is managed with high levels of ethical conduct and transparency. In fact, the independent triennial fiduciary and conflict of interest review conducted in 2019-20 by Duff and Phelps found that the Fund "has a strong governance framework with sound internal controls and is managed efficiently and effectively." The report concluded that "The Fund is demonstrating a high level of operational transparency and in many cases appears to be in the vanguard of industry standards in this area." Additionally, the report found "the Comptroller and the CRF Staff manage the Fund to the highest level of ethical standards."

In August 2019, I appointed Anastasia Titarchuk as the chief investment officer (CIO) of the Fund. Thanks in part to Ms. Titarchuk, who had been acting as interim CIO since July 2018, the Fund has, in spite of the pandemic, maintained its status as one of the strongest public funds in the nation.

Also in August 2019, I reduced our assumed rate of return to 6.8 percent, the third reduction since 2010. I did so in anticipation that economic and demographic conditions would change. According to the National Association of State Retirement Administrators, 93 of 130 public retirement systems (70 percent) have reduced their assumed rates of return since fiscal year 2017. These reductions have resulted in a decline in the average return assumption from 7.52 percent in fiscal year 2017 to 7.22 percent in fiscal year 2020.

In order to protect the value of our holdings, we utilize some of the most robust corporate engagement initiatives of any public pension fund in the country. For instance, we have urged our portfolio companies to be mindful of the salaries they pay their executives. As compensation for chief executive officers (CEOs) at the largest United States companies has risen dramatically, the pay disparity between CEOs and typical workers has reportedly increased to as much as 1,400 percent.

We've also strengthened our sustainable investment strategy. We believe in addressing investment risks presented by climate change, which could significantly disrupt the global economy. Ours was the first public pension fund in the country to create an index that excludes or reduces holdings in the worst carbon emitters and shifts investments to lower-emitting corporations.

In 2018, Governor Andrew Cuomo and I formed a Decarbonization Advisory Panel to build on our climate change work and recommend ways the Fund can protect and add value to its work regarding climate change. In April 2019, the panel released a report recommending that the Fund transition its investments to 100 percent sustainable assets by 2030. The panel also suggested that the Fund establish minimum standards to measure the readiness of its investments for climate change, establish a new climate solutions investment program and increase its funding of investments with a proactive approach to climate risk and opportunity.

Two months later, in June 2019, the Fund released a Climate Action Plan of its own that created a formal Sustainable Investments and Climate Solutions (SICS) Program. The plan doubled the Fund's commitment to the SICS program from \$10 billion to \$20 billion, and the Fund hired staff to identify sustainable investment opportunities.

Though global greenhouse gas emissions are reportedly on track to drop nearly 8 percent this year due to stay-at-home orders that produced a decline in the use of fossil fuels, we feel it is important to keep the pressure on our portfolio companies to address environmental investment risks, including climate change. When the pandemic ends, emissions could easily rebound.

Of course, the Fund's mission is 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 our assets. That is why we have implemented an asset allocation strategy with an appropriate balance of risk and return.

Because of the Fund's prudent management, the System continues to meet both its short-term and long-term obligations. As of March 31, 2020, 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"), 50 percent in public equities, including domestic and international public equities, and 28 percent in alternative investments, including private equity, real estate, real assets, absolute return strategies, and opportunistic funds.

ACCOUNTING PRACTICES

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

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

The System's financial information and internal controls are subject to examination by the New York State Department of Financial Services. Additionally, KPMG LLP, an independent, certified public accountant, audits the System's financial statements. KPMG's opinion appears on page 35 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, 2020 adequately safeguard the System's assets and provide reasonable assurance regarding the proper recording of financial transactions.

PROGRAMS AND INITIATIVES

To help all New Yorkers during these challenging economic times, the Fund supported the federal Paycheck Protection Program (PPP) with a \$50 million investment. Under the PPP, employers could secure loans that would be forgiven by the federal government if employees were kept on the payroll for eight weeks and the money was used for payroll, rent, mortgage interest or utilities. The Fund's commitment supplements PPP loans administered by Pursuit – the former New York Business Development Corporation. The return to the Fund is consistent with U.S. Treasury securities and is part of our diversified portfolio.

We continued our efforts to safeguard pension funds from fraud and recover money stolen from NYSLRS. Over the last several years, our investigations have led to dozens of arrests and millions of dollars recovered from those who attempted to defraud the System. The arrests, convictions and recoveries are warnings — pension fraud will not be tolerated. When we identify it, we will work with law enforcement to hold the perpetrators accountable.

NYSLRS also completed another phase of its multiyear project to upgrade the computer systems we use to calculate benefits and administer accounts. Since *Retirement Online* was first launched in January 2017, we have continued to add new functionality to the system to give our members and retirees a convenient way to conduct online business with NYSLRS. During fiscal year 2020, we expanded *Retirement Online* features to include tools that allowed participants to change beneficiaries, submit loan applications, receive retirement benefit estimates, purchase service credit and apply for retirement, among others. As of March 31, 2020, over 259,300 members and retirees had registered for *Retirement Online*. That represents a 35.6 percent increase over the previous fiscal year when there were 191,200 registered members and retirees.

More information about this, as well as other key programs and initiatives, can be found in the Overview of the New York State & Local Retirement System on page 24 and the Overview of Investments on page 83.

ACKNOWLEDGMENTS

I wish to thank the dedicated staff of the Office of the State Comptroller for doing the important work of our agency day in and day out. I am extremely proud to see how our organization has adapted to meet the needs of our customers during this difficult and unprecedented time. Despite the disruption in their daily lives, our staff members have shown extraordinary collaborative spirit, dedication and resiliency.

I also 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 commitment to the System's members, retirees and beneficiaries. We are deeply indebted to them for their continued support and counsel. Lastly, 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.

Chair
Assembly Governmental Employees Committee
New York State Assembly

Stephen J. Acquario

Executive Director
New York State Association of Counties

Peter A. Baynes

Executive Director
New York State Conference of Mayors

Heather Briccetti

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

Mario Cilento

President
New York State AFL-CIO

Sam Fresina

President
New York State Professional Fire Fighters Association

Gerry Geist

Executive Director
Association of Towns of the State of New York

Honorable Andrew Gounardes

Chair
Senate Civil Service and Pensions Committee
New York State Senate

Diana Hinchcliff

President
Retired Public Employees Association, Inc.

Don Kelly

Director of Research
Civil Service Employees Association Local 1000, AFSCME

Bryant Kolner

President
Alliance of Public Retiree Organizations of New York

Thomas Mungeer

President
New York State Troopers
Police Benevolent Association

Michael O'Meara

President
New York State Association of
Police Benevolent Associations

Andrew Pallotta

President
New York State United Teachers

Michael Powers

President
New York State Correctional Officers
& Police Benevolent Association

Raymond Santander

Assistant Director
AFSCME District Council 37

Robert Schneider

Executive Director
New York State School Boards Association

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.

Philippe Brugere-Trelat

Former Executive Vice President and Portfolio Manager
Franklin Mutual Advisors LLC

William G. Clark

Chief Investment Officer
Federal Reserve Employees Benefits System

Timothy C. Collins

CEO & Senior Managing Director
Ripplewood Holdings, LLC

Hugh Johnson

Chairman & Chief Investment Officer
Hugh Johnson Advisors, LLC

Aren LeeKong

Executive Chairman
Organix Recycling, LLC

Catherine A. Lynch, CFA (Chair)

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

Valerie Mosley

Chair & CEO
Valmo Ventures

Diane C. Nordin, CFA

Former Partner
Wellington Management Company, LLP

Catherine James Paglia

Director
Enterprise Asset Management

Real Estate Advisory Committee

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

David H. Peirez, Esq. (Chair)

Senior Partner
Reisman Peirez Reisman & Capobianco, LLP

Camille Douglas

Senior Managing Director
LeFrak

Louis M. Dubin

Managing Partner
Redbrick LMD

G. Gail Edwards

Independent Director

Michael Giliberto

S. Michael Giliberto & Company, Inc.

James M. Gottstine

Chief Operating Officer
Ciminelli Real Estate Corporation

Jo Ann Hanson

President
Church Investment Group

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.

Edward W. Brown
(Retired)

Armand de Palo
(Retired)

Michael Heller
(Retired)

Mark T. Koehne
Senior Vice President & Actuary
Mutual of America Life Insurance Company

Stanley Talbi
Executive Vice President
Metropolitan Life Insurance

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, the Common Retirement Fund and the Comprehensive Annual Financial Report.

Jennifer Mulligan (Chair)

Business Office Manager/Controller
Questar III BOCES

Ruben Cardona

Partner
WithumSmith + Brown, PC

Alan Lubin

(Retired)

Julie McDonnell

Schenectady County Auditor

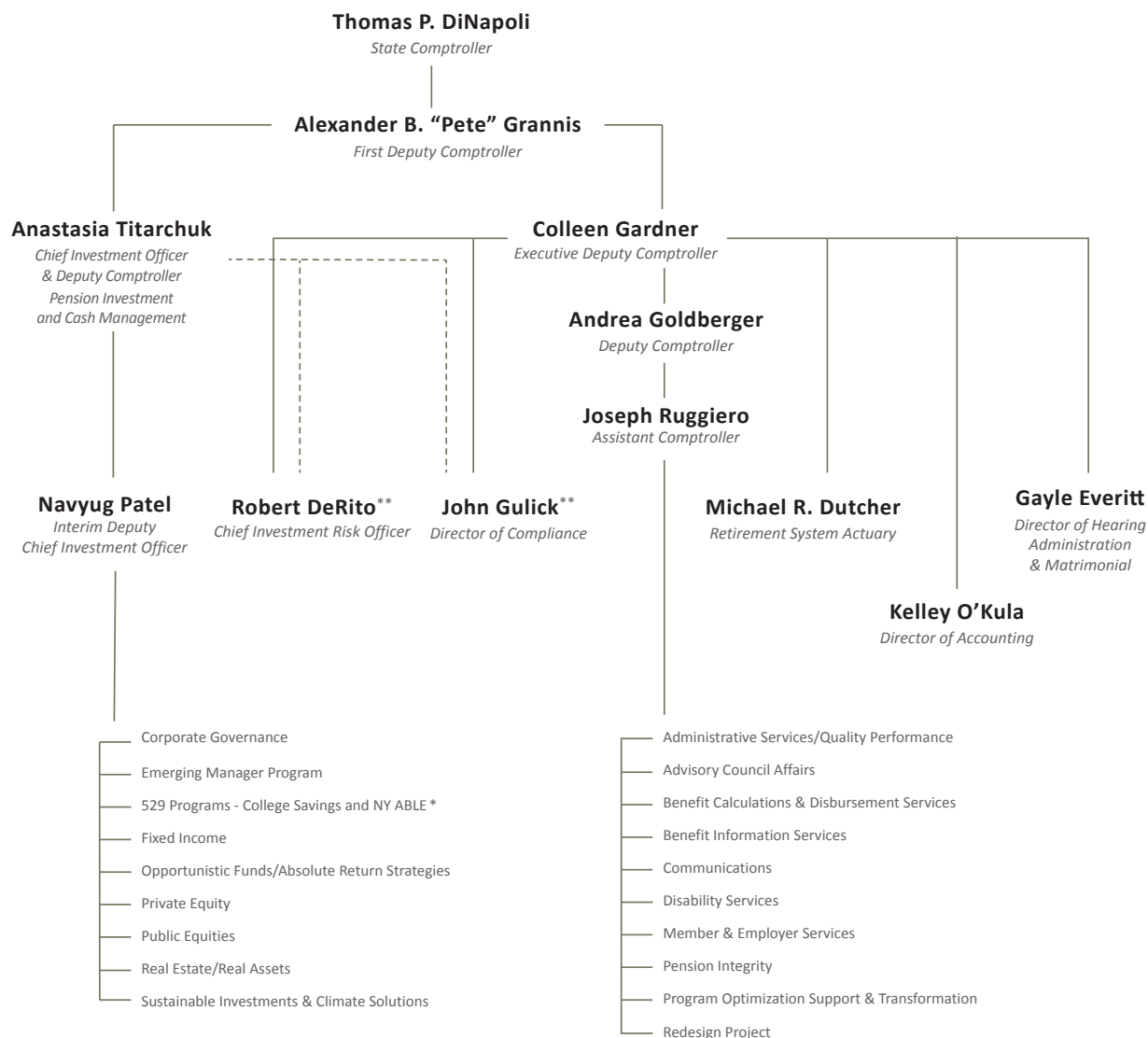
Paul Moore

Past President
Retired Public Employees Association, Inc.

ADMINISTRATIVE ORGANIZATION

CONTINUED

NEW YORK STATE AND LOCAL RETIREMENT SYSTEM ORGANIZATION CHART



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

**Administrative reporting to the Chief Investment Officer.

Notes:

Information regarding investment managers and consultants can be found in the Investment Section on pages 111, 116, and 120-130. Information regarding consultants other than investment advisors can be found on page 78 in the Financial Section.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

I am pleased to report the following highlights of the 2019-20 fiscal year, including progress on initiatives we have undertaken.

RESPONSE TO THE PANDEMIC

At a time when New Yorkers were struggling with the devastating impact of the COVID-19 pandemic, NYSLRS had to move quickly to address the needs of our customers during the crisis.

To protect the health and safety of our staff members, as well as the people we serve, NYSLRS consultation offices closed, and in-person retirement consultations were replaced with phone consultations. Our Call Center remained open as customer service representatives answered calls remotely. *Retirement Online*, NYSLRS' self-service application, allowed customers to continue to conduct business with us from the safety of their homes. Staff members, again working remotely and using *Retirement Online's* internal portal, continued processing applications and other customer requests. Monthly pension payments continued and new retirees and beneficiaries were added despite the challenges posed by the COVID-19 emergency.

In mid-March, we identified over 30,000 retirees who had been receiving pension payments by paper check and, as a precautionary measure due to the pandemic, encouraged them to sign up for direct deposit. This outreach led to 5,349 retirees opting for direct deposit in April — a 133 percent increase over April 2019, when only 2,297 retirees changed to direct deposit.

Anticipating that some NYSLRS members seeking to retire could become sickened by COVID-19 and die before their service retirement could take effect, Comptroller DiNapoli requested that the Governor issue an executive order waiving the statutory 15-day waiting period before a public employee's service retirement can take effect. The waiver was issued retroactive to March 7, 2020 — the date the State emergency was declared.

In addition, the earnings limit for retirees who return to public employment was suspended temporarily during the pandemic by Governor's executive order. This meant that pay from a public employer earned by a retiree during the crisis would not count toward the \$35,000 annual earnings limit.

Lastly, expedited processing measures were put in place for those who needed to submit a NYSLRS Power of Attorney (POA) that was related to the COVID-19 emergency.

RETIREMENT ONLINE

Since 2017, when we introduced *Retirement Online*, we have been redefining how we do our work. Over the last fiscal year, we continued expanding the features *Retirement Online* offers in order to make it easier for our members to manage their benefits and for employers to do business with us securely.

This past February, we introduced tools that enable our members to estimate their pension benefits using current account information, apply for retirement, purchase service credit, and manage their loan and service credit payments online. This was also the first year that members could choose to receive their Member Annual Statements through *Retirement Online*.

From the introduction of *Retirement Online*, members have been able to change their beneficiaries, update their personal information and submit loan applications online. During fiscal year 2019-20, we received 49,550 loan applications, and more than half of them — 25,951 — were submitted using *Retirement Online*. Of this number, 12,867 were handled through an automated process, enabling the loans to be issued more quickly.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

CONTINUED

Since we rolled out these self-service options, more members have been conducting business with us online. We received over 800 service retirement applications through *Retirement Online* in March, the first full month that members could apply online. *Retirement Online* also allows members to upload documents and easily change their date of retirement. We have also seen a steady rise in online beneficiary designations, receiving approximately 2000 online in March alone.

The most popular feature offered in *Retirement Online* has been the ability for members to run a pension benefit estimate using their current account information. In just a few steps, members can estimate their pension benefit using criteria that they choose such as date of retirement, option selection, and beneficiary information. More than 31,000 benefit estimates were generated by members in the first six weeks this feature was available.

The overall number of retirement applications also continued to increase, but this trend is not unexpected. In fact, over the next decade, we expect more than 190,000 members who are currently working to retire. The *Retirement Online* self-service options we've introduced increase our efficiency, helping us address the rising number of retirements while continuing to provide retirees with their benefits promptly.

With the increase in retirement applications comes an increase in new enrollments as public employers fill positions left vacant by new retirees. At the close of the fiscal year, the number of Tier 6 members surpassed the number of Tier 4 members in ERS.

Enrolling new members can be time consuming for both participating employers and NYSLRS staff. As enrollments continue to increase, improvements brought about by *Retirement Online's* automation of this process are critical to our success. You can read more about enrollment and reporting features in the "Our Employer Partnership" section.

The number of registered users of *Retirement Online* also continues to grow. Over the past fiscal year, the number of enrolled members and retirees increased 35.6 percent over the year before. (As of March 31, 2020, nearly 260,000 members and retirees had *Retirement Online* accounts.) We have every confidence that the numbers will continue to rise as we add more features and as more members and retirees become comfortable with online transactions.

OUR EMPLOYER PARTNERSHIP

Our employers are key partners in our mission to provide accurate and timely benefits to our members. So when we introduced new reporting and enrollment features to *Retirement Online*, we wanted to make sure they had the training and support they needed to use those features successfully.

Training for employers began in 2018, when our Member & Employer Services Bureau designated staff members to act as transition coaches. The coaches assisted in webinars where employers practiced with test files in a simulated environment in order to prepare to submit reports in *Retirement Online*.

Leading up to the launch of the new reporting and enrollment features in May 2019, we hosted a series of webinars covering different *Retirement Online* topics and employers asked questions that were answered live. Some of those topics included how we calculate salary and service for optional members as well as how to handle changes to loan and service credit payments.

Now that employers are using *Retirement Online*, they have found the real-time enrollment feature that provides NYSLRS ID numbers for their employees right away to be very helpful. Employers also receive immediate notifications to correct contribution rates and stop loan payments. Many of our employers began working remotely during the pandemic, and *Retirement Online* gave many of them the ability to submit monthly reports at fiscal year-end on time.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

CONTINUED

The ultimate goal is to transition all employers to the new enhanced reporting format. Dozens of employers began using the enhanced files during the fiscal year. Efficiencies of enhanced reporting, such as automatic enrollment of mandatory NYSLRS members, are streamlining work for employers as well as NYSLRS staff. Additional data provided on enhanced reports will eliminate the need for employers to gather extra information when their employees retire or when optional members later decide to join NYSLRS. To accommodate smaller locations, NYSLRS created an enhanced manual reporting solution that enables employers to report members and make adjustments directly through the employer's reporting dashboard.

HELPING MEMBERS UNDERSTAND THEIR BENEFITS

Approximately 360 members joined the Police and Fire Retirement System (PFRS) from July 1, 2009 through January 8, 2010. Depending on the retirement plan these members elected, they could be covered under the benefits of Tier 3 (Article 11), Tier 3 (Article 14), or Tier 5 (Article 22). As a result of a new law, the members of this group can now change their retirement plan and be covered under the benefits of Tier 2 (Article 11).

To make sure these members could make an informed decision, letters were sent to members identified as eligible under the new law, and their employers, detailing the new legislation and the benefits provided under Tier 2 (Article 11) along with an election form to fill out and submit to the Member Enrollment Unit.

Other bureaus assisted with this effort, such as the Benefit Information Services Call Center, which was instrumental in handling questions from eligible members, as well as our Advisory Council Affairs bureau, which set up a conference call for eligible members at the request of the New York State Professional Fire Fighters Association.

FIGHTING FRAUD

The timely identification of retiree and beneficiary deaths is an important step in detecting and preventing pension fraud. During the last fiscal year, NYSLRS recovered nearly \$500,000 in disallowed post-death pension disbursements. NYSLRS will continue to search out unreported pensioner deaths, stop overpayments and, when inappropriate payments are identified, pursue full restitution.

We also investigate possible benefit overpayments resulting from post-retirement employment. 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. This data allows us to identify retirees who are performing services for public employers and may be subject to earnings limitations.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

CONTINUED

CROSS-BUREAU COOPERATION

NYSLRS continues to improve our internal, cross-bureau work processes in order to enhance operational efficiencies and effectiveness.

Our Scanning staff members implemented “day forward” scanning for all incoming correspondence. Documents are scanned when they are received. Once a new document has been scanned, it is stored for easy access, tracking, and retrieval, and an automated workflow is generated to staff members for processing.

This kind of work process adjustment not only makes the case processing experience better for our staff members, but also results in better service for our customers.

NYSLRS’s Hearing Administration & Matrimonial Bureau schedules hearings and Office of the State Comptroller Legal Services staff members represent NYSLRS at the hearings. Over the last fiscal year, Legal Services staff members represented NYSLRS at 450 hearings.

Besides representing NYSLRS at hearings, Legal Services staff reviewed 1,300 power of attorney requests, as well as 460 trust, estates and guardianship documents during fiscal year 2019-20. These documents are reviewed to determine whether an agent or legal guardian has the authority to act on behalf of a member, retiree or beneficiary, ensuring that the correct parties are being paid benefits. Many members and retirees use NYSLRS’ special durable power of attorney form on our website, which meets all of New York State’s legal requirements for pension benefit transactions.

CUSTOMER SERVICE

Our Benefit Information Services Bureau’s Call Center is often the first point of contact our customers have with NYSLRS, and is focused on achieving our customer service goals. Resources were added to address the increase in call volume and call length over the past year.

During fiscal year 2019-20, call center representatives:

- Answered 376,280 calls (including 185,972 callbacks) and responded to 49,637 email requests;
- Assisted 42,190 customers at our consultation offices and another 2,062 customers off-site;
- Delivered presentations to 16,280 members and retirees;
- Assisted 23,794 customers at information tables at events;
- Completed 49,883 benefit projections;
- Closed 4,898 loan cases; and
- Closed 5,034 beneficiary cases

In addition, our Hearing Administration & Matrimonial Bureau discontinued distributing medical record computer discs (CDs) by certified mail in favor of sending confidential files to attorneys and members with encrypted email. The new system utilizes an easily accessible digital storage workspace that also allows our customers and business partners to send us encrypted medical records, transcripts and other personal, confidential information. It is another example of leveraging technology and improving processes to be more timely and convenient for our members.

OVERVIEW OF THE NEW YORK STATE AND LOCAL RETIREMENT SYSTEM

Report from Executive Deputy Comptroller Colleen Gardner

CONTINUED

NEW LAWS ENACTED IN THE PAST YEAR THAT IMPACT NYSLRS

Three-Quarters Disability Benefits Provided for World Trade Center Participation

Chapter 252 of the Laws of 2019 provides a three-quarters accidental disability retirement benefit to certain Tier 3 and Tier 4 ERS members who participated in the World Trade Center rescue, recovery or clean-up operations.

Accidental Death Benefit Application Filing Period Extended

Chapter 253 of the Laws of 2019, which was proposed by the Comptroller, extends the period of time within which a beneficiary may file an application for an accidental death benefit to five years after the death of a NYSLRS member. Previously, the period of time was within two years or 60 days, depending on the retirement plan.

Special Accidental Death Benefits Increased

Chapter 382 of the Laws of 2019 increases certain special accidental death benefits paid to widows, widowers or children of police officers and firefighters killed in the line of duty.

Earnings Threshold Increases for Retirees

Chapter 589 of the Laws of 2019 increases the amount of money public retirees may earn annually from public employment to \$35,000. The increase is effective for the calendar year 2020 and thereafter.

Certain Tier 3 and Tier 5 PFRS Members Now Covered by Tier 2

Chapter 751 of the Laws of 2019 allows members who joined PFRS on or after July 1, 2009 and before January 9, 2010 to elect to change their special retirement plan election and be covered under Tier 2. Previously, members who joined PFRS during this time period were unable to elect a Tier 2 non-contributory twenty-year retirement plan and were covered by different tiers.

EXECUTIVE MANAGEMENT TEAM UPDATE

The Division of Retirement Services' new Assistant Comptroller, Joseph Ruggiero, joined our Executive Management Team in February 2020, having most recently served as the New York State Bridge Authority's Executive Director. We welcome the experience and dedication Joe brings to our team. Deputy Comptroller Andrea Goldberger, Joe and I will endeavor to strengthen NYSLRS for years to come.

As a result of the COVID-19 crisis, our customers and coworkers have been faced with unprecedented hardships and challenges. I am mindful that this pandemic has caused an upheaval in all our lives, at work and at home. NYSLRS is committed to keeping our customers and staff safe while meeting our core mission of administering benefits timely and accurately. Although the upcoming fiscal year will present new challenges, NYSLRS will strive to provide dependable and responsive services to our members, retirees, beneficiaries and employers and help them plan for a financially secure retirement.

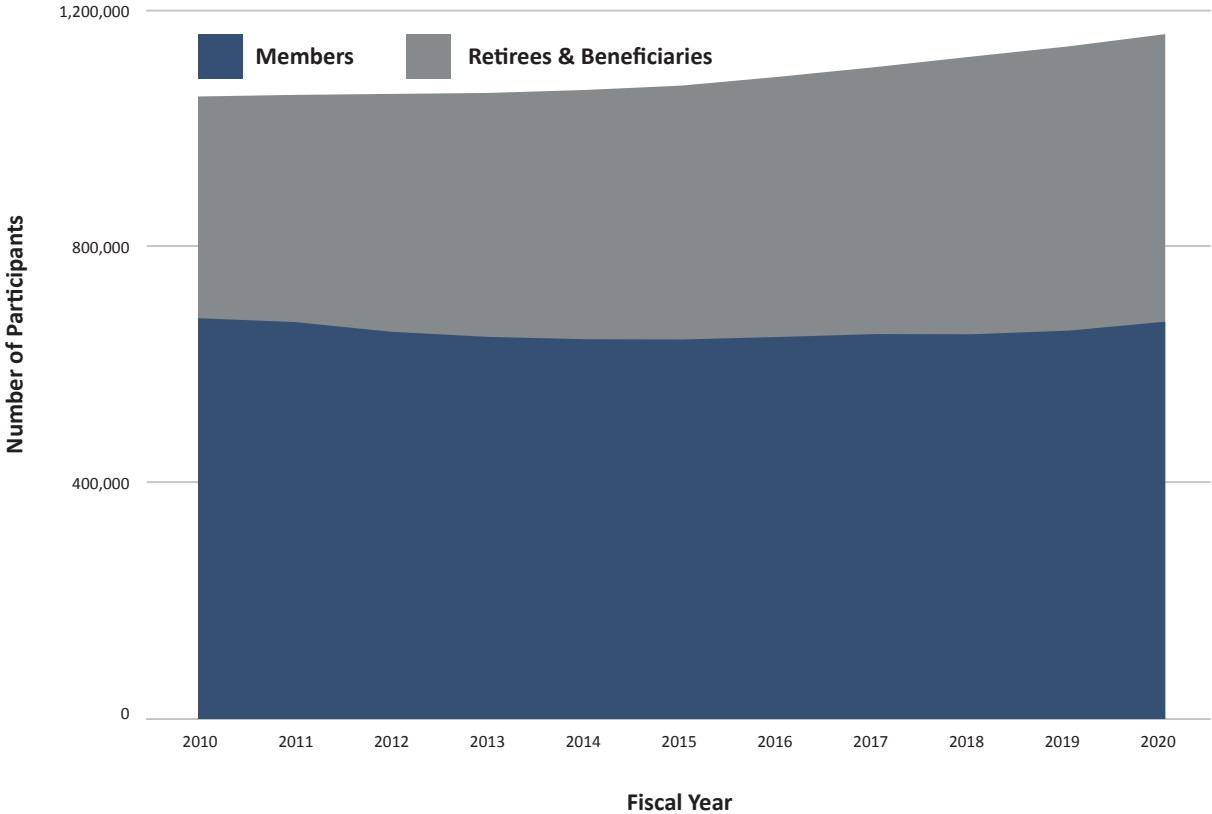
BY THE NUMBERS

MEMBERS AND RETIREES

There are 1,160,743 participants in the System, including 673,336 members and 487,407 retirees and beneficiaries.

The number of retirees is increasing more quickly than members. For example, in 2000 retirees and beneficiaries represented 33 percent of the System’s participants. By fiscal year 2020, that had increased to approximately 42 percent.

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

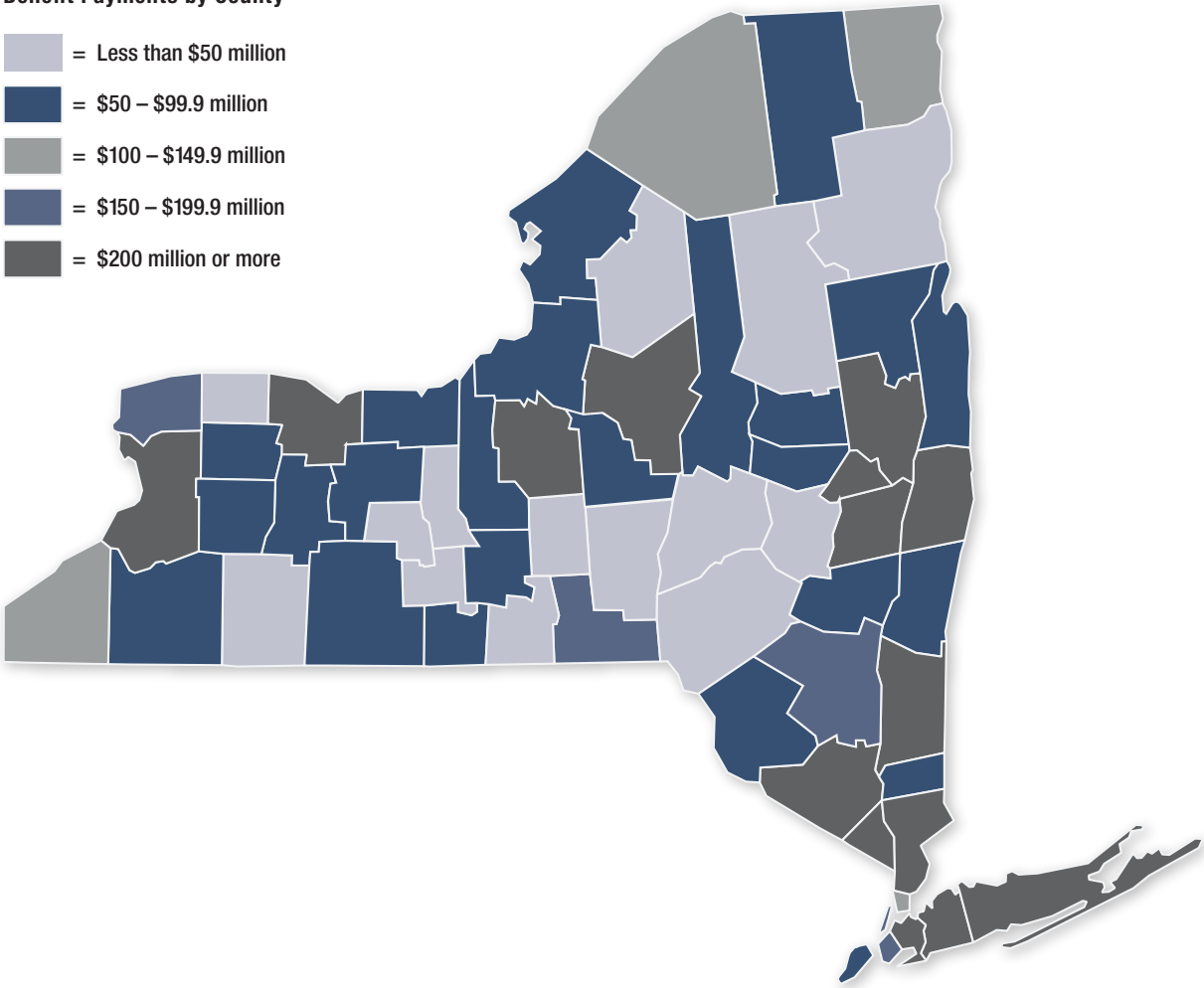


RETIREES IN NEW YORK STATE

Of the 487,407 retirees and beneficiaries in the System, 384,286 (79 percent) remain New York State residents. As such, benefit payments surpassing \$10.8 billion this year alone reach the State’s communities and businesses, representing a significant stimulus to the State’s economy.

Benefit Payments by County

- Lightest blue = Less than \$50 million
- Dark blue = \$50 – \$99.9 million
- Grey-blue = \$100 – \$149.9 million
- Medium blue = \$150 – \$199.9 million
- Dark grey-blue = \$200 million or more



ANNUAL BENEFIT PAYMENTS WITHIN NEW YORK STATE

As of March 31, 2020.

County	Annuitants	Annual Payments
Albany	19,555	\$ 643,747,429
Allegany	1,751	34,692,807
Bronx	3,807	109,690,255
Broome	8,168	172,795,836
Cattaraugus	3,604	78,873,538
Cayuga	3,466	83,946,852
Chautauqua	5,048	108,665,894
Chemung	3,824	95,544,171
Chenango	2,251	43,581,924
Clinton	4,700	127,057,385
Columbia	3,168	86,634,716
Cortland	1,870	39,520,907
Delaware	1,888	39,774,289
Dutchess	10,327	315,686,970
Erie	32,260	877,679,693
Essex	2,118	48,208,637
Franklin	3,300	83,281,192
Fulton	2,324	50,404,292
Genesee	2,529	59,340,534
Greene	2,635	70,115,311
Hamilton	499	10,853,369
Herkimer	2,584	53,994,716
Jefferson	3,818	89,910,847
Kings	6,204	196,115,583
Lewis	1,310	24,788,370
Livingston	3,057	71,954,871
Madison	2,667	58,078,529
Monroe	18,022	421,182,981
Montgomery	2,486	59,059,146
Nassau	24,603	887,720,971
New York	4,603	159,639,707
Niagara	6,699	162,826,265

County	Annuitants	Annual Payments
NY Military	11	\$ 170,034
Oneida	10,435	263,188,696
Onondaga	14,441	350,608,045
Ontario	3,710	85,159,653
Orange	9,755	281,283,554
Orleans	1,654	36,409,367
Oswego	4,551	94,828,890
Otsego	2,273	44,628,818
Putnam	2,572	85,789,008
Queens	6,515	212,611,747
Rensselaer	9,637	294,027,825
Richmond	2,571	88,523,329
Rockland	7,193	237,063,405
Saratoga	11,521	347,461,275
Schenectady	8,949	272,494,274
Schoharie	1,712	41,595,101
Schuyler	881	19,193,647
Seneca	1,521	33,606,868
St. Lawrence	5,664	138,104,230
Steuben	3,498	76,502,493
Suffolk	37,040	1,275,708,031
Sullivan	3,042	79,035,465
Tioga	1,739	34,088,330
Tompkins	2,864	62,557,468
Ulster	6,303	159,064,847
Warren	3,093	74,519,927
Washington	2,934	69,836,326
Wayne	3,514	74,585,822
Westchester	16,443	556,689,929
Wyoming	2,227	53,158,565
Yates	878	17,997,137
Total	384,286	\$ 10,825,860,093

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 figures in the chart are easier to organize by county, as compared to figures found in the financial statements.

ANNUAL BENEFIT PAYMENTS WITHIN THE UNITED STATES

As of March 31, 2020.

State	Annuitants	Annual Payments
Alabama	870	\$ 16,396,933
Alaska	51	1,058,943
Arizona	2,758	60,527,569
Arkansas	171	2,602,548
California	2,199	43,111,636
Colorado	866	17,935,991
Connecticut	2,399	61,379,159
Delaware	984	27,344,997
Florida	38,235	968,298,481
Georgia	4,037	85,119,919
Guam	1	9,791
Hawaii	111	2,439,958
Idaho	108	2,148,317
Illinois	363	6,579,156
Indiana	295	4,979,733
Iowa	78	1,133,454
Kansas	113	1,776,162
Kentucky	407	7,012,268
Louisiana	188	3,316,984
Maine	610	12,847,061
Maryland	1,516	30,842,926
Massachusetts	1,578	36,054,353
Michigan	340	5,694,574
Minnesota	154	2,239,345
Mississippi	207	4,232,766
Missouri	258	4,282,212
Montana	124	2,335,471

State	Annuitants	Annual Payments
Nebraska	57	\$ 926,160
Nevada	1,415	36,077,935
New Hampshire	652	17,075,487
New Jersey	7,893	298,452,089
New Mexico	432	8,329,692
New York	384,286	10,825,860,093
North Carolina	9,413	216,022,369
North Dakota	21	309,034
Ohio	782	12,665,466
Oklahoma	157	2,543,841
Oregon	301	5,494,885
Pennsylvania	5,010	121,746,729
Puerto Rico	436	7,667,838
Rhode Island	275	6,918,747
South Carolina	6,457	164,916,194
South Dakota	88	2,337,519
Tennessee	2,067	49,410,460
Texas	2,360	50,319,862
Utah	164	3,066,379
Vermont	605	13,203,558
Virginia	3,801	80,313,899
Washington	546	10,874,581
Washington, D.C.	106	2,280,568
West Virginia	187	3,418,045
Wisconsin	164	2,909,037
Wyoming	72	1,655,119
Total	486,768	\$ 13,356,496,292

ANNUAL BENEFIT PAYMENTS OUTSIDE THE UNITED STATES

As of March 31, 2020.

Annuitants	Total Annual Payments
639	\$ 11,140,683

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 figures in the chart are easier to organize by state and country, as compared to figures found in the financial statements.

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 financial statements of the New York State and Local Retirement System (the System) as of and for the year ended March 31, 2020, and the related notes to the financial statements, which collectively comprise the System's basic financial statements for the year then ended as listed in the table of contents.

Management's Responsibility for the Financial Statements

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

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America 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 auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

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

Opinion

In our opinion, the financial statements referred to above present fairly in all material respects, the fiduciary net position of the System as of March 31, 2020, and the changes in its 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.

**Other Matters***Required Supplementary Information*

U.S. generally accepted accounting principles require that the management's discussion and analysis and required supplementary information 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 financial statements that collectively comprise the System's basic financial statements. The schedules of administrative expenses, investment expenses and consulting fees on pages 76-78, as well as the introduction, investment, actuarial and statistical sections are presented for purposes of additional analysis and are not a required part of the basic financial statements.

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

The introduction, investment, actuarial, and statistical sections have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an 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 24, 2020 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 solely 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 the effectiveness of the System's 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.

The KPMG LLP logo, featuring the letters 'KPMG' in a bold, black, sans-serif font, with 'LLP' in a smaller, black, sans-serif font to the right.

July 24, 2020

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

March 31, 2020

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, 2020 is intended to provide the reader with an analysis of the System's overall financial position. The System is comprised of the New York State and Local Employees' Retirement System (ERS) and the New York State and Local Police and Fire Retirement System (PFRS). The net position of the System is held in the New York State Common Retirement Fund (the Fund), which was established to hold all assets and record changes in fiduciary net position allocated to the System. This management's discussion and analysis should be read in conjunction with the basic financial statements of the System, which follow.

FINANCIAL HIGHLIGHTS

The fiduciary net position of the System held in trust to pay pension benefits was \$198.08 billion as of March 31, 2020 and \$215.17 billion as of March 31, 2019. This amount reflects a decrease of \$17.09 billion from the prior fiscal year. This change is primarily the result of the net depreciation of the fair value of the investment portfolio. Globally, there has been swift and unprecedented amount of monetary and fiscal stimulation that has helped assets recover in the second quarter of 2020. The Fund continues to diversify and monitor downside risks. Net (depreciation) appreciation in fair value of investments for the fiscal years ended March 31, 2020 and 2019 was (\$12.14) billion and \$7.18 billion, respectively.

- The System's investments reported a negative money-weighted rate of return, net of investment expense, of 2.64 percent for the fiscal year ended March 31, 2020 and a positive money-weighted rate of return, net of investment expense, of 5.14 percent for the fiscal year ended March 31, 2019.
- Retirement and death benefits paid during the fiscal year ended March 31, 2020 to 487,407 annuitants totaled \$13.25 billion, as compared to \$12.74 billion paid to 481,795 annuitants for the fiscal year ended March 31, 2019. The increase is primarily due to the number of new retirees.
- Contributions from employers increased to \$4.78 billion for the fiscal year ended March 31, 2020, from \$4.75 billion for the fiscal year ended March 31, 2019. The increase in employer contributions was related to an increase in covered employee payroll from the previous year.
- The Net Pension Liability (NPL) for ERS was \$26.48 billion for the measurement period ended March 31, 2020 as compared to \$7.09 billion for the measurement period ended March 31, 2019. The fiduciary net position, restricted for pension benefits as of March 31, 2020, was \$168.12 billion, which represents 86.39 percent of the calculated total pension liability for ERS. This NPL is allocated to participating employers and reported in their financial statements pursuant to Governmental Accounting Standards Board (GASB) Statement 68.
- The NPL for PFRS was \$5.34 billion for the measurement period ended March 31, 2020 as compared to \$1.68 billion for the measurement period ended March 31, 2019. The fiduciary net position, restricted for pension benefits as of March 31, 2020, was \$29.96 billion, which represents 84.86 percent of the calculated total pension liability for PFRS. This NPL is allocated to participating employers and reported in their financial statements pursuant to GASB Statement 68.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

CONTINUED

OVERVIEW OF THE FINANCIAL STATEMENTS

The financial statements consist of the combining basic statement of fiduciary net position, the combining basic statement of changes in fiduciary net position, and the notes to the basic financial statements. The required supplementary information that appears after the notes to the basic financial statements is not a required part of the basic financial statements, but is supplementary information required by the 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 fiduciary net position.

The combining basic statement of changes in fiduciary net position presents the changes to the System's fiduciary 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 basic financial statements are an integral part of the basic financial statements and provide additional information about the plans, policies, and performance of the System.

The required supplementary information includes: Management's Discussion and Analysis, 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.

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

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

CONTINUED

Table 1

Summary schedule of fiduciary net position as of March 31, 2020, as compared to March 31, 2019:

	(Dollars in Thousands)			Percentage Change
	2020	2019	Dollar Change	
Assets:				
Investments	\$ 194,317,163	\$ 210,523,715	\$ (16,206,552)	(7.7)%
Securities lending collateral — invested	6,865,125	5,742,731	1,122,394	19.5
Receivables and other assets	4,633,762	5,368,698	(734,936)	(13.7)
Total assets	205,816,050	221,635,144	(15,819,094)	(7.1)
Liabilities:				
Securities lending obligations	6,880,350	5,749,147	1,131,203	19.7
Payables and other liabilities	855,938	716,836	139,102	19.4
Total liabilities	7,736,288	6,465,983	1,270,305	19.6
Net position, restricted for pension benefits	\$ 198,079,762	\$ 215,169,161	\$ (17,089,399)	(7.9)%

The fiduciary net position of the System totaled \$198.1 billion as of March 31, 2020, an decrease of \$17.1 billion from the prior fiscal year, primarily attributable to the net depreciation of invested assets.

