# 2019 CAFR

## Comprehensive Annual Financial Report
## For the Year Ended June 30, 2019

School Employees Retirement System of Ohio

*Serving the People Who Serve Our Schools®*

OHIO AUDITOR OF STATE
KEITH FABER

88 East Broad Street
Columbus, Ohio 43215
IPAReport@ohioauditor.gov
(800) 282-0370

Retirement Board
School Employees Retirement System of Ohio
300 East Broad Street, Suite 100
Columbus, Ohio 43215-3746

We have reviewed the *Independent Auditor's Report* of the School Employees Retirement System of Ohio, Franklin County, prepared by RSM US LLP, for the audit period July 1, 2018 through June 30, 2019. Based upon this review, we have accepted these reports in lieu of the audit required by Section 117.11, Revised Code. The Auditor of State did not audit the accompanying financial statements and, accordingly, we are unable to express, and do not express an opinion on them.

Our review was made in reference to the applicable sections of legislative criteria, as reflected by the Ohio Constitution, and the Revised Code, policies, procedures and guidelines of the Auditor of State, regulations and grant requirements. The School Employees Retirement System of Ohio is responsible for compliance with these laws and regulations.

Keith Faber

Keith Faber
Auditor of State
Columbus, Ohio

January 7, 2020

# SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO
# COMPREHENSIVE ANNUAL FINANCIAL REPORT
## For the year ended June 30, 2019

Prepared by SERS Staff
Richard Stensrud, Executive Director
300 E. Broad St., Suite 100, Columbus, Ohio 43215-3746
www.ohsers.org

*Serving the People Who Serve Our Schools®*

## Mission

To provide our membership with valuable lifetime pension benefit programs and services

## Vision

Through the continuous pursuit of excellence and innovative solutions, we will partner with our stakeholders so that our membership will understand and achieve security in retirement

## Values

• Focus • Accountability • Communication • Collaboration • Innovation

## Introductory Section (unaudited)



## Financial Section

## Investment Section (unaudited)



## Actuarial Section (unaudited)



## Statistical Section (unaudited)



## Plan Summary

# Introductory Section

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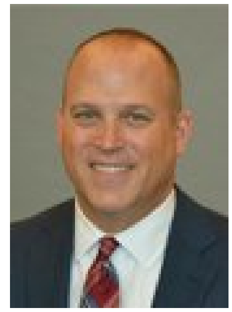
# SERS Retirement Board


James Rossler, Jr.


Catherine Moss


Jeffrey DeLeone


Hugh Garside, Jr.


James Haller


Christine Holland


Barbra Phillips


Daniel Wilson


Beverly Woolridge

*Chair, Appointed Member*
James A. Rossler, Jr.
Term Expires 11/4/2020

*Vice-Chair, Retiree-Member*
Catherine P. Moss
Term Expires 6/30/2020

*Appointed Member*
Jeffrey T. DeLeone
Term Expires 12/5/2020

*Employee-Member*
Hugh W. Garside, Jr.
Term Expires 6/30/2019

*Employee-Member*
James H. Haller
Term Expires 6/30/2021

*Employee-Member*
Christine D. Holland
Term Expires 6/30/2019

*Employee-Member*
Barbra M. Phillips
Term Expires 6/30/2021

*Appointed Member*
Daniel L. Wilson
Term Expires 9/27/2020

*Retiree-Member*
Beverly A. Woolridge
Term Expires 6/30/2019

## Advisors

Independent Auditor
RSM US LLP - Cleveland, Ohio

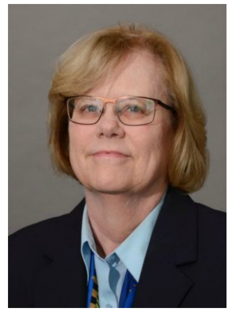
Actuary
Cavanaugh Macdonald Consulting, LLC - Kennesaw, Georgia

Investment Consultant
Wilshire Associates, Inc. - Santa Monica, California

Medical Advisor
Dr. Glen Borchers - Columbus, Ohio

Investment Consultants and Investment Managers and Brokers' Fees - see pages 67 - 69


Richard Stensrud


Karen Roggenkamp


Joseph Bell


Farouki Majeed


Joseph Marotta

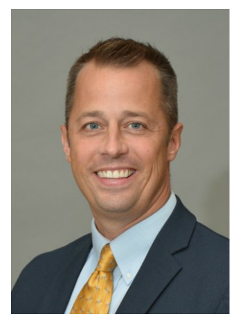

Tracy Valentino


Matthew Sanders


Christi Pepe


Michelle Miller


Jay Patel


John Grumney

**RETIREMENT BOARD**

**CHIEF INVESTMENT OFFICER**
Farouki Majeed

**EXECUTIVE DIRECTOR**
Richard Stensrud

**CHIEF AUDIT OFFICER**
Joseph Bell

**GENERAL COUNSEL**
Joseph Marotta

**CHIEF FINANCIAL OFFICER**
Tracy Valentino

**DEPUTY EXECUTIVE DIRECTOR**
Karen Roggenkamp

| ADMINISTRATIVE SERVICES | HEALTH CARE | HUMAN RESOURCES | INFORMATION TECHNOLOGY | MEMBER SERVICES |
|---|---|---|---|---|
| Matthew Sanders | Christi Pepe | Michelle Miller | Jay Patel | John Grumney |

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

**School Employees Retirement System of Ohio**

For its Comprehensive Annual Financial Report for the Fiscal Year Ended

**June 30, 2018**

Christopher P. Morrill

Executive Director/CEO

PPCC

Public Pension Coordinating Council

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

Presented to

***School Employees Retirement System of Ohio***

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)

Alan H. Winkle

Alan H. Winkle
Program Administrator

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SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO
300 E. BROAD ST., SUITE 100 • COLUMBUS, OHIO 43215-3746
614-222-5853 • Toll-Free 800-878-5853 • www.ohsers.org

RICHARD STENSRUD
Executive Director

KAREN ROGGENKAMP
Deputy Executive Director

December 18, 2019

Dear Chair and Members of the Retirement Board:

On behalf of all management and staff, we are pleased to submit the *Comprehensive Annual Financial Report* (CAFR) of the School Employees Retirement System of Ohio (SERS) for the fiscal year ended June 30, 2019. We are responsible for the accuracy of the contents, and the completeness and fairness of the presentation, including disclosures. A narrative overview and analysis to accompany the basic financial statements is presented as Management's Discussion and Analysis (MD&A); it can be found immediately following the report of the independent auditor in the Financial Section. This letter of transmittal is designed to complement the MD&A.

Established in 1937 by an act of the Ohio General Assembly, SERS provides pensions and benefits to public and charter school employees who are not required to possess a certificate issued pursuant to sections 3319.22 to 3319.31 of the Ohio Revised Code in order to perform their duties. By statute, benefit plans include retirement for age and service, disability benefits, and survivor benefits that are paid upon the death of a member before retirement. A post-retirement health care program also is provided, although it is not required by law.

A system of internal accounting controls ensures the security of member and employer contributions and provides reasonable, but not absolute, assurance that assets are properly safeguarded, transactions are properly executed, and financial statements are reliable. Our independent external auditors have conducted an audit of the basic financial statements in accordance with auditing standards generally accepted in the United States of America. They have full and unrestricted access to you to discuss their audit and related findings concerning the integrity of financial reporting and adequacy of internal controls.

**MAJOR INITIATIVES AND HIGHLIGHTS**

**Staff Completes Five-Year Strategic Planning** Every five years, SERS staff from all departments participate in a comprehensive strategic planning exercise aimed at anticipating the future needs of members and retirees and setting goals to provide necessary services. The strategic plan is instrumental in guiding SERS' efforts to promote the organization's sustainability and growth.

This year, SERS teamed with RAMA Consulting, a performance management consulting firm, to develop a realistic and action-oriented plan. SERS solicited information from the Board of Trustees, representatives from advocacy groups, and staff leaders to define goals and develop strategies toward strengthening the infrastructure and service delivery in order to increase efficiency and effectiveness.

Overall, six goals were identified: pension fund sustainability; health care sustainability; service delivery to members and retirees; operational efficiency; staff culture; and, communications and stakeholder engagement.

**Building a Foundation for the Board's Sustainability Discussions** As the Board made plans to engage in wide-ranging discussions about pension and health care sustainability in FY2020, Finance and Communications staff began assembling historical information about SERS to aid those discussions.

Using SERS statistics contained in historical documents such as Comprehensive Annual Financial Reports, Actuarial Reports, and SERS Statements; and national statistics from Social Security, Centers for Disease Control, and the U.S. Treasury, staff produced handouts for each decade from the 1960s through 2018. These handouts included information such as fund size, unfunded liabilities, membership statistics, contribution rates, age and service eligibility, retirement ages, final average salary, investment returns, health care statistics, and changes to SERS' benefit structure.

Five timelines also were created to provide a visual representation of how changes to SERS in one area affected outcomes in other areas. The timelines focused on member demographic changes, retiree demographic changes, health care changes, the point in time when SERS was 100% funded (1996), and the point in time when SERS began paying out more in benefits than it received in contributions (2000).

A repository for all documents associated with the sustainability discussions, including the handouts and timelines, is available on the SERS website at www.ohsers.org/about-sers/sers-history/#sers-through-the-decades.

**SERS Engages in Federal Advocacy to Extend Health Care Wraparound Plan** In 2017, SERS became the first organization in the nation to establish a health care Marketplace Wraparound Plan for retirees under age 65. Under a pilot program established in the Patient Protection and Affordable Care Act (ACA), SERS retirees choose coverage from the federal Health Insurance Marketplace and SERS "wraps" additional benefits around the federal coverage that enhances the essential health benefits provided by the Marketplace plan. An added benefit is that retirees can maintain their eligibility for a Marketplace subsidy, which can further reduce their costs. Unfortunately, the pilot program ends December 31, 2019.

Because this program has greatly benefited SERS' health care fund and non-Medicare retirees, SERS has been actively advocating for an extension. At the federal level, SERS' Government Relations and Health Care Services departments have been engaged with federal legislators, House and Senate committees, and personnel at the Centers for Medicare and Medicaid Services to find a way to extend the program.

In June, SERS also engaged its retiree members by sending a call to action through its online legislative tool advocating for a two-year extension of the Wraparound Plan. More than 800 retirees responded with messages targeting 40 Senate offices. Several of those responses reached senators who are members of the Senate Subcommittee on Labor, Health and Human Services, Education, and Related Agencies that recommends funding to the Senate Appropriations Committee.

Although a solution was not found by the federal Marketplace open enrollment period near the end of FY2019, staff is committed to continuing the engagement into the next fiscal year and beyond. If the program is not extended, health care staff is pursuing a similar alternative plan that can provide savings for non-Medicare retirees if they choose Marketplace heath care coverage.

**Technology Upgrades Improve System Performance and Information Security** In FY2019, SERS' Information Technology (IT) department completed several projects that will improve staff performance and increase security of the data SERS protects.

Midway through the year, IT staff migrated SERS' email system to the cloud to reduce administrative maintenance, onsite storage demands, and infrastructure resources. The migration also provided increased security features. Negotiation of a new Microsoft licensing agreement allowed for implementation of additional Office 365 products that could be added to the cloud in the future.

IT staff also completed a hardware and technology upgrade of SERS' Virtual Data Center and migrated mission critical systems onto the new platform. The upgrade meets current security recommendations and can be more readily supported as new technology becomes available.

Other security upgrades include the implementation of desktop security software on individual workstations and an upgrade to SERS' encryption software that will reduce costs, increase performance, and consolidate tools.

**Risk Management** To expand our risk mitigation capabilities across the organization, SERS added a Chief Risk Officer (CRO) as a key management position. The CRO will guide the Enterprise Risk Management operations, work with IT staff to incorporate security controls within new technology and infrastructure upgrades, and direct Information Security activities to incorporate best practices to combat cybersecurity threats and keep the personal information of SERS' membership secure. The CRO also will work closely with the Chief Audit Officer to identify and manage risks in other departments including investment volatility, impact of changing demographics on the funds, and changes to actuarial standards that could affect future valuations.

**SERS Expands Employer Education with On-Demand Videos** SERS' Employer Services staff delivers information to employers across the state in a variety of ways: through one-on-one visits at schools, monthly training classes at SERS' Columbus headquarters, hands-on training sessions at Educational Service Centers and Informational Technology Centers, presentations at employer group meetings, and on-demand video tutorials.

During FY2019, the Employer Services staff, with assistance from Communications, increased efforts to produce videos that employers can use to train their employees on using the eSERS computer system. During the year, 14 videos were produced, most of which focused on creating payroll schedules and contribution reporting using the eSERS system. These videos are also a good resource for school employees who attended hands-on training and need a quick refresher.

All of the employer videos can be accessed on SERS' website or our YouTube channel at youtube.com/SERSofOhio.

**INVESTMENTS**

SERS' investment portfolio is diversified by asset class, investment approach, and individual investments within each asset class to reduce overall portfolio risk and volatility. At year end, SERS' investment portfolio at fair value was $14.8 billion. Investment return was 6.6% (net) for the fiscal year versus the benchmark return of 6.5% and the actuarial assumed return of 7.50%. Net investment income was $853.6 million compared to $1.27 billion in FY2018. The SERS Investment Committee structure is fully operational and represents a leading practice in investment operations. For more information on SERS' portfolio performance and investment strategy and policy, please turn to the Investment Section of this report.