Table 2

Schedule of invested assets as of March 31, 2020, as compared to March 31, 2019:

	(Dollars in Thousands)			Percentage Change
	2020	2019	Dollar Change	
Domestic equity	\$ 62,548,268	\$ 73,303,652	\$ (10,755,384)	(14.7)%
Global fixed income	45,410,315	45,651,602	(241,287)	(0.5)
International equity	30,673,634	36,256,971	(5,583,337)	(15.4)
Private equity	20,314,177	19,750,977	563,200	2.9
Real estate	15,693,661	15,678,555	15,106	0.1
Absolute return strategy investments	6,834,558	7,812,169	(977,611)	(12.5)
Short-term investments	5,697,690	6,118,985	(421,295)	(6.9)
Real assets	3,085,682	2,220,026	865,656	39.0
Opportunistic funds	3,047,334	2,833,785	213,549	7.5
Mortgage loans	1,011,844	896,993	114,851	12.8
Total investments	\$ 194,317,163	\$ 210,523,715	\$ (16,206,552)	(7.7)%

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

CONTINUED

The largest percentage increases to the invested assets were in real assets and mortgage loans, which represent 1.59 percent and .52 percent of the total portfolio, respectively. In the real assets portfolio, the growth largely reflected new allocations to bring this portfolio closer to the targeted asset allocation as well as deployment of committed capital by underlying asset managers. In the mortgage loan portfolio the increase was due to a moderate increase in activity from a low base.

The largest percentage decreases to the invested assets were in international and domestic equity, which represent 32.19 percent and 15.79 percent, respectively. The decrease in the public equity portfolios reflects the market sell off during the last quarter of the Fund's fiscal year-end driven by fear of the COVID-19 pandemic. The Fund finished the year at a time the markets were declining due to the COVID-19 pandemic concerns, but it was protected from further losses both by its strong position before the COVID-19 pandemic and by its diversified portfolio of assets. Equity markets regained most of their value in the second quarter of 2020.

Absolute return strategy investments include equity-oriented long-only global funds of \$2.61 billion. Though these funds are in an absolute return strategy vehicle, the underlying assets are long-only equity positions.

Table 3

Summary schedule of changes in fiduciary net position for the year ended March 31, 2020, as compared to the year ended March 31, 2019:

	(Dollars in Thousands)			Percentage Change
	2020	2019	Dollar Change	
Additions:				
Net investment (loss) income	\$ (8,798,771)	\$ 10,761,776	\$ (19,560,547)	(181.8)%
Total contributions	5,383,166	5,300,982	82,184	1.6
Total additions	(3,415,605)	16,062,758	(19,478,363)	(121.3)
Deductions:				
Total benefits paid	13,311,136	12,833,931	477,205	3.7
Administrative expenses	139,050	136,477	2,573	1.9
OPEB expense	223,608	—	223,608	—
Total deductions	13,673,794	12,970,408	703,386	5.4
Net (decrease) increase	(17,089,399)	3,092,350	(20,181,749)	(652.6)
Net position, restricted for pension benefits — beginning of year	215,169,161	212,076,811	3,092,350	1.5
Net position, restricted for pension benefits — end of year	\$ 198,079,762	\$ 215,169,161	\$ (17,089,399)	(7.9)%

The change in net investment income is primarily attributable to the net depreciation in fair value of investments from 2019 to 2020. The increase in total benefits paid is attributable to the number of new retirees.

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

CONTINUED

ECONOMIC FACTORS AND RATES OF RETURN

The Fund announced a negative investment performance for the fiscal year ended March 31, 2020, with a time-weighted rate of return of negative 2.68 percent with equity markets selling off sharply as the COVID-19 pandemic swept across the globe. The Fund's diversification strategy worked as most Alternatives and Fixed Income buffered the equity returns resulted in a moderately negative return, a much different situation from the Great Financial Crisis. While the global equity markets regained most of their value in the second quarter of 2020, uncertainties remain across asset classes, particularly in real estate.

General market volatility persists and remains at some of the highest levels seen over the last decade. The Fund continues to monitor the increasing uncertainty in the markets, including effects of the COVID-19 pandemic, political uncertainty across the globe, tensions with China and the U.S. elections.

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/retirement/resources/financial-statements-and-supplementary-information.

BASIC FINANCIAL STATEMENTS

COMBINING BASIC STATEMENT OF FIDUCIARY NET POSITION

March 31, 2020

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Assets:			
Investments (notes 2(b), 4, 5, 8, and 11):			
Domestic equity	\$ 53,060,278	\$ 9,487,990	\$ 62,548,268
Global fixed income	38,521,993	6,888,322	45,410,315
International equity	26,020,729	4,652,905	30,673,634
Private equity	17,232,705	3,081,472	20,314,177
Real estate	13,313,079	2,380,582	15,693,661
Absolute return strategy investments	5,797,819	1,036,739	6,834,558
Short-term investments	4,833,403	864,287	5,697,690
Real assets	2,617,613	468,069	3,085,682
Opportunistic funds	2,585,082	462,252	3,047,334
Mortgage loans	858,357	153,487	1,011,844
Total investments	164,841,058	29,476,105	194,317,163
Securities lending collateral — invested (notes 7 and 8)	5,823,749	1,041,376	6,865,125
Forward foreign exchange contracts (notes 6 and 8)	3,659	654	4,313
Receivables:			
Employers' contributions	1,941,827	342,676	2,284,503
Members' contributions	4,606	426	5,032
Member loans	1,015,318	6,029	1,021,347
Investment income	305,559	54,639	360,198
Investment sales	224,059	40,065	264,124
Other	152,664	86,177	238,841
Total receivables	3,644,033	530,012	4,174,045
Capital assets, at cost, net of accumulated depreciation	386,323	69,081	455,404
Total assets	174,698,822	31,117,228	205,816,050
Liabilities:			
Securities lending obligations (notes 7 and 8)	5,836,665	1,043,685	6,880,350
Forward foreign exchange contracts (notes 6 and 8)	3,670	656	4,326
Accounts payable — investments	252,761	45,198	297,959
Benefits payable	102,088	6,073	108,161
Other liabilities (note 2(f))	387,956	57,536	445,492
Total liabilities	6,583,140	1,153,148	7,736,288
Net position, restricted for pension benefits	\$ 168,115,682	\$ 29,964,080	\$ 198,079,762

See accompanying notes to basic financial statements.

BASIC FINANCIAL STATEMENTS

CONTINUED

COMBINING BASIC STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

Year Ended March 31, 2020

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Additions:			
Income from investing activities:			
Interest income	\$ 1,121,799	\$ 199,435	\$ 1,321,234
Dividend income	1,523,205	270,797	1,794,002
Other income	832,080	147,928	980,008
Less investment expenses	(666,722)	(118,531)	(785,253)
Net depreciation in fair value of investments	(10,303,481)	(1,831,872)	(12,135,353)
Total income from investing activities	(7,493,119)	(1,332,243)	(8,825,362)
Income from securities lending activities:			
Securities lending income	118,187	21,012	139,199
Securities lending rebates	(93,288)	(16,585)	(109,873)
Less securities lending management fees	(2,322)	(413)	(2,735)
Total income from securities lending activities	22,577	4,014	26,591
Total net investment loss	(7,470,542)	(1,328,229)	(8,798,771)
Contributions:			
Employers	3,920,360	862,346	4,782,706
Members	395,338	58,360	453,698
Interest on accounts receivable	74,737	11,902	86,639
Other, net	64,122	(3,999)	60,123
Total contributions	4,454,557	928,609	5,383,166
Total additions	(3,015,985)	(399,620)	(3,415,605)
Deductions:			
Benefits paid:			
Retirement benefits	11,053,512	2,033,131	13,086,643
Death benefits	154,249	5,261	159,510
Other, net	64,699	284	64,983
Total benefits paid	11,272,460	2,038,676	13,311,136
Administrative expenses	121,694	17,356	139,050
OPEB expense	192,303	31,305	223,608
Total deductions	11,586,457	2,087,337	13,673,794
Net decrease	(14,602,442)	(2,486,957)	(17,089,399)
Net position, restricted for pension benefits — beginning of year	182,718,124	32,451,037	215,169,161
Net position, restricted for pension benefits — end of year	\$ 168,115,682	\$ 29,964,080	\$ 198,079,762

See accompanying notes to basic financial statements.

NOTES TO BASIC FINANCIAL STATEMENTS

March 31, 2020

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 2018, he was elected for a new term commencing January 1, 2019.

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

System benefits are established under the provisions of the New York State Retirement and Social Security Law (RSSL). Once a public employer elects to participate in the System, the election is irrevocable. The New York State Constitution provides that pension membership is a contractual relationship and plan benefits cannot be diminished or impaired. Benefits can be changed for future members only by enactment of a State statute. Generally, members of the System are employees, other than teachers, 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 of New York'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, 2020, 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	915	206
Villages	479	347
Other	754	38
School districts	692	-
Total	2,959	657

BASIC FINANCIAL STATEMENTS

As of March 31, 2020, the System membership for ERS and PFRS consisted of the following:

	ERS	PFRS
Retirees and beneficiaries currently receiving benefits	449,806	37,601
Active members	497,659	32,888
Inactive members*	140,087	2,702
Total members and benefit recipients	1,087,552	73,191
* Includes vested members not currently receiving benefits and nonvested members.		

(a) Membership Tiers

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

ERS

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

PFRS

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

(b) Vesting

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

(c) Employer Contributions

Participating employers are required under the RSSL to contribute to the System at an actuarially determined rate adopted annually by the Comptroller. The average contribution rate for ERS for the fiscal year ended March 31, 2020 was approximately 14.6 percent of covered employee payroll. The average contribution rate for PFRS for the fiscal year ended March 31, 2020 was approximately 23.5 percent of covered employee 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, 2020, the applicable interest rate was 7.0 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.

BASIC FINANCIAL STATEMENTS

CONTINUED
Notes to Basic Financial Statements

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 who joined prior to January 1, 2018 are entitled to participate in a loan program that allows them to borrow up to 75 percent of their member contributions or \$50,000, whichever is less. Members who joined on or after January 1, 2018, may borrow up to 50 percent of their contribution balance or \$50,000, whichever is less. 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, 2020 was 6.0 percent.

(d) Capital Assets

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

During the fiscal year ended March 31, 2014, the System began capitalizing outlays associated with the redesign of its pension administration system. As of March 31, 2020, capitalized outlays for the project total \$409.1 million. This project is currently ongoing and is expected to be completed in the period ending December 31, 2021, at which time depreciation of the capitalized costs will begin.

BASIC FINANCIAL STATEMENTS

CONTINUED
Notes to Basic Financial Statements

(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 \$23.6 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.

The following represents the amortized receivable balance from the State and Local participating employers as of March 31, 2020, including the statutory amortization threshold and interest rate, for each respective fiscal year:

CHAPTER 57, LAWS OF 2010

Year	(Percentage of Payroll)		Interest	(Dollars in Millions)	
	ERS	PFRS		State	Local
2011	9.5%	17.5%	5.00%	\$ —	\$ 3.7
2012	10.5	18.5	3.75	121.7	36.6
2013	11.5	19.5	3.00	254.8	102.5
2014	12.5	20.5	3.67	416.9	77.3
2015	13.5	21.5	3.15	385.2	71.3
2016	14.5	22.5	3.21	227.6	41.1
2017	15.1	23.5	2.33	—	4.4
2018	14.9	24.3	2.84	—	3.6
2019	14.4	23.5	3.64	—	3.9
2020	14.2	23.5	2.55	—	—
				\$ 1,406.2	\$ 344.4

BASIC FINANCIAL STATEMENTS

CONTINUED
Notes to Basic Financial Statements

- 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.

The following represents the amortized receivable balance from Local participating employers as of March 31, 2020, including the statutory amortization threshold and interest rate, for each respective fiscal year:

CHAPTER 57, LAWS OF 2013

Year	(Percentage of Payroll)			(Dollars in Millions)	
	ERS	PFRS	Interest	Local	
2014	12.0%	20.0%	3.76%	\$	124.6
2015	12.0	20.0	3.50		120.3
2016	12.5	20.5	3.31		95.1
2017	13.0	21.0	2.63		72.3
2018	13.5	21.5	3.31		64.4
2019	14.0	22.0	3.99		23.6
2020	14.2	22.5	2.87		33.6
				\$	533.9

(f) Postemployment Benefits Other than Pensions

Employees of the System participate in a Postemployment Benefits Other than Pensions (OPEB) Plan administered by the State. The State administers the OPEB plan on a pay-as-you-go basis. Substantially all of the System's employees may become eligible for postemployment benefits if they reach retirement age while working for the System. The costs of providing the postemployment benefits, which primarily consists of health insurance coverage, are shared between the System and the retired employee.

The System's total OPEB liability was measured as of March 31, 2019 and was determined by an actuarial valuation as of April 1, 2018 rolled forward to March 31, 2019. The total OPEB liability and related OPEB amounts were allocated to the System based on the percentage of the System's full-time equivalents to the total full-time equivalents of the State. The OPEB amounts allocated to the System include the total OPEB liability (\$233.4 million), deferred outflows of resources (\$27.2 million), deferred inflows of resources (\$20.7 million) and OPEB expense (\$11.2 million). OPEB expense is recorded as part of administrative expenses on the combining statement of changes in fiduciary net position. Due to immateriality of the OPEB amounts to the System as a whole, the total OPEB liability, deferred outflows of resources and deferred inflows of resources are netted and included in other liabilities on the combining statement of fiduciary net position. Additionally, due to immateriality, the System has not presented all disclosures and required supplementary information prescribed by GASB Statement No. 75. For the fiscal year ended March 31, 2020, the System paid \$7.6 million in benefit payments.

(g) Use of Estimates

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

BASIC FINANCIAL STATEMENTS

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, 2020, 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, 2020, the System reserves for ERS and PFRS consisted of the following:

	(Dollars in Thousands)	
	ERS	PFRS
Annuity savings	\$ 2,903	\$ 64,166
Annuity reserve	57,432	17,692
Pension accumulation	53,095,330	8,517,551
Pension reserve	106,525,109	21,165,497
Designated annuitant	48,563	20,801
Loan insurance	2,099	107
Group Life Insurance Plan reserve	111,361	3,732
COESC contributions	8,272,885	174,534
Total	\$ 168,115,682	\$ 29,964,080

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 “prudence” 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. The Comptroller appoints a Chief Investment Officer to oversee the Division of Pension Investment and Cash Management (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, Article 4-A 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 exclusive benefit and prudence standards 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 made pursuant to section 177(9) of the RSSL are so-called “basket clause” investments.

(b) Asset Allocation

The following was the adopted asset allocation policy as of March 31, 2020:

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 funds	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 \$2.61 billion. For investment management purposes, these funds are included in domestic equity and international equity.

(c) Methods Used to Value Investments

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

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

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

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

Real estate partnerships, global fixed income funds, commingled international equity funds and various alternative investments (private equity, absolute return strategies, opportunistic funds, and real assets) are reported at net asset values as provided by the general partners or investment managers.

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 (2.64) percent for the year ended March 31, 2020. For internal purposes, the System evaluates investment performance using the time-weighted rate of return, gross of certain investment fees, which was (2.68) percent for the year ended March 31, 2020.

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.

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.

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(c) Interest Rate Risk

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

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

As of March 31, 2020, the duration of the fixed income portfolio is as follows (dollars in thousands):

Category	Fair Value	Percentage of Portfolio	Effective Duration (In Years)
Bonds:			
Core Portfolio:			
Treasury	\$ 10,693,700	23.6%	9.17
Federal agency	485,405	1.1	1.30
Corporate	11,479,871	25.3	7.15
Asset-backed	1,170,498	2.6	3.26
Commercial mortgage-backed	1,679,607	3.7	3.88
Mortgage-backed	6,960,556	15.3	2.45
Collateralized loan obligations	2,446,275	5.4	0.03
Municipal bonds	327,508	0.7	14.74
Core Portfolio	35,243,420	77.7	5.95
Treasury Inflation-Protected Securities (TIPS)	4,627,223	10.2	5.38
Externally managed funds:			
Advent Capital	369,563	0.8	3.27
BlackRock	2,210,530	4.9	2.36
Calvert Research and Management	238,520	0.5	5.40
DoubleLine Capital	321,041	0.7	16.98
Neuberger Berman	1,595,010	3.5	4.10
New Century Advisors	279,107	0.6	8.22
Semper Capital	276,492	0.6	2.53
Teachers Advisors (Nuveen)	249,409	0.5	6.33
Total Bonds	\$ 45,410,315	100.0%	
Mortgages:			
Berkadia	518,798	51.3	3.92
CPC	493,046	48.7	7.19
Total Mortgages	\$ 1,011,844	100.0%	
Total	\$ 46,422,159		

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(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, 2020, 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
Bonds:		
AAA	\$ 26,697,914	58.79%
AA	2,661,600	5.86
A	5,436,033	11.97
BBB	6,077,343	13.38
BB	189,974	0.42
B	9,497	0.02
CCC	9,829	0.02
CC	1,880	0.01
C	19,367	0.04
D	932	0.01
Not Rated	223,914	0.49
Externally managed funds of one:*		
BlackRock	2,210,530	4.87
Neuberger Berman	1,595,010	3.51
Semper Capital	276,492	0.61
Total Bonds	\$ 45,410,315	100.0%
Mortgages:		
Not Rated	\$ 1,011,844	100.0%
Total	\$ 46,422,159	
* These externally managed funds are considered investments under the "basket clause," subject to the standards of prudence. All or a part of the holdings can be non-investment grade. While these funds are not rated, the underlying securities credit ratings range from AAA to D & Not Rated.		

(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, 2020, the System did not hold any investments in any one issuer that totaled 5 percent or more of the pension plan's fiduciary net position. Investments issued or explicitly guaranteed by the U.S. government and pooled investments are excluded.

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

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

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

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

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

Fixed income investments purchased pursuant to section 177(9) of the RSSL are subject to standards of prudence and the exclusion benefit rules. 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, 2020 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	\$ —	\$ —	\$ —	\$ 12	\$ 9	\$ 21
Angolan Kwanza	—	—	—	—	2,537	2,537
Argentine Peso	—	—	1	24	11,698	11,723
Australian Dollar	—	278,082	4,548	83,339	253,498	619,467
Bahamian Dollar	—	—	—	83	4,510	4,593
Barbadian Dollar	—	—	—	—	20	20
Bermudian Dollar	—	—	—	—	105,466	105,466
Botswana Pula	—	—	—	—	6,828	6,828
Brazilian Real	—	154,507	213	51,312	526,835	732,867
British Pound	8,493	1,854,532	7,852	382,686	1,666,948	3,920,511
Bulgarian Lev	—	—	—	107	9,945	10,052
Burmese Kyat	—	—	—	—	10,644	10,644
Cambodian Riel	—	—	—	—	12,158	12,158
Canadian Dollar	—	309,194	1,491	129,208	657,500	1,097,393
Cayman Islands Dollar	—	—	—	—	1,542,647	1,542,647
Central African CFA Franc	—	—	—	—	181	181
Chilean Peso	—	13,455	19	—	5,381	18,855
Chinese Yuan Renminbi	512	170,858	250	73,309	1,094,282	1,339,211
Colombian Peso	3,605	5,050	—	—	39,079	47,734
Costa Rican Colon	—	—	—	—	260	260
Croatian Kuna	—	—	—	12	—	12
Czech Koruna	—	18	—	—	5,481	5,499
Danish Krone	—	302,218	1,537	80,177	130,858	514,790
Egyptian Pound	3,042	1,074	14	—	25,805	29,935
Euro	93,897	3,455,883	3	1,433,353	3,808,345	8,791,481
Georgian Lari	—	—	—	—	472	472
Ghanaian Cedi	—	—	—	—	15,198	15,198
Hong Kong Dollar	1,617	1,317,628	161	61,737	182,308	1,563,451
Hungarian Forint	—	25,795	—	—	13,074	38,869
Indian Rupee	—	257,264	4,645	185,853	530,529	978,291
Indonesian Rupiah	7,332	33,449	303	—	93,222	134,306
Israeli Shekel	—	45,537	285	—	212,412	258,234
Japanese Yen	1,093	2,369,687	3,750	29,426	234,086	2,638,042
Kazakhstani Tenge	—	—	—	—	17	17
Kenyan Shilling	—	—	—	—	19,859	19,859
Lebanese Pou	—	—	—	—	586	586
Macanese Pataca	—	—	—	—	4	4
Malaysian Ringgit	—	49,389	61	—	53,834	103,284
Maldivian Rufiyaa	—	—	—	5,573	7,293	12,866
Mauritian Rupee	—	—	—	59	60,084	60,143
Mexican Peso	7,002	61,104	272	8,382	158,145	234,905
Mongolian Togrog	—	—	—	—	(5)	(5)

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	Fixed Income	Equity	Cash	Real Estate	Private Equity, Opportunistic, Absolute Return Strategy and Real Asset Funds	Total
Moroccan Dirham	\$ —	\$ —	\$ —	\$ —	\$ 8,878	\$ 8,878
Mozambique Metical	—	—	—	—	1,363	1,363
New Taiwan Dollar	—	367,857	133	107	7,781	375,878
New Zealand Dollar	—	6,409	50	—	52,669	59,128
Nigerian Naira	—	—	—	—	63,590	63,590
Norwegian Krone	—	65,432	85	168	48,129	113,814
Pakistani Rupee	—	1,787	—	—	—	1,787
Panamanian Balboa	—	—	—	—	(62)	(62)
Peruvian Sol	1,447	—	1	—	36,361	37,809
Philippine Peso	—	11,573	5	—	21,239	32,817
Polish Zloty	—	13,170	2	57,889	116,647	187,708
Qatari Riyal	—	4,048	—	—	—	4,048
Romanian Leu	—	—	—	50	7,445	7,495
Russian Ruble	10,082	—	—	2,739	82,222	95,043
Saudi Riyal	—	—	—	—	(387)	(387)
Serbian Dinar	—	—	—	12	409	421
Singapore Dollar	—	113,011	2,354	83,184	126,691	325,240
South African Rand	—	75,359	616	—	47,276	123,251
South Korean Won	—	491,458	281	19,883	120,534	632,156
Sri Lankan Rupee	—	—	—	—	3,651	3,651
Swedish Krona	—	318,503	2,543	17,411	586,837	925,294
Swiss Franc	—	992,264	1,557	17	290,863	1,284,701
Tanzanian Shilling	—	—	—	—	3,951	3,951
Thai Baht	—	41,048	—	—	27,429	68,477
Turkish Lira	—	43,587	118	—	33,248	76,953
Ugandan Shilling	—	—	—	—	3,535	3,535
Ukrainian Hryvnia	—	—	—	3,037	10,773	13,810
United Arab Emirates Dirham	—	3,381	—	81	45,483	48,945
Uruguayan Peso	—	—	—	—	4	4
Venezuelan Bolivar	—	—	—	—	3,516	3,516
Vietnamese Dong	—	—	—	—	31,582	31,582
West African CFA Franc	—	—	—	—	6,417	6,417
Zambian Kwacha	—	—	—	—	69	69
Other	—	—	—	1,745	58	1,803
Total subject to foreign currency risk	138,122	13,253,611	33,150	2,710,975	13,290,234	29,426,092
Commingled international equity in U.S. Dollars	—	13,574,806	—	—	—	13,574,806
Foreign investments in U.S. Dollars	1,173,653	3,845,217	—	5,952	4,862,585	9,887,407
Total foreign investments	\$ 1,311,775	\$ 30,673,634	\$ 33,150	\$ 2,716,927	\$ 18,152,819	\$ 52,888,305

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6. DERIVATIVES

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

Forward Currency Contracts

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

The table below summarizes the fair value of foreign currency contracts as of March 31, 2020 (dollars in thousands):

Currency	Forward Currency Contracts	Spot Currency Contracts	Totals
Australian Dollar	\$ —	\$ (465)	\$ (465)
Brazilian Real	—	(321)	(321)
British Pound	(4,326)	(11,138)	(15,464)
Canadian Dollar	—	(19)	(19)
Danish Krone	—	(781)	(781)
Euro	—	(17,734)	(17,734)
Hong Kong Dollar	—	4,750	4,750
Japanese Yen	—	(2,026)	(2,026)
Malaysian Ringgit	—	130	130
Mexican Peso	—	(161)	(161)
New Zealand Dollar	—	870	870
Singapore Dollar	—	(814)	(814)
South Korean Won	—	258	258
Swiss Franc	—	(475)	(475)
U.S. Dollar	4,313	28,026	32,339
Total	\$ (13)	\$ 100	\$ 87

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 two providers to manage a securities lending program. These programs are subject to written contracts between the Fund and the Contractor 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 securities lending providers are 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, 2020, 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, 2020.

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. Each Contractor acknowledges responsibility to reimburse the Fund for losses that might arise from managing the program in a manner inconsistent with the contract. The Fund manages its market risk by recording investments at market value daily and maintaining the value of the collateral held by the Fund in excess of the value of the securities loaned. As of March 31, 2020, the fair value of securities on loan was \$8.85 billion. The associated collateral was \$9.13 billion, of which \$6.88 billion was cash collateral and \$2.25 billion was securities. The cash collateral has been reinvested in other instruments, which had a fair value of \$6.87 billion as of March 31, 2020. The securities lending obligations were \$6.88 billion. The unrealized loss in invested cash collateral on March 31, 2020 was \$15.23 million, which is reported in the combining basic statement of changes in fiduciary net position as part of "Net depreciation 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, 2020 was 14 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 or published in active markets for identical assets.

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

Level 3 – Investment fair values based on unobservable inputs.

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

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

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The table below summarizes assets and liabilities carried at fair value based on levels from the fair value hierarchy as of March 31, 2020, 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	\$ 5,216,070	\$ —	\$ 5,216,070	\$ —
Global fixed income securities	41,318,283	57,924	41,260,359	—
Total fixed income securities	46,534,353	57,924	46,476,429	—
Equity securities:				
Domestic equities	62,548,268	62,548,268	—	—
International equities	27,749,824	27,748,394	—	1,430
Total equity securities	90,298,092	90,296,662	—	1,430
Mortgages	1,011,884	—	—	1,011,844
Private equity	399,449	—	—	399,449
Opportunistic	120,758	—	—	120,758
Real estate	976,135	—	—	976,135
Securities lending collateral	4,603,713	—	4,603,713	—
Forward foreign exchange contracts	4,313	—	4,313	—
Total investment assets by fair value level	\$ 143,948,657	\$ 90,354,586	\$ 51,084,455	\$ 2,509,616
Investments measured at cost:				
Global fixed income securities	\$ 10,000			
Securities lending collateral	\$ 2,261,412			
Total investments measured at cost	\$ 2,271,412			
Investments measured at Net Asset Value (NAV):				
Global fixed income funds ¹	\$ 4,082,032			
Commingled international equity funds ²	2,923,810			
Alternative investments:³				
Private equity	19,914,728			
Absolute return strategy investments	6,834,558			
Opportunistic funds	2,926,576			
Real assets	3,085,682			
Real estate	14,717,526			
Total alternative investments	47,479,070			
Total investments measured at NAV	\$ 54,484,912			
Investment related cash and cash equivalents not included in above	481,620			
Total investment assets	\$ 201,186,601			
Liabilities:				
Investments by fair value level:				
Forward foreign exchange contracts	(4,326)	—	(4,326)	—
Total investment liabilities by fair value level	\$ (4,326)	\$ —	\$ (4,326)	\$ —

BASIC FINANCIAL STATEMENTS

CONTINUED
Notes to Basic Financial Statements

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

Investments measured at NAV	Amount	Unfunded Commitments	Redemption Frequency	Redemption Notice Period
Global fixed income funds ¹	\$ 4,082,032	\$ —	Daily	0-30 days
Commingled international equity funds ²	2,923,810	—	Daily, Weekly, Monthly,	2-120 days
Alternative investments: ³				
Private equity	19,914,728	16,991,010	N/A	N/A
Absolute return strategy investments	6,834,558	6,624	Monthly, Quarterly, Annually, Semi-annually	5-120 days
Opportunistic	2,926,576	3,063,638	N/A, Monthly, Quarterly	N/A, 30-540 days
Real assets	3,085,682	2,910,766	N/A	N/A
Real estate	14,717,526	5,830,364	N/A	N/A
Total investments measured at NAV	\$ 54,484,912	\$ 28,802,402		

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

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

³Alternative investments include private equity, absolute return strategy investments, opportunistic funds, real assets and real estate through various fund structures. Private equity (10.1 percent* at March 31, 2020) consists of buyout, co-investments, distressed debt and turnaround funds, fund of funds, growth equity, special situations, and venture capital. Absolute return strategy investments (3.4 percent* at March 31, 2020) consist of investments in strategies including hedged equity, credit, global macro, managed futures, distressed debt, emerging markets, and long-only equity strategies. Opportunistic (1.5 percent* at March 31, 2020) consists of investments in both public and private companies, property, and real assets. Real assets (1.5 percent* at March 31, 2020) consist of commodities, farmland, inflation-linked bonds, infrastructure, and renewables. Real estate (7.8 percent* at March 31, 2020) consists of investments in closed-end, open-end, and fund of funds. The fair values of the alternative investments have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partner's capital. NAV is used as a practical expedient to estimate fair value. Private equity, opportunistic, real assets, and real estate are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over a span of 5-10 years.

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

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

BASIC FINANCIAL STATEMENTS

CONTINUED
Notes to Basic Financial Statements

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, 2020, were as follows:

	(Dollars in Thousands)		
	Employees' Retirement System	Police and Fire Retirement System	Total
Employers' total pension liability	\$ 194,596,261	\$ 35,309,017	\$ 229,905,278
Fiduciary net position	168,115,682	29,964,080	198,079,762
Employers' net pension liability	\$ 26,480,579	\$ 5,344,937	\$ 31,825,516
Ratio of fiduciary net position to the employers' total pension liability	86.39%	84.86%	86.16%

(a) Actuarial Assumptions

The total pension liability at March 31, 2020 was determined by using an actuarial valuation as of April 1, 2019, with update procedures used to roll forward the total pension liability to March 31, 2020. The actuarial valuation used the following actuarial assumptions:

	ERS	PFRS
Inflation	2.5%	2.5%
Salary increases	4.2	5.0
Investment rate of return (net of investment expense, including inflation)	6.8	6.8
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-2018. The previous actuarial valuation as of April 1, 2018 used the Society of Actuaries' Scale MP-2014.

The actuarial assumptions used in the April 1, 2019 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. The previous actuarial valuation as of April 1, 2018 used a long-term expected rate of return of 7.0 percent.

BASIC FINANCIAL STATEMENTS

CONTINUED
Notes to Basic Financial Statements

Best estimates of arithmetic real rates of return for each major asset class included in the target asset allocation as of March 31, 2020 (see Investment policy – note 4(a)) are summarized below:

Asset Class	Long-Term Expected Real Rate of Return
Domestic equity	4.05%
International equity	6.15
Private equity	6.75
Real estate	4.95
Absolute return strategies*	3.25
Opportunistic portfolio	4.65
Real assets	5.95
Bonds and mortgages	0.75
Cash	0.00
Inflation-indexed bonds	0.50

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

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

(b) Discount Rate

The discount rate used to calculate the total pension liability was 6.8 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 6.8 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 (5.8 percent) or one percentage-point higher (7.8 percent) than the current assumption (dollars in thousands):

	One Percent Decrease (5.8%)	Current Assumption (6.8%)	One Percent Increase (7.8%)
ERS net pension liability (asset)	\$ 48,599,337	\$ 26,480,579	\$ 6,109,105
PFRS net pension liability (asset)	\$ 9,556,856	\$ 5,344,937	\$ 1,573,067

BASIC FINANCIAL STATEMENTS

CONTINUED
Notes to Basic Financial Statements

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, 2020, the System had contractual commitments totaling \$17.86 billion to fund future private equity investments, \$5.84 billion to fund future real estate investments, \$3.73 billion to fund future investments in opportunistic funds, \$3.41 billion to fund future real asset investments and \$6.62 million to fund future absolute return strategy investments. When compared to note 8 the variances that exist 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)

	2020 Employees' Retirement System	2019 Employees' Retirement System	2018 Employees' Retirement System	2017 Employees' Retirement System	2016 Employees' Retirement System	2015 Employees' Retirement System
Total pension liability:						
Service cost	\$ 3,365,522	\$ 3,218,553	\$ 3,004,697	\$ 2,951,979	\$ 2,916,374	\$ 2,989,807
Interest	12,529,672	12,463,933	12,063,525	11,723,859	11,198,823	11,581,437
Difference between expected and actual experience	745,602	704,393	1,235,058	226,737	(2,378,116)	135,177
Changes in assumptions	(575,504)	888,656	—	—	5,350,157	—
Benefit payments	(11,207,761)	(10,781,781)	(10,200,205)	(9,740,272)	(9,224,904)	(8,829,751)
Other, net	(64,699)	(90,915)	(103,071)	(65,261)	(150,294)	(77,388)
Net change in total pension liability	4,792,832	6,402,839	6,000,004	5,097,042	7,712,040	5,799,282
Total pension liability — beginning	189,803,429	183,400,590	177,400,586	172,303,544	164,591,504	158,792,222
Total pension liability — ending (a)	194,596,261	189,803,429	183,400,590	177,400,586	172,303,544	164,591,504
Fiduciary net position:						
Contributions — employer	3,920,360	3,890,215	3,949,873	3,949,710	4,347,619	4,893,110
Contributions — member	395,338	345,846	318,439	306,218	289,332	272,004
Net investment income (loss)	(7,470,542)	9,140,487	18,128,993	17,194,267	(327,068)	10,582,102
Benefit payments	(11,207,761)	(10,781,781)	(10,200,205)	(9,740,272)	(9,224,904)	(8,829,751)
Refunds of contributions	(64,699)	(90,915)	(103,071)	(65,261)	(150,294)	(77,388)
Administrative expense	(121,694)	(119,304)	(106,972)	(93,943)	(93,012)	(93,357)
Other additions	(53,444)	160,431	181,725	200,379	198,333	193,176
Net change in fiduciary net position	(14,602,442)	2,544,979	12,168,782	11,751,098	(4,959,994)	6,939,896
Fiduciary net position — beginning	182,718,124	180,173,145	168,004,363	156,253,265	161,213,259	154,273,363
Fiduciary net position — ending (b)	168,115,682	182,718,124	180,173,145	168,004,363	156,253,265	161,213,259
Net pension liability — ending (a) – (b)	\$ 26,480,579	\$ 7,085,305	\$ 3,227,445	\$ 9,396,223	\$ 16,050,279	\$ 3,378,245
Ratio of fiduciary net position to total pension liability	86.39%	96.27%	98.24%	94.70%	90.68%	97.95%
Covered- employee payroll	\$ 28,169,321	\$ 27,374,387	\$ 26,686,412	\$ 26,200,001	\$ 25,644,078	\$ 24,480,045
Net pension liability as a percentage of covered-employee payroll	94.01%	25.88%	12.09%	35.86%	62.59%	13.80%

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

CONTINUED

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

(Dollars in Thousands)

	2020 Police and Fire Retirement System	2019 Police and Fire Retirement System	2018 Police and Fire Retirement System	2017 Police and Fire Retirement System	2016 Police and Fire Retirement System	2015 Police and Fire Retirement System
Total pension liability:						
Service cost	\$ 743,762	\$ 713,480	\$ 674,079	\$ 657,407	\$ 628,863	\$ 625,648
Interest	2,252,536	2,236,527	2,154,117	2,065,752	1,935,222	1,997,215
Difference between expected and actual experience	76,209	106,384	241,387	302,375	(537,163)	39,833
Changes in assumptions	147,086	118,521	—	—	1,531,662	—
Benefit payments	(2,038,392)	(1,959,831)	(1,827,136)	(1,708,410)	(1,683,580)	(1,606,417)
Other, net	(284)	(1,404)	1,493	5,632	(1,694)	(158)
Net change in total pension liability	1,180,917	1,213,677	1,243,940	1,322,756	1,873,310	1,056,121
Total pension liability — beginning	34,128,100	32,914,423	31,670,483	30,347,727	28,474,417	27,418,296
Total pension liability — ending (a)	35,309,017	34,128,100	32,914,423	31,670,483	30,347,727	28,474,417
Fiduciary net position:						
Contributions — employer	862,346	854,094	873,434	837,253	792,585	904,339
Contributions — member	58,360	40,673	30,950	22,609	17,297	12,789
Net investment income (loss)	(1,328,229)	1,621,289	3,209,040	3,030,977	(57,765)	1,862,789
Benefit payments	(2,038,392)	(1,959,831)	(1,827,136)	(1,708,410)	(1,683,580)	(1,606,417)
Refunds of contributions	(284)	(1,404)	1,493	5,631	(1,694)	(158)
Administrative expense	(17,356)	(17,173)	(15,834)	(13,191)	(13,608)	(13,794)
Other additions/deductions	(23,402)	9,723	33,889	36,021	134,548	37,623
Net change in fiduciary net position	(2,486,957)	547,371	2,305,836	2,210,890	(812,217)	1,197,171
Fiduciary net position — beginning	32,451,037	31,903,666	29,597,830	27,386,940	28,199,157	27,001,986
Fiduciary net position — ending (b)	29,964,080	32,451,037	31,903,666	29,597,830	27,386,940	28,199,157
Net pension liability — ending (a) – (b)	\$ 5,344,937	\$ 1,677,063	\$ 1,010,757	\$ 2,072,653	\$ 2,960,787	\$ 275,260
Ratio of fiduciary net position to total pension liability	84.86%	95.09%	96.93%	93.46%	90.24%	99.03%
Covered- employee payroll	\$ 4,024,660	\$ 3,730,337	\$ 3,683,960	\$ 3,633,237	\$ 3,526,980	\$ 3,257,100
Net pension liability as a percentage of covered-employee payroll	132.80%	44.96%	27.44%	57.05%	83.95%	8.45%

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

CONTINUED

SCHEDULE OF EMPLOYER CONTRIBUTIONS (UNAUDITED)

(Dollars in Millions)

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
ERS										
Actuarially determined contribution (1)	\$ 3,920	\$ 3,890	\$ 3,950	\$ 3,950	\$ 4,348	\$ 4,893	\$ 5,138	\$ 4,524	\$ 3,879	\$ 3,623
Contributions in relation to the actuarially determined contribution (2)	3,920	3,890	3,950	3,950	4,348	4,893	5,138	4,524	3,879	3,623
Contribution deficiency (excess)	–	–	–	–	–	–	–	–	–	–
Covered-employee payroll	28,169	27,374	26,686	26,200	25,644	24,480	24,361	24,405	24,291	24,389
Contributions as a percentage of covered-employee payroll	13.92%	14.21%	14.80%	15.08%	16.96%	19.99%	21.09%	18.54%	15.97%	14.86%
PFRS										
Actuarially determined contribution (1)	\$ 862	\$ 854	\$ 873	\$ 837	\$ 793	\$ 904	\$ 926	\$ 812	\$ 706	\$ 542
Contributions in relation to the actuarially determined contribution (2)	862	854	873	837	793	904	926	812	706	542
Contribution deficiency (excess)	–	–	–	–	–	–	–	–	–	–
Covered-employee payroll	4,025	3,730	3,684	3,633	3,527	3,257	3,233	3,163	3,191	3,146
Contributions as a percentage of covered-employee payroll	21.42%	22.90%	23.70%	23.04%	22.48%	27.76%	28.64%	25.67%	22.12%	17.23%
(1) The actuarially determined contribution includes normal costs, the GLIP amounts, adjustments made to record the reconciliation of projected salary to actual salary and miscellaneous accounting adjustments.										
(2) The contributions in relation to the actuarially determined contribution reflects actual payments and installment payment plans.										

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

SCHEDULE OF INVESTMENT RETURNS (UNAUDITED)

	2020	2019	2018	2017	2016	2015
Annual money-weighted rate of return, net of investment expenses*	(2.64)%	5.14%	11.29%	11.40%	0.03%	6.98%
* Investment expenses include management fees, investment and accounting staff salaries and benefits, and other investment-related expenses.						

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

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

CONTINUED

NOTES TO REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

Year Ended March 31, 2020

Changes in Benefit Terms

There were no significant legislative changes in benefits for the April 1, 2019 actuarial valuation.

Changes of Assumptions

2016: 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.

2019: The salary scales for both plans used in the April 1, 2018 actuarial valuation were increased by 10%.

2020: The interest rate assumption was reduced to 6.8% and the mortality improvement assumption was updated to Society of Actuaries' Scale MP-2018 for the April 1, 2019 actuarial valuation.

Methods and Assumptions Used in Calculations of Actuarially Determined Contributions

The April 1, 2018 actuarial valuation determines the employer rates for contributions payable in fiscal year 2020. 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
Active member decrements	Based upon FY 2011-2015 experience
Pensioner mortality	Gender/Collar specific tables based upon FY 2011-2015 experience
Mortality improvement	Society of Actuaries' Scale MP-2014

OTHER SUPPLEMENTARY INFORMATION (UNAUDITED)

SCHEDULE OF ADMINISTRATIVE EXPENSES (UNAUDITED)

Year Ended March 31, 2020

(Dollars in Thousands)

Personal services:	
Salaries	\$ 59,842
Overtime salaries	2,241
Fringe benefits	45,904
Total personal services	107,987
Building occupancy expenses:	
Building, lease, and condominium fees	4,060
Utilities and municipal assessments	115
Office supplies and services	222
Telephone	784
Total building occupancy expenses	5,181
Computer expenses:	
IT shared services*	18,132
Total computer expenses	18,132
Personal and operating expenses:	
Training	87
Travel and auto expenses — includes pre-retirement seminars	1,060
Postage — includes member and retiree communication	2,355
Depreciation expense — Imaging System	1,832
Printing — includes member and retiree communication	114
Subscriptions/memberships	137
Total personal and operating expenses	5,585
Professional expenses:	
Audit services	96
Medical/clinical services	1,100
Miscellaneous consulting services	969
Total professional expenses	2,165
Total	\$ 139,050
* The System has implemented a shared service, information technology (IT) model within the New York State Office of the State Comptroller, wherein all IT costs, including personal services, will be incorporated into the IT shared services and reflected as nonpersonal service expenditures.	

See accompanying independent auditors' report.

OTHER SUPPLEMENTARY INFORMATION (UNAUDITED)

CONTINUED

SCHEDULE OF INVESTMENT EXPENSES (UNAUDITED)

Year Ended March 31, 2020

(Dollars in Thousands)

Investment expenses:	
Investment management and incentive fees:	
Private equity	\$ 213,226
International equity	152,436
Absolute return strategy funds (ARS)*	131,729
Real estate	86,819
Opportunistic funds	53,143
Domestic equity	50,004
Real assets	44,546
Fixed income	<u>20,921</u>
Total investment management and incentive fees	752,824
Investment-related expenses:	
Data processing expenses/licenses	6,721
Custodial fees	6,127
Mortgage loan servicing fees	3,466
Legal fees	3,442
Compliance/Risk monitoring	2,476
Private equity consulting and monitoring	2,284
General consulting	1,436
ARS/Opportunistic consulting and monitoring	1,331
Miscellaneous expenses	1,330
Administrative expenses	1,107
Research services	821
Real assets consulting and monitoring	513
Real estate consulting and monitoring	408
Global equity consulting	365
Fixed income consulting	255
Audit and audit-related fees	171
Emerging manager program consulting and monitoring	99
Domestic equity consulting and monitoring	<u>77</u>
Total investment-related expenses	32,429
Total investment expenses	\$ 785,253
<p>* 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.</p>	

See accompanying independent auditors' report.

OTHER SUPPLEMENTARY INFORMATION (UNAUDITED)

CONTINUED

SCHEDULE OF CONSULTING FEES (UNAUDITED)

Year Ended March 31, 2020

Fees in excess of \$50,000 paid to outside professionals other than investment advisors.

	Amount	Nature
Morgan Lewis & Bockius LLP	\$ 833,902	Legal Services
MSCI BarraOne	725,000	Compliance/Risk Monitoring
Certified Management Consultants Inc	410,468	Medical/Clinical Services
Foster Pepper PLLC	409,933	Legal Services
Intex Solutions Inc	362,400	Compliance/Risk Monitoring
KPMG LLP	297,784	Auditor Fees
JP Morgan Chase Bank	452,466	Retail Banking Services
Strategas Securities LLC	250,000	Research Services
DLA Piper LLP	229,546	Legal Services
BDO USA LLP	203,200	Compliance/Risk Monitoring
JURISolutions Inc	183,995	Medical/Clinical Services
Arthur J Gallagher Risk management Services Inc	178,213	Miscellaneous Consulting Services
K&L Gates LLP	177,374	Legal Services
Glass Lewis & Co LLC	174,000	Administrative Expense
Seward & Kissel LLP	167,986	Legal Services
First Advantage Back Track Reports LLC	158,000	Compliance/Risk Monitoring
BCA Research Inc	150,000	Research Services
MSCI ESG Research Inc	149,900	Research Services
D & D Medical Associates PC	146,275	Medical/Clinical Services
First Choice Evaluations LLC	123,174	Medical/Clinical Services
Jackson Walker LLP	119,891	Legal Services
Ernst & Young LLP	119,264	Tax Services
Content Critical Solutions Inc	118,860	Miscellaneous Consulting Services
National Claim Evaluations Inc	112,570	Medical/Clinical Services
Nixon Peabody LLP	101,974	Legal Services
CoStar Group Inc	93,600	Research Services
Marcum Accountants/Advisors	92,250	Compliance/Risk Monitoring
Seyfarth Shaw LLP	90,000	Legal Services
Orrick Herrington & Sutcliffe LLP	86,086	Legal Services
LexisNexis Risk Solutions INC	83,245	Miscellaneous Consulting Services
Groom Law Group	77,503	Legal Services
Cornerstone Macro LLC	75,138	Research Services
Corporate Resolutions Inc	67,500	Compliance/Risk Monitoring
Lenox Park Solutions LLC	65,000	Administrative Expense
DALCO Reporting Inc	62,705	Miscellaneous Consulting Services
Simaren Corp	56,717	Miscellaneous Consulting Services
Cox Castle & Nicholson LLP	53,998	Legal Services

See accompanying independent auditors' report.

INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL



KPMG LLP
515 Broadway
Albany, NY 12207-2974

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

The Trustee
New York State and Local Retirement System:

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, the financial statements of the New York State and Local Retirement System (the System), which comprise the combining basic statement of fiduciary net position as of March 31, 2020, and the related combining basic statement of changes in fiduciary net position for the year then ended, and the related notes to the basic financial statements, and have issued our report thereon dated July 24, 2020.

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.

INDEPENDENT AUDITORS' REPORT ON INTERNAL CONTROL

CONTINUED



Purpose of this Report

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

KPMG LLP

July 24, 2020

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 (OSC) is responsible for the management of the assets of the New York State Common Retirement Fund (Fund or CRF). The Fund's primary objective is to provide the means to pay benefits to the participants in the New York State and Local Retirement System (System or NYSLRS) through an investment program designed to protect and enhance the long-term value of the assets. We are responsible for implementing an asset allocation strategy with an appropriate balance of risk and return. Investments in equities, although historically volatile, provide superior long-term performance and growth characteristics, while fixed income investments provide less volatility and more predictable cash flow to meet the System's funding requirements and pension obligations. Alternative investments provide diversification and incremental returns.

The Fund's investment performance for the fiscal year ended March 31, 2020 was down 2.68 percent gross of certain investment fees. The Fund finished the year at a time the markets were unraveling due to the COVID-19 pandemic, but it was protected from further losses both by its strong position going into the crisis and by its diversified portfolio of assets. The Fund's diversification strategy worked well, with losses in public equities, non-core fixed income and absolute return strategies being offset by strong performance in fixed income and other alternatives. The Fund continues to monitor risks to the portfolio, watching world developments related to the COVID-19 pandemic, global economic recovery, U.S. elections and geopolitical tensions.

The Fund's overall negative return reflected losses in the public equity portfolio, which returned negative 10.30 percent, the non-core fixed income portfolio, which returned negative 9.46 percent, and the absolute return strategies portfolio, which returned negative 6.00 percent. Positive performance was posted in several assets classes, including private equity, which returned 11.64 percent, core fixed income, which returned 7.36 percent, real assets, which returned 7.11 percent, Treasury Inflation-Protected Securities (TIPS), which returned 6.27 percent, opportunistic investments, which returned 5.31 percent, and real estate, which returned 2.36 percent.

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

PENSION RISK MANAGEMENT

Overall Objectives

Pension Risk Management (PRM) provides an investment risk framework for the Fund as a whole, within the context of the Fund's actuarial liabilities. Recognizing that prudent risk-taking is a key to providing adequate returns and affordable pension plan funding, PRM controls risks within and among asset classes, to help maintain the economic viability of the System. PRM also works to monitor liquidity and other non-investment risks, to the extent that these risks may affect the overall objectives of the Fund.

Risk Authorities

The Chief Investment Risk Officer (CIRO) has the ability to escalate risk issues directly to the Fund's Trustee. The CIRO reports to the Executive Deputy Comptroller for Retirement Services (EDCRS) and administratively reports to the Chief Investment Officer (CIO). An internal Risk Committee (RC) assists the CIRO; the RC has multi-divisional representation within OSC and provides support and advice on risk and risk management at the Fund.

Investment Risk Framework

Central to the Fund's risk framework is the Risk Appetite Statement, which was approved by the Fund's Trustee in 2018:

The CRF is dedicated to providing a secure pension for generations of NYSLRS members, retirees and beneficiaries. In the pursuit of this mission, the CRF is committed to the highest standards of ethics and prudent investment management. In their decision making, the Trustee and staff of the CRF may take prudent investment risks when compensated by higher expected returns in order to generate stronger long-term performance. Regardless of potential returns, the CRF endeavors to avoid the risk of a loss of asset value that could compromise the economic viability of the current plan structure or call into question the integrity and responsibility of the CRF or its staff. Therefore, the CRF diligently seeks to identify and avoid such risk.

COMPLIANCE

The Compliance Office for the Fund is headed by the Director of Compliance, who reports to the EDCRS and administratively reports to the CIO. The primary purpose of the Compliance Program is to monitor compliance by PICM staff and external managers with applicable statutes, policies and procedures, conflict of interest and other ethical standards governing the Fund. In an effort to meet this objective, the activities of the Compliance Office primarily include the reporting, development or monitoring of: the Fund's investment-related policies and procedures; statutory and policy mandates for trading by both internal staff and external equity managers; personal trading activities of employees pursuant to the "Insider Trading Policies"; Annual Compliance Questionnaire for external managers, broker-dealers and consultants; and regulatory filings required under Section 13 of the Securities and Exchange Act of 1934.

PUBLIC EQUITIES

The role of the Fund's public equities portfolio is to provide the largest source of returns in the Fund's portfolio over the long-term through diversified, global equity market exposure. For the fiscal year ended March 31, 2020, the \$96.7 billion Common Retirement Fund global public equity portfolio posted a negative 10.30 percent return, outperforming the MSCI All Country World Index (ACWI) benchmark, which declined 11.26 percent. The Fund continues to benefit from its long-term overweight to U.S. equities, with the five-year return for the total public equity portfolio a positive 4.22 percent. For the fiscal year ended March 2020, the domestic equity portfolio declined 8.78 percent, but outperformed the Russell 3000 benchmark, which declined 9.13 percent. The U.S. equity portfolio was valued at \$63.7 billion at the end of the fiscal year. The COVID-19 pandemic shuttered economies around the world and rattled global equity markets, which hit a low just prior to the close of the fiscal year. Equity markets have since recovered nearly all their losses, but the outlook remains volatile.

The COVID-19 pandemic had an even deeper effect on the Fund's \$23.4 billion non-U.S. equity portfolio, which posted lower returns for the fiscal year, down 13.71 percent, but outperformed the MSCI ACWI ex U.S. IMI benchmark, which declined 16.32 percent. The actively managed \$9.7 billion global portfolio, in which managers allocate between U.S. and international equities, underperformed the benchmark, posting a loss of 11.95 percent, compared to the MSCI ACWI return of -11.26 percent. The Fund's emerging markets (EM) portfolio lost 14.59 percent, but outperformed the MSCI EM benchmark of -17.69 percent.

The public equities program continues to rely on broad passive index funds in the more efficient segments of the equity markets. This allows the Fund to maintain exposure to market returns at very low costs. The staff continues to employ active manager mandates in less efficient markets where active management is likely to outperform.

The Fund conducted a complete broker review in 2018 requiring all brokers to submit a questionnaire which was evaluated by PICM staff and the Fund's broker review consultant. It is the policy of the Fund to conduct a complete broker review every five years and an update annually to make adjustments as deemed necessary by staff. As a result of this process, the Fund now has 18 approved broker-dealer firms to execute trades for the internally managed public equity portfolios. Five of these trading partners are women-owned or minority-owned (MWBE) firms. For the fiscal year, these brokers accounted for 35 percent of the internally managed global equity commissions.

FIXED INCOME

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

The core fixed income portfolio uses the Bloomberg Barclays U.S. Aggregate Bond Index as a benchmark and seeks to add value through sector allocation and security selection. The long-term core fixed income portfolio consists primarily of U.S. Treasury securities, government-sponsored agency debentures, corporate bonds, commercial mortgage-backed securities, mortgage-backed securities, asset-backed securities, collateralized loan obligations, and municipal bonds. For the internal fixed income accounts, the Fund does not invest in securities that are below investment grade. 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 7.36 percent for the year as compared to 8.93 percent for the Bloomberg Barclays U.S. Aggregate Bond Index. The lag in performance was largely attributable to the extreme market conditions seen in March 2020, which resulted from the onset of the COVID-19 pandemic and the resulting economic shutdown. The Fund's modest overweight to corporate bonds and structured products such as Collateralized Loan Obligations (CLOs) and Commercial Mortgage-Backed Securities (CMBS) during this period led to underperformance as fixed income markets were buffeted by poor liquidity and much wider credit spreads. More broadly, however, the portfolio provided strong absolute returns during this period, when the equity markets were selling off significantly, a key benefit of the Fund's diversification strategy. The average credit quality of the core portfolio remains at Aa2/AA-, in line with the credit quality of the portfolio's benchmark.

The Fund's internally managed TIPS portfolio, which assists in hedging inflation risk in the United States, returned 6.27 percent as compared to the Bloomberg Barclays U.S. TIPS Index return of 6.85 percent. The Fund has been steadily liquidating the TIPS portfolio to align with the revised Asset Allocation study that goes into effect for the upcoming fiscal year. Short-term cash investments returned 2.39 percent for the fiscal year. External non-core fixed income returned a negative 9.46 percent for the fiscal year, as below-investment-grade fixed income securities were particularly hard hit by the economic shutdown of March 2020.

The Fund conducts a complete broker review every five years to create a new approved broker list. Annually, the Fund considers additional brokers and may make changes to the approved broker list as the team deems necessary. The Fund now has 23 approved broker-dealer firms to execute trades in the long-term and short-term fixed income portfolios. Thirteen percent of these trading partners are MWBEs, while firms owned by Disabled American Veterans represent another 4 percent. 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 13.5 percent of all long-term trades and 15.2 percent of all short-term broker trades during the past fiscal year.

The Fund participates in a securities lending program, whereby the custodian bank loans a portion of the fixed income and equity securities to qualified counterparties, providing incremental income. For the fiscal year ended March 31, 2020, the securities lending program earned the Fund \$26.7 million in revenue, net of management fees and rebates.

REAL ESTATE

The Real Estate Bureau seeks to create a diversified real estate portfolio by investing predominantly in office, industrial, retail, and apartment properties across various geographic locations and risk profiles, including core, core-plus/value-add and opportunistic strategies. The real estate allocation's mandate to the overall Fund is to provide a steady stream of income through less risky, core investments, and to capture excess returns through riskier, core-plus/value-add and opportunistic investments. At this point in the economic cycle, Real Estate is focused on managing volatility while meeting its long-term investment objectives.

The Real Estate Group mainly invests through four primary investment structures: wholly owned, joint ventures, separately managed accounts, and commingled funds (closed-end, open-end, and fund-of-funds). For wholly owned assets, the Fund works with external advisors and third-party service providers to manage properties. For all other structures, CRF invests alongside a sponsor, or general partner, whose interests are aligned to the Fund's via shared risk and incentive.

As of March 31, 2020, equity real estate represented 8.3 percent of total Fund assets, producing a total return of 2.36 percent for the fiscal year as compared to the custom real estate benchmark of 5.19 percent. The custom real estate benchmark is an asset-weighted blend of quarter lagged benchmarks including the NCREIF NFI ODCE (Net) Index. Over the long term, the real estate portfolio has exhibited sustained, strong net performance relative to its benchmark. Looking forward, the Fund will continue to structure and manage a balanced real estate portfolio that is capable of weathering economic cycles through its broad diversification across property types, markets and risk profiles.

Core strategies include investing in fully leased, trophy properties located in top markets in the U.S. The primary objective of core investing is to provide the Fund a reliable source of current income and moderate value appreciation with limited downside. Core assets are found in highly liquid, gateway cities, often in irreplaceable locations with demonstrated strong tenant demand. Currently, a significant percentage of the real estate portfolio is being allocated to core properties.

Core-plus/value-add investments may include under-managed properties with existing vacancy or near-term tenant rollover or opportunities for light-to-moderate renovations, allowing for an asset to be repositioned and re-leased to create value. Opportunistic investments include strategies such as ground-up development or substantial renovation that can deliver enhanced yield; however, they also carry the increased risk of construction and exposure to changing market conditions.

When underwriting potential investments, the Fund maintains a disciplined approach to its evaluation of sustainable investing through the recently implemented Sustainable Investments and Climate Solutions (SICS) Program, which provides a roadmap for the Fund to address climate risks and opportunities across all asset classes, including real estate. The Fund also recognizes that Environmental, Social and Governance (ESG) factors can have significant influence on risk and return. The Fund believes incorporating ESG analysis in its investment decisions can be impactful across various sectors, and can generate excess investment returns. Demonstrating its commitment to sustainable investing, many of the Fund's real estate assets are Leadership in Energy and Environmental Design (LEED)-certified, an internationally recognized green building certification system that verifies that buildings are designed, built and operated in accordance with approved environmental standards. The market has shown that many tenants prefer, or have a mandate, to lease assets in LEED-certified buildings, further justifying the focus on this effort.

The Fund manages risk within the real estate portfolio through maintaining strong relationships and diversifying investments by property type, geography, investment strategy, and capital pacing. In order to achieve long-term appreciation and sustainable returns, the Real Estate Group will seek to continue to leverage existing relationships, and when starting new relationships, selecting best-in-class sponsors, joint venture partners, consultants and advisors. In addition, the Fund recognizes the importance (and value) of investing with smaller firms and MWBE real estate managers, and through dedicated programs, will look to capitalize on their talent and expertise.

AFFORDABLE HOUSING PERMANENT LOAN PROGRAM

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

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

Since the inception of this program, 21,392 units representing \$935.6 million have been completed; 1,866 more are in the pipeline. In the 2019-2020 fiscal year, the Fund invested in affordable housing throughout the State, including Albany, Dutchess, Monroe, Rensselaer, Orange, Oswego and Saratoga 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

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

ALTERNATIVE INVESTMENTS

Private Equity

The Fund's private equity portfolio is designed to generate long-term returns that exceed those of public equities. As of March 31, 2020, the private equity program generated a one-year total return of 11.64 percent, as compared to the Cambridge U.S. Private Equity Index benchmark (1Q Lag) of 14.04 percent. (The CRF's Private Equity Program is a global investment program, so the Cambridge benchmark is an imperfect comparison.)

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 (In-State Investment program). The Fund also seeks to commit capital to industry sectors, such as technology, 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 seeks to exploit those long-term commitments and alignments of interests by making co-investments alongside select managers on improved economic terms. During the past year, the Fund made 29 equity co-investments totaling over \$370 million in invested capital in portfolio companies alongside Fund managers. The Fund has established equity co-investment programs focused on opportunities sourced from its core private equity portfolio, the emerging manager program, the In-State Investment program and its Israel investment program. The In-State program also has the capability to make credit co-investments, and two credit co-investments totaling approximately \$9.7 million have been made during the past year in companies in New York State.

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 consists of 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. Due to the emergence of the COVID-19 pandemic and the subsequent market volatility, certain strategies within the portfolio were affected more than others. Structured credit and relative value strategies had the largest drawdowns, followed by long/short equity and event-driven managers. As markets fell in reaction to the spread of the virus, correlations spiked causing a difficult trading environment for these strategies.

As of March 31, 2020, the absolute return strategies portfolio generated a return of negative 6.00 percent for the fiscal year, as compared to the HFRI Asset Weighted Composite Index return of negative 7.51 percent.

Opportunistic Funds

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

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

The opportunistic portfolio affords the Fund the opportunity to capture returns in advance of heavy institutional asset flows (early mover advantage) or to take a 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. They may range from broad strategic partnerships, where the Fund's staff is able to leverage the resources of an institution to invest across a wide number of asset classes or strategies, to a more targeted approach that may include investments through various vehicles. In addition to commingled funds, separate accounts and minority investment stakes, the Opportunistic Funds team may also at times seed new investment platforms or take an anchor position in new investment strategies within existing managers by providing acceleration capital.

As of March 31, 2020, the portfolio has generated a one-year total return of 5.31 percent.

Real Assets

The real assets portfolio is the Fund's newest alternative asset allocation, having first launched in 2014. The portfolio is in its development phase and continues to build key capabilities. The long-term allocation of the portfolio is three percent and the benchmark is the Consumer Price Index (CPI) plus 500 basis points. The categories of investments include agriculture, capital assets, infrastructure, renewable energy and timber. As of March 31, 2020, the portfolio returned 7.11 percent as compared to the U.S. CPI + 5% benchmark of 6.59 percent. The portfolio has an annualized 8.52 percent return over three years, exceeding the benchmark. The portfolio has begun to outpace its benchmark as allocation ratios move closer to a range typical of mature portfolios and the "J" curve impact normalizes.

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 portfolio also seeks to benefit from investment themes that will play out over multiple economic cycles. The performance of the asset class is primarily driven by broad, macroeconomic factors, including resource demand, demographics, inflation and idiosyncratic supply shocks.

As we invest within the asset class we seek to source best-in-class real asset fund managers with strong track records. To date, we have invested approximately \$3.35 billion across numerous real assets strategies. The real assets portfolio's allocation was 1.63 percent at fiscal year-end. The modest weight is due to the infancy of the portfolio, though our total commitments exceed \$7 billion. These commitments include allocations to emerging and secondary managers.

Geographically, the portfolio is diversified across the United States, Organization for Economic Cooperation and Development (OECD) countries and emerging markets.

Pursuit

The Fund seeks to diversify its investments and achieve a risk-adjusted rate of return through a commitment to Pursuit, formerly known as the New York Business Development Corporation (NYBDC). Pursuit underwrites loans to small businesses in New York State, often with guarantees from the U.S. Small Business Administration, for working capital, equipment, the acquisition of real property, capital improvements and the refinancing of existing loans. Pursuit 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, Pursuit can frequently offer more favorable terms than other lenders. Pursuit has an active Veteran's Loan Program where New York business owners who serve in the National Guard or Reserve, along with honorably-discharged former active duty members, can access small business loans.

Pursuit also has a goal of making at least 25 percent of its loans to MWBEs. In the 2019 calendar year, 32 percent of Pursuit loans that were due to Fund investments were made to women-owned businesses and 44 percent were made to minority-owned businesses.

The Common Retirement Fund has been an investor in NYBDC since 1987, with commitments totaling \$500 million. In 2018, the Fund approved a fifth \$100 million commitment to support NYBDC's small business loan program. Since this program began in 1987, NYBDC has made 1,184 loans totaling \$424 million to businesses that employ over 24,200 New Yorkers. During the fiscal year ended March 31, 2020, Pursuit made 28 loans totaling \$25.0 million.

Financing for Businesses in New York State

In 2000, the Fund initiated the New York (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 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, 2020, the Fund's private equity portfolio included investments in over 330 New York businesses with a market 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 \$22.9 billion as of December 31, 2019 (the most recent data available). Included in the Fund's New York State portfolio are: LeverPoint in Clifton Park, Delorios in Utica, Corelle Brands in Corning, Movable Ink in New York City, AeroSafe in Rochester and ACV Auctions in Buffalo.

As of March 31, 2020, the Fund had over \$500 million of remaining commitments available for investment in the In-State Program. Commitments to this program totaled \$1.9 billion. These commitments are devoted exclusively to New York State investment opportunities. The 18 managers in the program are:

- *Armory Square Ventures*, an early-stage venture capital fund located in Syracuse.
- *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.
- *Gotham Ventures (fka DFJ Gotham)*, a New York City-based fund focused on early-stage venture capital investments.
- *Easton Hunt Capital Partners*, a New York City-based fund that pursues a broad strategy of investing in companies in a wide range of industries and stages of development.

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

EMERGING MANAGER PROGRAM

The role of the Emerging Manager Program is to identify newer and smaller investment managers that have the potential to add value to the CRF's investment portfolio in all asset classes. These businesses would not typically be identified as an investment opportunity in the CRF's standard institutional investment manager search process, due to their smaller size. The Emerging Manager Program also provides the CRF with opportunities to invest with qualified business enterprises that are majority owned or are substantially owned and operated by women or minority managers (MWBEs).

Smaller investment management funds and firms may generate superior performance returns because of the entrepreneurial nature and increased flexibility associated with newer firms that have a smaller asset base. Historically, several CRF emerging managers have outperformed their more established peers, a trend the CRF staff expects to continue. Graduates of the Emerging Manager Program are a natural source of new relationships for the CRF's investment portfolio, allowing the program to organically structure and form new relationships that can evolve to meet institutional investment mandates.

The CRF has established a policy framework for the Emerging Manager Program's operational guidelines and procedures in order to achieve the following objectives:

- To increase the CRF's utilization of emerging managers, including MWBE managers, consistent with applicable investment and fiduciary standards;
- To proactively identify best-in-class emerging managers who demonstrate the capacity and return profile to become viable long-term partners of the Fund;
- To employ prudent selection processes and practices consistent with the high fiduciary standards for all the CRF's investment management decisions and processes;
- To maintain guidelines and funding strategies that will encourage inclusion and ongoing support for the development of emerging managers;
- To generate appropriate risk-adjusted investment returns by identifying new investment opportunities with the potential for strong performance and by further diversifying the portfolio; and
- To cultivate, develop and incubate the next generation of external portfolio managers that would be candidates for transition into the CRF's core pool of investment managers.

As of March 31, 2020, the Fund currently has approximately \$20.4 billion invested with or committed to minority-owned or women-owned firms. MWBEs now represent approximately one-quarter of our externally managed active mandates.

CORPORATE GOVERNANCE

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

The Fund's investment philosophy requires the consideration of environmental, social, and governance (ESG) factors in the investment process because they can influence both risks and returns. Assessing company and external manager performance with respect to ESG factors and encouraging both to embrace ESG best practices can help protect the long-term value of the Fund's investments.

The Fund's Corporate Governance Program is tasked with executing the Fund's ESG commitment, with a strategic focus on the following ESG factors and priorities:

- Environment (E): climate risks and opportunities, natural resource and raw material usage, and pollution and waste management.
- Social (S): human capital management, labor relations, human rights, health and safety, supply chain labor standards, privacy and data security, product safety and quality, and community impact.
- Governance (G): risk oversight, board and governance practices, corporate strategy and capital allocation, executive compensation, inclusion and diversity, and lobbying and political spending.

Implementation of the Fund's ESG commitment and priorities includes promoting sound ESG practices through active ownership — using the CRF's voice and votes to address investment risks. The Fund's active ownership work takes many forms, including voting on nearly 30,000 proxy ballot items annually, engaging directly with portfolio companies, conducting external manager ESG due diligence and risk assessments, and advocating for public policies that will help protect the long-term value of our investments.

During the 2019–20 fiscal year, the Fund advanced its efforts in several ways.

ESG Principles and Proxy Voting Guidelines were updated and implemented in the first quarter of 2020. The Fund believes proxy voting is an effective means of engaging and communicating with boards of directors and management about the Fund's ESG priorities. Not only do these principles and guidelines provide direction for our independent voting decisions, they also guide other corporate engagements and policy initiatives, articulating to the capital markets the Fund's view of what constitutes good corporate governance and ESG best practices.

Stewardship, in its many forms, can be a powerful strategy to protect and enhance the value of the Fund's investments. The Fund's stewardship work utilizes various engagement strategies, including shareholder proposals, written correspondence, investor statements, press strategies and private dialogues. The Fund engaged with nearly 1,000 portfolio companies during the 2019-20 fiscal year and this stewardship work resulted in companies providing improved disclosures and taking important actions to enhance ESG policies and practices.

ESG Integration incorporates ESG factors into the Fund's analysis of investment risk and manager performance. Risk assessments that evaluate material ESG factors are systematically applied across all asset classes. Due diligence of external managers includes an assessment of their ESG policies. In addition, annual surveys of the Fund's managers can provide updated information about their ESG policies and practices. The Fund has hired additional staff, resulting in the development of a multi-year strategic plan that will expand the Fund's ESG integration program.

Public Policy Advocacy supports policies, laws and regulations that promote the overall stability, transparency and functionality of financial markets and the economy generally, which can improve returns and reduce risks for the Fund. The Fund's public policy engagement includes meeting with and writing to elected representatives, regulators and other public officials; testimony at hearings and forums; comments on regulatory and legislative proposals; and participation in State, national and international forums and initiatives.

Climate-Related Financial Disclosures

The purpose of this section is to report on the Fund's efforts to address climate risk in accordance with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), an organization established by the Financial Stability Board of the G20 (a forum convened by 19 leading industrial nations and the European Union) to guide the financial community in its understanding and reporting of climate risks. The Fund supports the TCFD recommendations.

1. Governance

As Trustee, the Comptroller is responsible for the prudent investment of the Fund. The Comptroller believes that climate change presents significant risks to the Fund's investments, as well as unique investment opportunities. The Fund's CIO formulates an overall investment strategy for the Comptroller, including climate-related strategy, with the assistance of investment, risk and corporate governance staff, consultants, and external advisory committees.

The six-member Decarbonization Advisory Panel was convened by Governor Andrew Cuomo and Comptroller DiNapoli in 2018, and this group of experts delivered recommendations to the Comptroller in April 2019 that focused on climate-change-related investment opportunities and risk mitigation. The Panel's primary recommendation was for the Fund to align its entire portfolio with the Paris Agreement's goal of limiting global temperature rise this century to well below two degrees Celsius above pre-industrial levels. The Panel suggested that this could be accomplished by ramping up investment in sustainable assets and climate solutions, and establishing minimum standards to prioritize engagement with companies and assess investments.

The Comptroller is also advised by staff of the Bureau of Corporate Governance who monitor climate-related issues. The Executive Director of Corporate Governance reports directly to the CIO and works with other investment staff to identify and monitor climate risks. And in January 2020, a new Director of Sustainable Investment and Climate Solutions, who also reports directly to the CIO, was hired to oversee the Fund's efforts to invest in opportunities afforded by the transition to a low-carbon economy and other sustainable investments.

2. Strategy

The Fund recognizes that there are different short-, medium-, and long-term risks posed by climate change. Because the Fund expects to exist in perpetuity, it must consider all of these time horizons. The transition to a low-carbon economy is already underway and accelerating globally; it is likely to affect virtually every investment in the Fund's broadly diversified portfolio.

The Fund has identified significant short- and medium-term **transition risks** in developed markets due to implementation of the Paris Agreement, technological advances and changing market demand. In 2015, the Fund released a tailored climate change scenario analysis, produced in partnership with Mercer Consulting, describing transition risks under a variety of scenarios.

The Fund also believes **physical risks** are significant in all time frames. Extreme weather events are already affecting businesses around the world and pose a growing threat to the Fund's investments. Measuring these risks is challenging due to difficulties in accurately projecting weather events at the local level, but the Fund expects that better climate, weather and financial modeling will allow for improved assessments in the near term. The Fund expects to see greater physical risks in the long run if the world fails to limit temperature rise.

3. Risk Management

In June 2019, the Fund released its Climate Action Plan,* which formally integrates climate considerations into risk assessments, investment decision making, engagement and public policy advocacy. The Fund's staff reviews studies to stay informed about the science associated with climate change, and actively seeks to identify advanced climate risk assessments to inform investment strategies. Pursuant to the Climate Action Plan, the Fund established an assessment framework and minimum standards to evaluate the transition readiness and resiliency of thermal coal mining companies, and by March 2020, had completed the review of 27 such companies. The Fund plans to establish minimum standards for other high-impact sectors recommended by the TCFD to further inform the Fund's engagement and investment decisions. In early 2020, the Fund began to engage its public equity and fixed income external managers on their approaches to climate change, including their commitments to climate reporting in line with the TCFD recommendations, climate risk assessments, proxy voting, and engagement practices. In addition, the Fund joined Global Real Estate Sustainability Benchmark (GRESB) to measure the sustainability performance of the Fund's real estate and infrastructure assets in areas such as energy, greenhouse gas and water.

The Sustainable Investment–Climate Solutions (SICS) Program is a key component of the Fund's plan to position its portfolio for a low-carbon economy, and in early 2020 the Fund hired its first Director to scale up this Program. The SICS Program builds on the Fund's existing \$10 billion commitment to sustainable investment strategies, with a new total goal of \$20 billion to be realized over the next decade. This includes a \$4 billion investment in a low-carbon index that has a 75 percent lower carbon emissions intensity than its benchmark, achieved by underweighting investments in high emitters.

* <https://www.osc.state.ny.us/sites/default/files/reports/documents/pdf/2019-07/climate-action-plan-2019.pdf>

The Fund has undertaken significant corporate engagement as described in its annual Corporate Governance Stewardship Report. This includes filing 148 climate-change-related shareholder resolutions since 2008 and reaching 72 agreements with portfolio companies on climate issues such as setting greenhouse gas (GHG) emissions reduction targets and renewable energy and energy efficiency goals. The Fund continues to engage with high risk companies directly and in collaboration with other investors through the global Climate Action 100+ initiative. In 2020, the Fund enhanced its proxy voting guidelines by adding criteria on how the Fund reviews low-carbon transition preparedness and delineating situations that would prompt the Fund to withhold support from director nominees for failing to manage climate risks.

Finally, the Fund continues to provide public policy leadership at the international, federal, and state levels on climate change issues that may impact its returns on a variety of issues, including implementation of the Paris Agreement, the Clean Power Plan, tax credits for solar and wind power, low-carbon fuel standards, carbon pricing, the Regional Greenhouse Gas Initiative, and Securities and Exchange Commission requirements for corporate disclosure of material carbon risks.

4. Metrics and Targets

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

- **Annual average weighted emissions intensity** assessment of public equity holdings (including Scope 1 and 2 greenhouse gas emissions). In 2019, the Fund's emissions intensity was 6.8 percent lower than its benchmark (75 percent Russell 3000/25 percent MSCI ACWI ex-US). It was 6.9 percent lower than its 2018 intensity. The Fund believes that this metric is useful in assessing transition risks, especially regulatory risks, but does not capture trends over time or the future direction of companies. The Fund also recognizes the significance of Scope 3 emissions as a risk metric in investment analyses, but faces challenges in assessing these emissions due to the limited availability of accurate data.
- **Portfolio exposure** to assets that are mostly affected by climate change and the low-carbon transition as recommended by the TCFD.
- **Capital allocation to the SICS Program.** The Fund has committed \$20 billion in total to the SICS Program, and has deployed more than \$8 billion toward that goal to date.
- **Transition assessment and minimum standards** to evaluate companies in the high impact sectors recommended by the TCFD. The Fund has established the transition framework and minimum standards for the thermal coal industry to evaluate companies' transition readiness.

INVESTMENT RESULTS

Based on Fair Market Values as of March 31, 2020.

	Annualized Rate of Return ⁽¹⁾			
	1 Year	3 Years	5 Years	10 Years
Total Fund	(2.68)%	4.47%	4.96%	7.53%
Public Equity	(10.30)	2.66	4.22	8.03
MSCI All Country World Index	(11.26)	1.50	2.85	5.88
Private Equity ⁽²⁾	11.64	13.35	11.37	12.20
Cambridge U.S. Private Equity Index (1Q Lag) ⁽³⁾	14.04	13.94	11.74	13.59
Real Estate ⁽²⁾	2.36	6.16	8.42	12.51
Real Estate Benchmark ⁽⁴⁾	5.19	6.29	8.00	10.05
Absolute Return Strategy ⁽²⁾	(6.00)	0.53	0.74	3.22
HFRI Asset-Weighted Composite Index	(7.51)	(0.35)	0.09	2.94
Opportunistic Funds ⁽²⁾	5.31	8.00	6.54	6.38
Real Assets ⁽²⁾	7.11	8.52	3.53	–
U.S. CPI + 5%	6.59	6.98	6.95	–
Treasury Inflation-Indexed Securities	6.27	3.40	2.75	4.32
Bloomberg Barclays U.S. TIPS Index	6.85	3.46	2.67	3.48
Core Fixed Income	7.36	4.73	3.69	4.02
Bloomberg Barclays Aggregate Bond Index	8.93	4.82	3.36	3.88
Non-Core Fixed Income ⁽²⁾	(9.46)	(0.33)	1.97	–
Non-Core Fixed Income Blended Benchmark	(7.79)	0.22	2.24	–
Short-Term Investments	2.39	2.23	1.68	1.04

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

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

(3) The vendor's official results are presented as annualized Internal Rate of Return (IRRs). However, the Custodian reports the vendor's index as quarterly delinked returns on a three-month lag. This time-weighted and lagged methodology is most comparable to the Custodian returns for the Private Equity composite.

(4) Effective April 1, 2019, the Real Estate benchmark is an asset-weighted blend of quarter lagged benchmarks. Core Real Estate is proxied to the NCREIF NFI ODCE (Net) Index. Non-Core Real Estate is proxied to the same index with a 100 basis point annual premium. The Real Estate benchmark returns prior to April 1, 2019 follow the NCREIF Property (Gross) Index on a one-quarter lag.

INVESTMENT SUMMARY

The following table summarizes the fair values of Fund investments by asset type for March 31, 2020 and 2019 (Dollars In Thousands).

Asset Type	Fair Value March 31, 2020	Percentage of Total Fair Value	Fair Value March 31, 2019	Percentage of Total Fair Value
Domestic Equity	\$ 62,548,268	32.20%	\$ 73,303,652	34.80%
Global Fixed Income	45,410,315	23.40	45,651,602	21.70
International Equity	30,673,634	15.80	36,256,971	17.20
Private Equity	20,314,177	10.50	19,750,977	9.40
Real Estate	15,693,661	8.00	15,678,555	7.50
Absolute Return Strategy	6,834,558	3.50	7,812,169	3.70
Short-Term Investments	5,697,690	2.90	6,118,985	2.90
Opportunistic Funds	3,047,334	1.60	2,833,785	1.30
Real Assets	3,085,682	1.60	2,220,026	1.10
Mortgage Loans	1,011,844	0.50	896,993	0.40
Total Investments	\$ 194,317,163	100.0%	\$ 210,523,715	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, 2020

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

Asset liability studies, conducted periodically with help from an investment consultant, identify the optimal mix of assets to meet the growth requirements of 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, 2020	Current Interim Policy	Long-Term Policy Allocation
Equity			
Domestic Equity	35.02%	36.0%	36.0%
International Equity	14.05	15.0	14.0
Alternatives			
Private Equity	11.19%	9.0%	10.0%
Real Estate	8.05	8.0	10.0
Absolute Return Strategy	2.18	3.0	2.0
Opportunistic Portfolio	1.67	2.0	3.0
Real Assets	1.61	2.0	3.0
Bonds & Mortgages	22.62%	20.0%	17.0%
Cash	0.78%	1.0%	1.0%
Inflation-Indexed Bonds	2.83%	4.0%	4.0%

Note: A detailed listing of the New York State and Local Retirement System's assets as of March 31, 2020, is on our website at www.osc.state.ny.us.

PUBLIC EQUITY PERFORMANCE

For the Fiscal Year Ending March 31, 2020.

	Total Assets (Dollars in Millions)	Annualized Rate of Return				Portfolio Since Inception	Benchmark Since Inception*	Inception Date
		1 Year	3 Years	5 Years	10 Years			
Total Public Equity	\$ 96,742.5	(10.30)%	2.66%	4.22%	8.03%			
MSCI All Country World Index		(11.26)%	1.50%	2.85%	5.88%			
Total Large Cap Composite	\$ 46,797.6	(4.98)%	6.28%	7.41%	10.87%	10.81%	10.83%	2/1/83
CRF Large Cap Index Fund	36,220.9	(4.06)	6.73	7.77	11.04	11.26	11.23	8/1/78
CRF High Efficiency Defensive Index Fund	3,136.3	(4.69)	7.87	–	–	9.72	9.38	1/1/16
CRF Low Emission Index Fund	4,294.2	(7.12)	4.98	–	–	7.66	7.71	1/1/16
AQR Capital Management	2,245.8	(12.15)	–	–	–	(5.44)	(1.26)	6/1/18
Eagle Capital Management	900.3	(10.10)	3.82	5.91	–	6.24	6.83	9/1/14
Russell Top 200 (S&P 500 To 1/1/16)		(4.08)%	6.70%	7.64%	11.00%			
Total Mid Cap Composite	\$ 10,558.2	(18.30)%	(1.00)%	1.59%	8.24%	10.29%	10.85%	7/1/91
CRF Mid Cap Index Fund	9,377.3	(18.22)	(0.75)	1.85	8.56	10.52	10.52	11/1/91
Fiera Capital	422.3	(14.03)	3.60	3.22	10.80	9.13	8.31	3/1/08
Iridian Asset Management	347.2	(20.10)	(5.87)	(2.01)	–	(1.15)	2.80	1/8/15
Progress Investment Management	411.4	(21.89)	(2.46)	(0.18)	7.21	9.52	9.59	9/1/94
Russell Midcap (S&P 400 Mid Cap To 1/1/16)		(18.31)%	(0.81)%	1.64%	8.45%			
Total Small Cap Composite	\$ 4,888.3	(18.07)%	(0.23)%	2.94%	8.90%	9.40%	8.55%	7/1/91
CRF Small Cap Index Fund	1,313.3	(23.79)	(4.60)	(0.03)	7.67	5.94	5.83	10/1/05
Artisan Partners	561.3	(1.99)	13.59	11.26	–	11.16	5.03	8/26/13
Brown Capital Management	1,148.5	(7.59)	10.75	11.61	15.65	14.47	7.62	9/1/94
Channing Capital Management	197.2	(27.68)	(9.22)	(2.53)	–	(2.53)	(2.42)	4/1/15
EARNEST Partners	852.1	(18.41)	(3.24)	1.67	8.31	8.36	5.86	6/1/01
Leading Edge Investment Advisors	332.9	(21.50)	(2.53)	0.65	–	0.65	(0.25)	4/1/15
Palisade Capital Management	235.0	(22.00)	–	–	–	(12.95)	(16.09)	6/1/18
PENN Capital Management	248.0	(34.78)	(9.50)	(4.75)	–	(2.01)	2.41	9/27/13
Russell 2000 Index		(23.99)%	(4.64)%	(0.25)%	6.90%			
Total Long-Only Alpha Composite	\$ 1,399.2	(11.57)%	(0.18)%	1.61%	–	9.20%	2.62%	9/1/11
Trihan Partners Strategic Fund II LP	67.9	(17.61)	(3.61)	1.02	–	5.23	1.48	1/7/13
Trihan Partners Strategic Investment Fund-N, L.P.	776.3	(6.99)	0.58	4.29	–	4.14	(1.69)	2/1/15
ValueAct Capital Partners II, LP	555.0	(16.35)	(1.07)	(0.38)	–	8.63	2.62	9/1/11
HFRI Event Driven Activist Index		(21.70)%	(7.46)%	(2.79)%	–			
Total Domestic Transition Accounts	\$ 24.1							

* Benchmarks for all accounts will vary according to mandate.

PUBLIC EQUITY PERFORMANCE

CONTINUED

For the Fiscal Year Ending March 31, 2020.