Since becoming SERS' investment consultant in 2016, Wilshire Associates (Wilshire), in partnership with SERS' investment staff, completed an asset liability review. SERS' staff and Wilshire explored numerous change options, most involving the reduction of the multi-asset strategies portfolio and increases in dedicated mandates such as high-yield bonds, emerging market debt, and master limited partnerships. Ultimately, staff recommended and Wilshire supported a proposal to keep the current asset allocation. The allocation is 22.5% for US equity, 22.5% for non-US equity, 10% for private equity, 20% for fixed income and cash, 15% for real assets, and 10% for multi-asset strategies.

**FUNDING**

SERS' primary objective is to assure that at the time benefits commence, sufficient funds will be available to provide retirement, disability, and survivor benefits for its members. In addition, SERS is committed to sustaining contribution rates that remain level from generation to generation.

SERS' benefits are separated to comply with various sections of the Internal Revenue Code (IRC), and then reported and valued for funding purposes in accordance with relevant Governmental Accounting Standards Board (GASB) statements. For FY2019, the funded ratios for the three benefits mandated by statutes increased, which was due to the impact of changes to COLA eligibility made in previous years, slower growth in the number of new retirees, and the performance of SERS' investments. The funding level for pension benefits increased from 70.07% over a 26-year period to 70.51% over a 25-year period. The funding level for discretionary health care benefits increased from 17.25% to 21.09% over a 30-year period. Historical information related to progress on meeting the funding objective can be found in the Required Supplementary Information (RSI) in the Financial Section of this report.

**AWARDS AND ACKNOWLEDGEMENTS**

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to SERS for its *Comprehensive Annual Financial Report* (CAFR) for the fiscal year ended June 30, 2018. This was the 34th consecutive year that SERS has received this prestigious award. A Certificate of Achievement is valid for a period of one year only. We believe that our current CAFR continues to meet the Certificate of Achievement Program's requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

The GFOA gave SERS an Award for Outstanding Achievement in Popular Annual Financial Reporting for its *Summary Annual Financial Report* (SAFR) for the fiscal year ended June 30, 2018. SERS first issued the SAFR for the fiscal year ended June 30, 2013 and has received this award for six consecutive years. An Award for Outstanding Achievement in Popular Annual Financial Reporting is valid for one year only. We believe that our current SAFR continues to meet the Award for Outstanding Achievement Program's requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

The Public Pension Coordinating Council (PPCC) awarded to SERS the Public Pension Standards Award for 2019. Developed by the PPCC to promote excellence in meeting professional standards for plan funding and administration among state and local public retirement systems, the Public Pension Standards are the benchmark for measuring current practices of defined benefit plans. The PPCC is a coalition of three national associations that represent public retirement systems and administrators: the National Association of State Retirement Administrators, the National Council on Teacher Retirement, and the National Conference on Public Employee Retirement Systems.

This report represents the collaboration of SERS' staff and advisors. Our sincere appreciation is extended to all those who contributed to the completion of this report. This report is intended to provide complete and reliable information as a basis for management decisions, and for compliance with legal requirements, and as measurement of the responsible stewardship of SERS' assets.

In closing, we recognize that our strength is a reflection of the quality of our staff. We value their efforts that enable us to maintain effective internal controls while at the same time deliver high quality service to our members, retirees, and employers.

Respectfully submitted,

Richard Stensrud
*Executive Director*

Tracy L. Valentino, CPA
*Chief Financial Officer*

# Legislative Summary

SERS and its members can be significantly affected by legislation enacted by the Ohio General Assembly and Congress. SERS closely monitors legislative and regulatory activities, and when appropriate, provides testimony or otherwise educates Ohio legislators, congressional representatives, and regulatory agencies on the impact of those proposals.

## State Legislation

### FROM THE 132ND GENERAL ASSEMBLY:

**HB 572 PERS - Developmental Disabilities School Employee (03/22/2019, Effective)** - This bill requires the Public Employees Retirement System (PERS) Board to grant a full year of service credit to a PERS member employed as a nonteaching school employee of a county board of developmental disabilities if the member performs full-time services in the position for at least nine months of the year and is paid earnable salary in each month of that year. Also, this bill contains recommended statutory clean-up items for all five systems.

### FROM THE 133RD GENERAL ASSEMBLY:

No SERS-related legislation

## Federal Legislation

### FROM THE 116TH CONGRESS:

**HR 2740 Labor, Health and Human Services, Education, Defense, State, Foreign Operations, and Energy and Water Development Appropriations Act 2020 (06/19/2019, Pass/agreed to in House: On passage Passed by the Yeas and Nays: 226 - 203)** - This bill includes general language to encourage CMS to extend the pilot program that is the basis of the SERS Limited Wraparound Plan, and recommends that the program be made permanent.

**HR 141 Social Security Fairness Act of 2019 (01/31/2019, Referred to the House Subcommittee on Social Security)** - This bill repeals the Government Pension Offset and Windfall Elimination Provisions. Companion bill to S 521.