	Total Assets (Dollars in Millions)	Annualized Rate of Return				Portfolio Since Inception	Benchmark Since Inception*	Inception Date
		1 Year	3 Years	5 Years	10 Years			
Total Non U.S. Equity Composite	\$ 23,394.8	(13.71)%	(1.19)%	0.32%	2.89%	5.22%	4.34%	10/1/89
MSCI ACWI Ex U.S. IMI (MSCI ACWI Ex U.S. to 1/1/17)		(16.32)%	(2.34)%	(0.69)%	2.25%			
Total Non U.S. Passive Composite	\$ 9,767.4	(16.05)%	(2.79)%	(0.70)%	2.16%	4.21%	3.97%	11/1/04
BlackRock ACWI Ex U.S. IMI	9,767.4	(16.05)	(2.02)	(0.58)	2.22	4.25	3.97	11/1/04
Total Active ACWI Ex U.S. Composite	\$ 5,393.7	(8.06)%	2.92%	3.09%	4.60%	5.60%	4.04%	11/1/04
Acadian Asset Management	1,382.0	(15.37)	(0.76)	2.00	4.52	5.44	4.04	11/1/04
Ariel Investments	271.8	(8.43)	-	-	-	(4.09)	(7.34)	11/1/18
Baillie Gifford	1,912.4	(5.12)	2.80	3.26	6.26	5.32	3.05	2/1/99
GQG Partners	502.8	0.20	-	-	-	2.22	(10.07)	4/1/18
Wellington Management	1,324.7	(6.67)	6.05	-	-	8.22	6.05	3/1/16
MSCI ACWI Ex U.S.		(15.57)%	(1.96)%	(0.64)%	2.05%			
Total EAFE Composite	\$ 3,976.0	(13.15)%	(1.67)%	0.61%	3.86%	5.29%	3.72%	10/1/89
Capital Guardian	1,593.1	(7.26)	4.36	3.26	5.38	6.89	3.87	9/1/89
Fiera International	439.7	-	-	-	-	(11.92)	(19.29)	10/30/19
Mondrian Investment Partners	1,370.5	(19.03)	(3.87)	(1.61)	2.64	5.30	3.73	1/1/98
Total EAFE Small Cap Composite	570.6	(17.73)	-	-	-	(13.56)	(14.92)	7/1/18
Acadian Asset Management	224.0	(20.05)	-	-	-	(14.45)	(14.92)	7/1/18
Barings International	96.9	(14.45)	-	-	-	(13.38)	(15.93)	8/1/18
Global Alpha Capital Management	249.7	(16.82)	0.44	4.85	-	6.56	1.69	10/1/13
MSCI EAFE Index		(14.38)%	(1.82)%	(0.62)%	2.72%			
Total Emerging Markets Composite	\$ 3,507.7	(14.59)%	(1.31)%	(0.22)%	0.88%	7.25%	6.51%	1/1/92
Genesis Investment Management	664.7	(16.30)	0.34	1.21	-	1.50	(0.53)	3/1/12
Martin Currie	439.6	-	-	-	-	(11.83)	(13.99)	10/8/19
Morgan Stanley	882.5	(17.20)	(2.84)	(0.68)	1.35	6.01	4.84	11/1/93
Quantitative Management Associates	974.1	(19.21)	(3.09)	(1.26)	-	0.45	(0.06)	2/1/12
Rock Creek Group	546.7	0.43	3.77	1.69	-	1.36	2.60	10/18/13
MSCI Emerging Markets Index		(17.69)%	(1.62)%	(0.37)%	0.68%			
Cevian Capital II, LP	\$ 750.1	(19.92)%	(8.14)%	(3.46)%	-	4.79%	2.62%	9/1/11
HFRI Event Driven Activist Index		(21.70)%	(7.46)%	(2.79)%	-			
Total Global Equity Composite	\$ 9,679.9	(11.95)%	2.15%	3.76%	6.92%	7.49%	6.39%	9/1/94
CRF FTSE Environmental Technology 50	125.4	(1.86)	2.69	2.47	2.71	2.89	3.02	11/1/09
Brandes Investment Partners	1,026.1	(20.25)	(4.93)	(1.47)	4.10	4.96	3.78	11/1/99
FIS Group	988.4	(13.43)	(0.75)	1.03	-	3.06	4.32	10/1/13
Generation Investment Management	1,387.9	(11.23)	8.18	10.48	11.50	15.01	9.75	4/8/09
Goldman Sachs Asset Management	2,490.6	(9.47)	4.12	4.94	-	5.21	3.54	1/1/15
Progress Investment Management	514.6	(13.87)	-	-	-	0.07	1.46	5/1/17
Rockefeller & Company Asset Management	338.0	(12.50)	1.44	3.01	-	2.70	2.51	2/23/15
T. Rowe Price	1,412.4	(2.70)	10.61	10.29	-	10.55	5.52	3/1/11
Templeton Investments	1,396.5	(17.30)	(4.23)	(1.16)	-	4.04	5.52	3/1/11
MSCI All Country World Index		(11.26)%	1.50%	2.85%	5.88%			
Global Transition Account	\$ 0.4							

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

PUBLIC EQUITY FUND OF FUND PERFORMANCE

For the Fiscal Year Ending March 31, 2020.

	Total Assets (Dollars in Millions)	Annualized Rate of Return				Portfolio Since Inception	Benchmark Since Inception*	Inception Date
		1 Year	3 Years	5 Years	10 Years			
Total Progress Mid Cap Composite	\$ 411.4	(21.89)%	(2.46)%	(0.18)%	7.21%	9.52%	9.59%	9/1/94
Denali Advisors	61.4	(29.01)	(7.64)	(1.23)	7.15	6.25	5.77	3/1/08
Fairpointe Capital	101.3	(26.87)	–	–	–	(18.93)	(12.40)	8/31/18
Lisanti Capital	44.6	(10.03)	9.95	7.34	–	8.25	4.99	7/1/14
Matarin Capital Management	36.6	(8.65)	–	–	–	(7.53)	(5.66)	8/31/18
Poplar Forest Capital	52.0	(28.21)	–	–	–	(23.04)	(11.25)	8/31/18
Sapience Investments	44.0	(34.78)	–	–	–	(26.80)	(22.06)	8/31/18
Twin Capital Management	72.4	(9.82)	–	–	–	(7.48)	(5.66)	8/31/18
Progress Composite Benchmark		(17.65)%	(1.01)%	1.99%	8.71%			
Total Progress Global Composite	\$ 514.6	(13.87)%	–	–	–	0.07%	1.46%	5/1/17
ARGA Investment Management	68.3	(23.31)	–	–	–	(5.16)	1.01	5/1/17
Ativo Capital Management	82.3	(9.79)	–	–	–	3.98	1.46	5/1/17
Bell Asset Management	74.4	(6.83)	–	–	–	5.11	1.46	5/1/17
QTRON Investments	69.6	–	–	–	–	(11.73)	(11.19)	5/22/19
Strategic Global Advisors	142.0	(11.46)	–	–	–	0.68	1.46	5/1/17
Trinity Alps Capital	78.8	(19.87)	–	–	–	(8.00)	(1.80)	1/8/19
MSCI World Index		(10.39)%	–	–	–			
Total FIS Composite	\$ 988.4	(13.43)%	(0.75)%	1.03%	–	3.06%	4.32%	10/1/13
ARGA Investment Management	36.1	–	–	–	–	(14.52)	(14.87)	8/5/19
Aubrey Capital	53.4	(5.75)	–	–	–	(1.49)	(6.10)	8/10/17
Clifford Capital	115.8	(27.28)	–	–	–	(3.93)	(3.92)	8/10/17
Decatur Capital Management	173.8	3.29	11.18	9.23	–	12.06	12.27	10/1/13
Denali Advisors	157.9	(25.37)	(6.48)	–	–	(1.26)	1.94	6/1/16
Frontier Global	71.7	–	–	–	–	(11.27)	(15.51)	8/5/19
FIS Frontier Markets	11.2	(33.35)	(12.61)	(3.55)	–	(3.20)	(0.72)	10/1/13
Ithaka Group	82.8	–	–	–	–	(0.86)	(4.16)	8/5/19
North of South Capital	46.6	–	–	–	–	(12.86)	(14.44)	8/5/19
Osmosis Investment Management	118.2	(14.73)	(2.68)	–	–	0.57	(0.10)	11/1/15
Redwood Investments	122.1	(8.03)	3.06	–	–	2.90	(2.25)	3/1/17
MSCI All Country World Index		(11.26)%	1.50%	2.85%	–			
Total Leading Edge Investment Advisors Composite	\$ 332.9	(21.50)%	(2.53)%	0.65%	–	0.65%	(0.25)%	4/1/15
Bowling Portfolio Management	35.4	(33.06)	–	–	–	(19.22)	(14.96)	12/20/17
Bridge City Capital	37.0	–	–	–	–	(19.25)	(28.61)	2/28/20
Denali Advisors	43.0	–	–	–	–	(25.48)	(26.68)	8/28/19
Granahan Investment Management	63.1	(11.38)	–	–	–	12.06	(3.67)	9/29/17
Granite Investment Partners	52.3	(17.69)	0.82	2.94	–	2.94	(0.25)	4/1/15
Nicholas Investment Partners	29.5	(10.08)	5.42	3.09	–	3.09	1.70	4/1/15
Palisades Investment Partners	33.7	(12.20)	0.73	2.78	–	2.78	(0.25)	4/1/15
Phocas Financial Corporation	39.8	(30.18)	(10.21)	(3.46)	–	(3.46)	(2.42)	4/1/15
Russell 2000 Index		(23.99)%	(4.64)%	(0.25)%	–			

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

PUBLIC EQUITY FUND OF FUND PERFORMANCE

CONTINUED

	Total Assets (Dollars in Millions)	Annualized Rate of Return				Portfolio Since Inception	Benchmark Since Inception*	Inception Date
		1 Year	3 Years	5 Years	10 Years			
Total GSAM Composite	\$ 2,490.6	(9.47)%	4.12%	4.94%	–	5.21%	3.54%	1/1/15
GSAM AIMS Global Account Cayuga	332.3	2.34	9.72	9.99	–	10.12	2.98	12/23/14
GSAM AIMS Global Account Iroquois	265.4	(5.53)	7.03	6.93	–	7.08	2.87	11/20/14
GSAM AIMS Global Account Mohawk	259.7	(29.11)	(6.68)	(2.72)	–	(2.79)	2.97	11/26/14
GSAM AIMS Global Account Mohican	316.8	(8.76)	4.92	–	–	5.01	3.85	7/22/16
GSAM AIMS Global Account Onondaga	406.6	(5.56)	8.26	7.89	–	8.25	4.12	12/17/14
GSAM AIMS Global Account Seneca	430.4	0.51	9.71	8.69	–	8.93	3.71	1/30/15
GSAM AIMS Global Account Shinnecock	243.1	–	–	–	–	(14.63)	(15.13)	10/21/19
GSAM AIMS Global Account Tuscarora	235.9	(22.43)	(3.85)	(0.18)	–	0.76	3.41	12/22/14
MSCI World Index		(10.39)%	1.92%	3.25	–			
* Benchmarks for all accounts will vary according to mandate. Composite market values include transition accounts and accrued management fees.								

DOMESTIC EQUITY PORTFOLIO — TEN LARGEST HOLDINGS

For the Fiscal Year Ending March 31, 2020.

Company	Shares	Fair Value	Percentage of Domestic Equity
Microsoft Corp.	19,458,416	\$ 3,068,786,787	4.9%
Apple, Inc.	10,760,989	2,736,411,893	4.4
Amazon.com, Inc.	1,026,745	2,001,865,261	3.2
Alphabet, Inc. - Class C	920,265	1,070,093,345	1.7
Facebook, Inc.	6,372,243	1,062,890,132	1.7
Berkshire Hathaway, Inc. - Class B	5,088,480	930,326,798	1.5
Alphabet, Inc. - Class A	776,269	901,985,765	1.4
Johnson & Johnson	6,733,221	882,927,270	1.4
Visa, Inc. - Class A	4,727,673	761,722,674	1.2
J.P. Morgan Chase & Company	7,739,442	696,781,963	1.1

Note: A detailed listing of the New York State and Local Retirement System's assets as of March 31, 2020 is on our website at www.osc.state.ny.us.

FIXED INCOME PORTFOLIO AND COMPARISON

As of March 31, 2020.

Sector	Fair Value (Dollars in Millions)	Fair Value Percentage	Effective Duration	Current Yield
Treasury	\$ 10,693.7	30.30%	9.17	1.86%
Federal Agency	485.40	1.40	1.30	2.36
Corporate	11,479.90	32.60	7.15	3.77
Asset-Backed	1,170.50	3.30	3.26	3.92
Commercial Mortgage-Backed	1,679.60	4.80	3.88	3.37
Mortgage-Backed	6,960.60	19.70	2.45	3.44
Collateralized Loan Obligations	2,446.30	6.90	0.03	3.53
Municipal Bonds	327.50	0.90	14.74	3.88
Total Core Portfolio	\$ 35,243.4	100.0%	5.95	3.03%
Treasury Inflation-Protected Securities (TIPS)	\$ 4,627.2		5.38	0.90%
Externally Managed Funds:				
Advent Capital	\$ 369.6		3.27	2.15%
BlackRock	\$ 2,210.5		2.36	6.29%
Calvert Research and Management	\$ 238.5		5.40	2.92%
DoubleLine Capital	\$ 321.0		16.98	2.00%
Neuberger Berman	\$ 1,595.0		4.10	6.27%
New Century Advisors	\$ 279.1		8.22	0.68%
Semper Capital	\$ 276.5		2.53	3.66%
Teachers Advisors (Nuveen)	\$ 249.4		6.33	2.29%

FIXED INCOME PERFORMANCE

As of March 31, 2020.

	Annualized Rate of Return		
	1 Year	3 Years	5 Years
Common Retirement Fund — Internal Core	7.49%	4.79%	3.69%
Treasuries	17.66	7.27	4.46
Agencies	4.83	3.37	2.40
Corporate Bonds	4.16	4.04	3.63
Municipal Bonds	7.22	6.36	N/A
Asset-Backed	(6.30)	(0.12)	0.74
Commercial Mortgage-Backed	1.61	2.54	2.22
Mortgage-Backed	5.77	3.84	2.96
Collateralized Loan Obligations	(5.66)	0.11	1.25
Bloomberg Barclays U.S. Aggregate Bond Index	8.93%	4.82%	3.36%
Common Retirement Fund — Internal TIPS	6.36%	3.43%	2.77%
Bloomberg Barclays U.S. TIPS Index	6.85%	3.46%	2.67%

FIXED INCOME PORTFOLIO — TEN LARGEST HOLDINGS

As of March 31, 2020.

Issue	Fair Value (Dollars in Millions)	Percentage of Fixed Income
Treasury Bonds Due 2/15/2045	\$ 643.9	1.56%
Treasury Bonds Due 8/15/2045	579.5	1.40
Treasury Bonds Due 2/15/2039	569.9	1.38
Treasury Bonds Due 11/30/2021	538.5	1.30
Treasury Bonds Due 5/15/2043	529.2	1.28
Treasury Bonds Due 8/15/2029	510.1	1.23
Treasury Bonds Due 11/15/2042	485.1	1.17
Treasury Inflation-Indexed Securities Due 4/15/2021	468.3	1.13
Treasury Bonds Due 8/15/2042	435.8	1.05
Treasury Inflation-Indexed Securities Due 4/15/2022	392.3	0.95
Total	\$ 5,152.6	12.47%

REAL ESTATE PORTFOLIO

As of March 31, 2020.

	Equity Amount	Percentage	Mortgage Amount	Percentage
Property Diversification				
Industrial/R&D	\$ 3,050,138,930	19.4%	\$ -	0.0%
Land for Development	31,506,612	0.2	-	0.0
Lodging	324,885,600	2.1	-	0.0
Office	5,029,391,304	32.0	88,950,204	8.8
Other*	2,047,350,226	13.0	-	0.0
Residential	1,876,146,814	11.9	493,046,191	48.7
Retail	3,362,021,996	21.4	429,847,839	42.5
Total	\$ 15,721,441,483	100.0%	\$ 1,011,844,234	100.0%
Regional Diversification				
Northeast	\$ 3,414,750,957	21.7%	\$ 1,011,844,234	100.0%
Mideast	1,221,852,845	7.8	-	0.0
Southeast	1,053,621,893	6.7	-	0.0
Southwest	1,893,341,994	12.0	-	0.0
Midwest	958,039,459	6.1	-	0.0
Mountain	399,103,424	2.6	-	0.0
Pacific	3,867,695,544	24.6	-	0.0
Non-U.S.	2,913,035,366	18.5	-	0.0
Total	\$ 15,721,441,483	100.0%	\$ 1,011,844,234	100.0%

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

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

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

OPPORTUNISTIC REAL ESTATE

Number of Active Partnerships	Capital Committed (Dollars in Millions)	Capital Contributed (Dollars in Millions)	Current Fair Value (Dollars in Millions)	Cumulative Distributions (Dollars in Millions)	Total Value / Exposure (Dollars in Millions)
81	\$ 17,104.8	\$ 12,501.6	\$ 5,049.3	\$ 11,232.9	\$ 16,282.2

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, 2020.

	Number of Partnerships	Capital Committed	Capital Contributed	Fair Value	Cumulative Distributions	Total Value
Private Equity Funds						
Corporate Finance/Buyout	150	\$ 30,079,402,864	\$ 23,787,277,259	\$ 10,860,969,820	\$ 23,700,936,342	\$ 34,561,906,162
Co-Investment	22	4,987,684,864	2,749,743,271	1,690,346,441	1,964,030,600	3,654,377,041
Distressed/Turnaround	12	1,836,741,999	1,448,477,365	435,618,615	1,419,035,899	1,854,654,514
Fund of Funds	40	8,166,153,808	7,515,096,989	2,005,206,420	8,134,598,158	10,139,804,578
Growth Equity	40	6,186,986,340	4,907,786,734	3,010,336,204	4,042,702,229	7,053,038,433
Special Situations	29	5,284,717,159	4,171,804,700	1,505,381,057	3,427,006,807	4,932,387,864
Venture Capital	31	1,285,298,060	990,319,760	741,846,199	668,498,003	1,410,344,202
Other	N/A	N/A	64,471,794	64,471,794	N/A	64,471,794
Total Private Equity	324	\$ 57,826,985,094	\$ 45,634,977,872	\$ 20,314,176,550	\$ 43,356,808,038	\$ 63,670,984,588
Absolute Return Strategy Funds						
Equity Long-Bias	4	N/A	N/A	\$ 2,149,310,190	N/A	\$ 2,149,310,190
Equity Long-Short	6	N/A	N/A	659,273,019	N/A	659,273,019
Event and Merger	1	N/A	N/A	54,631,656	N/A	54,631,656
Event Driven	12	N/A	N/A	991,677,410	N/A	991,677,410
Fund of Funds	3	N/A	N/A	675,175,689	N/A	675,175,689
Quantitative	1	N/A	N/A	68,806,187	N/A	68,806,187
Relative Value	2	N/A	N/A	545,165,758	N/A	545,165,758
Structured Credit	2	N/A	N/A	426,125,739	N/A	426,125,739
Tactical Trading	5	N/A	N/A	1,264,392,659	N/A	1,264,392,659
Total Absolute Return Strategy	36			\$ 6,834,558,307		\$ 6,834,558,307
Opportunistic Funds	39	\$ 8,050,972,500	\$ 5,101,312,764	\$ 3,047,333,814	\$ 2,705,445,397	\$ 5,752,779,211
Real Assets	26	\$ 7,507,625,000	\$ 2,998,056,704	\$ 3,085,682,835	\$ 414,772,710	\$ 3,500,455,545
Note: The total figures include the Fund's private equity investments and other investments through Pursuit.						

PUBLIC EQUITY MANAGEMENT FEES

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees	Incentive Fees	Total
Acadian Asset Management, LLC	\$ 6,795,729	\$ —	\$ 6,795,729
AQR Capital Management, LLC	3,233,975	—	3,233,975
Ariel Investments, LLC	1,529,863	—	1,529,863
Aronson + Johnson + Ortiz, LP	380,612	—	380,612
Artisan Partners, LP	4,988,274	—	4,988,274
Baillie Gifford Overseas, Ltd.	5,735,194	—	5,735,194
Baring International Investment, Ltd.	1,849,776	—	1,849,776
BlackRock Institutional Trust Company, NA	4,135,251	—	4,135,251
Brandes Investment Partners, LP	3,028,959	—	3,028,959
Brown Capital Management, Inc.	9,729,886	—	9,729,886
Capital Guardian Trust Company	2,323,403	6,760,977	9,084,380
Channing Capital Management, LLC	1,629,148	—	1,629,148
Consilium Frontier Equity Fund, LP	156,316	—	156,316
Eagle Capital Management, LLC	7,991,879	—	7,991,879
EARNEST Partners, LLC	3,892,761	—	3,892,761
Fiera Capital, Inc.	3,683,251	—	3,683,251
FIS Group, Inc. *	4,833,270	—	4,833,270
Generation Investment Management, LLP	12,281,185	29,160,382	41,441,567
Genesis Investment Management, LLP	5,104,887	—	5,104,887
Global Alpha Capital Management, Ltd.	1,908,200	—	1,908,200
Goldman Sachs Asset Management	907,943	—	907,943
Goldman Sachs Asset Management *	18,889,211	2,345,867	21,235,078
GQG Partners, LLC	2,716,914	—	2,716,914
Iridian Asset Management, LLC	2,380,441	—	2,380,441
Leading Edge Investment Advisors, LP *	3,151,661	—	3,151,661
Martin Currie, Inc.	1,091,427	—	1,091,427
Mondrian Investment Partners, Inc.	5,026,149	—	5,026,149
Morgan Stanley Emerging Markets Fund, Inc.	8,420,575	—	8,420,575
Morgan Stanley Investment Management, Inc.	388,690	—	388,690
Palisade Capital Management, LLC	1,799,216	—	1,799,216
Penn Capital Management Company, Inc.	1,797,602	—	1,797,602
Progress Investment Management Company *	7,489,350	—	7,489,350
Quantitative Management Associates, LLC	4,228,099	—	4,228,099
Rockefeller & Company Asset Management	2,379,227	—	2,379,227
Russell Investments Group, LLC	2,173,622	—	2,173,622
T. Rowe Price Associates, Inc.	5,938,200	—	5,938,200
Templeton Investment Counsel, LLC	2,419,334	—	2,419,334
Wellington Management Company, LLP	7,762,892	—	7,762,892
Total	\$ 164,172,372	\$ 38,267,226	\$ 202,439,598

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

PUBLIC EQUITY COMMISSIONS — INTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2020.

Broker	Shares	Commission \$ U.S.
Bank of America Corp.	11,092,493	\$ 110,925
Barclays Capital, Inc.	9,607,857	96,267
BTIG, LLC	9,410,936	94,109
Citigroup Global Markets, Inc.	9,418,431	94,184
Cowen and Company, LLC	9,404,718	94,047
Goldman Sachs & Company	22,416,295	224,163
Great Pacific Securities, Inc.	14,182,000	141,820
Guzman & Company	7,013,085	70,131
Instinet	10,661,334	106,613
J.P. Morgan Securities, LLC	15,847,481	105,472
Loop Capital Markets, LLC	14,432,087	144,321
Morgan Stanley & Company, Inc.	9,457,112	94,571
Penserra Securities, Inc.	6,138,663	61,387
Piper Jaffray & Company	2,678,387	26,784
Sanford C. Bernstein & Company, LLC	9,385,060	93,851
Siebert Cisneros Shank & Company, LLC	13,170,716	131,707
Siebert Williams Shank & Company, LLC	2,259,200	22,592
Virtu Americas, LLC	13,248,832	115,679
Williams Capital Group, LP	11,116,034	111,160
Total	200,940,721	\$ 1,939,783

PUBLIC EQUITY COMMISSIONS — EXTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2020.

Broker	Shares	Commission \$ U.S.
Abel Noser, LLC	2,093,519	\$ 83,482
ABG Sundal Collier ASA	196,057	7,797
Academy Securities, Inc.	100,414	2,008
Actinver Securities, Inc.	1,090,120	2,430
Arqaam Securities, LLC	2,987,004	7,046
Atlantic Equities, LLP	20,530	781
Auerbach Grayson & Company, Inc.	822,353	20,800
B. Riley FBR, Inc.	521,240	19,728
Baader Bank AG	29,466	2,762
Baird, Robert W. & Company, Inc.	5,226,826	169,020
Banca IMI S.p.A.	118,184	1,892
Banco BICE	461,136	3,732
Banco Bilbao Vizcaya Argentaria S.A.	521,118	2,302
Banco Bradesco S.A.	3,647,198	30,352
Banco BTG Pactual S.A.	6,741,958	18,900
Banco Itau Unibanco S.A.	21,762,789	25,018
Banco Santander S.A.	11,657,798	11,750
Bank of America Corp.	91,802,835	857,727
Bank of New York Mellon Corp.	588,733	5,643
Bank Vontobel AG	19,732	1,405
Bankhaus Lampe KG	35,466	1,514
Barclays Capital, Inc.	12,970,798	250,816
Bay Crest Partners, LLC	1,723,900	25,546
BCS Prime Brokerage, Ltd.	15,215	282
Berenberg Bank	5,025,934	123,358
Berenberg Capital Markets, LLC	345,977	11,197
Blair, William & Company	2,970,895	96,874
Bloomberg Tradebook, LLC	118	1
BMO Capital Markets Corp.	2,813,680	83,195
BNP Paribas Securities Corp.	15,035,160	48,207
Boenning & Scattergood, Inc.	12,222	489
BTIG, LLC	23,346,288	431,047
Buckingham Research Group, Inc.	152,617	7,213
C.L. King & Associates, Inc.	1,907,993	51,263
Cabrera Capital Markets, Inc.	2,022,851	43,959
Canaccord Genuity Group, Inc.	1,057,736	16,533
Cantor Fitzgerald & Company	5,434,163	148,993

Broker	Shares	Commission \$ U.S.
Capital Institutional Services, Inc.	4,470,662	\$ 68,274
Carnegie Investment Bank AB	1,845,192	28,511
CastleOak Securities, LP	13,444,934	95,742
China International Capital Corp., Ltd.	11,177,680	44,421
CIBC World Markets Corp.	1,562,726	13,678
CIMB Securities	67,195,474	12,309
Citadel Securities Institutional, LLC	718,308	3,592
Citibank	2,177,709	9,792
Citigroup Global Markets, Inc.	393,258,980	641,952
CJS Securities, Inc.	82,562	2,906
CLSA, Ltd.	147,593,025	444,775
CM-CIC Market Solutions	76,379	3,389
COL Financial Group, Inc.	10,306,200	1,913
Collins Stewart, LLC	1,965,832	60,859
Commercial Bank of Qatar, Ltd.	1,354,617	2,013
Commerzbank AG	190,641	8,055
Compass Point Research & Trading, LLC	60,097	2,363
Concept Capital Markets, LLC	406,803	9,351
Cornerstone Macro, LLC	1,536,575	27,853
Cowen and Company, LLC	21,340,726	429,439
Craig-Hallum Capital Group, LLC	408,022	15,186
Credit Suisse Securities, Ltd.	298,147,469	1,024,370
Cuttone & Company, Inc.	11,184	112
D.A. Davidson & Company, Inc.	1,070,935	23,302
Daiwa Capital Markets America, Inc.	2,658,363	83,475
Danske Bank A/S	1,217,017	18,584
Davy Securities, Ltd.	1,958,856	45,740
Deutsche Bank Securities, Inc.	24,025,405	119,544
Divine Capital Markets, LLC	5,000	100
DNB ASA	490,482	8,505
Dougherty & Company, LLC	19,627	742
Drexel Hamilton, LLC	303,800	3,008
Edelweiss Securities, Ltd.	1,831,647	34,153
EFG Eurobank Securities S.A.	90,700	2,485
Electronic Brokerage Systems, LLC	962,984	10,476
Equita SIM S.p.A.	25,891	2,985
Erste Bank	173,205	7,012

PUBLIC EQUITY COMMISSIONS — EXTERNALLY MANAGED

CONTINUED

Broker	Shares	Commission \$ U.S.
Evans and Partners Pty., Ltd	76,740	\$ 1,006
Evercore ISI	7,099,685	126,496
Exane S.A.	8,788,465	106,677
Fidelity Capital Markets	163,592	1,636
Flow Corretora de Mercadorias, Ltda.	162,192	1,765
Fox River Execution Technology, LLC	581,100	2,905
Gabelli & Company	4,709	235
Goldman Sachs & Company	287,875,593	658,398
Goodbody Stockbrokers	999,018	4,968
Guggenheim Securities, LLC	103,485	3,145
Guzman & Company	1,988,093	19,558
Haitong International Securities Company, Ltd.	274,590	4,701
Hanover Nominees, Ltd.	96,035	925
Hanwha Investment & Securities Company, Ltd.	1,067	38
Hauck & Aufhauser Privatbankiers AG	11,265	433
Helvea S.A.	185,506	8,065
Hilltop Securities, Inc.	61,832	2,473
HSBC Securities, Inc.	213,731,136	276,902
ICAP Corporates, LLC	10,400	260
ICICI Brokerage Services Mumbai	85,128	763
Imperial Capital, LLC	1,573	63
India Infoline, Ltd.	469,254	8,609
Instinet	167,874,401	525,641
INTL FCStone Financial, Inc.	457,600	31,180
Investec Group	1,046,610	7,755
Ipopema Securities S.A.	199,352	7,461
Is Yatirim Menkul Degerler A.S.	3,151,459	4,537
Ivy Securities, Inc.	1,478,900	14,789
J & E Davy	97,057	3,023
J.P. Morgan Securities, LLC	342,773,483	865,454
Janney Montgomery Scott, Inc.	73,477	2,836
Jefferies & Company, Inc.	62,237,677	551,571
JM Financial Institutional Securities, Ltd.	494,335	3,836
JMP Securities, LLC	983,026	25,243
JNK Securities, Inc.	515,949	5,721
Johnson Rice & Company, LLC	1,026,630	22,270
JonesTrading Institutional Services, LLC	27,274,250	888,541
Jupiter Securities Sdn Berhad	1,232,756	480

Broker	Shares	Commission \$ U.S.
KBC Securities N.V.	11,000	\$ 163
Keefe Bruyette & Wood, Inc.	4,749,285	48,854
Kempen & Company N.V.	16,260	462
Kepler Cheuvreux S.A.	1,757,120	47,327
KeyBanc Capital Markets, Inc.	1,644,067	55,615
Korea Investment & Securities Company	51,841	3,022
Kotak Securities, Ltd.	657,798	19,886
Liberum Capital, Ltd.	993,019	4,836
Liquidnet, Inc.	93,135,065	813,444
Longbow Securities, LLC	74,262	3,476
Loop Capital Markets, LLC	34,716,994	471,070
Luminex Trading & Analytics, LLC	2,177,273	19,225
M.M. Warburg & Company	27,640	1,965
Macquarie Group, Ltd.	47,801,447	169,171
Mainfirst Bank AG	769,322	18,584
Maxim Group	249,004	4,980
Maybank Kim Eng Holdings, Ltd.	2,727,252	5,600
Mediobanca S.p.A.	922,124	18,052
Miller Tabak Roberts Securities, LLC	4,128	31
Mirabaud Securities, LLP	606,916	7,610
Mirae Asset Securities (USA), Inc.	363,340	4,991
Mischler Financial Group, Inc.	5,609,779	16,934
Mitsubishi UFJ Securities Holdings Company, Ltd.	682,670	12,397
Mizuho Securities	9,075,710	135,704
MKM Partners, LLC	768,581	11,550
Monness, Crespi, Hardt & Company, Inc.	413,388	19,001
Morgan Stanley & Company, Inc.	501,336,308	1,260,965
National Bank Financial, Inc.	49,957	1,242
National Financial Services, LLC	95,773	1,808
Needham & Company, LLC	2,616,949	103,516
Nomura Securities International, Inc.	1,920,484	29,193
Nordea Bank AB	482,758	12,511
North South Capital, LLC	1,597,911	54,715
Northcoast Research Partners, LLC	198,176	8,001
Northern Trust Company	34,881	322
Numis Securities, Ltd.	2,697,679	15,910
Oddo Securities Corp.	315,264	9,495

PUBLIC EQUITY COMMISSIONS — EXTERNALLY MANAGED

CONTINUED

Broker	Shares	Commission \$ U.S.
Olivetree Financial, LLC	6,697,456	\$ 12,187
O'Neil, William & Company, Inc.	74,590	2,400
Oppenheimer & Company, Inc.	1,122,660	32,846
OSK Investment Bank Berhad	1,969,800	4,362
Outset Global, LLP	1,778	54
Panmure Gordon & Company	1,327,883	2,825
Parel S.A.	53,617	1,045
Pavilion Global Markets, Ltd.	223,608	2,635
Peel Hunt, LLP	3,950	3
Penserra Securities, Inc.	14,477,057	138,035
Pershing, LLC	7,558,123	90,212
Pictet Asset Management, Inc.	15,144	151
Piper Jaffray & Company	1,658,185	44,240
Precision Securities, LLC	1,291,700	10,979
PT Danareksa Sekuritas	48,865,800	8,726
Raymond James & Associates, Inc.	6,008,234	158,246
RBC Capital Markets	33,304,110	336,071
Redburn Partners, LLP	4,258,259	69,552
Roberts & Ryan Investments, Inc.	2,240	104
Rosenblatt Securities, Inc.	1,902,239	30,931
Roth Capital Partners, Inc.	245,111	7,898
Salisbury BKT Securities Corp.	4,363,353	187
Samsung Securites Company, Ltd.	167,459	6,592
Sandler O'Neill & Partners, LP	535,101	13,361
Sanford C. Bernstein & Company, LLC	92,695,084	473,357
SBICAP Securities, Ltd.	372,505	7,348
Scotia Capital, Inc.	598,999	9,874
Seaport Global Securities, LLC	1,838,649	54,331
Shinhan Investment Corp.	112,653	3,159
Sidoti & Company, LLC	129,161	4,567
Siebert Cisneros Shank & Company, LLC	62,992	1,575
Siebert Williams Shank & Company, LLC	1,750,374	37,620
SinoPac Securities Corp.	1,152,000	3,972
Skandinaviska Enskilda Banken AB	765,443	15,864
SMBC Nikko Securities	3,908,483	86,592
Societe Generale S.A.	409,850,536	390,074
State Street Global Markets, LLC	227,500	2,885

Broker	Shares	Commission \$ U.S.
Stephens, Inc.	1,122,694	\$ 37,709
Stern Brothers & Company	5,400	135
Stifel Nicolaus & Company, Inc.	4,974,810	119,596
Strategas Securities, LLC	434,136	17,589
Stuart Frankel & Company, Inc.	49,969	1,815
Sturdivant & Company, Inc.	297,888	6,664
SunTrust Robinson Humphrey, Inc.	1,979,280	72,260
Susquehanna Financial Group, LLLP	2,200	95
SVB Leerink, LLC	579,400	19,189
Svenska Handelsbanken AB	378,028	7,819
TD Securities, Inc.	238,800	1,969
Telsey Advisory Group, LLC	1,364,999	54,957
The Benchmark Company, LLC	102,880	4,061
Themis Trading, LLC	446,970	5,675
Tourmaline Partners, LLC	153,700	827
UBS AG	116,285,285	572,037
UOB Kay Hian Pte, Ltd.	5,807,108	10,027
Virtu Americas, LLC	109,815,118	515,652
VTB Capital, PLC	160,066	1,715
Wall Street Access	668,249	6,265
Wedbush Securities, Inc.	444,103	15,236
Weeden & Company, LP	3,262,453	15,982
Weeden Prime Services, LLC	42,310	969
Wells Fargo Advisors	103,301	2,583
Wells Fargo Securities, LLC	3,248,265	90,697
Williams Capital Group, LP	3,142,795	73,353
Winslow, Evans & Crocker, Inc.	66,100	857
Wolfe Research Securities	1,114,028	35,857
Woori Investment & Securities Company, Ltd.	9,026	529
XP Investimentos CCTVM S/A	210,500	3,012
Yuanta Securities Company, Ltd.	3,844,000	4,930
Zeus Capital, Ltd.	21,153	365
Total	4,004,451,427	\$ 17,293,301

GLOBAL FIXED INCOME MANAGEMENT FEES

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees	Incentive Fees	Total
Advent Capital Management, LLC	\$ 2,053,213	\$ -	\$ 2,053,213
BlackRock Institutional Trust Company, NA	8,744,817	3,379,830	12,124,647
Calvert Research and Management	42,135	-	42,135
DoubleLine Capital, LP	706,981	-	706,981
Neuberger Berman Fixed Income, LLC	4,540,290	-	4,540,290
New Century Advisors, LLC	229,275	-	229,275
Semper Capital Management, LP	1,034,246	-	1,034,246
Smith Graham & Company Investment Advisors, LP	146,357	-	146,357
Teachers Advisors, LLC (Nuveen)	44,248	-	44,248
Total	\$ 17,541,562	\$ 3,379,830	\$ 20,921,392

LONG-TERM DOMESTIC BOND TRANSACTIONS — INTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2020.

Summarized by Broker or Direct Issuer.

Long-Term Broker	Par \$ U.S.
Academy Securities, Inc.	\$ 2,000,000
Bank of America Merrill Lynch	2,317,199,775
Barclays Capital, Inc.	1,000,245,503
BNY Mellon Capital Markets, LLC	77,491,000
Citigroup Global Markets, Inc.	1,403,573,613
Credit Suisse Securities, Ltd.	290,672,000
Deutsche Bank Securities, Inc.	314,370,000
Development Corp. for Israel	95,000,000
Goldman Sachs & Company	2,001,324,901
Great Pacific Securities, Inc.	2,281,667,000
HSBC Securities, Inc.	1,155,012,000
J.P. Morgan Securities, LLC	2,104,276,869
Jefferies & Company, Inc.	350,000,000
Mischler Financial Group, Inc.	755,978,000
Morgan Stanley & Company, Inc.	2,944,083,509
RBC Capital Markets	868,353,000
Samuel A. Ramirez & Company, Inc.	37,840,000
Scotia Capital (USA), Inc.	127,000,000
Siebert Cisneros Shank & Company, LLC	867,713,000
Siebert Williams Shank & Company, LLC	29,000,000
Suntrust Robinson Humphrey, Inc.	259,880,000
Toronto Dominion Securities (USA), Inc.	666,266,000
UBS Securities, LLC	1,283,671,995
Vining-Sparks Investment Bankers Group, LP	3,278,000
Wells Fargo Securities, LLC	4,098,466,000
Williams Capital Group, LP	237,500,000
Total	\$ 25,571,862,165

LONG-TERM DOMESTIC BOND TRANSACTIONS — EXTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2020.

Summarized by Broker or Direct Issuer.

Long-Term Broker	Par \$ U.S.
280 Securities, LLC	\$ 752,400
Amherst Pierpont Securities, LLC	42,021,991
Baird, Robert W. & Company, Inc.	6,500,000
Bank of America Merrill Lynch	211,423,363
Barclays Capital, Inc.	257,594,006
BCP Securities, LLC	5,261,000
Blair, William & Company	397,000
BMO Capital Markets Corp.	22,894,693
BNP Paribas Securities Corp.	53,809,150
BNY Mellon Capital Markets, LLC	2,115,000
BTIG, LLC	21,797,000
Cabrera Capital Markets, Inc.	69,355,000
Cantor Fitzgerald & Company	1,751,137
Capital Institutional Services, Inc.	2,040,000
CIBC World Markets Corp.	1,000,000
Citadel Securities Institutional, LLC	80,137,000
Citigroup Global Markets, Inc.	184,532,813
Commonwealth Bank of Australia	1,500,000
Credit Agricole Securities (USA), Inc.	5,465,000
Credit Suisse Securities, Ltd.	42,898,236
Deutsche Bank Securities, Inc.	101,017,793
First Tennessee Bank	3,816,000
GMP Securities, LLC	15,443,143
Goldman Sachs & Company	99,440,299
Hilltop Securities, Inc.	67,000
HSBC Securities, Inc.	66,015,000
ICE Bonds Securities Corp.	42,000
INTL FCStone Financial, Inc.	3,781,273
J.P. Morgan Securities, LLC	171,197,531
Jane Street Execution Services, LLC	2,036,000
Jefferies & Company, Inc.	62,142,000
KeyBanc Capital Markets, Inc.	7,486,051
Loop Capital Markets, LLC	3,665,000
MarketAxess Corp.	3,231,000
Millennium Advisors, LLC	10,250,000
Mischler Financial Group, Inc.	3,325,000

Long-Term Broker	Par \$ U.S.
Mitsubishi UFJ Securities (USA), Inc.	\$ 19,799,767
Mizuho Securities USA, Inc.	12,035,000
Morgan Stanley & Company, Inc.	104,678,401
NatAlliance Securities, LLC	217,250
NatWest Markets Securities, Inc.	40,275,000
Nomura Securities International, Inc.	96,928,533
Oppenheimer & Company, Inc.	3,970,000
Performance Trust Capital Partners, LLC	53,000
Piper Jaffray	5,422,000
R.W. Pressprich & Company	1,290,431
Rabo Securities USA, Inc.	1,000,000
Raymond James & Associates, Inc.	11,324,000
RBC Capital Markets	22,927,000
RBS Securities, Inc.	5,050,000
Samuel A. Ramirez & Company, Inc.	2,500,000
Seaport Global Securities, LLC	1,402,000
SG Americas Securities, LLC	75,495,223
SMBC Nikko Securities America, Inc.	1,000,000
Stifel Nicolaus & Company, Inc.	11,521,169
SunTrust Robinson Humphrey, Inc.	15,725,000
Susquehanna Financial Group, LLLP	1,000,000
Toronto Dominion Securities (USA), Inc.	60,343,548
Trumid Financial, LLC	284,000
U.S. Bancorp Investments, Inc.	8,474,000
UBS Securities, LLC	97,280,000
Wells Fargo Securities, LLC	116,913,648
Total	\$ 2,283,108,849

SHORT-TERM DOMESTIC BOND TRANSACTIONS — INTERNALLY MANAGED

For the Fiscal Year Ended March 31, 2020.

Summarized by Broker or Direct Issuer.

Short-Term Broker	Par \$ U.S.
Bank of America Merrill Lynch	\$ 12,081,660,000
Barclays Capital, Inc.	660,886,000
BMO Capital Markets Corp.	86,000,000
BNY Mellon Capital Markets, LLC	21,093,650,000
Citigroup Global Markets, Inc.	22,829,502,000
Credit Suisse Securities, Ltd.	5,969,674,000
Deutsche Bank Securities, Inc.	75,000,000
Goldman Sachs & Company	646,554,000
Great Pacific Securities, Inc.	18,755,507,000
HSBC Securities, Inc.	94,610,000
J.P. Morgan Securities, LLC	18,085,163,000
Morgan Stanley & Company, Inc.	101,734,000
RBC Capital Markets	22,330,653,000
Scotia Capital (USA), Inc.	150,000,000
Siebert Cisneros Shank & Company, LLC	53,170,000
Siebert Williams Shank & Company, LLC	32,000,000
Toronto Dominion Securities (USA), Inc.	188,486,000
Wells Fargo Securities, LLC	428,947,205
Total	\$ 123,663,196,205

REAL ESTATE MANAGEMENT AND INCENTIVE FEES (EXPENSED)

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees	Incentive Fees	Total
ARA Fund Management, Ltd.	\$ 1,224,616	\$ -	\$ 1,224,616
ARES Management	2,965,062	-	2,965,062
Artemis Real Estate Partners, LLC	3,664,217	-	3,664,217
Avanath Capital Management, LLC, Series C	537,837	-	537,837
Blackstone Real Estate Advisors	10,327,629	-	10,327,629
Brookfield Asset Management, Inc.	12,619,773	-	12,619,773
Carlyle Group	187,980	-	187,980
CIF-H GP, LLC (Cayuga Lake Fund, LP)	285,151	-	285,151
CIM Group, LP	3,604,442	-	3,604,442
Clarion Partners	4,394,276	-	4,394,276
Franklin Templeton Institutional, LLC (Lake Montauk)	717,149	-	717,149
GCM Grosvenor	415,385	-	415,385
GreenOak Real Estate Advisors	1,680,118	-	1,680,118
Heitman Capital Management, LLC	1,150,858	-	1,150,858
HL Lake Hempstead GP, LLC	13,518	-	13,518
HL Lake Success GP, LLC	50,338	-	50,338
J.P. Morgan Investment Management, Inc.	4,479,380	-	4,479,380
Jamestown Premier GP, LP	1,344,880	-	1,344,880
LaSalle Investment Management, Inc.	2,713,536	22,545,596	25,259,132
MetLife Investment Management, LLC	381	-	381
NIAM AB	2,539,343	-	2,539,343
Prologis, LP	4,754,203	-	4,754,203
Rockpoint Real Estate Funds	595,796	-	595,796
USB Realty Investors LLC	1,228,416	-	1,228,416
Westbrook Realty Management	2,779,498	-	2,779,498
Total	\$ 64,273,782	\$ 22,545,596	\$ 86,819,378

REAL ESTATE MANAGEMENT AND INCENTIVE FEES (CAPITALIZED)

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees	Incentive Fees	Total
ACA Advisors (Aetos)	\$ 33,052	\$ -	\$ 33,052
ARES Management	349,069	-	349,069
Artemis Real Estate Partners, LLC	1,478,295	-	1,478,295
Asana Partners, LP	2,955,306	-	2,955,306
Avanath Capital Management, LLC, Series C	72,894	-	72,894
BCP Strategic Partners (Beacon)	(859,847)	-	(859,847)
Blackstone Real Estate Advisors	10,124,982	-	10,124,982
Cherokee Advisers, LLC	189,585	-	189,585
Clarion Partners	1,837,512	-	1,837,512
Colony Advisors, LLC	59,755	-	59,755
Exeter Europe	1,431,117	-	1,431,117
GCM Grosvenor	200,000	-	200,000
Heitman Capital Management, LLC	2,112,830	-	2,112,830
J.P. Morgan Investment Management, Inc.	720,376	-	720,376
Kimex	57,717	-	57,717
Landmark	652,082	-	652,082
LaSalle Investment Management, Inc.	565,470	521,369	1,086,839
MetLife Investment Advisors, LLC	5,587,643	-	5,587,643
NIAM AB	1,201,899	-	1,201,899
PGIM Fund Management Ltd.	1,227,456	-	1,227,456
Stockbridge Real Estate Funds	625,485	-	625,485
UBS Realty Investors LLC	641,653	-	641,653
Total	\$ 31,264,331	\$ 521,369	\$ 31,785,700

PRIVATE EQUITY MANAGEMENT FEES (EXPENSED)

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees
57 Stars, LLC	\$ 275,000
Access Capital Advisors, LLC	253,351
ACON Investments, LLC	1,180,077
Affinity Equity Partners	2,570,364
African Capital Alliance Limited	1,698,802
Aisling Capital, LLC	(50,336)
Apollo Management, LP	10,215,558
Ares Management, LP	3,744,455
Armory Square Ventures, LP	388,049
Ascent Biomedical Ventures	190,387
Asia Alternatives Management, LLC	3,988,668
Blackstone Group, LP	9,808,103
Bridgepoint Capital Ltd.	1,699,011
Brookfield Asset Management	11,492,243
Carlyle Group	253,405
CCMP Capital Advisors	1,030,350
Centerbridge Partners, LP	2,778,604
Cinven Capital Management	2,712,505
Clearlake Capital Group, LP	1,702,448
Contour Venture Partners	1,062,000
CVC Capital Partners	12,066,267
DeltaPoint Capital Management, LLC	152,481
Dyal Capital Partners	4,275,000
EQT Partners	6,880,185
Fairview Capital Partners, Inc.	258,111
Falcon Investment Advisors, LLC	(101,685)
Farol Asset Management, LP	1,482,114
FIMI Opportunity Funds	406,773
FountainVest Partners (Asia), Ltd.	829,594
Freeman, Spogli & Company	3,330,591
GCM Grosvenor	389,777
GenNx360 Capital Partners	1,132,657
Graycliff Partners LP	68,203
Hamilton Lane Advisors, LLC	3,744,481
HarbourVest Partners, LLC	1,452,435
Helios Investment Partners	877,187
Hellman & Friedman Investors, Inc.	1,772,691

Manager	Management Fees
Hony Capital	\$ 2,571,305
ICV Partners, LLC	1,076,138
Insight Partners, LLC	5,500,000
J.P. Morgan Partners, LLC	1,375,518
KKR & Company, LP	11,139,978
KSL Capital Partners, LLC	6,371,380
Leonard Green & Partners, LP	910,855
Lindsay Goldberg & Company, LLC	3,007,523
Lion Capital, LLP	60,077
Muller & Monroe Asset Management, LLC	1,642,152
Neuberger Berman Group, LLC	2,327,360
Paladin Capital Group	239,454
Palladium Equity Partners	2,770,728
Performance Equity Management, LLC	546,876
Pine Brook Road Partners, LLC	2,136,442
Primary Venture Partners	1,001,004
Providence Equity Partners, LLC	6,887,230
Quadrangle Group, LLC	184,086
RRJ Capital	4,652,377
Searchlight Capital Partners	6,479,338
Siris Capital Group, LLC	1,557,400
Snow Phipps Group, LLC	4,117,502
SoftBank Capital	639,033
Stepstone Group, LP	98,114
Summer Street Capital Partners, LLC	61,135
TA Associates Management, LP	6,920,340
Thoma Bravo, LLC	3,680,667
Thomas H. Lee Partners, LP	29,463
TPG Capital, LP	11,726,106
Trillium Group, LLC	169,971
Vista Equity Partners, LLC	26,961,280
Warburg Pincus, LLC	375,708
Total	\$ 213,226,446

PRIVATE EQUITY MANAGEMENT FEES (CAPITALIZED)

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees
Activate Venture Partners	\$ 159,048
Apollo Management, LP	(6,713)
Ardian	52
Ascent Biomedical Ventures	29,128
Bridgepoint Capital Ltd.	54,956
Centerbridge Partners, LP	204,826
Cerberus Capital Management, LP	(42,797)
Francisco Partners Management, L.P.	874,772
Gilde, LP	147,532
Hamilton Lane Advisors, LLC	1,501,097
HarbourVest Partners, LLC	585,901
Institutional Venture Partners	696,567
JMI Equity	489,757
Leonard Green & Partners, LP	(19,756)
NCH Capital Inc.	1,030,411
Oaktree Capital Management, LP	3,206,079
Primary Venture Partners	221,625
SAIF Partners	1,398,243
Softbank Capital	300,000
Summer Street Capital Partners, LLC	179,345
Tribeca Venture Partners, LLC	917,400
VCFA Group	309,676
Warburg Pincus, LLC	660,757
Total	\$ 12,897,906

PRIVATE EQUITY — FEE, EXPENSE AND CARRIED INTEREST ANALYSIS

For the Fiscal Year Ended March 31, 2020.

Total Expenses		
Net Management Fees	\$	226,124,352
Partnership Expenses		<u>123,847,368</u>
Total Expenses	\$	349,971,720
Ratio — Total Expenses/Total Private Equity Allocation		0.84%
Total Profit Sharing (Carried Interest)		
Profit Sharing (Carried Interest)	\$	<u>255,672,844</u>
Total Profit Sharing	\$	255,672,844
Ratio — Total Profit Sharing/Total Actively Invested Private Equity Allocation		1.06%
Total Expenses + Profit Sharing (Carried Interest)		
Total Expenses	\$	349,971,720
Total Profit Sharing		<u>255,672,844</u>
Total Expenses and Profit Sharing (Carried Interest)	\$	605,644,564
Total Private Equity Allocation		
Unfunded Capital Commitments	\$	17,779,964,488
Net Asset Value (NAV) as of 3/31/2020		<u>20,314,176,550</u>
Distributions for FY 2020		<u>3,740,077,254</u>
Total Private Equity Allocation	\$	41,834,218,292
Ratio — Total Expenses + Profit Sharing/Total Private Equity Allocation		1.45%
Total Actively Invested Private Equity Allocation		
Net Asset Value (NAV) as of 3/31/2020	\$	20,314,176,550
Distributions for FY 2020		<u>3,740,077,254</u>
Total Actively Invested Private Equity Allocation	\$	24,054,253,804
Ratio — Total Expenses + Profit Sharing/Total Actively Invested Private Equity Allocation		2.52%

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

ABSOLUTE RETURN STRATEGY MANAGEMENT AND INCENTIVE FEES

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees	Incentive Fees	Total
Angelo, Gordon & Company, LP	\$ 715,236	\$ 642,299	\$ 1,357,535
Bain Capital, LP	208,532	90,988	299,520
BCK Capital Management, LP	985,810	400,580	1,386,390
BHC Capital Partners, LLC	426,061	-	426,061
Bridgewater Associates, LP	1,547,343	-	1,547,343
Brigade Capital Management, LLC	2,130,496	3,377,103	5,507,599
Caspian Capital Management, LLC	3,777,122	2,516,562	6,293,685
Cevian Capital, LLP	8,600,796	-	8,600,796
D.E. Shaw and Company, LP	16,400,726	21,498,780	37,899,506
Fortress Investment Group, LLC	325,994	-	325,994
Graticule Asset Management Asia, LP	4,104,668	-	4,104,668
HBK Capital Management, LP	4,219,659	3,152,918	7,372,577
Highland Capital Management, LP	44	-	44
Horizon Asset LLP	2,665,676	-	2,665,676
King Street Capital Management LP	2,759,684	729,648	3,489,332
Knighthood Capital Management LLC	2,666,326	-	2,666,326
Lansdowne Partners, Ltd.	1,442,361	-	1,442,361
Mariner Investment Group LLC	1,184,889	991,137	2,176,027
Marshall Wace, LLP	5,043,597	1,768,608	6,812,205
Mezzacappa Management, LLC	6,926	-	6,926
OxFORD Asset Management, LLP	2,471,501	-	2,471,501
Pharo Management, LLC	3,489,815	2,140,671	5,630,485
Rock Creek Group, LP	2,662,713	-	2,662,713
Schultze Asset Management, LLC	76,035	7,379	83,414
Systematica Investments, Ltd.	917,231	-	917,231
Tilden Park Capital Management LP	4,829,403	1,932,619	6,762,022
Triam Fund Management, LP	7,706,180	6,012,803	13,718,983
ValueAct Capital Management, LP	5,102,053	-	5,102,053
Total	\$ 86,466,878	\$ 45,262,095	\$ 131,728,973

OPPORTUNISTIC FUNDS MANAGEMENT AND INCENTIVE FEES (EXPENSED)

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees	Incentive Fees	Total
ADV Partners Capital Management, Ltd	\$ 4,161,166	\$ -	\$ 4,161,166
Blackstone Group, LP	7,070,630	8,176,478	15,247,108
Blantyre Capital, Ltd	2,154,856	-	2,154,856
Clearlake Capital Group, LP	1,033,816	-	1,033,816
Hollis Park Partners, LP	1,637,066	-	1,637,066
Landmark Partners, LLC	3,497,543	-	3,497,543
Oak Hill Advisors, LP	1,216,405	-	1,216,405
Orchard Global Asset Management, LLP	1,200,092	-	1,200,092
Pacific Alternative Asset Management Company, LLC	175,538	-	175,538
SSG Capital Management, Ltd	2,487,839	35,923	2,523,762
Stellex Capital Management, LP	1,828,942	-	1,828,942
Strategic Value Partners, LLC	1,162,499	-	1,162,499
TPG Capital, LP	6,452,076	6,597,648	13,049,724
Varde Management, LP	1,874,005	-	1,874,005
Vivo Capital, LLC	968,990	-	968,990
Whitehorse Liquidity Partners, Inc	1,411,667	-	1,411,667
Total	\$ 38,333,130	\$ 14,810,049	\$ 53,143,179

OPPORTUNISTIC FUNDS MANAGEMENT FEES (CAPITALIZED)

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees
Landmark Partners, LLC	\$ 3,461,573
TPG Capital, LP	1,507
Total	\$ 3,463,080

REAL ASSETS MANAGEMENT FEES (EXPENSED)

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees
Brookfield Asset Management	\$ 7,093,437
Carlyle Aviation Partners, Ltd.	4,294,378
EQT Fund Management S.a.r.l.	5,531,447
Global Infrastructure Management LLC	8,279,078
Grain Management, LLC	1,168,605
I Squared Capital Advisors (US), LLC	5,227,129
Kayne Anderson Capital Advisors, LP	1,409,126
KKR & Company, LP	1,684,828
Meridiam Infrastructure North America Corporation	2,400,000
Morgan Stanley Investment Management, Ltd.	2,600,766
Patria Investments, Ltd.	1,869,246
Stonepeak Partners, LP	2,987,957
Total	\$ 44,545,997

REAL ASSETS MANAGEMENT FEES (CAPITALIZED)

For the Fiscal Year Ended March 31, 2020.

Manager	Management Fees
Blackstone Group, LP	\$ 2,832,117
IFM Investors, Ltd.	4,207,874
KKR & Company, LP	2,362,216
Nuveen	3,007,392
Pantheon Ventures, LP	2,397,038
Total	\$ 14,806,637

CONSULTANT AND ADVISOR FEES

For the Fiscal Year Ended March 31, 2020.

Aksia, LLC	\$	600,000
Albourne America, LLC		513,453
Bard Consulting, LLC		60,000
Duff & Phelps, LLC		500,000
FX Transparency, LLC		35,000
Franklin Park		35,000
Hamilton Lane Advisors, LLC		1,875,000
J.P. Morgan Asset Management, Inc.		4,975
Mercer Investments		543,472
Mosaic Global Partners Inc.		437,500
Pine Street Alternative Asset Management LP		498,181
RV Kuhns & Associates, Inc.		1,075,101
Stockbridge Risk Management, Inc.		11,308
The Bank of New York Mellon		197,832
The Townsend Group		297,158
Total	\$	6,683,980

Actuarial

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STATEMENT OF THE ACTUARY

September 30, 2020

As the Actuary for the Employees' Retirement System (ERS) and the Police and Fire Retirement System (PFRS), it is my duty to ensure that the New York State and Local Retirement System (the System) properly funds the benefits of members, retirees, and beneficiaries. A discussion of the plan provisions can be found at the beginning of the Notes to the Basic Financial Statements. The Systems' funding policy is established by New York State Retirement and Social Security Law. The Systems have 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, 2019 and determined the employer contribution rates for February 1, 2021. 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 payees, the valuation determines the present value of payments expected to be made for the lifetimes of retirees and beneficiaries.

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

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

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

STATEMENT OF THE ACTUARY

CONTINUED

The April 1, 2018 valuation for determining the February 1, 2020 employer contribution rates found in this report was performed under my direction and supervision, using the assumptions adopted by the Comptroller, a summary of which is included later in this section. The assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice.

I am responsible for all of the valuation results and other actuarial calculations contained in this report. In the Notes to the Basic Financial Statements, I prepared the Net Pension Liability of Participating Employers. While I prepared the employer contribution rates that determined the 2020 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 Trends 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 Systems 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, 2020.

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



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

Actuary

New York State and Local Employees' Retirement System

New York State and Local Police and Fire Retirement System

ACTUARIAL COST METHOD AND VALUATION

ACTUARIAL COST METHOD

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

For 70 years, by virtue of applying the definition of normal cost found in New York State Retirement and Social Security Law, the actuarial funding method used by the System was the aggregate method (AGG). Chapter 210 of the Laws of 1990 changed the funding method to a modified projected unit credit (PUC) method beginning in the fiscal year ending March 31, 1991 (referred to as fiscal year 1991). This law was challenged and the challenge was upheld by the New York State Supreme Court. On appeal, both the Appellate Division and the New York State Court of Appeals unanimously agreed with the New York State Supreme Court. These decisions allowed the Comptroller to return to the aggregate funding method beginning with the 1995 fiscal year. To ease the transition in the 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 be complete. 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 concluded 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.

A perceived shortcoming 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 being 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 2020 were adopted effective April 1, 2015. These assumptions and their predecessors are shown below. All assumptions presume ongoing systems.

Fiscal Year Ended 3/31	Salary Scale*			Interest Rate	Multiple-Decrement Tables Based on Systems' Experience
1987 – 88	Inflation Productivity & Merit	5.00% <u>2.30%</u> 7.30%		8.00%	4/1/81– 3/31/86 experience
1989 – 92	Inflation Productivity & Merit	5.00% <u>2.00%</u> 7.00%		8.75%	4/1/81– 3/31/86 experience
1993 – 96	Inflation Productivity & Merit	5.00% <u>2.00%</u> 7.00%		8.75%	4/1/86 – 3/31/91 experience
		ERS	PFRS		
1997 – 98	Inflation Productivity & Merit	4.75% <u>1.25%</u> 6.00%	4.75% <u>1.75%</u> 6.50%	8.50%	4/1/90 – 3/31/95 experience
1999 – 2000	Inflation Productivity & Merit	3.50% <u>2.50%</u> 6.00%	3.50% <u>3.00%</u> 6.50%	8.50%	4/1/90 – 3/31/95 experience
2001	Inflation Productivity & Merit	3.00% <u>2.50%</u> 5.50%	3.00% <u>3.00%</u> 6.00%	8.00%	4/1/90 – 3/31/95 experience
2002 – 04	Inflation Productivity & Merit	3.00% <u>2.90%</u> 5.90%	3.00% <u>3.90%</u> 6.90%	8.00%	4/1/95 – 3/31/00 experience
2005	Inflation Productivity & Merit	3.00% <u>2.40%</u> 5.40%	3.00% <u>3.90%</u> 6.90%	8.00%	4/1/95 – 3/31/00 experience
2006	Inflation Productivity & Merit	3.00% <u>2.40%</u> 5.40%	3.00% <u>3.90%</u> 6.90%	8.00%	4/1/95 – 3/31/00 experience with subsequent adjustments
2007 – 11	Inflation Productivity & Merit	3.00% <u>2.40%</u> 5.40%	3.00% <u>3.70%</u> 6.70%	8.00%	4/1/00 – 3/31/05 experience with subsequent adjustments
2012 – 16	Inflation Productivity & Merit	2.70% <u>2.20%</u> 4.90%	2.70% <u>3.30%</u> 6.00%	7.50%	4/1/05 – 3/31/10 experience with subsequent adjustments
2017 – 19	Inflation Productivity & Merit	2.50% <u>1.30%</u> 3.80%	2.50% <u>2.00%</u> 4.50%	7.00%	4/1/10 – 3/31/15 experience with subsequent adjustments
2020	Inflation Productivity & Merit	2.50% <u>1.70%</u> 4.20%	2.50% <u>2.50%</u> 5.00%	7.00%	4/1/10 – 3/31/15 experience with subsequent adjustments

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

ELEMENTS OF THE ACTUARIAL VALUATION

CONTINUED

SELECTED ACTUARIAL ASSUMPTIONS USED IN THE APRIL 1, 2018 VALUATION

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

Service Retirement — ERS

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

Service Retirement — PFRS

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

Service Retirees — Mortality

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

Disability Retirees — Mortality

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

ELEMENTS OF THE ACTUARIAL VALUATION

CONTINUED

Disability Retirement — Ordinary and Accidental

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

* Includes performance of duty.

Ordinary Death

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

Withdrawal — ERS (Ten-year ultimate rates)

Age	ERS
35	192
40	168
45	157
50	130

Withdrawal — PFRS

Service	PFRS
5	117
10	55
15	28

Salary Scale — Annual Percentage Increase

Service	ERS	PFRS
5	4.95	8.25
10	4.18	4.51
15	3.63	3.96
20	3.30	3.63
25	3.30	3.63

ACTUARIAL VALUE OF ASSETS

The actuarial asset values are determined by applying the assumed return on investments (7.0 percent for the April 1, 2018 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 and 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, 2018 valuation of the System and Group Life Insurance Plan (GLIP) for fiscal year 2020, the difference between market and actuarial values of smoothed investments was:

	Investments (Dollars in Millions)	
Actuarial Value	\$	202,021
Market Value		<u>207,416</u>
Difference	\$	(5,395)

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 death benefits 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, 2017 valuation for fiscal year end (FYE) 2019 billing and the April 1, 2018 valuation for fiscal year end 2020 billing.

	FYE 2019 Billing*	FYE 2020 Billing*
	(Dollars in Millions)	
ERS		
Actuarial Assets		
Actuarial Value of Present Assets:		
Held for Current Retirees & Beneficiaries	\$ 100,320	\$ 107,506
Held for Members	59,260	59,387
Member Contributions	8,666	8,537
Total	\$ 168,246	\$ 175,430
Actuarial Present Value of Prospective Contributions:		
From Employers	\$ 31,148	\$ 31,991
From Members	3,351	4,237
Total	\$ 34,499	\$ 36,228
Total Actuarial Assets	\$ 202,745	\$ 211,658
Actuarial Liabilities		
Actuarial Present Value of Benefits for Current Retirees & Beneficiaries:		
Service Retirement Benefits	\$ 95,772	\$ 102,793
Disability Retirement Benefits	4,438	4,604
Death Benefits	110	109
Total	\$ 100,320	\$ 107,506
Actuarial Present Value of Benefits for Members:		
Service Retirement Benefits	\$ 99,137	\$ 100,693
Disability Retirement Benefits	1,773	1,796
Death Benefits	992	1,071
Other	522	593
Total	\$ 102,425	\$ 104,152
Total Actuarial Liabilities	\$ 202,745	\$ 211,658
* Numbers may not add up due to rounding.		

ACTUARIAL VALUATION BALANCE SHEETS

CONTINUED

	FYE 2019 Billing*	FYE 2020 Billing*
	(Dollars in Millions)	
PFRS		
Actuarial Assets		
Actuarial Value of Present Assets:		
Held for Current Retirees & Beneficiaries	\$ 18,920	\$ 20,265
Held for Members	10,612	10,659
Member Contributions	55	85
Total	\$ 29,586	\$ 31,009
Actuarial Present Value of Prospective Contributions:		
From Employers	\$ 7,844	\$ 8,083
From Members	501	664
Total	\$ 8,344	\$ 8,746
Total Actuarial Assets	\$ 37,931	\$ 39,755
Actuarial Liabilities		
Actuarial Present Value of Benefits for Current Retirees & Beneficiaries:		
Service Retirement Benefits	\$ 15,447	\$ 16,609
Disability Retirement Benefits	3,285	3,458
Death Benefits	187	199
Total	\$ 18,920	\$ 20,265
Actuarial Present Value of Benefits for Members:		
Service Retirement Benefits	\$ 17,061	\$ 17,503
Disability Retirement Benefits	1,644	1,663
Death Benefits	289	301
Other	17	22
Total	\$ 19,011	\$ 19,490
Total Actuarial Liabilities	\$ 37,931	\$ 39,755
* Numbers may not add up due to rounding.		

New York Public Employees' Group Life Insurance Plan

Actuarial Assets	2019	2020
	(Dollars in Millions)	
Assets		
Investments	\$ 147	\$ 181
Premiums Receivable	-	-
Total Assets	\$ 147	\$ 181
Liabilities		
Managed Overdraft (cash)	6	10
Claims Being Processed	44	18
Claims Unreported	16	18
Reserve for Mortality Fluctuations	81	135
Total Liabilities	\$ 147	\$ 181

LOCAL GOVERNMENT EMPLOYERS’ FINAL CONTRIBUTION RATES FOR SELECT PLANS

The following contribution rates are for the fiscal year ending March 31, 2020 and assume a February 1, 2020 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	10.5	9.7	n/a	n/a	n/a
Article 14	A14	n/a	n/a	15.7	n/a	n/a
Article 15	A15	n/a	n/a	15.7	13.1	9.2
Guaranteed Benefits	75-e	19.2	17.3	n/a	n/a	n/a
Career	75-g	20.4	18.5	n/a	n/a	n/a
New Career	75-h/75-i	21.2	19.3	n/a	n/a	n/a
25-year plans						
Sheriffs and Deputies	89-a	24.1	22.5	n/a	n/a	n/a
Article 14B Sheriffs — 25-year	551	22.6	22.2	20.3	17.8	13.0
Article 14B Sheriffs — 25-year + 1/60th	551-e	23.8	23.6	21.6	19.4	14.6
full service for 1/60th	551-ee	24.7	24.5	22.5	20.2	15.1
County Law Enforcement	89-e, etc.	24.5	24.2	18.4	15.8	11.2
20-year plans						
Sheriffs and Deputies	89-b	27.3	22.2	n/a	n/a	n/a
additional 1/60th	89-b(m)	27.5	23.5	n/a	n/a	n/a
Article 14B Sheriffs — 20-year	552	27.8	27.6	25.1	22.8	17.8
Article 14B Sheriffs — 20-year + 1/60th	553	27.8	27.6	25.7	23.6	18.9
full service for 1/60th	553b	28.9	28.6	26.7	24.5	19.6
Detective Investigators	89-d	26.7	26.5	n/a	n/a	n/a
additional 1/60th	89-d(m)	26.8	26.6	n/a	n/a	n/a

LOCAL GOVERNMENT EMPLOYERS' FINAL CONTRIBUTION RATES FOR SELECT PLANS

CONTINUED

	Plan ID	Percentage of Payroll				
		Tier 1	Tier 2	Tier 3	Tier 5*	Tier 6*
PFRS						
Age-based plans						
Basic, Age 55, Age 60 Contributory	371-a	12.0	10.5	10.5	6.9	3.0
Guaranteed Benefits	375-e	18.9	15.6	15.6	11.8	7.3
Career	375-g	20.7	17.1	17.1	13.2	8.6
New Career	375-i	21.4	17.6	17.6	13.6	8.8
Improved Career	375-j	21.4	17.6	17.6	13.6	8.8
25-year plans						
Contributory	384	n/a	n/a	n/a	16.2	11.3
additional 1/60th	384(f)	n/a	n/a	n/a	17.7	12.6
Non-Contributory	384	21.2	20.5	20.5	19.5	17.7
additional 1/60th	384(f)	22.3	22.1	22.1	21.1	19.1
20-year plans						
Contributory	384-d	n/a	n/a	n/a	19.8	14.6
additional 1/60th	384-e	n/a	n/a	n/a	20.6	15.3
Non-Contributory	384-d	25.0	24.3	24.2	23.2	21.0
additional 1/60th	384-e	25.3	25.1	24.2	24.0	21.7
* Age-based plans in Tier 5 and Tier 6 are contributory.						
There is no Tier 4 in PFRS.						

CONTRIBUTION RATE TRENDS FOR LOCAL GOVERNMENTS

Contribution 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									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
ERS										
Guaranteed Benefits (75-e)										
Tier 1	13.8	19.4	22.9	25.8	24.8	22.6	19.6	19.5	19.4	19.2
Tier 2	12.5	17.5	20.7	23.3	22.5	20.5	17.6	17.5	17.4	17.3
Career (75-g)										
Tier 1	14.6	20.4	24.1	27.3	26.3	24.0	20.7	20.7	20.5	20.4
Tier 2	13.3	18.6	22.0	24.9	24.0	21.9	18.7	18.7	18.6	18.5
New Career (75-i)										
Tier 1	15.2	21.3	25.2	28.5	27.4	25.0	21.6	21.5	21.4	21.2
Tier 2	13.9	19.5	23.0	26.0	25.1	22.9	19.6	19.5	19.4	19.3
Article 14/15 — Tier 3	11.2	15.6	18.4	20.8	20.1	18.6	15.8	15.8	15.7	15.7
Article 15 — Tier 4	11.2	15.6	18.4	20.8	20.1	18.6	15.8	15.8	15.7	15.7
Article 15 — Tier 5	—	12.6	14.9	16.7	16.4	15.3	13.0	13.0	12.9	13.1
Article 15 — Tier 6	—	—	9.9	11.3	10.8	10.4	9.2	9.2	9.2	9.2

CONTRIBUTION RATE TRENDS FOR LOCAL GOVERNMENTS

CONTINUED

Plan Name (Section)	Percentage of Payroll									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
PFRS										
Guaranteed Benefits (375-e)										
Tier 1	13.2	16.1	19.6	22.1	21.4	19.4	18.6	19.0	18.5	18.9
Tiers 2 & 3	11.1	13.0	16.2	18.1	17.8	16.1	15.4	15.7	15.3	15.6
Tier 5*	—	9.3	11.8	13.0	12.7	12.1	11.4	11.7	11.3	11.8
Tier 6*	—	—	7.0	7.3	7.2	6.4	7.1	7.3	7.0	7.3
Career (375-g)										
Tier 1	14.4	17.6	21.3	24.1	23.4	21.2	20.3	20.8	20.3	20.7
Tiers 2 & 3	12.1	14.2	17.6	19.7	19.4	17.6	16.8	17.2	16.7	17.1
Tier 5*	—	10.4	13.1	14.5	14.2	13.5	12.8	13.0	12.6	13.2
Tier 6*	—	—	8.2	8.6	8.5	7.6	8.4	8.5	8.2	8.6
New Career (375-i)										
Tier 1	14.9	18.1	22.1	24.9	24.2	21.9	21.0	21.5	21.0	21.4
Tiers 2 & 3	12.5	14.6	18.1	20.3	19.9	18.1	17.3	17.7	17.2	17.6
Tier 5*	—	10.8	13.6	15.1	14.7	14.0	13.2	13.5	13.1	13.6
Tier 6*	—	—	8.5	8.9	8.7	7.9	8.6	8.8	8.5	8.8
25-Year (384) — Contributory										
Tiers 1, 2 & 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 5	—	13.7	16.5	18.4	18.1	16.6	15.9	16.2	15.8	16.2
Tier 6	—	—	11.4	12.3	12.0	11.2	11.2	11.4	11.0	11.3
25-Year + 1/60ths (384(f)) — Contributory										
Tiers 1, 2 & 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 5	—	15.0	18.0	20.2	19.7	17.9	17.3	17.7	17.2	17.7
Tier 6	—	—	12.8	13.8	13.3	12.4	12.4	12.7	12.3	12.6
25-Year (384) — Non-Contributory										
Tier 1	14.7	17.7	21.2	24.0	23.2	21.2	20.9	21.4	20.8	21.2
Tiers 2 & 3	14.7	17.6	21.2	23.9	23.1	21.0	20.2	20.6	20.1	20.5
Tier 5	—	16.9	20.4	22.9	22.1	20.1	19.3	19.7	19.2	19.5
Tier 6	—	—	18.4	20.4	19.6	17.9	17.7	18.1	17.6	17.7
25-Year + 1/60ths (384(f)) — Non-Contributory										
Tier 1	15.2	19.2	23.1	26.1	25.1	22.7	22.0	22.5	21.9	22.3
Tiers 2 & 3	15.0	19.0	22.9	25.9	24.8	22.5	21.8	22.3	21.7	22.1
Tier 5	—	18.3	21.9	24.7	23.7	21.5	20.8	21.2	20.7	21.1
Tier 6	—	—	19.9	22.0	21.1	19.2	19.0	19.4	18.9	19.1

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

There is no Tier 4 in PFRS.

CONTRIBUTION RATE TRENDS FOR LOCAL GOVERNMENTS

CONTINUED

Plan Name (Section)	Percentage of Payroll									
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
20-Year (384-d) — Contributory										
Tiers 1, 2 & 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 5	—	16.7	20.1	22.7	22.0	20.1	19.5	19.9	19.4	19.8
Tier 6	—	—	14.6	16.0	15.4	14.3	14.5	14.8	14.4	14.6
20-Year + 1/60ths (384-e) — Contributory										
Tiers 1, 2 & 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Tier 5	—	17.0	20.5	23.0	22.3	20.4	20.2	20.6	20.1	20.6
Tier 6	—	—	14.9	16.3	15.6	14.5	15.1	15.4	15.0	15.3
20-Year (384-d) — Non-Contributory										
Tier 1	17.4	21.5	25.7	29.2	28.0	25.4	24.7	25.2	24.6	25.0
Tier 2	16.8	20.9	25.1	28.4	27.3	24.7	24.1	24.6	24.0	24.3
Tier 3	—	20.4	24.2	27.5	26.1	24.4	23.8	24.3	23.7	24.2
Tier 5	—	20.0	24.1	27.1	26.1	23.6	22.9	23.4	22.9	23.2
Tier 6	—	—	21.6	24.1	23.1	21.0	21.0	21.5	20.9	21.0
20-Year + 1/60ths (384-e) — Non-Contributory										
Tier 1										
1990-1998 elections (avg.)	23.1	21.8	26.1	29.6	28.4	25.8	25.0	25.6	25.0	25.3
all other years	17.7	21.8	26.1	29.6	28.4	25.8	25.0	25.6	25.0	25.3
Tier 2										
1990-1998 elections (avg.)	18.4	21.2	25.4	28.8	27.6	25.1	24.8	25.3	24.7	25.1
all other years	17.5	21.2	25.4	28.8	27.6	25.1	24.8	25.3	24.7	25.1
Tier 3	—	20.4	24.2	27.5	26.1	24.4	23.8	24.3	23.7	24.2
Tier 5	—	20.3	24.4	27.5	26.3	23.9	23.7	24.2	23.6	24.0
Tier 6	—	—	22.0	24.4	23.3	21.3	21.7	22.1	21.6	21.7

There is no Tier 4 in PFRS.

EMPLOYER CONTRIBUTIONS

Contributions reported 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 or credits and reconciliation of other years' bills. Employers who opted into either of the Contribution Stabilization Programs (Ch. 57 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 2019 and 2020. (Dollars in Millions)

	2020 Contribution			2019 Contribution		
	Salary	Contribution	Average Rate	Salary	Contribution	Average Rate
ERS						
Tier 1	\$ 87	\$ 19	21.4%	\$ 109	\$ 24	21.60%
Tier 2	108	21	19.50	136	27	19.70
Tiers 3 & 4	18,417	2,998	16.30	19,103	3,117	16.30
Tier 5	1,568	214	13.70	1,521	205	13.40
Tier 6	7,989	779	9.70	6,505	631	9.70
Total	\$ 28,169	\$ 4,031	14.30%	\$ 27,374	\$ 4,003	14.60%
PFRS						
Tier 1	\$ 2	\$ 1	29.10%	\$ 3	\$ 1	28.80%
Tier 2	2,916	743	25.50	2,857	718	25.10
Tier 3	20	5	22.90	19	4	22.40
Tier 5	186	39	20.90	174	36	20.50
Tier 6	901	138	15.30	677	102	15.10
Total	\$ 4,025	\$ 925	23.00%	\$ 3,730	\$ 861	23.10%
There is no Tier 4 in PFRS.						

Deficiency contributions for Fiscal Year 2020 (as of February 1, 2020) totaled \$1,425,047.

*Numbers may not add up due to rounding.

EMPLOYER CONTRIBUTIONS

CONTINUED

FINAL EMPLOYER CONTRIBUTIONS BY EMPLOYER TYPE*

Attributable to fiscal year 2020 costs only. (Dollars in Millions)

Employer	Normal	Administrative	GLIP	Total
ERS				
State	\$ 1,598	\$ 58	\$ 41	\$ 1,697
Counties	676	24	16	716
Cities	99	4	3	106
Towns	219	8	7	234
Villages	70	3	2	75
Miscellaneous	626	25	20	671
Schools	499	19	15	533
Total	\$ 3,786	\$ 141	\$ 104	\$ 4,031
PFRS				
State	\$ 178	\$ 4	\$ —	\$ 182
Counties	188	4	—	192
Cities	238	5	—	244
Towns	91	2	—	93
Villages	74	2	—	76
Miscellaneous	136	3	—	139
Total	\$ 905	\$ 20	\$ —	\$ 925

*Numbers may not add up due to rounding.

EMPLOYER CONTRIBUTIONS BY TIER*

(Dollars in Millions)

	2020 (as of February 1, 2020)		2019 (as of February 1, 2019)	
	Employer Contributions Attributable to Year	Percentage	Employer Contributions Attributable to Year	Percentage
ERS				
Tier 1	\$ 19	0.5%	\$ 24	0.6%
Tier 2	21	0.5	27	0.7
Tiers 3 & 4	2,998	74.4	3,117	77.9
Tier 5	214	5.3	205	5.1
Tier 6	779	19.3	631	15.8
Total	\$ 4,031	100.0%	\$ 4,003	100.0%
PFRS				
Tier 1	\$ 1	0.1%	\$ 1	0.1%
Tier 2	743	80.3	718	83.4
Tier 3	5	0.5	4	0.5
Tier 5	39	4.2	36	4.2
Tier 6	138	14.9	102	11.8
Total	\$ 925	100.0%	\$ 861	100.0%

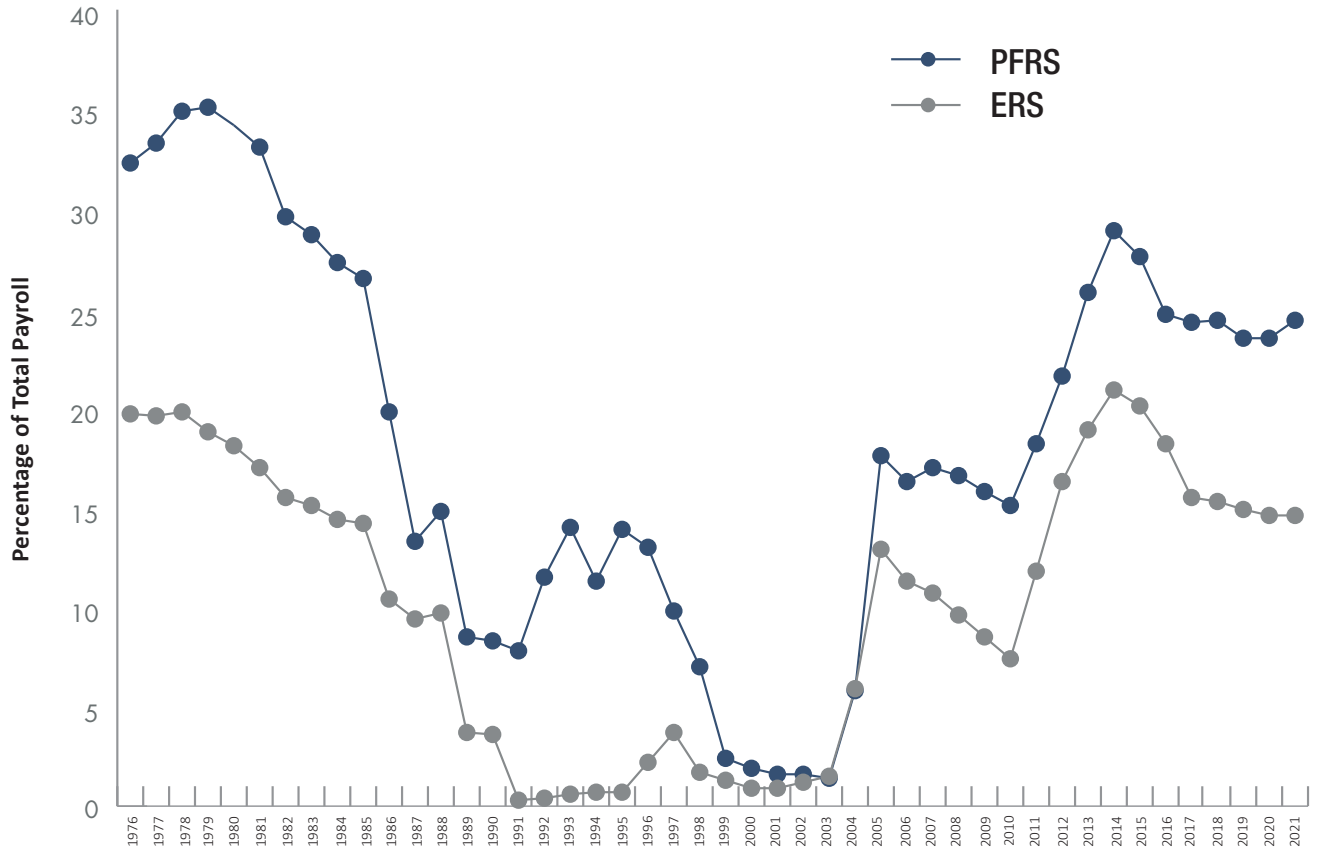
There is no Tier 4 in PFRS.

*Numbers may not add up due to rounding.