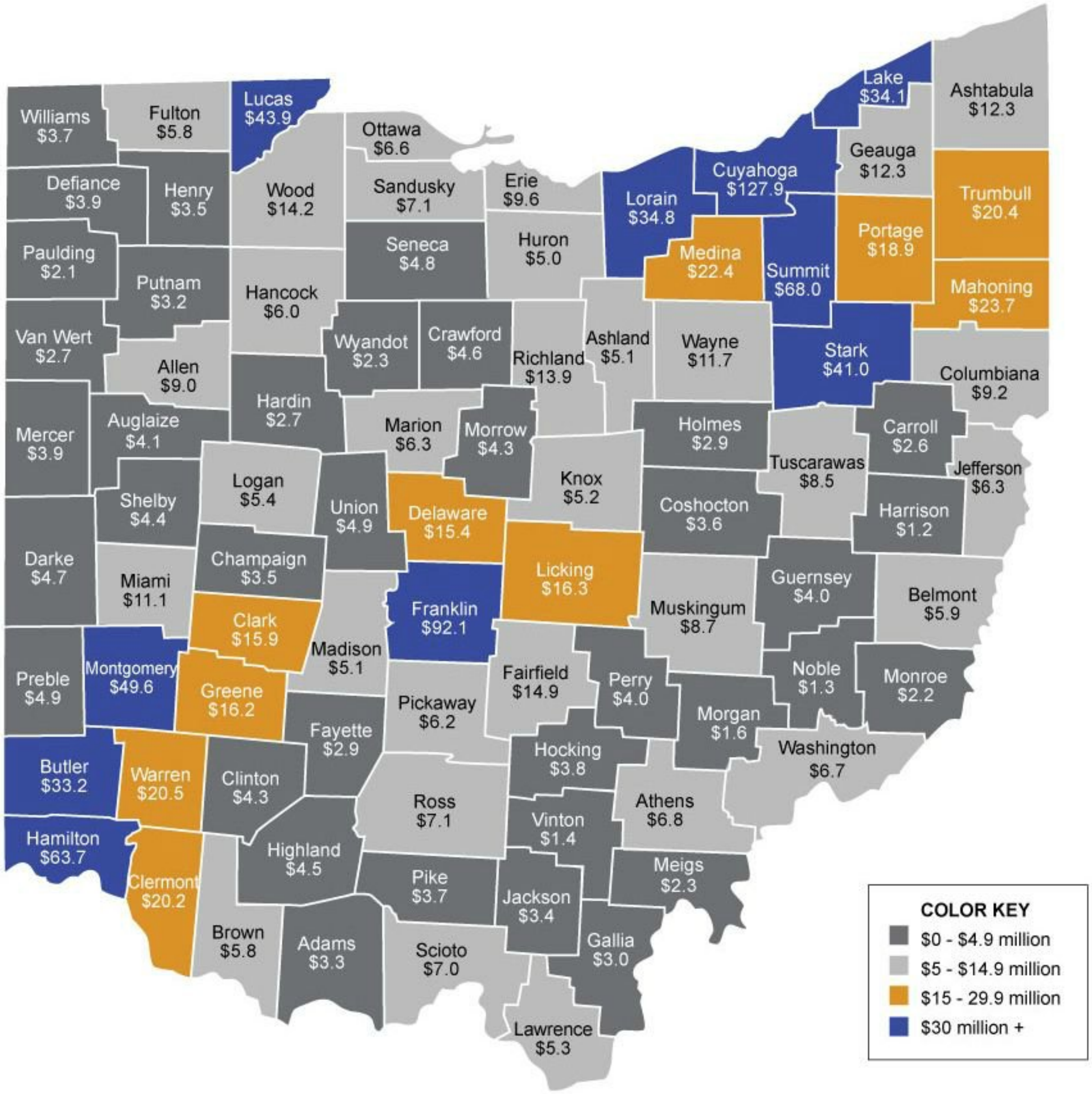
**S 521 Social Security Fairness Act of 2019 (02/24/2019, Referred to the House Committee on Finance)** - This bill repeals the Government Pension Offset and Windfall Elimination Provisions. Companion bill to HR 141.

**HR 748 Middle Class Health Benefits Tax Repeal Act of 2019 (05/21/2019, Motion of place bill on Consensus Calendar filed by Mr. Courtney)** - This bill repeals the health care "Cadillac Tax". Companion bill to S 684.

**S 684 Middle Class Health Benefits Tax Repeal Act of 2019 (03/06/2019, Referred to the House Committee on Finance)** - This bill repeals the health care "Cadillac Tax". Companion bill to HR 748.

**HR 1398 Health Insurance Tax Relief Act of 2019 (02/27/2019, Referred to the House Committee on Ways and Means, and the House Committee on Energy and Commerce)** - This bill is to delay the reimposition of the annual fee on health insurance providers until after 2021.

## Pension Benefits by County FY2019 *($ in millions)*




Public pensions positively impact Ohio's economy. Of the 81,024 individuals receiving pension benefits from SERS, 91% live in Ohio.

In FY2019 alone, benefit payments of more than $1.2 billion were distributed among Ohio's 88 counties, positively impacting the state's economy. For every dollar in employer contributions invested in SERS' pensions last year, $2.48 was returned to local economies.

# Financial Section

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RSM US LLP

## Independent Auditor's Report

The Retirement Board
School Employees Retirement System of
Ohio and The Honorable Keith Faber

**Report on the Financial Statements**
We have audited the accompanying financial statements of School Employees Retirement System of Ohio (SERS), which comprise the statement of fiduciary net position as of June 30, 2019, and the related statement of changes in fiduciary net position for the year ended June 30, 2019, and the related notes to the financial statements, which collectively comprise the entity's basic financial statements as listed in the table of contents.

**Management's Responsibility for the Financial Statements**
Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; 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.

**Auditor's 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 auditor's 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 SERS as of June 30, 2019, and the respective changes in fiduciary net position for the year then ended in accordance with accounting principles generally accepted in the United States of America.

**Other Matters**
*Required Supplementary Information*
Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis and the Schedule of Changes in the Employers' Net Pension Liability, the Schedule of the Net Pension Liability, the Schedule of Employer Contributions, the Schedule of Investment Returns, the Schedule of Changes in the Net OPEB Liability, the Schedule of the Net OPEB Liability, the Schedule of Employer Contributions – OPEB, the Schedule of Investment Returns – OPEB, the Schedule of SERS' Proportionate Share of the Net Pension Liability – OPERS Traditional Pension Plan, the Schedule of SERS' Proportionate Share of the Net Pension Liability – OPERS Combined Pension Plan, the Schedule of Contributions – OPERS Traditional Pension Plan, the Schedule of Contributions – OPERS Combined Pension Plan, the Schedule of SERS' Proportionate Share of the Net OPEB Liability - OPERS, and the Schedule of OPEB Contributions – OPERS and the related notes on pages 50 and 52 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 SERS's basic financial statements. The other supplementary information, including the schedules of administrative expenses, investment expenses, and payments to consultants, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the basic financial statements. The other supplementary information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements, or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the other supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

*Other Information*
The introductory, investments, actuarial and statistical sections, as listed in the table of contents 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 December 16, 2019 on our consideration of SERS'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 SERS'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 SERS's internal control over financial reporting and compliance.

RSM US LLP

Cleveland, Ohio
December 16, 2019

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## Management's Discussion and Analysis (Unaudited)

This section presents management's discussion and analysis of the School Employees Retirement System of Ohio's financial performance for fiscal year ended June 30, 2019. This information is based on SERS' financial statements, which begin on page 22. We encourage readers to consider the information presented here in conjunction with the information in our Letter of Transmittal, which is found in the Introductory Section of this report. In addition to historical information, Management's Discussion and Analysis includes forward-looking statements that involve certain risks and uncertainties. Actual results, performance, and achievements may differ from those expressed or implied in such forward-looking statements, due to a wide range of factors, including changes in the securities markets, general economic conditions, and legislative changes, as well as other factors.