HISTORICAL TRENDS (RATES AS A PERCENTAGE OF SALARY, 1976 – 2021)

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

TRENDS IN EMPLOYER CONTRIBUTIONS



CHANGES IN CONTRIBUTIONS

The System's experience in many areas (employee salary growth or decrease, investment return, legislative enactment of benefits) is assessed and quantified yearly. Each element can exert an increasing or decreasing pressure, or have no impact 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	Changes in Benefits	Other Adjustments	Projected Contributions for Fiscal Year Shown*
ERS								
2010	2012	3,029	89	782	417	n/a	(71)	4,246
2011	2013	3,948	15	570	202	n/a	(81)	4,654
2012	2014	4,627	119	870	(9)	n/a	(343)	5,264
2013	2015	5,243	97	521	(539)	n/a	(182)	5,140
2014	2016	5,143	(24)	(937)	633	n/a	(187)	4,628
2015	2017	4,515	35	(396)	273	n/a	(433)	3,994
2016	2018	3,995	85	120	22	n/a	(195)	4,027
2017	2019	4,005	108	(123)	131	n/a	(111)	4,010
2018	2020	3,977	39	(210)	298	n/a	(123)	3,981
2019	2021	3,998	128	50	105	n/a	(166)	4,115
PFRS								
2010	2012	576	10	117	22	n/a	(31)	694
2011	2013	693	18	93	(8)	n/a	53	849
2012	2014	827	25	142	(1)	n/a	(36)	957
2013	2015	936	3	79	(83)	n/a	(18)	917
2014	2016	917	23	(143)	52	n/a	(7)	842
2015	2017	809	1	(70)	161	n/a	(73)	828
2016	2018	857	60	17	36	n/a	(75)	895
2017	2019	888	31	(21)	12	n/a	(19)	891
2018	2020	866	(3)	(34)	49	n/a	8	886
2019	2021	875	12	6	53	n/a	(15)	931

* 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 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 smooths 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					
4/1/10	\$ 114,058	\$ 125,482	\$ 133,574	85.4%	93.9%
4/1/11	127,192	126,395	140,087	90.8	90.2
4/1/12	130,349	125,688	144,107	90.5	87.2
4/1/13	139,580	132,067	149,211	93.5	88.5
4/1/14	154,119	145,985	158,638	97.2	92.0
4/1/15	161,065	156,648	167,065	96.4	93.8
4/1/16	156,088	162,119	172,246	90.6	94.1
4/1/17	167,820	168,246	178,216	94.2	94.4
4/1/18	179,995	175,430	184,504	97.6	95.1
4/1/19	182,541	180,723	189,751	96.2	95.2
PFRS					
4/1/10	\$ 20,194	\$ 22,230	\$ 22,998	87.8%	96.7%
4/1/11	22,357	22,205	24,169	92.5	91.9
4/1/12	22,837	22,009	25,048	91.2	87.9
4/1/13	24,436	23,112	25,815	94.7	89.5
4/1/14	26,961	25,474	27,377	98.5	93.0
4/1/15	28,154	27,330	29,336	96.0	93.2
4/1/16	27,337	28,362	30,620	89.3	92.6
4/1/17	29,539	29,586	31,776	93.0	93.1
4/1/18	31,838	31,009	32,989	96.5	94.0
4/1/19	32,386	32,050	34,260	94.5	93.5

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) the required 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								
4/1/10	\$ 7,979	\$ 62,692	\$ 62,903	\$ 133,574	\$ 125,482	100.0%	100.0%	87.1%
4/1/11	8,214	67,412	64,461	140,087	126,395	100.0	100.0	78.8
4/1/12	8,168	75,210	60,729	144,107	125,688	100.0	100.0	69.7
4/1/13	8,328	78,743	62,140	149,211	132,067	100.0	100.0	72.4
4/1/14	8,462	85,528	64,648	158,638	145,985	100.0	100.0	80.4
4/1/15	8,608	90,163	68,294	167,065	156,648	100.0	100.0	84.7
4/1/16	8,635	95,102	68,509	172,246	162,119	100.0	100.0	85.2
4/1/17	8,666	100,320	69,230	178,216	168,246	100.0	100.0	85.6
4/1/18	8,537	107,506	68,461	184,504	175,430	100.0	100.0	86.7
4/1/19	8,567	111,708	69,476	189,751	180,723	100.0	100.0	87.0
PFRS								
4/1/10	\$ 27	\$ 12,891	\$ 10,080	\$ 22,998	\$ 22,230	100.0%	100.0%	92.4%
4/1/11	29	13,383	10,757	24,169	22,205	100.0	100.0	81.7
4/1/12	2	14,060	10,986	25,048	22,009	100.0	100.0	72.3
4/1/13	5	14,948	10,862	25,815	23,112	100.0	100.0	75.1
4/1/14	10	15,958	11,409	27,377	25,474	100.0	100.0	83.3
4/1/15	20	17,072	12,244	29,336	27,330	100.0	100.0	83.6
4/1/16	34	17,599	12,987	30,620	28,362	100.0	100.0	82.6
4/1/17	55	18,920	12,801	31,776	29,586	100.0	100.0	82.9
4/1/18	85	20,265	12,639	32,989	31,009	100.0	100.0	84.3
4/1/19	125	21,625	12,510	34,260	32,050	100.0	100.0	82.3

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				
2010	529,466	\$ 24,972	3.6%	\$ 47,164
2011	513,092	24,389	(2.3)	47,534
2012	505,575	24,291	(0.4)	48,046
2013	498,266	24,405	0.5	48,979
2014	493,209	24,361	(0.2)	49,392
2015	491,558	24,480	0.5	49,801
2016	494,411	24,985	2.1	50,536
2017	496,441	25,520	2.1	51,406
2018	500,945	25,973	1.8	51,847
2019	501,037	26,668	2.7	53,226
PFRS				
2010	32,449	\$ 3,113	4.8%	\$ 95,934
2011	31,659	3,146	1.0	99,357
2012	31,024	3,191	1.4	102,850
2013	30,780	3,163	(0.9)	102,754
2014	31,218	3,233	2.2	103,549
2015	31,372	3,257	0.8	103,822
2016	31,720	3,416	4.9	107,700
2017	32,332	3,522	3.1	108,930
2018	32,470	3,548	0.7	109,265
2019	32,573	3,593	1.3	110,309

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								
2010	22,885	14,052	\$ 604,707,420	\$ 181,343,790	345,106	\$ 6,805,429,027	6.63%	\$ 19,720
2011	22,733	13,899	683,435,574	186,508,676	353,940	7,302,355,926	7.30	20,632
2012	31,906	14,378	990,541,993	198,660,208	371,468	8,094,237,711	10.84	21,790
2013	23,424	13,993	627,992,358	207,014,141	380,899	8,515,215,928	5.20	22,356
2014	23,320	14,931	636,672,277	229,131,028	389,288	8,922,757,178	4.79	22,921
2015	21,832	14,339	615,594,488	225,462,412	396,781	9,312,889,254	4.37	23,471
2016	25,517	15,186	764,025,727	247,047,150	407,112	9,829,867,831	5.55	24,145
2017	25,828	15,441	783,795,021	260,190,707	417,499	10,353,472,145	5.33	24,799
2018	31,709	14,655	974,084,983	248,074,441	434,553	11,079,482,687	7.01	25,496
2019	26,559	16,393	860,370,424	283,931,808	444,719	11,655,921,302	5.20	26,210
PFRS								
2010	1,606	814	\$ 106,721,728	\$ 25,637,123	30,697	\$ 1,293,529,905	6.69%	\$ 42,139
2011	1,184	790	80,517,204	24,073,826	31,091	1,349,973,282	4.36	43,420
2012	1,403	788	97,599,791	23,890,471	31,706	1,423,682,602	5.46	44,903
2013	1,629	798	120,115,279	25,836,637	32,537	1,517,961,244	6.62	46,653
2014	1,431	851	99,767,882	27,650,778	33,117	1,590,078,348	4.75	48,014
2015	1,222	812	89,763,321	27,980,968	33,527	1,651,860,701	3.89	49,270
2016	1,163	859	90,801,381	30,667,776	33,831	1,711,994,306	3.64	50,604
2017	2,028	903	157,020,746	32,764,190	34,956	1,836,250,862	7.26	52,530
2018	2,027	940	162,851,223	34,346,639	36,043	1,964,755,446	7.00	54,511
2019	2,011	978	169,652,095	37,229,104	37,076	2,097,178,437	6.74	55,564

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

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Statistical

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SCHEDULE OF ADDITIONS TO FIDUCIARY NET POSITION

(Dollars in Thousands)

Year Ending	Member Contributions	Employer Contributions	Other Income*	Investment Income/(Loss)	Total
2020	\$ 453,698	\$ 4,782,706	\$ 146,762	\$ (8,798,771)	\$ (3,415,605)
ERS	395,338	3,920,360	138,859	(7,470,542)	(3,015,985)
PFRS	58,360	862,346	7,903	(1,328,229)	(399,620)
2019	\$ 386,519	\$ 4,744,309	\$ 170,154	\$ 10,761,776	\$ 16,062,758
ERS	345,846	3,890,215	160,431	9,140,487	13,536,979
PFRS	40,673	854,094	9,723	1,621,289	2,525,779
2018	\$ 349,389	\$ 4,823,307	\$ 215,614	\$ 21,338,033	\$ 26,726,343
ERS	318,439	3,949,873	181,725	18,128,993	22,579,030
PFRS	30,950	873,434	33,889	3,209,040	4,147,313
2017	\$ 328,827	\$ 4,786,963	\$ 236,401	\$ 20,225,244	\$ 25,577,435
ERS	306,218	3,949,710	200,379	17,194,267	21,650,574
PFRS	22,609	837,253	36,022	3,030,977	3,926,861
2016	\$ 306,631	\$ 5,140,204	\$ 332,880	\$ (384,834)	\$ 5,394,881
ERS	289,333	4,347,619	198,332	(327,069)	4,508,215
PFRS	17,298	792,585	134,548	(57,765)	886,666
2015	\$ 284,793	\$ 5,797,449	\$ 230,799	\$ 12,444,891	\$ 18,757,932
ERS	272,004	4,893,110	193,176	10,582,102	15,940,392
PFRS	12,789	904,339	37,623	1,862,789	2,817,540
2014	\$ 281,398	\$ 6,064,133	\$ 192,581	\$ 20,598,593	\$ 27,136,705
ERS	273,545	5,137,935	175,677	17,496,541	23,083,698
PFRS	7,853	926,198	16,904	3,102,052	4,053,007
2013	\$ 269,134	\$ 5,336,045	\$ 131,853	\$ 14,717,622	\$ 20,454,654
ERS	264,788	4,524,395	122,931	12,496,378	17,408,492
PFRS	4,346	811,650	8,922	2,221,244	3,046,162
2012	\$ 273,247	\$ 4,585,178	\$ 157,625	\$ 7,868,313	\$ 12,884,363
ERS	268,545	3,878,717	134,821	6,681,603	10,963,686
PFRS	4,702	706,461	22,804	1,186,710	1,920,677
2011	\$ 286,199	\$ 4,164,571	\$ 127,709	\$ 19,339,896	\$ 23,918,375
ERS	284,486	3,622,638	101,730	16,427,023	20,435,877
PFRS	1,713	541,933	25,979	2,912,873	3,482,498

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

SCHEDULE OF INVESTMENT INCOME/(LOSS)

(Dollars in Thousands)

	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Net Change in Fair Value of Investments	\$ (12,135,353)	\$ 7,179,934	\$ 17,859,769	\$ 16,923,203	\$ (3,934,853)	\$ 9,275,335	\$ 17,432,110	\$ 11,592,363	\$ 4,958,927	\$ 16,740,555
Interest	1,321,234	1,321,174	1,312,608	1,349,658	1,446,569	1,447,757	1,366,175	1,394,442	1,379,423	1,426,941
Dividends	1,794,002	1,825,117	1,723,896	1,611,929	1,593,010	1,589,248	1,498,622	1,512,908	1,405,870	1,269,009
Real Estate and Mortgages	459,732	523,165	472,188	531,225	491,949	414,345	353,821	382,315	239,038	97,844
Alternative	440,806	354,214	352,488	230,919	174,552	174,850	259,960	377,664	170,225	234,940
Security Lending Income	29,326	48,942	73,563	74,428	52,878	35,639	28,381	32,617	33,323	31,328
International Equity	197,033	242,877	295,388	153,368	360,723	137,227	220,090	146,314	153,157	46,127
Other Including Prior Year Adjustment	(117,563)	(5,575)	(14,581)	33,456	1,461	(40,881)	17,187	(247,988)	(44,790)	(57,241)
Security Lending Expenses	(2,735)	(4,893)	(49,128)	(18,001)	(5,278)	(3,563)	(2,838)	(3,261)	(3,332)	(2,744)
Investment Expenses	(785,253)	(723,179)	(688,158)	(664,941)	(565,845)	(585,066)	(574,915)	(469,752)	(423,528)	(446,863)
Net Investment Income/(Loss)	\$ (8,798,771)	\$ 10,761,776	\$ 21,338,033	\$ 20,225,244	\$ (384,834)	\$ 12,444,891	\$ 20,598,593	\$ 14,717,622	\$ 7,868,313	\$ 19,339,896

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
2020	\$ 12,424,608	\$ 662,035	\$ 159,510	\$ 12,760	\$ 139,050	\$ 275,831	\$ 13,673,794
ERS	10,489,929	563,583	154,249	12,472	121,694	244,530	11,586,457
PFRS	1,934,679	98,452	5,261	288	17,356	31,301	2,087,337
2019	\$ 11,880,340	\$ 646,606	\$ 214,666	\$ 34,645	\$ 136,477	\$ 57,674	\$ 12,970,408
ERS	10,030,590	548,382	202,809	32,984	119,304	57,931	10,992,000
PFRS	1,849,750	98,224	11,857	1,661	17,173	(257)	1,978,408
2018	\$ 11,197,802	\$ 628,287	\$ 201,252	\$ 34,969	\$ 122,806	\$ 66,609	\$ 12,251,725
ERS	9,478,272	530,354	191,579	34,302	106,972	68,769	10,410,248
PFRS	1,719,530	97,933	9,673	667	15,834	(2,160)	1,841,477
2017	\$ 10,617,500	\$ 615,032	\$ 216,150	\$ (5,406)	\$ 107,134	\$ 65,037	\$ 11,615,447
ERS	9,015,444	516,852	207,976	820	93,943	64,441	9,899,476
PFRS	1,602,056	98,180	8,174	(6,226)	13,191	596	1,715,971
2016	\$ 10,113,758	\$ 606,536	\$ 188,190	\$ 34,488	\$ 106,620	\$ 117,500	\$ 11,167,092
ERS	8,536,930	508,112	179,861	33,097	93,012	117,197	9,468,209
PFRS	1,576,828	98,424	8,329	1,391	13,608	303	1,698,883
2015	\$ 9,651,227	\$ 601,850	\$ 183,091	\$ 27,628	\$ 107,151	\$ 49,918	\$ 10,620,865
ERS	8,152,183	502,916	174,652	26,067	93,357	51,321	9,000,496
PFRS	1,499,044	98,934	8,439	1,561	13,794	(1,403)	1,620,369
2014	\$ 9,098,453	\$ 596,556	\$ 203,820	\$ 29,972	\$ 105,662	\$ 48,725	\$ 10,083,188
ERS	7,702,970	497,142	185,169	28,439	92,266	51,341	8,557,327
PFRS	1,395,483	99,414	18,651	1,533	13,396	(2,616)	1,525,861
2013	\$ 8,669,843	\$ 586,209	\$ 194,170	\$ 29,265	\$ 105,720	\$ 42,049	\$ 9,627,256
ERS	7,339,678	487,100	177,113	28,294	92,134	43,221	8,167,540
PFRS	1,330,165	99,109	17,057	971	13,586	(1,172)	1,459,716
2012	\$ 8,109,356	\$ 568,466	\$ 184,960	\$ 29,789	\$ 100,649	\$ 45,260	\$ 9,038,480
ERS	6,845,843	470,310	172,340	28,866	87,232	44,949	7,649,540
PFRS	1,263,513	98,156	12,620	923	13,417	311	1,388,940
2011	\$ 7,717,007	\$ 555,255	\$ 192,265	\$ 27,745	\$ 101,333	\$ 27,951	\$ 8,621,556
ERS	6,520,651	457,931	179,301	26,653	87,760	29,328	7,301,624
PFRS	1,196,356	97,324	12,964	1,092	13,573	(1,377)	1,319,932

SCHEDULE OF TOTAL CHANGES IN FIDUCIARY NET POSITION

(Dollars in Thousands)

Year Ending	Member Contributions	Employer Contributions	Other Income	Investment Income/(Loss)	Total Additions
2020	\$ 453,698	\$ 4,782,706	\$ 146,762	\$ (8,798,771)	\$ (3,415,605)
ERS	395,338	3,920,360	138,859	(7,470,542)	(3,015,985)
PFRS	58,360	862,346	7,903	(1,328,229)	(399,620)
2019	\$ 386,519	\$ 4,744,309	\$ 170,154	\$ 10,761,776	\$ 16,062,758
ERS	345,846	3,890,215	160,431	9,140,487	13,536,979
PFRS	40,673	854,094	9,723	1,621,289	2,525,779
2018	\$ 349,389	\$ 4,823,307	\$ 215,614	\$ 21,338,033	\$ 26,726,343
ERS	318,439	3,949,873	181,725	18,128,993	22,579,030
PFRS	30,950	873,434	33,889	3,209,040	4,147,313
2017	\$ 328,827	\$ 4,786,963	\$ 236,401	\$ 20,225,244	\$ 25,577,435
ERS	306,218	3,949,710	200,379	17,194,267	21,650,574
PFRS	22,609	837,253	36,022	3,030,977	3,926,861
2016	\$ 306,631	\$ 5,140,204	\$ 332,880	\$ (384,834)	\$ 5,394,881
ERS	289,333	4,347,619	198,332	(327,069)	4,508,215
PFRS	17,298	792,585	134,548	(57,765)	886,666
2015	\$ 284,793	\$ 5,797,449	\$ 230,799	\$ 12,444,891	\$ 18,757,932
ERS	272,004	4,893,110	193,176	10,582,102	15,940,392
PFRS	12,789	904,339	37,623	1,862,789	2,817,540
2014	\$ 281,398	\$ 6,064,133	\$ 192,581	\$ 20,598,593	\$ 27,136,705
ERS	273,545	5,137,935	175,677	17,496,541	23,083,698
PFRS	7,853	926,198	16,904	3,102,052	4,053,007
2013	\$ 269,134	\$ 5,336,045	\$ 131,853	\$ 14,717,622	\$ 20,454,654
ERS	264,788	4,524,395	122,931	12,496,378	17,408,492
PFRS	4,346	811,650	8,922	2,221,244	3,046,162
2012	\$ 273,247	\$ 4,585,178	\$ 157,625	\$ 7,868,313	\$ 12,884,363
ERS	268,545	3,878,717	134,821	6,681,603	10,963,686
PFRS	4,702	706,461	22,804	1,186,710	1,920,677
2011	\$ 286,199	\$ 4,164,571	\$ 127,709	\$ 19,339,896	\$ 23,918,375
ERS	284,486	3,622,638	101,730	16,427,023	20,435,877
PFRS	1,713	541,933	25,979	2,912,873	3,482,498

SCHEDULE OF TOTAL CHANGES IN FIDUCIARY NET POSITION

CONTINUED

Retirement Allowances	Post-Retirement Supplement	Death Benefits	Separation from Service	Administrative Expenses	Other Expenses	Total Deductions	Net Increase / Decrease
\$ 12,424,608	\$ 662,035	\$ 159,510	\$ 12,760	\$ 139,050	\$ 275,831	\$ 13,673,794	\$ (17,089,399)
10,489,929	563,583	154,249	12,472	121,694	244,530	11,586,457	(14,602,442)
1,934,679	98,452	5,261	288	17,356	31,301	2,087,337	(2,486,957)
\$ 11,880,340	\$ 646,606	\$ 214,666	\$ 34,645	\$ 136,477	\$ 57,674	\$ 12,970,408	\$ 3,092,350
10,030,590	548,382	202,809	32,984	119,304	57,931	10,992,000	2,544,979
1,849,750	98,224	11,857	1,661	17,173	(257)	1,978,408	547,371
\$ 11,197,802	\$ 628,287	\$ 201,252	\$ 34,969	\$ 122,806	\$ 66,609	\$ 12,251,725	\$ 14,474,618
9,478,272	530,354	191,579	34,302	106,972	68,769	10,410,248	12,168,782
1,719,530	97,933	9,673	667	15,834	(2,160)	1,841,477	2,305,836
\$ 10,617,500	\$ 615,032	\$ 216,150	\$ (5,406)	\$ 107,134	\$ 65,037	\$ 11,615,447	\$ 13,961,988
9,015,444	516,852	207,976	820	93,943	64,441	9,899,476	11,751,098
1,602,056	98,180	8,174	(6,226)	13,191	596	1,715,971	2,210,890
\$ 10,113,758	\$ 606,536	\$ 188,190	\$ 34,488	\$ 106,620	\$ 117,500	\$ 11,167,092	\$ (5,772,211)
8,536,930	508,112	179,861	33,097	93,012	117,197	9,468,209	(4,959,994)
1,576,828	98,424	8,329	1,391	13,608	303	1,698,883	(812,217)
\$ 9,651,227	\$ 601,850	\$ 183,091	\$ 27,628	\$ 107,151	\$ 49,918	\$ 10,620,865	\$ 8,137,067
8,152,183	502,916	174,652	26,067	93,357	51,321	9,000,496	6,939,896
1,499,044	98,934	8,439	1,561	13,794	(1,403)	1,620,369	1,197,171
\$ 9,098,453	\$ 596,556	\$ 203,820	\$ 29,972	\$ 105,662	\$ 48,725	\$ 10,083,188	\$ 17,053,517
7,702,970	497,142	185,169	28,439	92,266	51,341	8,557,327	14,526,371
1,395,483	99,414	18,651	1,533	13,396	(2,616)	1,525,861	2,527,146
\$ 8,669,843	\$ 586,209	\$ 194,170	\$ 29,265	\$ 105,720	\$ 42,049	\$ 9,627,256	\$ 10,827,398
7,339,678	487,100	177,113	28,294	92,134	43,221	8,167,540	9,240,952
1,330,165	99,109	17,057	971	13,586	(1,172)	1,459,716	1,586,446
\$ 8,109,356	\$ 568,466	\$ 184,960	\$ 29,789	\$ 100,649	\$ 45,260	\$ 9,038,480	\$ 3,845,883
6,845,843	470,310	172,340	28,866	87,232	44,949	7,649,540	3,314,146
1,263,513	98,156	12,620	923	13,417	311	1,388,940	531,737
\$ 7,717,007	\$ 555,255	\$ 192,265	\$ 27,745	\$ 101,333	\$ 27,951	\$ 8,621,556	\$ 15,296,819
6,520,651	457,931	179,301	26,653	87,760	29,328	7,301,624	13,134,253
1,196,356	97,324	12,964	1,092	13,573	(1,377)	1,319,932	2,162,566

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, 2020. 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	–	–	–	1,090	45,206	4,208	2,322	44,787	5,379	1,153	37,800	5,251	383	26,564	4,178
10 – 14	–	–	–	3,230	46,238	7,248	8,374	41,609	8,044	4,790	35,488	7,673	2,625	28,006	7,338
15 – 19	–	–	–	2,148	52,168	11,574	5,223	51,030	13,780	3,780	41,124	12,586	2,178	31,820	11,863
20 – 24	–	–	–	2,563	65,986	23,913	7,809	61,895	26,447	6,067	48,929	23,054	3,139	36,314	20,149
25 – 29	911	93,478	46,479	6,513	78,757	38,504	10,513	68,270	36,269	6,436	52,595	30,892	2,515	40,139	27,062
30 – 34	69	105,680	52,608	11,275	80,994	49,402	14,529	71,711	45,993	6,515	55,303	38,321	1,835	44,151	34,210
35 & Over	–	–	–	6,759	76,772	53,622	19,739	71,538	54,946	7,918	63,014	51,299	1,919	54,574	47,932
Total	980	94,337	46,911	33,578	72,216	38,250	68,509	63,845	36,381	36,659	50,837	29,595	14,594	37,939	22,802
Counties															
Under 10	–	–	–	925	41,180	3,896	2,049	37,668	4,372	1,051	33,831	4,444	305	23,766	3,763
10 – 14	–	–	–	1,994	42,035	6,552	5,209	38,106	7,323	3,225	31,996	6,914	1,730	24,281	6,353
15 – 19	–	–	–	1,269	47,412	10,369	3,384	44,333	11,915	2,543	38,056	11,611	1,514	28,018	10,519
20 – 24	300	89,199	46,227	1,943	59,276	23,648	5,224	53,491	23,032	3,451	43,628	20,770	1,698	32,389	17,712
25 – 29	548	91,427	47,298	2,318	77,314	37,949	4,682	60,378	32,117	2,704	47,398	27,849	1,180	36,446	24,336
30 – 34	31	106,969	66,487	4,413	73,601	45,966	5,440	62,433	40,254	2,231	51,289	35,646	592	39,856	30,606
35 & Over	1	161,689	121,267	2,064	71,289	50,566	6,305	68,103	52,451	2,236	60,600	49,477	525	47,587	41,820
Total	880	91,295	47,693	14,926	63,540	31,553	32,293	54,403	28,111	17,441	43,815	22,569	7,544	31,582	16,826
Cities															
Under 10	–	–	–	134	35,248	3,289	322	34,603	4,060	162	28,493	3,729	52	18,663	2,958
10 – 14	–	–	–	327	40,034	5,997	806	34,499	6,610	496	29,110	6,397	264	20,841	5,465
15 – 19	–	–	–	197	42,158	9,469	561	42,978	11,660	361	33,762	10,374	224	23,988	9,238
20 – 24	1	84,593	42,297	235	55,159	20,197	674	52,169	21,973	456	39,782	18,759	249	26,719	14,869
25 – 29	–	–	–	209	59,604	26,880	674	56,866	30,093	413	43,880	26,132	207	30,263	21,173
30 – 34	–	–	–	870	65,676	41,010	973	58,103	37,352	428	46,480	32,684	159	34,581	27,577
35 & Over	–	–	–	428	66,974	47,487	1,346	60,917	47,083	444	48,868	40,289	129	39,638	36,056
Total	1	84,593	42,297	2,400	57,226	29,431	5,356	51,358	27,630	2,760	39,528	21,285	1,284	27,551	16,190
Towns															
Under 10	–	–	–	288	37,606	3,703	802	30,405	3,647	577	28,036	3,686	138	20,752	2,899
10 – 14	–	–	–	527	44,849	7,148	1,448	38,462	7,513	1,040	29,900	6,447	512	22,951	5,873
15 – 19	–	–	–	432	49,111	11,190	1,178	43,303	11,788	840	36,205	11,003	451	26,205	9,538
20 – 24	–	–	–	531	57,617	20,996	1,477	54,038	23,186	1,052	42,165	19,799	484	33,346	17,961
25 – 29	1	82,713	41,356	414	63,411	29,733	1,260	60,479	32,071	785	47,032	27,417	349	36,357	23,436
30 – 34	–	–	–	1,489	77,373	48,252	1,412	64,283	41,267	694	50,053	34,477	217	39,618	30,019
35 & Over	–	–	–	1,006	83,738	59,590	2,130	72,573	56,227	707	58,601	47,376	179	42,677	36,630
Total	1	82,713	41,356	4,687	66,562	35,187	9,707	54,853	28,884	5,695	41,287	20,693	2,330	30,686	16,160

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	–	–	–	83	37,282	3,722	225	32,532	3,714	154	28,669	3,843	44	17,742	2,498
10 – 14	–	–	–	178	40,296	6,111	440	36,722	7,095	329	30,314	6,520	170	22,596	5,604
15 – 19	–	–	–	107	52,063	11,839	345	43,867	12,029	256	37,241	11,314	152	24,980	9,415
20 – 24	1	87,276	48,074	159	56,946	20,861	445	57,310	24,426	295	46,258	21,629	169	29,474	16,017
25 – 29	2	86,106	43,053	105	67,658	31,449	336	61,501	32,424	249	46,546	27,302	121	34,718	22,708
30 – 34	–	–	–	404	75,409	47,179	466	61,098	38,965	226	48,632	33,739	73	34,755	27,101
35 & Over	–	–	–	248	80,175	56,633	578	68,414	52,840	226	56,626	46,576	65	41,878	36,401
Total	3	86,496	44,727	1,284	64,132	33,012	2,835	53,895	27,715	1,735	42,044	21,304	794	28,791	15,482
Miscellaneous															
Under 10	–	–	–	851	49,716	4,827	1,643	48,356	5,462	802	39,455	5,154	149	30,651	4,591
10 – 14	–	–	–	1,692	54,698	8,615	3,535	48,738	9,330	1,999	39,550	8,466	882	28,230	7,186
15 – 19	–	–	–	1,268	59,915	13,128	2,680	56,747	15,181	1,602	44,411	13,414	618	31,762	11,469
20 – 24	–	–	–	1,386	68,040	24,352	3,869	63,507	26,622	2,085	53,000	24,441	737	36,283	19,262
25 – 29	–	–	–	970	76,399	35,264	3,167	70,302	36,893	1,643	57,973	33,082	523	42,781	28,032
30 – 34	–	–	–	3,235	89,964	56,119	3,543	79,496	50,622	1,270	63,590	43,093	422	46,460	34,910
35 & Over	–	–	–	1,531	87,981	61,979	3,586	80,051	61,470	1,490	73,004	58,675	415	58,223	49,833
Total	–	–	–	10,933	73,628	34,732	22,023	65,427	31,888	10,891	52,992	26,629	3,746	37,901	20,924
School Districts															
Under 10	–	–	–	1,324	24,837	2,397	3,037	22,580	2,659	1,863	19,538	2,568	601	12,457	1,947
10 – 14	–	–	–	2,328	30,633	4,928	5,581	28,992	5,647	4,259	23,926	5,145	2,505	16,843	4,393
15 – 19	–	–	–	1,831	35,486	8,198	4,947	33,286	9,076	3,493	28,521	8,672	2,120	19,462	7,381
20 – 24	1	86,642	45,747	2,211	43,432	16,323	7,462	41,423	17,857	4,543	33,799	16,088	2,372	22,110	12,195
25 – 29	4	76,169	37,728	1,231	49,858	23,384	5,195	45,744	24,442	3,312	35,820	21,158	1,636	24,725	16,765
30 – 34	–	–	–	2,101	63,229	39,322	3,484	51,118	32,718	1,981	39,400	27,143	724	29,004	22,143
35 & Over	–	–	–	1,033	69,473	49,369	2,157	58,177	44,595	1,129	45,580	36,811	395	34,561	30,771
Total	5	78,264	39,332	12,059	44,049	18,919	31,863	39,085	17,415	20,580	31,080	14,358	10,353	21,103	10,853

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, 2020. 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	–	–	–	–	–	–	11	43,839	6,046	5	52,803	20,455	10	20,246	3,077
10 – 14	–	–	–	–	–	–	24	55,241	10,896	27	40,850	8,619	27	19,717	4,831
15 – 19	–	–	–	–	–	–	14	78,161	22,485	16	76,398	26,263	23	32,765	12,631
20 – 24	–	–	–	137	139,628	73,716	454	118,672	63,439	348	80,495	44,253	774	36,490	26,953
25 – 29	–	–	–	16	147,604	86,058	471	137,733	84,491	316	108,093	66,589	386	56,386	39,520
30 – 34	–	–	–	–	–	–	400	149,809	102,122	454	131,529	90,069	451	72,421	53,027
35 & Over	–	–	–	–	–	–	7	156,438	108,130	174	139,719	96,744	239	84,285	65,598
Total	–	–	–	153	140,462	75,007	1,381	132,274	80,265	1,340	111,033	70,838	1,910	54,609	39,875
Counties															
Under 10	–	–	–	–	–	–	5	66,974	8,137	4	62,594	8,357	2	21,473	2,756
10 – 14	–	–	–	–	–	–	7	80,368	15,724	12	60,157	12,231	21	29,677	6,998
15 – 19	–	–	–	–	–	–	4	119,677	34,540	6	61,628	19,386	14	40,783	14,695
20 – 24	–	–	–	65	172,751	89,272	369	156,597	82,947	236	116,233	62,824	1,128	59,419	38,226
25 – 29	–	–	–	10	202,275	118,537	390	183,566	112,844	306	157,615	98,862	431	91,492	60,321
30 – 34	–	–	–	–	–	–	377	204,308	140,441	512	178,094	123,466	744	120,477	87,201
35 & Over	–	–	–	–	–	–	16	225,470	157,829	197	197,349	142,466	652	146,936	113,331
Total	–	–	–	75	176,687	93,174	1,168	180,978	111,624	1,273	162,659	107,349	2,992	97,972	69,601
Cities															
Under 10	–	–	–	–	–	–	21	40,388	4,672	13	35,467	4,899	9	47,177	9,183
10 – 14	–	–	–	–	–	–	16	52,668	10,470	75	38,045	8,158	78	21,316	5,347
15 – 19	–	–	–	–	–	–	12	64,126	17,725	50	47,994	13,831	36	33,167	12,421
20 – 24	–	–	–	334	110,766	56,534	1,673	96,694	49,704	1,317	72,926	39,168	1,719	40,973	27,328
25 – 29	–	–	–	30	154,218	88,459	619	110,761	64,655	822	96,791	58,235	832	56,427	37,139
30 – 34	–	–	–	–	–	–	321	129,954	85,915	777	111,136	73,812	1,079	68,631	49,665
35 & Over	–	–	–	–	–	–	9	116,302	74,436	351	109,992	75,286	772	83,771	65,019
Total	–	–	–	364	114,347	59,166	2,671	103,164	56,871	3,405	89,950	54,214	4,525	57,323	40,355
Towns															
Under 10	–	–	–	–	–	–	16	38,134	4,108	24	33,117	4,214	37	21,789	3,465
10 – 14	–	–	–	–	–	–	17	58,185	11,747	31	38,701	7,936	56	27,603	6,788
15 – 19	–	–	–	–	–	–	6	54,579	15,389	24	54,181	16,334	24	30,522	11,322
20 – 24	–	–	–	141	123,887	62,535	526	104,193	53,072	412	80,358	42,456	396	49,647	31,638
25 – 29	–	–	–	9	137,774	75,411	170	125,328	71,725	198	99,802	57,333	121	64,590	40,036
30 – 34	–	–	–	–	–	–	103	157,725	101,588	191	125,913	82,484	213	86,721	61,207
35 & Over	–	–	–	–	–	–	7	156,869	102,890	121	144,603	98,127	165	106,098	80,659
Total	–	–	–	150	124,721	63,308	845	112,878	61,125	1,001	97,612	57,154	1,012	65,749	43,971

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	36,305	4,203	44	27,638	3,256	38	14,703	1,970
10 – 14	–	–	–	–	–	–	13	44,256	8,507	46	38,715	8,144	71	21,588	5,385
15 – 19	–	–	–	–	–	–	6	53,619	14,867	26	48,098	15,549	42	27,138	10,002
20 – 24	–	–	–	105	114,840	57,785	506	98,734	50,120	360	73,609	38,530	447	45,799	29,392
25 – 29	–	–	–	3	151,040	79,880	165	130,713	71,956	151	101,385	55,538	152	57,750	35,609
30 – 34	–	–	–	–	–	–	71	174,957	109,378	147	138,299	88,485	157	81,873	56,483
35 & Over	–	–	–	–	–	–	8	173,107	115,129	107	161,681	107,944	150	107,210	81,716
Total	–	–	–	108	115,845	58,399	785	110,588	58,838	881	94,990	54,185	1,057	58,105	38,367
Miscellaneous															
Under 10	–	–	–	–	–	–	7	57,775	7,390	5	71,935	7,894	3	72,595	7,773
10 – 14	–	–	–	–	–	–	2	75,810	15,357	6	71,420	16,267	15	24,451	5,661
15 – 19	–	–	–	–	–	–	3	143,818	39,926	5	88,486	25,242	8	48,037	18,284
20 – 24	–	–	–	77	167,913	87,746	140	149,894	79,150	216	122,888	65,728	352	72,080	44,696
25 – 29	–	–	–	11	166,576	99,395	97	172,506	103,858	208	151,159	93,676	145	103,844	65,763
30 – 34	–	–	–	–	–	–	43	165,725	111,983	164	165,817	113,788	144	140,387	99,193
35 & Over	–	–	–	–	–	–	4	187,327	111,655	51	175,858	123,298	88	124,136	95,960
Total	–	–	–	88	167,746	89,202	296	157,369	89,930	655	145,616	89,915	755	96,077	63,909

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, 2020. 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	119	44,830	26,559	279	30,446	13,520	382	23,514	12,002	280	18,286	10,658	168	14,941	8,468
10 – 14	378	55,153	23,995	964	43,029	15,962	879	36,116	14,279	421	29,514	12,919	122	23,698	12,170
15 – 19	308	61,776	27,034	928	49,701	19,878	953	39,693	17,796	430	32,834	17,243	100	24,496	17,100
20 – 24	153	67,666	32,926	821	55,371	24,650	796	43,654	21,966	356	35,425	22,673	39	30,691	26,423
25 – 29	85	76,594	47,216	647	63,972	36,422	431	48,199	27,838	177	37,002	25,540	16	29,950	29,258
30 – 34	15	73,981	44,905	174	66,811	40,916	200	44,603	29,032	66	37,324	29,006	7	30,040	29,317
35 & Over	–	–	–	34	51,766	27,985	65	46,654	29,719	6	42,081	31,512	1	24,445	21,147
Total	1,058	59,719	28,622	3,847	51,035	23,260	3,706	39,404	19,244	1,736	30,841	17,588	453	21,549	14,001
Counties															
Under 10	42	69,935	45,926	55	35,722	18,267	76	26,254	13,334	51	17,617	10,399	44	14,152	8,606
10 – 14	201	62,610	32,050	349	47,924	20,026	336	35,540	13,597	182	28,402	11,770	42	20,920	10,139
15 – 19	188	73,527	36,883	386	51,994	22,904	329	43,600	19,585	177	29,615	14,320	43	24,910	15,810
20 – 24	103	77,040	40,125	328	65,929	33,546	266	46,761	24,424	98	38,233	25,567	15	31,283	26,108
25 – 29	31	92,221	58,306	222	70,481	40,932	143	50,319	29,732	38	39,277	28,595	7	27,326	26,917
30 – 34	6	75,427	43,852	46	73,581	45,000	59	56,390	37,591	8	34,263	27,317	1	35,050	31,148
35 & Over	–	–	–	6	65,129	39,628	15	56,985	38,576	1	19,429	4,689	–	–	–
Total	571	71,088	37,668	1,392	57,332	28,184	1,224	42,563	20,891	555	30,346	16,257	152	21,500	13,786
Cities															
Under 10	4	51,732	17,639	12	28,835	11,406	22	23,647	11,018	15	19,435	9,673	20	15,814	9,732
10 – 14	18	54,187	18,385	74	39,613	13,316	69	34,138	11,382	28	29,424	12,555	8	21,212	11,362
15 – 19	19	52,360	17,552	65	45,183	15,747	86	37,127	14,155	32	30,533	13,506	3	19,284	9,801
20 – 24	13	58,126	20,986	54	49,383	18,762	47	36,450	17,748	22	34,042	20,648	5	26,740	24,436
25 – 29	10	55,508	24,000	36	49,500	22,051	50	39,335	21,876	19	32,119	21,893	3	23,154	22,116
30 – 34	1	85,275	43,704	12	62,098	32,385	15	38,534	24,139	2	27,620	19,213	–	–	–
35 & Over	–	–	–	2	71,083	41,656	1	40,615	27,585	–	–	–	–	–	–
Total	65	54,971	19,869	255	45,295	17,352	290	35,749	15,734	118	29,719	15,572	39	19,154	12,910
Towns															
Under 10	12	37,692	13,905	11	34,390	13,882	18	29,507	15,195	18	16,790	10,551	12	13,453	9,975
10 – 14	38	54,934	18,792	104	44,035	14,684	80	36,020	13,596	39	29,185	12,491	15	19,839	8,419
15 – 19	32	57,463	19,700	131	50,471	17,508	98	39,997	15,675	40	33,129	14,726	5	30,089	14,648
20 – 24	33	63,986	23,670	99	61,033	23,253	87	43,503	22,528	25	37,685	25,766	9	31,918	27,355
25 – 29	13	71,670	31,833	67	61,987	28,644	47	46,872	26,187	20	39,322	30,490	–	–	–
30 – 34	2	89,912	47,443	22	69,335	38,315	26	50,177	31,736	8	41,638	33,063	3	25,079	25,556
35 & Over	–	–	–	5	43,844	23,028	6	60,492	37,460	1	60,147	48,548	–	–	–
Total	130	58,474	21,547	439	53,553	20,849	362	41,403	19,718	151	32,367	18,762	44	22,090	14,593

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	49,803	16,798	6	30,891	11,940	6	23,486	11,146	7	18,053	11,999	2	12,386	11,405
10 – 14	16	55,036	18,595	38	43,750	14,724	26	33,158	13,334	9	30,642	12,768	1	15,496	6,325
15 – 19	16	55,314	18,777	31	53,942	18,411	28	40,822	17,478	12	31,515	15,476	4	21,928	9,369
20 – 24	7	62,337	22,915	31	59,449	23,136	21	38,383	18,790	6	34,344	24,760	3	16,658	18,423
25 – 29	11	73,245	31,991	21	69,685	31,677	15	43,347	22,070	8	34,357	24,945	1	14,979	24,154
30 – 34	1	70,694	35,936	6	72,499	38,609	9	58,663	35,302	5	35,275	24,294	1	28,768	27,654
35 & Over	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Total	53	59,961	22,260	133	54,596	21,173	105	39,336	18,536	47	30,588	18,175	12	18,475	14,474
Miscellaneous															
Under 10	14	41,450	14,435	38	38,546	14,543	36	28,862	13,236	27	24,339	10,875	10	20,408	14,113
10 – 14	59	49,643	16,903	200	46,789	15,241	213	43,807	14,234	79	34,681	12,280	17	23,825	12,495
15 – 19	43	54,379	18,456	194	52,926	18,260	214	43,271	15,713	66	35,814	15,832	12	27,952	12,267
20 – 24	29	64,340	22,942	166	56,238	21,202	114	50,032	20,149	26	42,706	22,417	5	25,279	19,073
25 – 29	20	68,805	29,993	119	60,057	27,086	69	49,006	26,203	13	38,612	28,145	2	38,009	31,176
30 – 34	2	61,945	32,703	40	61,478	32,853	29	58,924	36,174	8	42,472	31,403	3	49,125	40,157
35 & Over	–	–	–	5	54,849	27,501	9	49,474	30,085	1	28,043	22,308	–	–	–
Total	167	55,170	19,902	762	52,895	20,128	684	45,130	17,976	220	35,186	16,050	49	26,415	15,897
School Districts															
Under 10	5	32,179	11,608	29	26,952	10,001	53	18,788	8,326	51	14,369	7,024	55	12,038	6,925
10 – 14	71	40,549	13,867	330	32,545	10,522	343	28,877	9,139	204	24,153	8,400	33	19,738	7,050
15 – 19	49	49,136	16,549	284	38,581	12,844	323	32,989	11,574	143	29,459	11,201	24	20,200	13,660
20 – 24	31	45,984	16,763	193	42,521	16,120	124	35,162	15,266	57	28,284	14,717	8	18,665	13,498
25 – 29	11	58,565	25,820	99	51,245	23,037	67	39,848	20,099	29	33,107	21,925	3	29,639	23,356
30 – 34	3	62,220	31,696	31	52,826	28,131	24	46,577	27,077	3	52,472	38,099	–	–	–
35 & Over	–	–	–	2	59,844	37,220	4	48,920	31,567	1	22,658	19,677	–	–	–
Total	170	45,317	16,190	968	38,756	14,203	938	31,876	12,079	488	25,871	10,824	123	16,557	9,101

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, 2020. 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	3	95,244	55,240	17	76,053	49,873	42	47,609	30,468	33	29,605	21,271	72	19,636	19,717
10 – 14	1	112,513	84,384	13	104,402	61,665	31	69,708	40,854	32	41,459	26,588	41	21,679	23,758
15 – 19	–	–	–	15	121,823	77,058	42	87,792	54,629	40	55,267	33,141	64	29,367	27,431
20 – 24	–	–	–	9	125,940	88,855	52	112,718	73,459	29	77,219	50,459	80	42,199	33,729
25 – 29	–	–	–	–	–	–	27	134,645	89,197	31	102,498	68,859	39	57,045	41,787
30 – 34	–	–	–	–	–	–	3	132,375	97,369	21	124,007	90,568	19	74,249	57,194
35 & Over	–	–	–	–	–	–	–	–	–	3	141,137	100,642	13	82,316	65,350
Total	4	99,561	62,526	54	103,906	66,760	197	90,059	57,669	189	68,564	45,927	328	37,389	31,749
Counties															
Under 10	1	89,295	67,367	16	90,396	57,023	26	73,062	44,460	18	48,635	36,427	50	26,879	28,229
10 – 14	4	134,761	75,488	35	130,092	87,383	81	101,301	70,162	43	57,210	42,316	100	35,033	36,026
15 – 19	–	–	–	41	147,355	100,897	103	119,214	84,539	47	79,463	58,999	211	48,931	43,804
20 – 24	–	–	–	16	179,728	122,166	136	141,938	95,960	71	116,139	81,855	259	63,711	53,085
25 – 29	–	–	–	2	171,627	108,847	70	166,327	118,427	44	138,800	99,062	76	76,912	61,408
30 – 34	–	–	–	–	–	–	14	200,365	151,296	25	163,776	121,065	40	110,569	83,922
35 & Over	–	–	–	–	–	–	–	–	–	5	154,181	99,595	21	132,197	102,365
Total	5	125,668	73,864	110	138,727	93,454	430	130,548	90,710	253	103,907	74,875	757	59,072	50,435
Cities															
Under 10	9	71,811	42,864	26	69,256	42,750	57	54,992	36,659	45	35,483	25,069	42	20,051	17,640
10 – 14	11	90,103	53,050	56	82,274	50,500	128	65,937	41,264	101	42,664	29,285	82	25,008	25,174
15 – 19	1	79,930	26,643	66	93,135	54,868	180	76,261	48,322	117	52,762	36,110	136	33,941	29,600
20 – 24	–	–	–	17	99,307	58,416	175	95,865	59,114	172	70,509	46,686	244	42,145	34,529
25 – 29	–	–	–	1	88,270	44,135	74	103,013	64,734	114	85,732	55,528	143	49,678	38,476
30 – 34	–	–	–	–	–	–	13	122,070	75,289	53	89,647	60,411	80	60,436	44,734
35 & Over	–	–	–	–	–	–	–	–	–	11	116,186	81,583	28	63,693	46,719
Total	21	81,779	47,427	166	86,334	51,795	627	81,799	51,329	613	65,268	43,671	755	41,741	33,967
Towns															
Under 10	1	89,005	66,754	19	79,154	53,166	22	55,320	34,305	22	41,248	27,835	20	20,138	16,098
10 – 14	5	108,789	66,532	30	98,561	60,585	39	71,418	47,207	37	55,452	33,474	33	31,301	29,502
15 – 19	–	–	–	23	114,911	74,925	53	92,701	59,477	25	58,982	39,242	48	38,578	34,771
20 – 24	–	–	–	7	113,765	78,651	72	114,329	76,554	65	77,106	53,058	59	50,371	40,141
25 – 29	–	–	–	–	–	–	25	121,838	73,762	35	96,637	68,198	17	63,244	49,589
30 – 34	–	–	–	–	–	–	7	152,753	94,499	18	136,352	94,604	13	84,725	61,830
35 & Over	–	–	–	–	–	–	–	–	–	1	120,255	60,128	4	128,010	98,710
Total	6	105,492	66,569	79	100,001	64,577	218	97,534	63,145	203	75,874	51,383	194	46,123	38,013

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	3	95,070	71,303	11	76,787	52,031	22	54,418	34,624	23	34,400	24,952	22	18,526	20,267
10 – 14	3	104,156	78,249	22	97,425	52,306	42	76,412	51,273	35	50,292	33,237	32	28,638	26,871
15 – 19	–	–	–	17	102,746	63,279	65	89,146	57,072	43	66,318	44,907	51	40,676	34,639
20 – 24	–	–	–	8	142,244	85,888	55	104,372	65,615	41	80,779	54,526	52	49,950	40,379
25 – 29	–	–	–	1	132,173	66,087	16	160,226	97,422	19	99,138	66,272	19	64,596	48,308
30 – 34	–	–	–	–	–	–	4	166,823	105,493	11	130,019	82,584	9	85,007	65,078
35 & Over	–	–	–	–	–	–	–	–	–	4	115,676	57,991	6	81,894	51,661
Total	6	99,613	74,776	59	101,776	60,203	204	93,982	59,874	176	70,975	47,178	191	44,396	36,573
Miscellaneous															
Under 10	4	99,731	61,188	12	85,391	59,921	13	61,248	39,002	15	50,815	34,683	9	43,268	37,714
10 – 14	–	–	–	28	115,269	76,202	35	108,807	74,755	24	66,465	44,538	12	53,012	36,286
15 – 19	–	–	–	15	132,131	87,919	25	122,160	82,069	27	83,269	58,352	37	56,736	45,240
20 – 24	–	–	–	9	160,512	104,179	32	146,501	99,792	73	119,015	82,897	40	83,316	63,639
25 – 29	–	–	–	1	182,588	136,941	8	154,747	105,175	37	137,173	100,635	15	94,593	67,844
30 – 34	–	–	–	–	–	–	1	177,397	136,222	8	160,107	116,311	6	137,487	103,550
35 & Over	–	–	–	–	–	–	–	–	–	–	–	–	5	140,180	108,919
Total	4	99,731	61,188	65	120,945	80,708	114	120,718	81,984	184	106,794	75,382	124	75,824	57,886

NEW OPTION SELECTIONS

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

Options	2016		2017		2018		2019		2020	
	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount
ERS Females										
Single Life Allowance**	7,683	182,550,124	7,413	183,872,745	8,852	209,575,192	7,072	175,527,699	7,494	193,955,163
Cash Refund	19	685,299	7	234,374	16	580,262	3	116,424	8	255,096
Joint Allowance — Full	715	12,033,549	803	13,434,417	1,050	16,771,815	867	14,305,912	606	11,590,002
Joint Allowance — Half	137	3,495,837	131	3,357,590	147	4,065,239	164	4,603,746	135	3,982,328
Five Year Certain	136	3,039,451	109	2,729,206	142	3,612,207	122	3,271,204	92	2,756,281
Ten Year Certain	273	5,215,831	361	8,035,482	439	9,949,556	390	8,617,407	298	7,529,028
Pop-Up — Full	1,402	29,934,874	1,696	40,354,572	2,413	58,537,182	1,922	49,174,363	2,103	54,882,652
Pop-Up — Half	800	24,575,129	789	25,869,734	1,046	34,464,128	862	30,449,620	848	29,941,152
Other (Option 4)	687	23,740,784	660	22,628,793	776	28,321,409	676	24,896,907	764	29,259,512
Total	11,852	285,270,881	11,969	300,516,917	14,881	365,876,993	12,078	310,963,285	12,348	334,151,218
ERS Males										
Single Life Allowance**	3,613	113,480,787	3,397	108,315,670	4,416	135,424,027	3,489	112,196,278	3,501	118,808,585
Cash Refund	4	127,476	6	242,131	8	95,032	2	89,243	2	45,768
Joint Allowance — Full	1,778	54,076,972	1,742	54,862,090	2,300	71,932,738	1,740	55,387,988	1,409	50,905,250
Joint Allowance — Half	281	11,080,053	219	9,282,560	303	12,609,739	239	9,581,695	213	9,828,230
Five Year Certain	80	2,708,720	66	1,910,993	89	2,895,753	55	1,895,058	35	1,258,873
Ten Year Certain	207	7,085,157	206	5,973,927	321	10,313,589	229	6,929,664	148	4,733,889
Pop-Up — Full	2,074	66,784,431	2,452	83,670,111	3,237	113,230,443	2,559	93,913,676	2,740	102,742,477
Pop-Up — Half	736	29,476,086	741	31,599,049	894	41,086,014	728	33,166,966	715	32,589,400
Other (Option 4)	1,010	43,559,235	886	39,641,518	1,040	47,525,434	956	46,899,818	972	48,802,333
Total	9,783	328,378,921	9,715	335,498,055	12,608	435,112,773	9,997	360,060,391	9,735	369,714,808
PFRS Females										
Single Life Allowance**	62	4,622,315	85	6,071,215	75	5,769,780	66	4,677,275	83	6,433,337
Cash Refund	—	—	—	—	—	—	—	—	—	—
Joint Allowance — Full	2	117,042	4	288,938	5	329,517	6	296,999	4	301,195
Joint Allowance — Half	4	344,922	3	259,007	1	88,083	1	77,433	—	—
Five Year Certain	—	—	2	220,344	1	89,883	1	77,829	1	116,993
Ten Year Certain	1	88,018	6	406,985	6	395,390	6	464,880	6	496,751
Pop-Up — Full	10	625,473	13	878,840	12	629,577	18	1,049,748	19	1,396,329
Pop-Up — Half	5	321,668	9	654,009	8	416,178	8	531,088	8	632,727
Other (Option 4)	8	629,196	8	714,073	1	115,472	9	762,431	9	695,924
Total	92	6,748,638	130	9,493,415	109	7,833,885	115	7,937,687	130	10,073,259
PFRS Males										
Single Life Allowance**	320	22,112,233	499	35,551,463	433	31,209,987	421	29,947,306	391	31,485,743
Cash Refund	—	—	—	—	—	—	—	—	1	71,591
Joint Allowance — Full	105	6,873,667	232	16,971,860	272	20,499,283	244	18,881,698	173	13,985,544
Joint Allowance — Half	45	3,825,860	84	7,826,713	46	3,635,453	52	4,741,723	40	3,776,545
Five Year Certain	3	202,398	6	387,703	9	514,073	6	469,869	3	137,439
Ten Year Certain	24	1,817,821	39	2,722,041	33	2,622,059	47	3,861,153	19	1,560,943
Pop-Up — Full	146	8,746,372	399	25,316,535	468	33,096,113	430	30,376,811	428	30,749,752
Pop-Up — Half	86	6,921,576	185	15,082,654	146	11,290,976	174	14,765,782	142	12,705,827
Other (Option 4)	154	12,564,460	222	19,064,090	229	19,787,409	247	22,890,719	223	21,908,590
Total	883	63,064,391	1,666	122,923,063	1,636	122,655,356	1,621	125,935,066	1,420	116,381,978

* In 2020, 18 ERS retirees selected partial lump sums which totaled \$2,688,127 and 131 PFRS retirees selected partial lump sums which totaled \$25,777,921.

There were an additional three new retirees whose gender was unknown and whose annual benefits totaled \$65,383.

** Includes Single Life Allowance and Option ½.

OPTION SELECTIONS — TOTAL PAYMENTS

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

Options	2016		2017		2018		2019		2020	
	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount	Number	\$ Amount
ERS Females										
Single Life Allowance**	142,738	2,439,709,589	145,621	2,576,016,448	150,277	2,739,135,518	152,563	2,862,124,619	153,725	2,979,273,483
Cash Refund	6,590	87,017,005	6,107	83,233,943	5,714	80,322,054	5,299	76,843,755	4,775	72,194,493
Joint Allowance — Full	9,680	117,472,217	10,183	127,899,065	10,913	141,398,327	11,421	152,048,415	11,615	159,884,469
Joint Allowance — Half	2,742	52,664,945	2,769	54,789,535	2,807	57,380,922	2,872	60,904,589	2,870	63,111,606
Five Year Certain	3,948	65,278,096	3,886	66,210,411	3,862	67,906,786	3,779	69,125,708	3,662	69,572,558
Ten Year Certain	6,654	94,602,238	6,743	99,655,096	6,940	107,287,519	7,041	112,567,552	7,011	116,331,193
Pop-Up — Full	17,261	306,609,960	18,662	343,869,918	20,800	399,772,716	22,346	444,996,611	24,020	494,118,843
Pop-Up — Half	13,851	323,518,033	14,316	345,395,206	15,051	375,601,607	15,549	401,594,114	15,958	424,654,736
Other (Option 4)	6,304	182,213,350	6,861	202,888,985	7,533	229,338,653	8,110	252,826,035	8,745	279,543,719
Total	209,768	3,669,085,432	215,148	3,899,958,607	223,897	4,198,144,103	228,980	4,433,031,398	232,381	4,658,685,104
ERS Males										
Single Life Allowance**	62,964	1,639,051,171	64,058	1,707,602,045	66,276	1,803,709,752	67,333	1,873,321,039	67,614	1,928,355,918
Cash Refund	4,011	88,404,869	3,696	83,476,833	3,441	78,804,268	3,178	74,872,721	2,886	69,453,638
Joint Allowance — Full	30,276	756,073,178	30,795	788,151,000	31,961	839,107,754	32,422	871,363,515	32,469	897,130,873
Joint Allowance — Half	8,419	274,645,486	8,229	274,227,687	8,135	277,712,944	7,976	278,040,483	7,730	276,376,551
Five Year Certain	1,871	46,354,166	1,842	46,702,985	1,830	47,617,006	1,785	47,612,911	1,689	46,783,149
Ten Year Certain	4,564	106,314,614	4,567	108,728,127	4,683	115,864,288	4,675	118,606,728	4,572	118,557,208
Pop-Up — Full	26,450	725,671,552	28,304	798,701,377	30,932	900,951,147	32,789	982,552,440	34,682	1,068,486,475
Pop-Up — Half	13,892	481,396,053	14,241	504,090,575	14,760	536,626,853	15,050	558,862,486	15,290	579,559,321
Other (Option 4)	9,814	390,307,216	10,541	426,193,527	11,411	469,149,907	12,191	511,565,281	12,908	552,402,528
Total	162,261	4,508,218,305	166,273	4,737,874,156	173,429	5,069,543,917	177,399	5,316,797,601	179,840	5,537,105,666
PFRS Females										
Single Life Allowance**	919	50,244,911	998	56,133,650	1,071	62,012,419	1,135	66,721,803	1,214	73,186,217
Cash Refund	5	295,261	5	295,261	5	295,261	4	253,161	4	253,162
Joint Allowance — Full	47	2,071,752	51	2,360,691	55	2,661,736	57	2,785,671	59	3,019,737
Joint Allowance — Half	27	1,548,818	30	1,807,825	31	1,904,049	32	1,981,483	32	1,981,483
Five Year Certain	14	723,914	16	944,258	17	1,034,142	18	1,114,808	19	1,231,800
Ten Year Certain	90	4,995,739	95	5,349,217	101	5,744,608	105	6,090,277	109	6,540,722
Pop-Up — Full	152	7,598,667	165	8,484,706	176	9,100,567	194	10,236,019	212	11,625,143
Pop-Up — Half	90	4,566,055	98	5,205,253	105	5,615,901	112	6,088,553	119	6,627,755
Other (Option 4)	38	2,782,268	46	3,514,927	47	3,642,814	56	4,412,811	65	5,108,735
Total	1,382	74,827,385	1,504	84,095,788	1,608	92,011,497	1,713	99,684,586	1,833	109,574,757
PFRS Males										
Single Life Allowance**	15,042	594,625,064	15,088	620,012,783	15,090	641,656,655	15,058	662,634,652	14,859	679,609,710
Cash Refund	1,396	46,766,372	1,349	45,479,028	1,271	43,185,558	1,198	41,381,216	1,127	39,497,836
Joint Allowance — Full	3,084	146,707,445	3,258	161,342,953	3,459	179,355,572	3,641	196,644,810	3,729	207,687,851
Joint Allowance — Half	1,422	77,666,165	1,456	83,747,797	1,461	86,401,483	1,477	90,168,956	1,466	91,967,811
Five Year Certain	354	13,899,664	345	13,749,301	345	13,967,834	330	13,837,335	317	13,555,294
Ten Year Certain	1,375	53,781,392	1,375	55,505,892	1,371	57,290,017	1,375	59,847,097	1,330	59,371,442
Pop-Up — Full	3,374	157,327,923	3,733	181,480,456	4,159	214,127,077	4,544	244,142,774	4,915	273,727,808
Pop-Up — Half	2,682	160,406,683	2,821	173,548,925	2,920	183,945,752	3,055	197,956,731	3,137	207,905,337
Other (Option 4)	1,662	127,363,319	1,870	145,785,609	2,085	165,413,074	2,318	188,071,753	2,513	208,535,266
Total	30,391	1,378,544,027	31,295	1,480,652,744	32,161	1,585,343,023	32,996	1,694,685,323	33,393	1,781,858,359

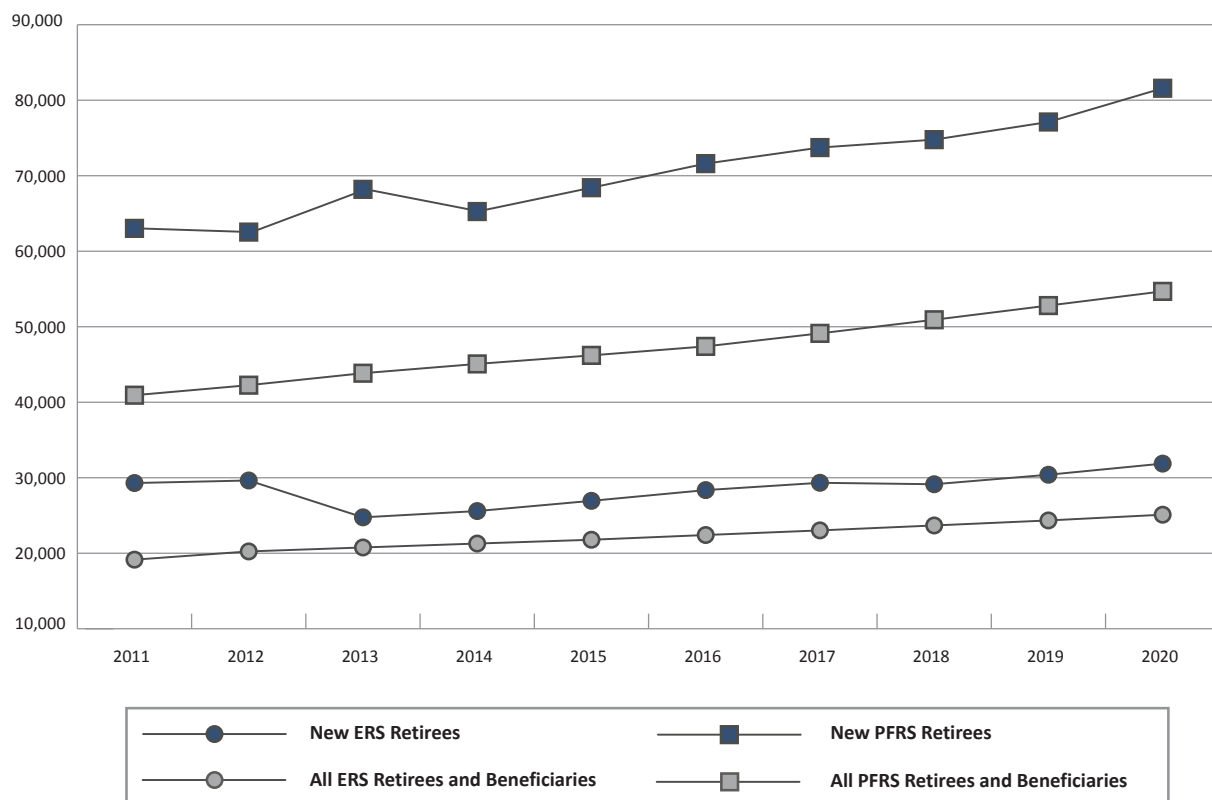
* In the six years since this program began, 38 ERS retirees have selected partial lump sums which totaled approximately \$5,029,532. In the 12 years since the program began, 1,681 PFRS retirees have selected partial lump sums which totaled \$227,647,809. As of the fiscal year ending March 31, 2020, there are an additional 14 retirees whose gender is unknown and whose annual benefits total \$147,498.

** Includes Single Life Allowance figures and Option ½.

AVERAGE PENSION BENEFITS PAID DURING YEAR SHOWN

This table shows the average annual benefit payments to all retirees and beneficiaries receiving benefits during the given fiscal 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) shows the trends in these benefit payments over the past 10 years.

Year	ERS		PFRS	
	All Retirees & Beneficiaries	New Retirees	All Retirees & Beneficiaries	New Retirees
2011	\$ 19,151	\$ 29,300	\$ 40,932	\$ 63,026
2012	20,241	29,636	42,259	62,535
2013	20,766	24,756	43,844	68,197
2014	21,285	25,588	45,074	65,256
2015	21,788	26,941	46,207	68,414
2016	22,415	28,364	47,397	71,603
2017	23,026	29,331	49,123	73,729
2018	23,680	29,139	50,922	74,779
2019	24,345	30,397	52,804	77,116
2020	25,105	31,872	54,684	81,584



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 the average final average salary (*Average FAS*) of members retiring during the fiscal year ending March 31, 2020. 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	17	\$ 2,908	\$ 61,772
5 – 9	1,043	358	38,806
10 – 14	3,093	761	49,348
15 – 19	2,379	1,137	52,731
20 – 24	3,893	2,180	63,247
25 – 29	3,014	3,205	75,172
30 – 34	5,424	4,236	82,593
35 – 39	2,167	5,015	87,171
40 & Over	683	5,920	90,813
Total	21,713	\$ 2,833	\$ 68,683
Ordinary Disability Retirements			
Under 5	6	\$ 938	\$ 22,296
5 – 9	6	1,454	52,502
10 – 14	85	1,493	56,377
15 – 19	107	1,625	59,991
20 – 24	57	1,982	66,100
25 – 29	40	2,622	71,162
30 – 34	12	2,923	67,953
35 – 39	–	–	–
40 & Over	–	–	–
Total	313	\$ 1,815	\$ 60,989
Performance of Duty Disability Retirements			
Under 5	2	\$ 3,336	\$ 53,214
5 – 9	3	4,799	76,800
10 – 14	16	5,763	95,060
15 – 19	15	5,014	86,997
20 – 24	5	4,225	77,446
25 – 29	9	6,016	96,608
30 – 34	2	6,957	111,319
35 – 39	–	–	–
40 & Over	–	–	–
Total	52	\$ 5,340	\$ 89,271
Accidental Disability Retirements			
Under 5	2	\$ 929	\$ 33,490
5 – 9	–	–	–
10 – 14	–	–	–
15 – 19	3	1,943	70,464
20 – 24	1	2,142	77,138
25 – 29	1	5,471	87,541
30 – 34	1	7,106	113,705
35 – 39	–	–	–
40 & Over	–	–	–
Total	8	\$ 2,801	\$ 69,594

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, 2020. 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	24	398	39,169
10 – 14	23	995	57,373
15 – 19	23	1,833	76,098
20 – 24	496	5,740	134,213
25 – 29	333	7,750	156,933
30 – 34	423	9,043	161,710
35 – 39	96	9,560	169,672
40 & Over	28	9,500	162,556
Total	1,446	\$ 7,269	\$ 146,668
Ordinary Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	–	–	–
10 – 14	1	2,587	92,977
15 – 19	1	2,399	86,397
20 – 24	–	–	–
25 – 29	–	–	–
30 – 34	–	–	–
35 – 39	–	–	–
40 & Over	–	–	–
Total	2	\$ 2,493	\$ 89,687
Performance of Duty Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	4	3,202	76,869
10 – 14	13	4,768	110,659
15 – 19	10	5,658	136,943
20 – 24	12	5,297	127,131
25 – 29	7	4,955	118,934
30 – 34	4	5,703	136,886
35 – 39	–	–	–
40 & Over	–	–	–
Total	50	\$ 5,049	\$ 120,423
Accidental Disability Retirements			
Under 5	–	\$ –	\$ –
5 – 9	4	5,620	99,221
10 – 14	8	8,286	132,588
15 – 19	15	8,316	133,060
20 – 24	10	10,158	162,310
25 – 29	13	9,992	161,660
30 – 34	2	12,597	201,554
35 – 39	–	–	–
40 & Over	–	–	–
Total	52	\$ 9,042	\$ 145,794

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, 2020. 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	\$ 1,774	8	4	\$ 4,845	13	11	\$ 51,852	46
5 – 9	334	3,673	9	303	4,630	11	253	4,624	12	153	4,471	13
10 – 14	790	6,745	15	1,023	9,503	19	886	10,390	20	394	10,145	20
15 – 19	599	10,413	21	819	14,179	27	674	15,057	28	287	15,590	28
20 – 24	728	22,745	34	1,520	26,311	42	1,196	27,498	43	449	27,653	43
25 – 29	851	39,829	46	1,243	37,804	53	660	38,430	54	260	37,226	54
30 – 34	2,728	51,705	61	1,844	50,510	62	591	49,637	62	261	46,725	63
35 – 39	935	56,240	68	843	63,210	69	286	63,267	71	103	62,666	71
40 & Over	27	57,038	74	280	62,638	76	229	73,899	79	147	85,207	83
Total	6,992	\$ 36,960	46	7,877	\$ 34,745	47	4,779	\$ 29,953	42	2,065	\$ 30,507	43

Years of Service	Age at Retirement											
	40 – 49			50 – 54			55 – 59			60 & Over		
	Number	Allowance	%	Number	Allowance	%	Number	Allowance	%	Number	Allowance	%
PFRS												
Under 5	–	\$ –	–	–	\$ –	–	–	\$ –	–	–	\$ –	–
5 – 9	–	–	–	–	–	–	18	4,869	11	6	4,521	14
10 – 14	–	–	–	–	–	–	19	11,195	20	4	15,477	24
15 – 19	–	–	–	–	–	–	17	19,833	27	6	28,151	33
20 – 24	260	71,416	51	151	68,697	51	63	60,927	51	22	63,029	50
25 – 29	40	95,570	57	167	92,320	59	97	97,580	60	29	78,128	58
30 – 34	–	–	–	87	106,225	65	234	113,524	67	102	99,007	67
35 – 39	–	–	–	–	–	–	31	116,422	65	65	113,918	68
40 & Over	–	–	–	–	–	–	–	–	–	28	114,011	92
Total	300	\$ 74,636	52	405	\$ 86,500	57	479	\$ 92,097	58	262	\$ 93,916	65

NEW BENEFITS — ACCIDENTAL AND ORDINARY DEATH

ACCIDENTAL DEATH BENEFITS

During the fiscal year ending March 31, 2020, the Employees' Retirement System approved one accidental death benefit in the amount of \$22,051 annually. The Police and Fire Retirement System approved three accidental death benefits, which averaged \$74,341 annually.

ORDINARY DEATH BENEFITS

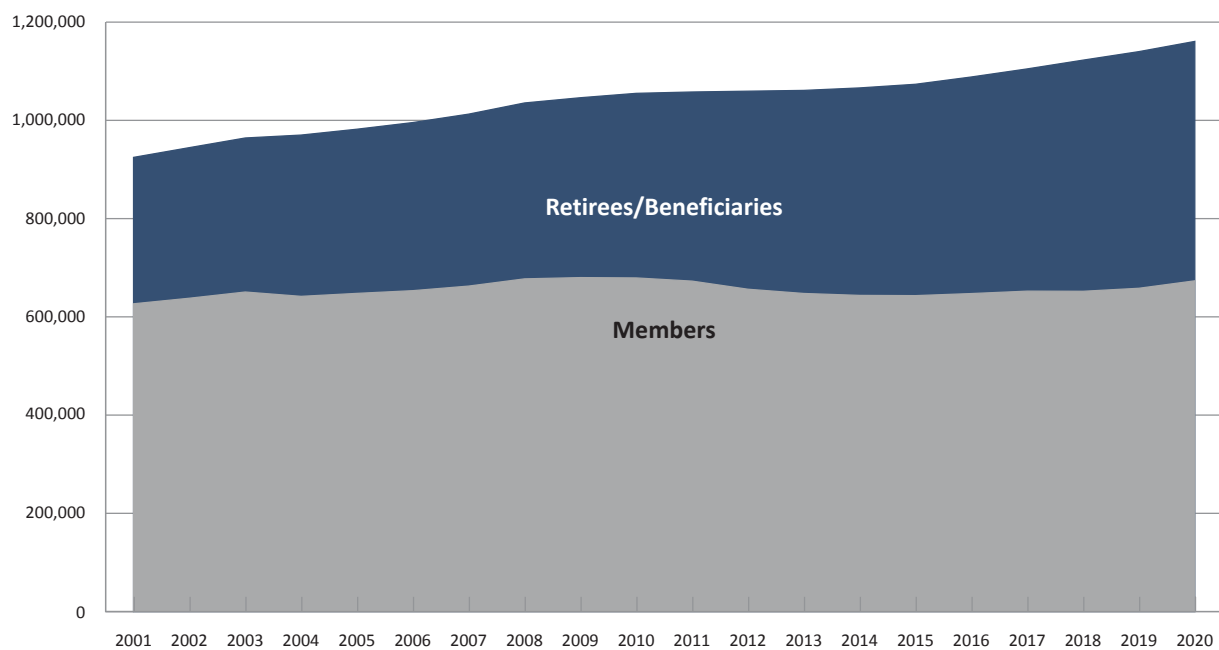
This table shows the number of ordinary death benefits granted (*Number*), the average benefit paid (*Average Benefit*), and the average benefit paid as a percentage of average final average salary (*Percentage of Salary*) of new ordinary death beneficiaries during the fiscal year ending March 31, 2020. 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	172	\$ 44,592	118.7	3	\$ 226,667	300.4
5 – 9	160	75,880	174.4	1	520,000	300.1
10 – 14	168	111,862	224.6	–	–	–
15 – 19	133	147,386	258.0	1	71,000	152.0
20 – 24	100	175,673	260.7	3	802,616	826.2
25 – 29	73	148,270	259.9	3	731,134	731.0
30 – 34	51	208,593	265.0	1	1,997,629	862.4
35 – 39	13	139,930	273.6	–	–	–
40 & Over	11	202,143	346.6	–	–	–
Total	881	\$ 114,958	211.9	12	\$ 655,823	585.6

COMBINED SYSTEM PARTICIPANTS

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

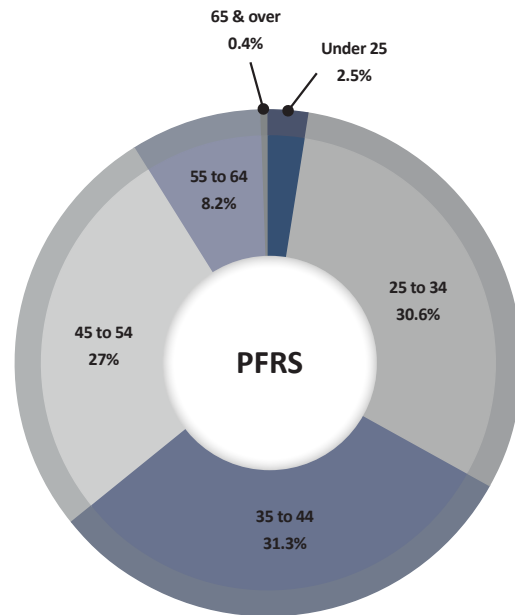
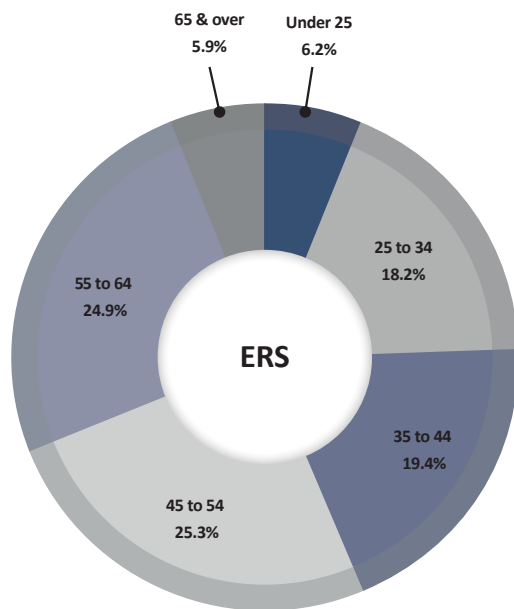
Fiscal Year	Members	Percentage Changed	Retirees/ Beneficiaries	Percentage Changed	Total Participants	Percentage Changed
2001	626,565	4	298,078	1	924,643	3
2002	637,896	2	306,604	3	944,500	2
2003	650,543	2	313,597	2	964,140	2
2004	641,721	(1)	328,357	5	970,078	1
2005	647,758	1	334,251	2	982,009	1
2006	653,291	1	342,245	2	995,536	1
2007	662,633	1	350,066	2	1,012,699	2
2008	677,321	2	358,109	2	1,035,430	2
2009	679,908	0	366,178	2	1,046,086	1
2010	679,217	0	375,803	3	1,055,020	1
2011	672,723	(1)	385,031	2	1,057,754	0
2012	656,224	(2)	403,174	5	1,059,398	0
2013	647,574	(1)	413,436	3	1,061,010	0
2014	643,659	(1)	422,405	2	1,066,064	0
2015	643,178	0	430,308	2	1,073,486	1
2016	647,399	1	440,943	2	1,088,342	1
2017	652,324	1	452,455	3	1,104,779	2
2018	652,030	0	470,596	4	1,122,626	2
2019	658,176	1	481,795	2	1,139,971	2
2020	673,336	2	487,407	1	1,160,743	2



MEMBERSHIP BY AGE AND YEARS OF SERVICE

This table shows membership counts (*Number*), and percentage of the system's total membership count (*Percentage*), as of the fiscal year ending March 31, 2020. Groupings are based on age and years of service, with a breakdown by retirement system.

Age	Years of Service											
	Total		0 – 4		5 – 9		10 – 19		20 – 29		30 & Over	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
ERS												
Under 25	39,647	6.2	39,425	6.2	222	–	–	–	–	–	–	–
25 – 34	116,364	18.2	88,594	13.9	22,472	3.5	5,298	0.8	–	–	–	–
35 – 44	123,455	19.4	50,779	8.0	27,619	4.3	41,380	6.5	3,677	0.6	–	–
45 – 54	161,568	25.3	40,927	6.4	28,558	4.5	53,046	8.3	32,116	5.0	6,921	1.1
55 – 64	159,015	24.9	26,837	4.2	23,708	3.7	53,050	8.3	35,488	5.6	19,932	3.1
65 & Over	37,697	5.9	6,187	1.0	5,927	0.9	12,504	2.0	7,986	1.3	5,093	0.8
Total	637,746	100.0	252,749	39.6	108,506	17.0	165,278	25.9	79,267	12.4	31,946	5.0
PFRS												
Under 25	894	2.5	890	2.5	4	–	–	–	–	–	–	–
25 – 34	10,898	30.6	6,856	19.3	3,253	9.1	789	2.2	–	–	–	–
35 – 44	11,136	31.3	1,491	4.2	2,282	6.4	6,707	18.8	656	1.8	–	–
45 – 54	9,596	27.0	321	0.9	574	1.6	3,340	9.4	4,839	13.6	522	1.5
55 – 64	2,919	8.2	83	0.2	238	0.7	265	0.7	992	2.8	1,341	3.8
65 & Over	147	0.4	24	0.1	40	0.1	20	0.1	8	–	55	0.2
Total	35,590	100.0	9,665	27.2	6,391	18.0	11,121	31.2	6,495	18.2	1,918	5.4



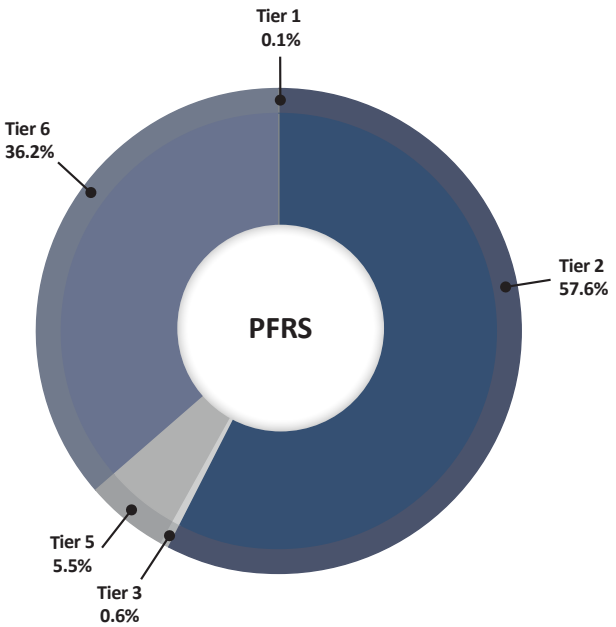
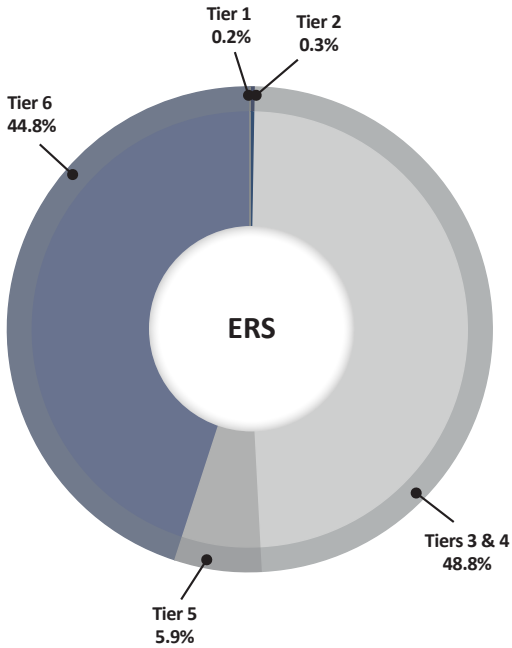
Note: Percentages may not sum to 100% due to rounding.

MEMBERSHIP BY TIER

This table shows membership counts (*Number*), and percentage of the system’s total membership count (*Percentage*), as of the fiscal year ending March 31, 2020. Groupings are based on tier, with a breakdown by retirement system.

	ERS		PFRS		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Tier 1	1,552	0.2	24	0.1	1,576	0.2
Tier 2	1,762	0.3	20,500	57.6	22,262	3.3
Tiers 3 & 4*	310,985	48.8	228	0.6	311,213	46.2
Tier 5	37,697	5.9	1,955	5.5	39,652	5.9
Tier 6	285,750	44.8	12,883	36.2	298,633	44.4
Total	637,746	100.0	35,590	100.0	673,336	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, 2020, with a breakdown by retirement system. Active status means the member was reported on payroll at the fiscal year end. Inactive status means the member was not reported on payroll (including pending retirement and pending deaths) at the fiscal year end. The sum of these two statuses represent the total membership count for the system.

	ERS			PFRS		
	Active	Inactive	Total	Active	Inactive	Total
2011	513,092	124,829	637,921	31,659	3,143	34,802
2012	505,575	116,532	622,107	31,024	3,093	34,117
2013	498,266	115,664	613,930	30,780	2,864	33,644
2014	493,209	116,356	609,565	31,218	2,876	34,094
2015	491,558	117,079	608,637	31,372	3,169	34,541
2016	494,411	117,883	612,294	31,720	3,385	35,105
2017	496,441	120,702	617,143	32,332	2,849	35,181
2018	500,945	115,961	616,906	32,470	2,654	35,124
2019	501,037	122,053	623,090	32,573	2,513	35,086
2020	497,659	140,087	637,746	32,888	2,702	35,590

NUMBER OF EMPLOYERS

As of March 31, 2020.

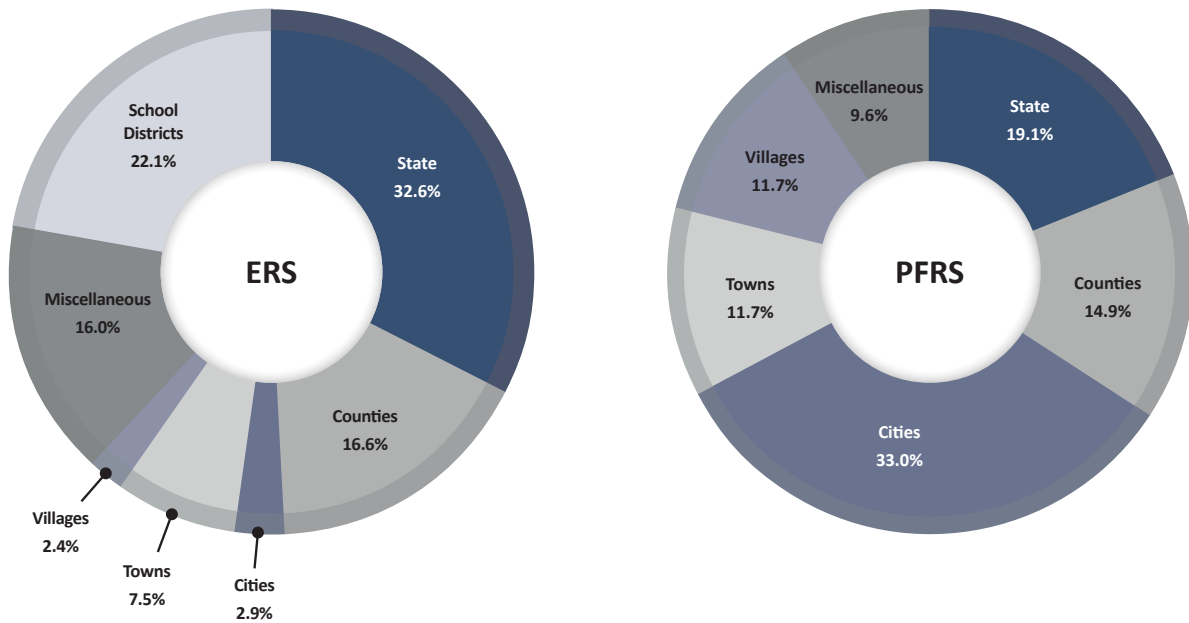
Category	ERS	PFRS
State	1	1
Counties	57	4
Cities	61	61
Towns	915	206
Villages	479	347
Miscellaneous	754	38
School Districts	692	0
Total*	2,959	657

* 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.

TOTAL 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, 2020, with a breakdown by retirement system. Active status means the member was reported on payroll at the fiscal year end.

	ERS		PFRS		Total	
	Total	Active	Total	Active	Total	Active
State	207,643	163,753	6,785	6,263	214,428	170,016
Counties	105,939	83,011	5,306	5,184	111,245	88,195
Cities	18,583	14,646	11,745	11,001	30,328	25,647
Towns	47,833	36,324	4,147	3,750	51,980	40,074
Villages	15,257	11,346	4,175	3,452	19,432	14,798
Miscellaneous	101,807	77,124	3,432	3,238	105,239	80,362
School Districts	140,684	111,455	-	-	140,684	111,455
Total	637,746	497,659	35,590	32,888	673,336	530,547



Note: Numbers may not add up due to rounding. A detailed listing of employers as of March 31, 2020 is available on our website at www.osc.state.ny.us/sites/default/files/retirement/documents/pdf/2018-10/participating_employers.pdf.