### FINANCIAL HIGHLIGHTS

- SERS' total assets at June 30, 2019 were $15,437.2 million, an increase of $412.6 million, or 2.7%, compared to FY2018 assets. This is a result of an increase in the investment portfolio and an increase in receivables due to timing differences.
- SERS' total liabilities at June 30, 2019 were $436.5 million, an increase of $118.9 million, or, 37.4% compared to FY2018 liabilities. This is a result of an increase in the net pension liability associated with SERS' employee participation in the Ohio Public Employees Retirement System (OPERS). Also contributing to the increase, is the timing of investment transactions resulting in a higher investment payable balance at year end.
- Total additions to plan net assets were $1,817.7 million, comprised of contributions of $964.1 million and net investment income of $853.6 million. This is a decrease from FY2018 due to lower investment income in FY2019 when compared to FY2018.
- Total deductions from plan net assets for FY2019 totaled $1,516.0 million, including benefits payments of $1,404.6 million and administrative expenses of $34.4 million, an increase of 1.7% over FY2018 deductions. This is primarily the result of an increase in refunds and transfers to other systems.
- The net increase in plan net assets was $301.7 million compared to a net increase of $720.9 million in FY2018. The FY2019 change in plan net assets was lower than the change in FY2018 due to lower investment income in FY2019 offset somewhat by higher contributions and lower health care expenses.

### OVERVIEW OF FINANCIAL STATEMENTS

SERS' financial statements are prepared in accordance with generally accepted accounting principles in the United States of America. Management's Discussion and Analysis is intended to serve as an introduction to SERS' financial statements, which are prepared using the accrual basis of accounting. Following Management's Discussion and Analysis are the basic financial statements. Reviewing these statements, along with the accompanying notes, gives the reader a better understanding of SERS' financial position.

The Statement of Fiduciary Net Position is a point-in-time snapshot of SERS' assets, deferred outflows of resources, liabilities, deferred inflows of resources, and net position at fiscal year-end. Net position represents the amount of total assets and deferred outflows of resources less total liabilities and deferred inflows of resources.

The Statement of Changes in Fiduciary Net Position presents the additions and deductions for the fiscal year. Major sources of additions are contributions and investment income. Major sources of deductions are benefits, refunds, and administrative expenses.

The Notes to Financial Statements supply additional information that is essential for a full understanding of the data provided in the financial statements. The notes describe the history and purpose of the plans; present information about accounting policies; and disclose material risks, subsequent events, and contingent liabilities, if any, that may significantly impact SERS' financial position.

In addition to the financial statements and notes, the following supplementary information is also provided:

- Required supplemental information that presents SERS' proportionate share of the Ohio Public Employees Retirement System (OPERS) net pension liability;
- Required supplemental information that presents SERS' contribution to pension based on statutory requirements;
- Required supplemental information that presents SERS' proportionate share of the OPERS net other post-employment benefits (OPEB) liability;
- Required supplemental information that presents SERS' contribution to OPEB based on statutory requirements; and
- Optional supplemental schedules that presents information related to funding progress, employer contributions, administrative expenses, and investment related expenses.

The financial statements, notes, and Required Supplementary Information (RSI) are presented in compliance with GASB Statement No. 84, *Fiduciary Activities.*

In accordance with GASB Statement No. 68, the net pension liability equals SERS' proportionate share of OPERS' unfunded actuarial accrued liability. However, SERS is not responsible for certain key factors affecting the balance of this liability. In Ohio, the employee shares the obligation of funding pension benefits with the employer. Both employer and employee contribution rates are capped by state statute. A change in these caps requires action of both houses of the general assembly and approval by the governor. Benefit provisions also are determined by state statute. In Ohio, public employers are not legally bound to pay off the unfunded liabilities of the public pension systems. The pension systems are solely responsible for the prudent fiscal administration of their plans.

In accordance with GASB Statement No. 75, the net OPEB liability equals SERS' proportionate share of the OPERS' unfunded liability. However, SERS is not responsible for certain key factors affecting the balance of this liability. OPERS' Board of Directors determines on an annual basis the percentage of total employer contributions to be allocated to health care. The portion of Traditional Pension Plan and Combined Plan employer contributions was 0% for calendar year 2018. Contributions are expected to continue at that rate for the next several years. In Ohio, health care is a discretionary benefit; it is not guaranteed by statute. Public employers are also not legally bound to pay off the OPEB liabilities of the public pension systems. The pension systems are solely responsible for the prudent fiscal administration of their plans.

Most long-term liabilities have set repayment schedules or, in the case of compensated absences (i.e., sick and vacation leave), are satisfied through paid time-off or termination payments. There is no repayment schedule for the net pension liability or the net OPEB liability. Changes in pension benefits, OPEB benefits, contribution rates, and return on investments affect the balance of the net pension liability and the net OPEB liability, but are outside the control of SERS. In the event that contributions, investment returns, and other changes are insufficient to keep up with required pension payments, state statute does not assign/identify the responsible party for the unfunded portion.

**FINANCIAL ANALYSIS**

A cost-sharing, defined-benefit, public retirement system, such as SERS, has a long-term perspective on financial activities. SERS' primary responsibility is to assure that sufficient funds will be available to provide retirement, disability, and survivor benefits, Medicare Part B premium reimbursements, and lump sum death benefits. Laws governing SERS' financing intend the contribution rates to remain approximately level from generation to generation.

A Condensed Summary of Total Fiduciary Net Position and a Condensed Summary of Changes in Fiduciary Net Position as of June 30, 2019 and 2018, and for the years then ended are shown in the table to the right.

SERS is comprised of five separate plans – the Pension Trust Fund, the Medicare B Fund, the Death Benefit Fund, the Qualified Excess Benefit Arrangement (QEBA) Fund, and the Health Care Fund. Pension benefits are funded through a combination of employee and employer contributions and investment income. Medicare Part B premium reimbursements and death benefits are funded through employer contributions and investment income. The QEBA, a separate plan under Internal Revenue Code §415, is funded by contributions from the retiree's last employer and invested separately in a short-term investment fund. Funding for the health care program comes from employers, retiree premium payments, the federal government, and investment income. The graph on page 18, "Comparative Additions by Source FY2019 and FY2018", depicts the proportion that each source added to the fund's assets.