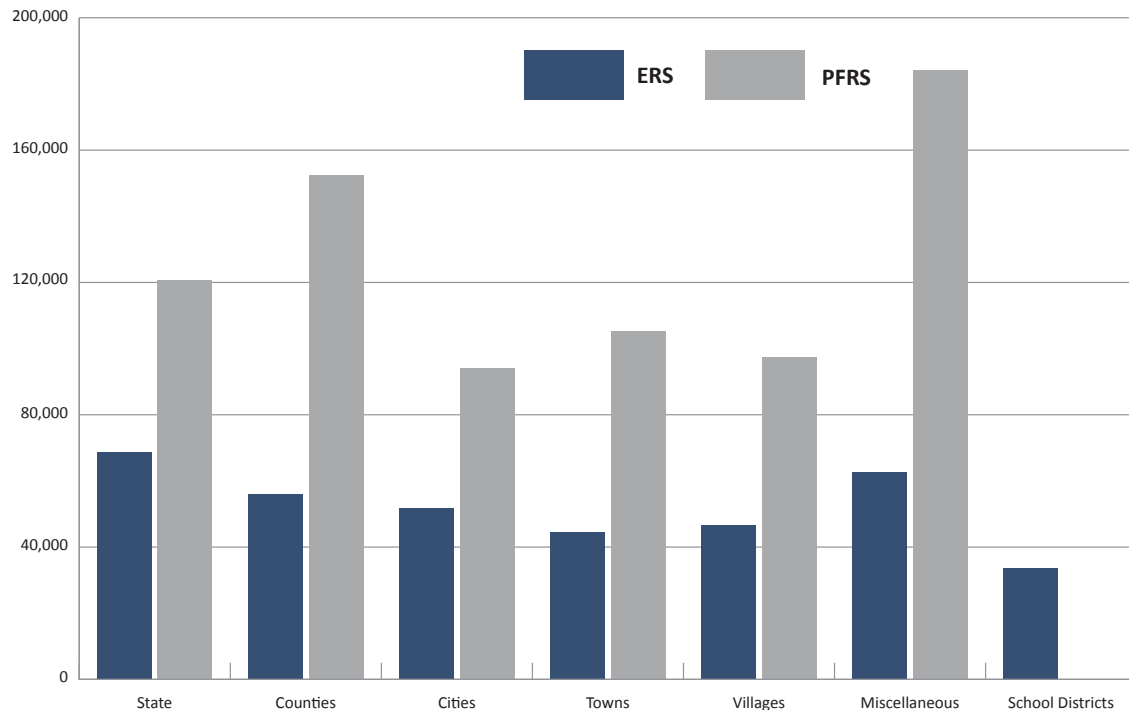
AVERAGE SALARY BY EMPLOYER TYPE

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, 2020. Groupings are based on primary employer type, with a breakdown by retirement system. Active status means the member was reported on payroll at the fiscal year end.

	Average Salary	Total Members*	Total Salaries
ERS			
State	\$ 68,559	163,753	\$ 11,226,696,906
Counties	55,901	83,011	4,640,365,180
Cities	51,666	14,646	756,694,094
Towns	44,626	36,324	1,620,979,504
Villages	46,530	11,346	527,933,731
Miscellaneous	62,539	77,124	4,823,286,455
School Districts	33,686	111,455	3,754,427,513
Total	\$ 54,958	497,659	\$ 27,350,383,382
PFRS			
State	\$ 120,753	6,263	\$ 756,278,296
Counties	152,459	5,184	790,347,605
Cities	94,195	11,001	1,036,244,401
Towns	105,305	3,750	394,892,506
Villages	97,413	3,452	336,270,911
Miscellaneous	184,195	3,238	596,424,262
Total	\$ 118,902	32,888	\$ 3,910,457,981

* Active members receiving salary.

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



MEMBERS AND SALARIES BY PLAN — ERS

These tables show membership counts (*Members*) and total salary (*Total Salaries*) for active members in the Employees' Retirement System, as of the fiscal year ending March 31, 2020. 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	1	\$ 19,038	2	\$ 77,864
Age 55 75-c	9	249,997	13	439,909
Age 55 75-e	2	164,743	2	85,367
Age 55 75-g	15	790,923	16	696,117
Age 55 75-h	418	37,724,061	476	43,721,349
Age 55 75-i	603	35,499,726	801	46,143,458
Regular Correction Officers/Security Hospital Treatment Asst. ¼ Disability	–	–	–	–
Correction Officers 89	3	309,796	4	536,104
Sheriffs 89-a	1	125,847	–	–
Sheriffs 89-b	–	–	–	–
Sheriffs 89-b(m)	–	–	–	–
Investigators 89-d	–	–	–	–
Investigators 89-d(m)	–	–	–	–
Sheriffs — 551	–	–	–	–
Sheriffs — 551e	–	–	–	–
Sheriffs — 552	–	–	–	–
Sheriffs — 553	–	–	–	–
Legislators 80-a	2	238,000	–	–
Unified Court Peace Officers	–	–	7	926,369
25-Year Correction Officers/Sheriffs/Office of Mental Health	4	517,631	6	511,039
25-Year 1/60 Peace Officers, Amb Med Techs, Paramedics	1	129,121	1	140,160
Total	1,059	\$ 75,768,884	1,328	\$ 93,277,737

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	233,793	\$ 15,509,140,238	25,987	\$ 1,386,277,055	196,816	\$ 6,936,066,607
Regular Correction Officers/ Security Hospital Treatment Asst. % Disability	381	42,272,790	25	2,134,712	168	12,271,251
Article 14 Correction Officers	10,453	1,085,253,203	849	71,012,762	8,581	567,131,656
Sheriffs — 551	189	18,027,370	13	943,865	67	4,358,446
Sheriffs — 551e	56	4,193,685	10	627,722	40	1,990,765
Sheriffs — 552	330	29,720,205	39	2,850,992	166	9,874,206
Sheriffs — 553	1,127	123,125,187	159	14,026,800	618	38,936,065
Unified Court Peace Officers	4,221	420,364,625	285	22,711,332	1,311	83,639,825
25-Year Correction Officers/Sheriffs/Office of Mental Health	5,137	506,745,448	640	53,979,752	3,458	194,693,413
25-Year 1/60 Peace Officers, Paramedics	11	698,280	1	49,093	8	158,211
20-Year 1/60 Investigators	12	2,435,785	1	160,206	2	129,620
Westchester County Criminal Investigators	20	3,397,053	1	170,322	5	638,347
25-Year 1/60 % Accidental Disability Amb Med Techs	218	24,627,222	8	726,742	16	543,958
25-Year % Accidental Disability Fire Marshals	34	4,155,973	5	430,364	11	645,606
Total	255,982	\$ 17,774,157,065	28,023	\$ 1,556,101,721	211,267	\$ 7,851,077,975

* Reportable Tier 6 salary is capped at the Governor's salary, which was initially \$200,000 for fiscal year 2020. The Governor's salary was increased to \$225,000 effective January 1, 2020.

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, 2020. 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	–	\$ –	22	\$ 346,238	1	\$ 467
Age 55 375-c	–	–	94	2,556,077	2	23,129
Age 55 375-e	–	–	19	407,538	–	–
Age 55 375-g	–	–	28	988,955	1	15,259
Age 55 375-h	–	–	2	204,770	–	–
Age 55 375-i	3	309,610	119	9,685,123	4	329,817
Age 55 375-j	–	–	4	678,797	–	–
State Police 381-b	–	–	3,076	454,530,761	–	–
Regional Park Police 383-a	–	–	133	13,605,555	–	40,549
EnCon Police 383-b	–	–	194	20,768,470	1	87,403
Forest Ranger 383-c	–	–	90	8,813,962	2	162,531
SUNY Police 383-d	–	–	245	21,669,261	10	771,297
25-Year 384	–	–	30	1,784,851	15	1,755,675
25-Year 384(f)	–	–	69	8,999,454	69	6,728,824
20-Year 384-d	–	–	5,601	662,561,390	–	–
20-Year 1/60 384-e	8	1,614,359	9,345	1,596,853,282	–	–
Article 14 Police and Fire	–	–	–	–	101	9,995,983
Total	11	\$ 1,923,969	19,071	\$ 2,804,454,485	206	\$ 19,910,933

MEMBERS AND SALARIES BY PLAN — PFRS

CONTINUED

Plan	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*
Age 55/60 Basic	3	\$ 69,953	–	\$ –	20	\$ 335,109	2	\$ 7,330
Age 55 375-c	6	113,495	–	–	55	1,007,574	–	3,310
Age 55 375-e	3	21,765	–	–	24	165,382	–	–
Age 55 375-g	3	37,352	–	–	18	455,442	–	–
Age 55 375-h	–	–	–	–	4	162,828	–	–
Age 55 375-i	8	557,186	–	–	46	2,521,378	–	–
Age 55 375-j	–	–	–	–	–	–	–	–
State Police 381-b	114	13,608,719	–	–	1,854	186,549,862	–	–
Regional Park Police 383-a	4	303,771	–	–	108	7,803,917	–	–
EnCon Police 383-b	8	578,219	–	–	102	7,095,961	–	–
Forest Ranger 383-c	2	155,397	–	–	61	3,005,052	–	–
SUNY Police 383-d	48	3,540,565	–	–	209	12,624,614	–	–
25-Year 384	5	388,264	–	–	32	2,022,601	–	–
25-Year 384(f)	9	1,608,133	3	452,971	23	2,146,977	2	192,684
20-Year 384-d	644	60,756,853	76	5,975,928	3,795	247,283,547	6	406,355
20-Year 1/60 384-e	827	91,219,004	63	6,433,692	5,370	418,669,718	43	5,887,686
Article 14 Police and Fire	–	–	–	–	–	–	–	–
Total	1,684	\$ 172,958,677	142	\$ 12,862,591	11,721	\$ 891,849,962	53	\$ 6,497,364

* Reportable Tier 6 salary is capped at the Governor's salary, which was initially \$200,000 for fiscal year 2020. The Governor's salary was increased to \$225,000 effective January 1, 2020.

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, 2020, grouped by age, with a breakdown by retirement system.

Age	ERS			PFRS		
	Retirees & Beneficiaries	Retirees	Beneficiaries	Retirees & Beneficiaries	Retirees	Beneficiaries
0 – 25	135	–	135	8	–	8
26 – 30	207	–	207	10	1	9
31 – 35	305	12	293	17	9	8
36 – 40	526	76	450	64	48	16
41 – 45	738	234	504	392	364	28
46 – 50	1,734	995	739	1,616	1,578	38
51 – 55	6,000	4,917	1,083	3,924	3,822	102
56 – 60	36,152	34,231	1,921	5,807	5,656	151
61 – 65	70,921	67,673	3,248	4,970	4,774	196
66 – 70	95,788	91,233	4,555	5,828	5,491	337
71 – 75	91,256	85,394	5,862	6,129	5,688	441
76 – 80	62,363	56,479	5,884	4,451	4,015	436
81 – 85	40,686	35,484	5,202	2,470	2,196	274
86 – 90	25,788	21,705	4,083	1,280	1,094	186
91 – 95	12,945	10,433	2,512	527	422	105
96 – 100	3,756	2,996	760	103	66	37
101+	506	373	133	5	2	3
Total	449,806	412,235	37,571	37,601	35,226	2,375

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, 2020. Groupings are based on the fiscal year of the member's retirement. The modified pension benefit has been reduced for any partial lump sum distribution.

Year of Retirement	Number	Average Option 0 Benefit w/o COLA*	Average COLA	Total
1955	–	\$ –	\$ –	\$ –
1956	–	–	–	–
1957	–	–	–	–
1958	–	–	–	–
1959	1	3,518	10,192	13,710
1960	–	–	–	–
1961	–	–	–	–
1962	–	–	–	–
1963	2	2,112	7,508	9,620
1964	–	–	–	–
1965	1	2,284	3,893	6,177
1966	3	2,745	8,658	11,404
1967	1	4,170	12,751	16,921
1968	2	1,476	1,920	3,396
1969	7	1,866	3,769	5,635
1970	9	2,694	3,871	6,565
1971	13	5,050	6,186	11,237
1972	19	6,318	6,998	13,316
1973	41	5,059	5,417	10,476
1974	49	7,182	7,636	14,818
1975	79	6,044	6,249	12,293
1976	151	5,364	5,334	10,698
1977	226	5,885	5,680	11,565
1978	275	6,318	5,608	11,927
1979	365	5,562	4,872	10,434
1980	505	5,954	4,417	10,371
1981	644	5,769	3,752	9,521
1982	847	6,867	3,884	10,750
1983	925	6,997	3,698	10,695
1984	1,369	8,931	4,229	13,160
1985	1,416	8,690	3,906	12,596
1986	1,960	9,337	3,873	13,210
1987	2,245	10,114	4,015	14,129

Year of Retirement	Number	Average Option 0 Benefit w/o COLA*	Average COLA	Total
1988	2,410	\$ 11,010	\$ 3,963	\$ 14,972
1989	2,907	11,847	3,854	15,701
1990	3,479	13,389	3,770	17,159
1991	5,856	17,448	4,083	21,531
1992	5,659	14,535	3,527	18,062
1993	4,800	15,468	3,359	18,827
1994	4,560	15,307	3,125	18,433
1995	5,671	16,257	3,108	19,366
1996	10,545	21,310	3,380	24,691
1997	9,854	19,651	3,011	22,662
1998	7,640	17,355	2,540	19,894
1999	8,505	17,070	2,370	19,440
2000	10,356	18,456	2,274	20,730
2001	11,367	21,917	2,303	24,220
2002	9,594	19,816	2,053	21,869
2003	21,341	28,651	2,150	30,801
2004	10,708	19,820	1,639	21,458
2005	13,086	21,900	1,535	23,435
2006	14,620	22,767	1,396	24,163
2007	15,317	25,251	1,300	26,551
2008	15,884	26,967	1,172	28,139
2009	14,847	26,895	1,006	27,902
2010	17,094	28,528	876	29,404
2011	26,625	34,779	783	35,562
2012	17,076	27,522	591	28,113
2013	17,252	27,197	452	27,649
2014	18,824	28,108	309	28,417
2015	19,926	29,398	166	29,564
2016	20,338	30,990	–	30,990
2017	20,677	31,768	–	31,768
2018	21,791	32,142	–	32,142
2019	21,099	32,906	–	32,906
2020	20,904	\$ 34,131	\$ –	\$ 34,131

* 8,039 of the 37,571 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, 2020. Groupings are based on the fiscal year of the member's retirement. The modified pension benefit has been reduced for any partial lump sum distribution.

Year of Retirement	Number	Average Option 0 w/o COLA*	Average COLA	Total
1955	1	\$ 2,752	\$ 8,941	\$ 11,693
1956	1	3,614	22,401	26,015
1957	–	–	–	–
1958	–	–	–	–
1959	–	–	–	–
1960	–	–	–	–
1961	–	–	–	–
1962	–	–	–	–
1963	1	4,134	18,627	22,761
1964	–	–	–	–
1965	1	6,492	21,988	28,480
1966	2	4,280	14,267	18,547
1967	4	5,204	14,089	19,293
1968	3	6,351	16,987	23,338
1969	4	5,070	11,791	16,861
1970	5	4,837	10,459	15,296
1971	14	7,581	13,552	21,133
1972	35	7,415	14,066	21,481
1973	41	7,832	13,682	21,513
1974	50	8,087	13,983	22,070
1975	42	8,725	12,830	21,555
1976	51	9,885	13,304	23,189
1977	121	10,626	13,126	23,752
1978	116	11,109	12,730	23,839
1979	169	11,323	11,811	23,134
1980	175	12,571	11,035	23,606
1981	171	13,424	9,681	23,105
1982	258	14,419	8,936	23,356
1983	277	15,771	8,599	24,370
1984	281	17,671	8,638	26,308
1985	326	19,304	8,177	27,481
1986	497	20,654	7,980	28,635
1987	526	22,740	7,946	30,686

Year of Retirement	Number	Average Option 0 w/o COLA*	Average COLA	Total
1988	653	\$ 24,746	\$ 7,494	\$ 32,240
1989	703	24,815	7,103	31,918
1990	743	27,740	6,457	34,198
1991	855	30,595	5,958	36,553
1992	940	34,898	5,383	40,281
1993	884	33,767	5,077	38,844
1994	817	32,887	4,614	37,501
1995	706	38,010	4,191	42,200
1996	720	36,650	3,943	40,593
1997	707	40,847	3,631	44,478
1998	677	39,246	3,214	42,459
1999	716	40,567	3,055	43,622
2000	848	47,299	2,731	50,030
2001	1,055	52,637	2,646	55,283
2002	917	53,586	2,410	55,996
2003	1,233	61,007	2,199	63,206
2004	1,170	58,306	2,004	60,310
2005	1,068	58,699	1,717	60,416
2006	1,069	59,597	1,483	61,080
2007	1,088	60,495	1,306	61,801
2008	1,107	62,715	1,064	63,779
2009	1,053	66,143	918	67,061
2010	1,092	68,229	737	68,966
2011	1,237	68,832	534	69,366
2012	1,205	70,426	409	70,835
2013	1,213	69,090	295	69,385
2014	1,212	72,451	198	72,649
2015	1,315	75,169	96	75,265
2016	1,269	78,262	–	78,262
2017	1,215	79,474	–	79,474
2018	1,519	84,227	–	84,227
2019	1,561	82,807	–	82,807
2020	1,425	\$ 86,219	\$ –	\$ 86,219

* 437 of the 2,375 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						
2011	\$ 4,400,173,486	\$ 559,214,523	\$ 525,419,127	\$ -	\$ 15,589,216	\$ 18,206,180
2012	4,443,930,817	776,404,451	748,265,831	-	14,983,770	13,154,850
2013	4,373,201,590	869,913,388	836,809,946	-	15,242,472	17,860,970
2014	4,336,303,275	961,029,407	932,736,131	-	15,028,728	13,264,548
2015	4,268,067,445	916,967,766	884,569,811	-	14,822,845	17,575,110
2016	4,268,067,445	764,800,462	729,885,087	-	17,843,119	17,072,256
2017	4,442,433,004	718,015,326	685,263,761	-	14,981,831	17,769,734
2018	4,526,327,445	719,117,404	685,809,717	-	15,202,362	18,105,325
2019	4,550,654,486	704,395,273	671,966,793	-	18,776,511	13,651,969
2020	4,711,426,453	721,858,881	682,580,561	-	15,721,198	23,557,122
Cities						
2011	660,882,586	78,687,818	73,186,068	-	2,750,875	2,750,875
2012	663,784,626	107,570,937	102,977,843	-	2,624,624	1,968,470
2013	657,761,044	124,229,355	118,894,947	-	2,667,204	2,667,204
2014	673,091,884	137,981,259	133,304,614	-	2,672,375	2,004,270
2015	679,974,366	134,647,196	129,157,994	-	2,744,601	2,744,601
2016	679,974,366	118,631,364	112,511,612	-	3,399,861	2,719,891
2017	711,933,076	106,482,115	100,786,663	-	2,847,726	2,847,726
2018	742,043,938	108,756,209	102,819,863	-	2,968,173	2,968,173
2019	744,199,863	105,742,763	99,789,168	-	3,721,006	2,232,589
2020	758,132,484	105,255,949	98,432,744	-	3,032,535	3,790,670
Towns						
2011	1,483,142,934	174,236,832	161,410,776	687,246	6,068,074	6,070,736
2012	1,499,756,171	243,005,724	232,009,841	701,186	5,881,293	4,413,404
2013	1,523,144,059	282,487,748	269,746,224	730,975	6,003,677	6,006,872
2014	1,514,279,860	320,436,350	308,991,586	729,377	6,121,687	4,593,700
2015	1,541,087,303	304,935,776	292,018,266	704,881	6,104,792	6,107,837
2016	1,541,087,303	277,193,215	262,917,719	409,489	7,701,640	6,164,367
2017	1,579,960,510	240,525,450	227,504,169	384,233	6,317,184	6,319,864
2018	1,615,922,678	241,429,341	228,132,484	372,380	6,460,806	6,463,671
2019	1,624,034,309	236,023,695	222,651,419	385,020	8,115,114	4,872,142
2020	1,654,262,964	235,874,419	220,645,937	343,749	6,613,385	8,271,348
Villages						
2011	453,586,842	53,044,335	49,083,776	251,569	1,854,495	1,854,495
2012	456,923,176	75,242,014	71,732,124	359,252	1,800,376	1,350,262
2013	464,343,459	84,603,712	80,734,045	210,055	1,829,806	1,829,806
2014	468,173,558	96,707,532	93,193,118	224,737	1,879,811	1,409,866
2015	475,868,379	93,000,032	88,986,865	214,831	1,899,168	1,899,168
2016	475,868,379	84,779,246	80,364,318	134,970	2,377,750	1,902,208
2017	492,146,116	74,142,234	70,095,276	109,818	1,968,570	1,968,570
2018	505,159,356	74,546,172	70,399,418	105,502	2,020,626	2,020,626
2019	514,793,219	73,871,365	69,638,093	114,888	2,573,977	1,544,407
2020	526,403,820	74,482,744	69,641,376	103,704	2,105,622	2,632,042

LOCAL GOVERNMENT SALARIES AND BILLINGS — ERS CONTINUED

FYE	Salaries	Contributions	Normal	Deficiency	GLIP	Administrative
Miscellaneous						
2011	\$ 4,009,081,340	\$ 476,258,246	\$ 441,882,050	\$ 1,123,038	\$ 16,626,579	\$ 16,626,579
2012	4,074,206,349	705,637,232	676,397,501	1,117,975	16,069,562	12,052,194
2013	3,971,661,743	749,635,292	716,057,300	835,444	16,371,274	16,371,274
2014	3,968,529,764	826,997,637	797,752,084	791,616	16,258,823	12,195,114
2015	4,016,329,736	786,826,716	753,471,524	785,464	16,284,864	16,284,864
2016	4,016,329,736	692,441,164	656,011,033	285,120	20,080,556	16,064,455
2017	4,218,674,267	624,983,230	590,938,378	295,426	16,874,713	16,874,713
2018	4,400,266,244	636,996,945	601,504,023	292,092	17,600,415	17,600,415
2019	4,548,171,902	639,193,644	602,507,287	300,990	22,740,865	13,644,502
2020	4,769,848,444	656,970,743	613,752,143	289,923	19,079,412	23,849,265
Schools						
2011	3,299,608,584	387,560,100	360,157,255	414,165	13,494,340	13,494,340
2012	3,363,257,728	530,456,512	507,067,857	433,238	13,117,370	9,838,047
2013	3,295,559,464	623,154,200	595,786,408	426,060	13,470,866	13,470,866
2014	3,295,866,762	685,241,928	661,805,954	135,753	13,314,400	9,985,821
2015	3,337,348,846	654,771,133	627,945,059	139,518	13,343,278	13,343,278
2016	3,337,348,846	593,311,380	563,142,438	134,423	16,685,833	13,348,686
2017	3,463,921,681	524,114,526	496,273,503	129,599	13,855,712	13,855,712
2018	3,591,452,866	533,074,424	504,209,323	133,487	14,365,807	14,365,807
2019	3,656,797,566	527,849,814	498,457,959	137,491	18,283,980	10,970,384
2020	3,739,951,074	528,865,706	495,064,555	141,616	14,959,764	18,699,771

For the FYEs 2011-2015, 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						
2011	\$ 774,589,528	\$ 128,266,705	\$ 124,105,246	\$ -	\$ 693,576	\$ 3,467,883
2012	741,170,663	165,977,875	162,848,546	-	-	3,129,329
2013	750,476,797	186,487,909	182,070,522	-	736,230	3,681,157
2014	742,952,940	215,606,426	212,605,235	-	-	3,001,191
2015	748,062,218	204,532,593	200,811,227	-	744,273	2,977,093
2016	748,062,218	183,660,699	180,668,452	-	-	2,992,247
2017	813,351,565	197,749,660	193,682,901	-	-	4,066,759
2018	837,536,191	205,595,002	201,407,318	-	837,538	3,350,146
2019	826,111,820	194,974,879	192,496,544	-	-	2,478,335
2020	829,447,380	197,111,060	192,963,822	-	-	4,147,238
Cities						
2011	896,261,192	171,091,657	165,609,925	-	913,625	4,568,107
2012	919,665,789	202,376,328	198,704,804	-	-	3,671,524
2013	904,451,691	242,732,696	237,147,463	-	930,870	4,654,363
2014	940,121,957	270,589,638	266,868,512	-	-	3,721,126
2015	935,625,377	266,374,021	261,525,612	-	969,687	3,878,722
2016	935,625,377	220,521,730	216,779,231	-	-	3,742,499
2017	1,012,327,983	244,289,630	239,227,991	-	-	5,061,639
2018	1,032,008,361	249,454,963	244,294,924	-	1,032,013	4,128,026
2019	1,046,903,046	244,069,656	240,928,943	-	-	3,140,713
2020	1,073,918,736	249,937,319	244,567,724	-	-	5,369,595
Towns						
2011	333,981,112	60,280,009	58,310,352	-	328,283	1,641,374
2012	345,481,241	74,297,961	72,943,723	-	-	1,354,238
2013	344,465,630	90,102,480	88,024,012	-	346,422	1,732,046
2014	351,821,273	101,830,050	100,430,452	-	-	1,399,598
2015	361,105,021	99,600,409	97,809,899	-	358,100	1,432,410
2016	361,105,021	103,194,597	101,750,184	-	-	1,444,413
2017	375,409,567	91,053,202	89,176,144	-	-	1,877,058
2018	385,731,210	94,187,748	92,259,099	-	385,724	1,542,925
2019	386,276,966	90,799,386	89,640,559	-	-	1,158,827
2020	396,084,139	92,527,775	90,547,356	-	-	1,980,419
Villages						
2011	284,144,385	49,801,862	48,105,170	-	282,784	1,413,908
2012	288,899,267	61,448,733	60,286,366	-	-	1,162,367
2013	289,479,125	72,871,202	71,130,551	-	290,108	1,450,543
2014	296,688,354	83,549,031	82,367,874	-	-	1,181,157
2015	298,766,157	81,460,417	79,943,884	-	303,296	1,213,237
2016	298,766,157	69,981,037	68,788,007	-	-	1,193,030
2017	316,804,801	73,308,396	71,724,373	-	-	1,584,023
2018	323,473,812	75,751,635	74,134,267	-	323,456	1,293,912
2019	327,388,623	73,872,681	72,890,527	-	-	982,154
2020	337,679,673	76,094,089	74,405,690	-	-	1,688,399

LOCAL GOVERNMENT SALARIES AND BILLINGS — PFRS CONTINUED

FYE	Salaries	Contributions	Normal	Deficiency	GLIP	Administrative
Miscellaneous						
2011	\$ 277,823,751	\$ 51,630,642	\$ 49,951,567	\$ —	\$ 279,846	\$ 1,399,229
2012	305,193,545	60,344,419	59,216,144	—	—	1,128,275
2013	303,608,075	77,558,504	75,734,743	—	303,957	1,519,804
2014	324,198,568	88,966,389	87,744,530	—	—	1,221,859
2015	322,131,168	89,840,321	88,189,827	—	330,099	1,320,395
2016	322,131,168	73,328,115	72,039,593	—	—	1,288,522
2017	332,682,130	78,709,281	77,045,873	—	—	1,663,408
2018	345,926,023	82,341,868	80,612,241	—	345,923	1,383,704
2019	355,303,151	81,963,609	80,897,700	—	—	1,065,909
2020	368,595,543	84,573,906	82,730,930	—	—	1,842,976

For the FYEs 2011-2015, 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 2011 – 2020

(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
2011		
Total	\$ 4,164.6	\$ 286.2
State	1,759.0	
Local	2,405.6	
2012		
Total	\$ 4,585.2	\$ 273.2
State	1,785.6	
Local	2,799.6	
2013		
Total	\$ 5,336.0	\$ 269.1
State	1,950.1	
Local	3,385.9	
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	
* Includes employer premiums to Group Life Insurance Plan.		

Year Ended 3/31	Employer Contributions*	Member Contributions
2016		
Total	\$ 5,140.2	\$ 306.6
State	1,958.4	
Local	3,181.8	
2017		
Total	\$ 4,787.0	\$ 328.8
State	1,813.6	
Local	2,973.4	
2018		
Total	\$ 4,823.3	\$ 349.4
State	1,802.1	
Local	3,021.2	
2019		
Total	\$ 4,744.3	\$ 386.5
State	1,771.5	
Local	2,972.8	
2020		
Total	\$ 4,782.7	\$ 453.7
State	1,759.3	
Local	3,023.4	
* Includes employer premiums to Group Life Insurance Plan.		

20-YEAR SUMMARY*

	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total Participants	1,160,743	1,139,971	1,122,626	1,104,779	1,088,342	1,073,486	1,066,064	1,061,010	1,059,398
Number of Members	673,336	658,176	652,030	652,324	647,399	643,178	643,659	647,574	656,224
ERS (a)	637,746	623,090	616,906	617,143	612,294	608,637	609,565	613,930	622,107
State	207,643	203,421	201,912	203,317	202,153	201,194	201,192	202,570	203,274
Counties	105,939	103,965	103,438	104,452	104,756	105,582	106,688	108,302	111,051
Cities	18,583	18,251	18,138	18,146	18,048	18,079	18,182	18,176	18,420
Towns	47,833	46,611	45,897	45,608	45,450	44,826	44,676	44,407	44,644
Villages	15,257	14,867	14,615	14,474	14,256	14,129	14,073	14,040	14,051
Miscellaneous	101,807	99,042	98,035	97,376	95,759	94,341	94,396	95,199	97,225
School Districts	140,684	136,933	134,871	133,770	131,872	130,486	130,358	131,236	133,442
PFRS (a)	35,590	35,086	35,124	35,181	35,105	34,541	34,094	33,644	34,117
State	6,785	6,712	6,606	6,596	6,309	6,009	5,792	5,630	5,548
Counties	5,306	5,303	5,386	5,323	5,348	5,179	5,003	5,076	5,372
Cities	11,745	11,659	11,757	11,880	12,018	11,856	11,812	11,868	11,974
Towns	4,147	4,090	4,061	4,127	4,182	4,196	4,162	4,153	4,178
Villages	4,175	4,072	4,160	4,213	4,340	4,343	4,330	4,370	4,433
Miscellaneous	3,432	3,250	3,154	3,042	2,908	2,958	2,995	2,547	2,612
Members by Tier (b)									
ERS Tier 1	1,552	1,937	2,313	3,241	3,809	4,520	5,249	6,230	7,551
ERS Tier 2	1,762	2,278	2,817	3,668	4,420	5,375	6,297	7,538	9,222
ERS Tiers 3 through 6	634,432	618,875	611,776	610,234	604,065	598,742	598,019	600,162	605,334
PFRS Tier 1	24	27	40	54	77	92	123	172	230
PFRS Tier 2	20,500	21,938	23,733	25,518	27,364	28,179	29,188	30,295	31,830
PFRS Tiers 3, 5 & 6	15,066	13,121	11,351	9,609	7,664	6,270	4,783	3,177	2,057
Retirees & Beneficiaries	487,407	481,795	470,596	452,455	440,943	430,308	422,405	413,436	403,174
ERS	449,806	444,719	434,553	417,499	407,112	396,781	389,288	380,899	371,468
PFRS	37,601	37,076	36,043	34,956	33,831	33,527	33,117	32,537	31,706
Employers	3,616	3,692	3,044	3,040	3,040	3,032	3,027	3,029	3,040
ERS	2,959	3,015	3,017	3,013	3,010	3,006	3,002	3,004	3,016
PFRS	657	677	684	687	686	682	681	681	682
Benefit Payments (c)	\$ 13,246.1	\$ 12,741.6	\$ 12,027.3	\$ 11,448.7	\$ 10,908.5	\$ 10,436.2	\$ 9,898.8	\$ 9,450.2	\$ 8,862.8
Retirement Allowances	12,424.6	11,880.3	11,197.8	10,617.5	10,113.8	9,651.2	9,098.4	8,669.8	8,109.3
Death Benefits (Lump Sum)	159.5	214.7	201.2	216.2	188.2	183.1	203.8	194.2	185.0
COLA Payments	662.0	646.6	628.3	615.0	606.5	601.9	596.6	586.2	568.5
# of Service Retirements	23,159	22,928	28,312	22,762	21,984	18,039	19,702	19,962	28,259
# of Death Benefits Paid	897	793	857	915	751	900	810	844	879
# of Disability Retirements	477	883	922	718	626	720	963	1,026	1,161
Employer Contributions	\$ 4,782.7	\$ 4,744.3	\$ 4,823.3	\$ 4,787.0	\$ 5,140.2	\$ 5,797.4	\$ 6,064.1	\$ 5,336.1	\$ 4,585.2
ERS	3,818.3	3,766.8	3,852.5	3,858.6	4,232.4	4,802.2	5,045.6	4,435.6	3,790.6
PFRS	862.3	854.1	869.8	837.3	792.6	901.0	926.3	808.5	706.4
Group Life Insurance Plan	102.1	123.4	101.0	91.1	115.2	94.2	92.2	92.0	88.2
Rate (as a % of Salary) (d)									
ERS	14.6%	14.9%	15.3%	15.5%	18.2%	20.1%	20.9%	18.9%	16.3%
PFRS	23.5%	23.5%	24.4%	24.3%	24.7%	27.6%	28.9%	25.8%	21.6%
Employee Contributions	\$ 453.7	\$ 386.5	\$ 349.4	\$ 328.8	\$ 306.6	\$ 284.8	\$ 281.4	\$ 269.1	\$ 273.2
ERS	395.3	345.8	318.4	306.2	289.3	272.0	273.5	264.8	268.5
PFRS	58.4	40.7	31.0	22.6	17.3	12.8	7.9	4.3	4.7
Investments (e)	\$ 194,317.2	\$ 210,523.7	\$ 207,416.0	\$ 192,410.6	\$ 178,639.7	\$ 184,502.0	\$ 176,835.1	\$ 160,660.8	\$ 150,658.9
Equities	93,221.9	109,560.6	114,797.1	103,688.4	90,755.4	94,293.5	93,191.7	83,049.5	79,059.2
Global Fixed Income	45,410.3	45,651.6	44,820.8	44,002.6	44,661.2	47,652.2	41,410.6	38,559.5	33,440.5
Commercial Mortgages	1,011.8	897.0	843.4	800.3	796.4	852.9	853.9	812.7	803.0
Short-Term Investments	5,697.7	6,119.0	3,366.6	5,653.3	5,578.8	5,252.5	6,592.8	6,461.3	7,397.7
Private Equity	20,314.2	19,751.0	17,500.5	15,348.5	13,961.4	14,247.4	14,369.8	14,072.6	14,925.9
Equity Real Estate	15,693.7	15,678.5	14,182.7	12,937.4	12,639.7	12,123.4	12,529.3	11,195.4	9,339.5
Absolute Return Strategy	6,834.6	7,812.2	7,879.3	7,523.8	8,029.4	8,388.8	7,406.1	6,124.7	5,165.7
Opportunistic Funds	3,047.3	2,833.8	2,507.0	2,065.7	1,719.3	1,292.2	480.9	385.1	527.4
Other	3,085.7	2,220.0	1,518.6	390.6	498.1	399.1	0.0	0.0	0.0
Rate of Return (f)	(2.7)%	5.2%	11.4%	11.5%	0.2%	7.2%	13.0%	10.4%	6.0%
Core Fixed Income	7.4%	4.8%	2.1%	2.5%	1.8%	5.5%	(0.5)%	4.7%	9.0%
Equity Investments	(5.4)%	5.6%	14.5%	14.8%	(0.4)%	8.3%	19.1%	12.5%	4.9%
Administrative Cost	\$ 139.1	\$ 136.5	\$ 122.8	\$ 107.1	\$ 106.6	\$ 107.2	\$ 105.7	\$ 105.7	\$ 100.6
Financial Statement Assets	\$ 198,079.8	\$ 215,169.2	\$ 212,076.8	\$ 197,602.2	\$ 183,640.2	\$ 189,412.4	\$ 181,275.3	\$ 164,221.8	\$ 153,394.4

20-YEAR SUMMARY*

CONTINUED

2011	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
1,057,754	1,055,020	1,046,086	1,035,430	1,012,699	995,536	982,009	970,078	964,140	944,500	924,643
672,723	679,217	679,908	677,321	662,633	653,291	647,758	641,721	650,543	637,896	626,565
637,921	643,875	643,700	641,119	626,923	617,989	612,410	606,155	614,555	602,428	590,959
213,089	216,582	219,741	220,216	215,296	211,041	208,899	207,641	216,005	216,507	222,343
114,111	115,722	116,515	117,084	115,944	115,472	118,006	117,514	119,319	118,318	119,638
18,667	18,897	18,893	18,992	18,843	18,891	18,979	18,933	19,637	19,671	19,551
44,416	44,361	43,403	43,203	41,989	41,393	40,561	39,841	39,395	38,063	37,121
14,165	14,150	14,000	13,891	13,597	13,388	13,106	12,878	12,823	12,360	11,969
98,115	97,960	97,272	95,601	92,736	90,879	86,791	85,732	85,708	81,752	69,968
135,358	136,203	133,876	132,132	128,518	126,925	126,068	123,616	121,668	115,757	110,369
34,802	35,342	36,208	36,202	35,710	35,302	35,348	35,566	35,988	35,468	35,606
5,779	5,973	6,222	6,223	6,219	5,955	6,038	5,898	5,802	5,679	5,534
5,499	5,560	5,841	5,898	5,873	5,850	5,833	5,814	5,901	6,029	6,176
12,137	12,289	12,433	12,414	12,206	12,147	12,113	12,374	12,541	12,612	12,781
4,205	4,249	4,340	4,364	4,295	4,261	4,217	4,231	4,233	4,191	4,180
4,512	4,547	4,592	4,621	4,591	4,641	4,653	4,732	4,867	4,795	4,805
2,670	2,724	2,780	2,682	2,526	2,448	2,494	2,517	2,644	2,162	2,130
10,718	13,395	16,829	20,513	25,053	29,492	34,980	39,622	50,032	56,541	60,736
12,911	15,651	18,097	20,315	22,458	24,263	25,938	27,398	30,122	31,981	32,914
614,292	614,829	608,774	600,291	579,412	564,234	551,492	539,135	534,401	513,906	497,309
304	393	576	745	924	1,143	1,503	2,076	2,597	3,260	3,927
33,091	34,261	35,632	35,457	34,786	34,159	33,845	33,490	33,391	32,208	31,679
1,407	688	0	0	0	0	0	0	0	0	0
385,031	375,803	366,178	358,109	350,066	342,245	334,251	328,357	313,597	306,604	298,078
353,940	345,106	336,273	328,726	321,113	313,837	306,531	301,528	287,341	280,997	273,147
31,091	30,697	29,905	29,383	28,953	28,408	27,720	26,829	26,256	25,607	24,931
3,039	3,035	3,026	3,021	3,010	3,001	2,993	2,985	2,968	2,922	2,897
3,016	3,011	3,001	2,995	2,983	2,974	2,967	2,959	2,943	2,917	2,890
681	681	683	683	683	685	684	684	681	679	678
\$ 8,464.6	\$ 7,663.1	\$ 7,212.1	\$ 6,835.6	\$ 6,383.4	\$ 6,028.9	\$ 5,674.7	\$ 5,347.5	\$ 4,984.6	\$ 4,488.3	\$ 4,181.0
7,717.0	6,931.8	6,497.1	6,142.8	5,722.9	5,388.6	5,041.0	4,722.1	4,373.3	3,872.0	3,619.9
192.3	183.0	180.5	181.7	164.6	161.2	161.9	157.3	148.4	151.8	152.9
555.3	548.3	534.5	511.1	495.9	479.1	471.8	468.1	462.9	464.5	336.1
19,092	19,193	17,979	17,261	16,390	16,827	14,533	23,655	16,078	17,499	11,640
984	955	935	1,014	832	932	1,041	1,025	1,019	1,068	1,005
844	1,421	1,020	950	1,227	1,267	1,463	1,103	1,064	1,038	1,079
\$ 4,164.5	\$ 2,344.2	\$ 2,456.2	\$ 2,648.4	\$ 2,718.6	\$ 2,782.2	\$ 2,964.8	\$ 1,286.5	\$ 651.9	\$ 263.8	\$ 214.8
3,525.8	1,785.5	1,898.7	2,073.5	2,116.0	2,271.4	2,434.5	1,052.3	525.5	179.1	131.0
538.8	465.0	492.8	510.6	502.5	433.4	455.3	158.4	66.3	47.3	49.0
99.9	93.7	64.7	64.3	100.1	77.3	75.0	75.8	60.1	37.4	34.8
11.9%	7.4%	8.5%	9.6%	10.7%	11.3%	12.9%	5.9%	1.5%	1.2%	0.9%
18.2%	15.1%	15.8%	16.6%	17.0%	16.3%	17.6%	5.8%	1.4%	1.6%	1.6%
\$ 286.2	\$ 284.3	\$ 273.3	\$ 265.7	\$ 250.2	\$ 241.2	\$ 227.3	\$ 221.9	\$ 219.2	\$ 210.2	\$ 319.1
284.5	282.8	269.0	263.1	247.2	237.7	224.5	217.4	214.1	206.0	317.4
1.7	1.5	4.3	2.6	2.9	3.5	2.8	4.5	5.1	4.2	1.7
\$ 147,237.0	\$ 132,500.2	\$ 108,960.7	\$ 153,877.7	\$ 154,575.5	\$ 140,453.3	\$ 126,083.5	\$ 119,245.0	\$ 95,598.3	\$ 111,168.5	\$ 112,432.9
79,945.0	72,674.0	47,871.0	83,153.7	90,119.7	88,550.9	80,917.2	74,876.5	51,357.0	66,375.5	63,661.7
31,037.9	33,726.1	36,541.6	36,571.4	33,536.2	28,889.0	29,310.8	29,691.2	32,019.7	31,839.2	35,305.7
851.3	845.7	710.2	772.4	889.7	1,162.7	1,281.9	1,530.0	1,723.6	1,628.7	1,835.8
8,360.2	3,086.1	3,826.7	6,443.1	8,551.1	6,619.3	2,602.5	1,879.1	771.2	1,429.0	992.0
14,620.4	12,584.0	10,563.7	12,699.4	10,044.8	8,284.8	6,832.4	6,738.8	5,564.8	5,579.5	5,941.6
7,631.0	5,551.1	7,066.5	8,909.4	6,752.7	5,430.7	4,634.0	4,529.4	4,162.0	4,316.6	4,696.0
4,215.5	3,553.3	2,381.0	5,328.3	4,681.3	1,516.0	504.7	0.0	0.0	0.0	0.0
575.7	479.9	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
14.6%	25.9%	(26.4)%	2.6%	12.6%	14.6%	8.5%	28.8%	(10.2)%	2.8%	(8.7)%
8.0%	7.4%	2.4%	8.6%	6.0%	1.7%	3.0%	8.9%	16.8%	4.3%	14.1%
17.1%	41.3%	(30.8)%	0.9%	15.0%	19.1%	10.6%	42.8%	(24.3)%	2.9%	(20.3)%
\$ 101.3	\$ 100.0	\$ 99.2	\$ 90.3	\$ 79.8	\$ 78.5	\$ 65.3	\$ 69.6	\$ 67.5	\$ 66.6	\$ 57.8
\$ 149,548.6	\$ 134,251.7	\$ 110,937.8	\$ 155,845.9	\$ 156,625.2	\$ 142,620.1	\$ 128,037.7	\$ 120,799.0	\$ 97,372.7	\$ 112,724.9	\$ 114,043.5

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) Tiers 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