**CONDENSED SUMMARY OF TOTAL FIDUCIARY NET POSITION**

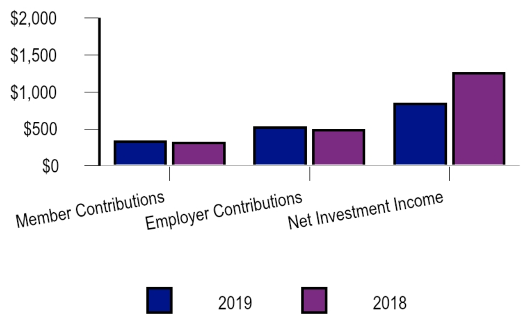
| *($ in millions)* | | | Change | |
|---|---|---|---|---|
| ASSETS | 2019 | 2018 | Amount | Percent |
| Cash | $ 837.8 | $ 1,235.4 | $ (397.6) | (32.2)% |
| Receivables | 257.1 | 162.0 | 95.1 | 58.7 |
| Investments | 14,276.5 | 13,473.4 | 803.1 | 6.0 |
| Capital Assets, Net | 65.2 | 68.5 | (3.3) | (4.8) |
| Other Assets | 0.6 | 85.3 | (84.7) | (99.3) |
| Total Assets | 15,437.2 | 15,024.6 | 412.6 | 2.7 |
| DEFERRED OUTFLOWS OF RESOURCES | | | | |
| Deferred Outflows | 8.1 | 6.1 | 2.0 | 32.8 |
| LIABILITIES | | | | |
| Benefits & Accounts Payable | 55.9 | 44.9 | 11.0 | 24.5 |
| Other Liabilities | 380.6 | 272.7 | 107.9 | 39.6 |
| Total Liabilities | 436.5 | 317.6 | 118.9 | 37.4 |
| DEFERRED INFLOWS OF RESOURCES | | | | |
| Deferred Inflows | 0.7 | 6.7 | (6) | (89.6) |
| Fiduciary Net Position | $ 15,008.1 | $ 14,706.4 | $ 301.7 | 2.1 % |

**CONDENSED SUMMARY OF CHANGES IN TOTAL FIDUCIARY NET POSITION**

| *($ in millions)* | | | Change | |
|---|---|---|---|---|
| ADDITIONS | 2019 | 2018 | Amount | Percent |
| Contributions | $ 964.1 | $ 940.8 | $ 23.3 | 2.5 % |
| Net Investment Income | 853.6 | 1,270.2 | (416.6) | (32.8) |
| Total Additions | 1,817.7 | 2,211.0 | (393.3) | (17.8) |
| DEDUCTIONS | | | | |
| Benefits | 1,404.6 | 1,407.7 | (3.1) | (0.2) |
| Refunds & Transfers | 77 | 52.8 | 24.2 | 45.8 |
| Admin. Expenses | 34.4 | 29.6 | 4.8 | 16.2 |
| Total Deductions | 1,516.0 | 1,490.1 | 25.9 | 1.7 |
| Net Increase (Decrease) | 301.7 | 720.9 | (419.2) | (58.1) |
| Balance, Beginning of Year | 14,706.4 | 13,985.5 | 720.9 | 5.2 |
| Balance, End of Year | $ 15,008.1 | $ 14,706.4 | $ 301.7 | 2.1 % |

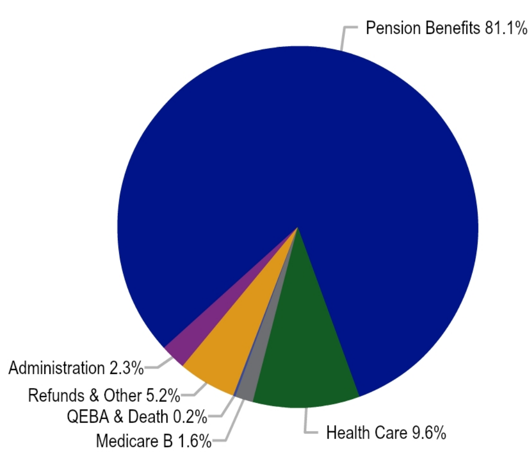
### Comparative Additions by Source FY2019 and FY2018

*($ in millions)*




Expenses are incurred primarily for the purpose for which SERS was created: the payment of benefits to non-teaching Ohio public school, community school, and community college employees. Included in the deductions from fiduciary net position were benefit payments, refunds of contributions due to member terminations or deaths, net transfers to other Ohio retirement systems to provide benefits for those members who had membership in more than one system, and administrative expenses.

### Deductions from Plan Fiduciary Net Position FY2019




SERS' fiduciary net position increased by $301.7 million during FY2019, compared to a net increase of $720.9 million in FY2018.

- For financial statement purposes, employee contributions consist of 10% of reported payroll, and member purchases of restored and optional service credits. Employer contributions include 14% of reported payroll, the employer's share of optional and compulsory purchased service credit, early retirement incentives, and the health care surcharge. Employer contributions in excess of those required to support the Pension, Medicare B, and Death Benefit Funds may be allocated to the Health Care Fund.

  Effective June 18, 2015, SERS adopted a new funding policy that allocates a higher portion of the employer contribution toward the Pension, Medicare B, and Death Benefits Funds until the fund achieves a funded status of 90%.

- Employee contributions and employer contributions, excluding the surcharge, increased 6.5%.

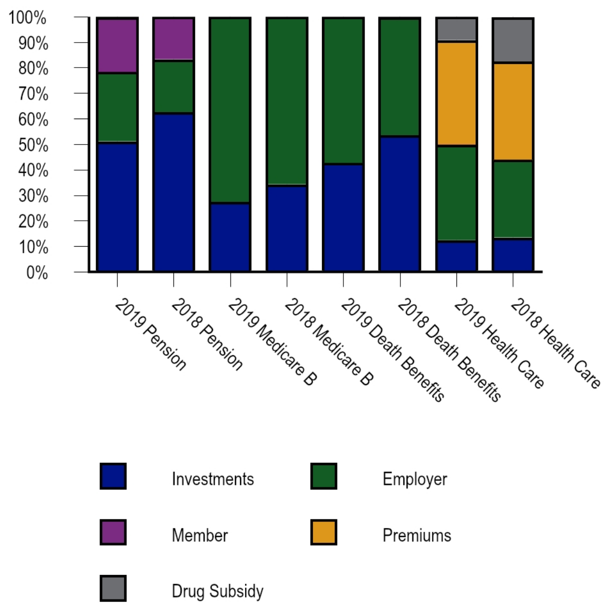
- Employer contributions to the Health Care Fund are derived from two sources. The first source is an allocation of the employers' 14% contribution after pension benefits are actuarially funded. Because of the change in SERS' funding policy, 0.50% of the employer contribution was allocated to the Health Care Fund in FY2019. The second is a health care surcharge for members who earn less than an actuarially determined minimum salary, which is established annually by the Board based on the actuary's recommendation. Regardless of the minimum compensation amount, legislated limits on SERS' surcharge revenue restrict the actual surcharge to 1.5% of statewide payroll, and no employer pays more than 2.0% of the district's payroll. Because of an increase in reported payroll, the surcharge also increased from $47.6 million in FY2018 to $49.4 million in FY2019.

- Along with employer contributions and investment income, additions to the Health Care Fund include health care premiums paid by retirees. Enrollment and total premiums remained substantially the same from FY2018 to FY2019.

- The other sources of contributions to the Health Care Fund include a net reimbursement from the federal program for Medicare Part D qualified prescription drug plans (PDP) and from our primary Medicare Advantage provider based on a risk-sharing contract effective January 1, 2011. Premiums for this program are estimated at the beginning of the contract and then adjusted based on actual claims experience and Medicare reimbursements. If experience is favorable, SERS receives a payment for the adjusted premium; however if experience is not favorable, SERS pays an additional premium to the provider.

- Investment income is allocated to all funds except the QEBA. It is presented net of investment fees and is comprised of interest, dividends, and realized and unrealized investment gains and losses. Investment expense is comprised of external manager, custody, and master record keeper fees and internal investment and accounting expenses. SERS' investment portfolio, with the exception of cash and short-term investments, is managed by external investment managers. SERS had a net investment gain of $853.6 million compared to a gain of $1,270.2 million in FY2018. Staff continued with the implementation of the strategic plan adopted in FY2013. Significant progress was made in terms of improving the portfolio structure to optimize risk and return and reduce fees.

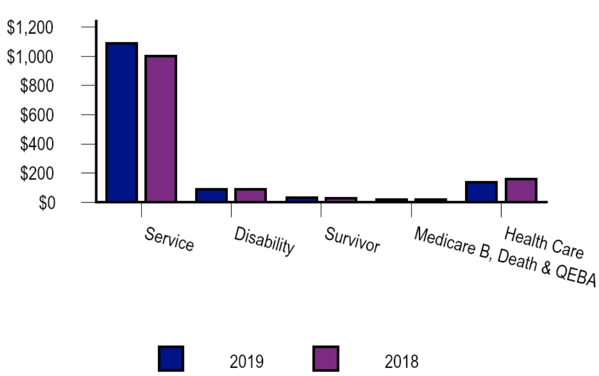
**Comparison of Additions to Fiduciary Net Position by Fund**




- Payments to service, disability, and survivor benefit recipients increased $4.6 million, or 0.4% during FY2019. Service retirement payments increased 0.5%, disability payments decreased 1.3%, and survivor benefits payments increased 2.3%.

**Comparative Benefit Payments FY2019 and FY2018**

*($ in millions)*




- Total refunds paid increased 27.0% from FY2018 to FY2019. A lump sum of employee contributions is only distributed to members who have terminated public employment, applied for a refund, and waited for expiration of the 90-day waiting period that begins with the last day of service. SERS' members cannot take partial distributions. Reemployed retirees who are eligible for an annuity may elect a lump sum distribution, which includes the employee's contributions, a portion of the employer's contributions, and interest.

- If a member has been employed in a job covered by the State Teachers Retirement System of Ohio (STRS) or the Ohio Public Employees Retirement System (OPERS) defined-benefit plans as well as in a job covered by SERS, the member may receive a retirement benefit independently from each system, if eligible, or combine the service credit and accounts in all the systems to receive one benefit at retirement. The system that holds the greatest service credit will calculate and pay the benefit; the employee's full contributions and a share of the employer contributions and interest are transferred to the paying system. Net transfers to other Ohio systems increased in FY2019 when compared to FY2018.

- SERS reimburses a portion ($45.50) of the Medicare Part B monthly premium to retirees eligible for SERS' health care program who provide proof of enrollment in Medicare Part B. The reimbursement amount, established by statute, has not changed since 2001; therefore, changes in expense are driven by eligible retirees' enrollment in Medicare Part B or termination of a benefit. Medicare Part B expense remained substantially the same in FY2019. The eligibility of new retirees to receive the Part B reimbursement is now tied to enrollment in one of SERS' health care plans.

- SERS pays a $1,000 death benefit, established by statute in 2001, to the designated beneficiary of service and disability retirees. Death benefit payments decreased 13.8% in FY2019.

- Most retirees and dependents choosing SERS' health care coverage are over the age of 65 and, therefore, enrolled in a fully insured Medicare Advantage plan; however, SERS maintains a traditional, self-insured preferred provider organization for its non-Medicare retiree population. For both groups, SERS offers a self-insured prescription drug program. Health care expenses decreased $7.3 million, or 4.8%, to $145.1 million. Our goals for the non-Medicare program are to provide access to quality coverage at an affordable cost and to focus on care management to improve the quality of care and to lower costs. Health care is a benefit that is permitted, not mandated, by statute. Our funding policy is to maintain the Health Care Fund with a 20-year solvency period to insure that the fluctuations in the cost of health care do not cause an interruption in the program.

### ACTUARIAL

The annual actuarial valuation measures the total liability for all benefits earned to date. The accrued liability is a present value estimate of all the benefits that have been earned to date but not yet paid. The actuarial accrued liability (AAL) for the four funds changed as follows:

**AAL** *($ in millions)*

| Fund | AAL FY2019 | AAL FY2018 | Increase/ (Decrease) | % Change |
|---|---|---|---|---|
| Pension | $ 20,090 | $ 19,559 | $ 531 | 2.71% |
| Medicare B | 397 | 400 | (3) | (0.75) |
| Death | 40 | 39 | 1 | 2.56 |
| Health Care | 2,199 | 2,525 | (326) | (12.91) |

The unfunded accrued liability (UAL) is the present value of the future benefits payable that are not covered by the actuarial value of assets as of the valuation date. The funded ratio reflects the percentage of the accrued liability covered by the actuarial value of assets. A decrease in the UAL indicates progress towards funding. The unfunded liability and the funded ratio changed as follows:

**UAL** *($ in millions)*

| Fund | UAL FY2019 | UAL FY2018 | Increase/ (Decrease) | % Change | Funded Ratio FY2019 | Funded Ratio FY2018 |
|---|---|---|---|---|---|---|
| Pension | $ 5,823 | $ 5,735 | $ 88 | 1.53% | 71.0% | 70.7% |
| Medicare B | 217 | 236 | (19) | (8.05) | 45.3 | 41.1 |
| Death | 14 | 15 | (1) | (6.67) | 64.5 | 61.6 |
| Health Care | 1,735 | 2,089 | (354) | (16.95) | 21.1 | 17.3 |

To completely understand the funding status of SERS, it is important to analyze actuarial data in combination with financial data. The actuarial data presented in the two previous tables are presented using an actuarial or funding basis. The funding basis uses an actuarial value of assets that smooths market gains and losses over a closed four-year period subject to a 20% market corridor. This differs from an accounting basis (utilized in accordance with GASB 67 and GASB 74) that calculates the funding status using the market value of assets.

As a result of actuarial smoothing, the fair value of assets may be more than or less than the actuarial or funding value of assets at a given point in time. In periods of protracted market decline, the fair value of assets will usually be less than the actuarial or funding value of assets. In contrast, during periods of protracted market gains, the fair value of assets will generally be greater than the actuarial or funding value of assets.

To ensure the funding value of assets and the market value of assets remain within reasonable proximity of each other, SERS uses a 20% market corridor in conjunction with its four-year smoothing. This policy ensures that the funding value of assets is neither lower than 80%, nor higher than 120% of the market value of the assets. At the end of FY2018, the market value of assets exceeded the funding value by $258 million. At the end of FY2019, the market value of assets exceeded the funding value by $71 million.

As of June 30, 2019, the date of the latest actuarial valuation, the funded ratio for basic pension was 70.51%. In general, this means that for every dollar of future pension liability, SERS had accumulated approximately $0.71 to meet that obligation. The funded ratio for basic pension increased from June 30, 2018 by 0.44%. The June 30, 2019 actuarial report indicates that, if all actuarial assumptions were met, SERS would accumulate sufficient assets to pay all pension liabilities for active members and retirees within 25 years compared to 26 years at June 30, 2018.

### CONDITIONS EXPECTED TO AFFECT FINANCIAL POSITION OR RESULTS OF OPERATIONS

SERS' primary objective is to assure that at the time benefits commence, sufficient funds will be available to provide retirement, disability, and survivor benefits for its members. In addition, SERS is committed to sustaining contribution rates that remain level from generation to generation.

Markets are expected to continue to be volatile over the next several years. The Strategic Investment Plan has been designed to improve the portfolio structures to optimize returns while minimizing risks. Overweight portions of investments in Global Equities have been gradually reduced. Global Fixed Income investments are underweight and Cash Equivalent investments are overweight to try to mitigate risk.

In June 2017, GASB issued Statement No. 87, *Leases*. The primary objective of this statement is to increase the usefulness of financial statements by requiring recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows or outflows of resources based on the payment provisions of the contract. Under this statement, a lessee is required to recognize a lease liability and an intangible right-to-use leased asset. A lessor is required to recognize a lease receivable and a deferred inflow of resources. The effective date of this standard is reporting periods beginning after December 15, 2018. SERS is currently evaluating this statement with initial implementation planned for the 2020 annual report.

In August 2018, GASB issued Statement No.90, *Majority Equity Interests - an amendment of GASB Statements No. 14 and No. 61*. The primary objectives of this statement are to improve the consistency and comparability of reporting a government's majority equity interest in a legally separate organization and to improve the relevance of financial statement information for certain component units. The effective date of this standard is reporting periods beginning after December 15, 2018. SERS is currently evaluating this statement with initial implementation planned for the 2020 annual report.

## REQUEST FOR INFORMATION

This financial report is designed to provide the Retirement Board, our membership, employers, and investment managers with a general overview of SERS' finances. Questions concerning any of the information provided in this report or requests for additional financial information should be directed to:

School Employees Retirement System of Ohio<br>Finance Department<br>300 East Broad Street, Suite 100<br>Columbus, Ohio 43215-3746

## Statement of Fiduciary Net Position as of June 30, 2019

| | Pension Trust Fund | Medicare B Fund | Death Benefit Fund | QEBA Fund | Health Care Fund | TOTAL |
|---|---|---|---|---|---|---|
| ASSETS | | | | | | |
| Cash & Operating Short Term Investments | $ 751,761,324 | $ 10,879,451 | $ 1,467,776 | $ 215,059 | $ 73,512,957 | $ 837,836,567 |
| Receivables | | | | | | |
| Contributions | | | | | | |
| Employer | 1,774,687 | 147,175 | 11,015 | — | 49,645,526 | 51,578,403 |
| Employee | 1,833,374 | — | — | — | — | 1,833,374 |
| Investments Receivable | 191,394,714 | 2,408,488 | 344,517 | 371 | 5,007,112 | 199,155,202 |
| Other Receivables | 621,443 | — | — | — | 3,916,524 | 4,537,967 |
| Total Receivables | 195,624,218 | 2,555,663 | 355,532 | 371 | 58,569,162 | 257,104,946 |
| Investments at Fair Value | | | | | | |
| US Equity | 4,361,615,200 | 54,695,890 | 7,839,335 | — | 112,640,635 | 4,536,791,060 |
| Non-US Equity | 3,090,680,869 | 38,758,013 | 5,555,025 | — | 79,818,197 | 3,214,812,104 |
| Private Equity | 1,729,236,086 | 21,685,110 | 3,108,036 | — | 44,658,285 | 1,798,687,517 |
| Fixed Income | 2,174,148,080 | 27,264,433 | 3,907,697 | — | 56,148,333 | 2,261,468,543 |
| Real Estate | 2,249,242,008 | 28,206,132 | 4,042,668 | — | 58,087,667 | 2,339,578,475 |
| Total Investments at Fair Value | 13,604,922,243 | 170,609,578 | 24,452,761 | — | 351,353,117 | 14,151,337,699 |
| Securities Lending Collateral at Fair Value | 120,364,859 | 1,509,409 | 216,337 | — | 3,108,476 | 125,199,081 |
| Capital Assets | | | | | | |
| Land | 3,315,670 | — | — | — | — | 3,315,670 |
| Property & Equipment, at Cost | 96,057,587 | — | — | — | — | 96,057,587 |
| Accumulated Depreciation and Amortization | (34,219,452) | — | — | — | — | (34,219,452) |
| Property & Equipment, Book Value | 65,153,805 | — | — | — | — | 65,153,805 |
| Prepaids and Other Assets | 610,050 | — | — | — | 1,441 | 611,491 |
| TOTAL ASSETS | 14,738,436,499 | 185,554,101 | 26,492,406 | 215,430 | 486,545,153 | 15,437,243,589 |
| DEFERRED OUTFLOWS OF RESOURCES | | | | | | |
| Deferred Outflows - Pension | 6,985,978 | — | — | — | — | 6,985,978 |
| Deferred Outflows - OPEB | 1,143,578 | — | — | — | — | 1,143,578 |
| LIABILITIES | | | | | | |
| Accounts Payable & Accrued Expenses | 41,723,102 | 1,798 | 2,975 | 2,673 | 13,284,058 | 55,014,606 |
| Benefits Payable | 705,900 | — | 200,688 | — | — | 906,588 |
| Investments Payable | 245,616,444 | 3,080,100 | 441,458 | — | 6,343,152 | 255,481,154 |
| Obligations under Securities Lending | 120,317,961 | 1,508,821 | 216,254 | — | 3,107,264 | 125,150,300 |
| TOTAL LIABILITIES | 408,363,407 | 4,590,719 | 861,375 | 2,673 | 22,734,474 | 436,552,648 |
| DEFERRED INFLOWS OF RESOURCES | | | | | | |
| Deferred Inflows - Pension | 592,275 | — | — | — | — | 592,275 |
| Deferred Inflows - OPEB | 128,682 | — | — | — | — | 128,682 |
| FIDUCIARY NET POSITION RESTRICTED FOR PENSION AND OTHER POSTEMPLOYMENT BENEFITS | $ 14,337,481,691 | $ 180,963,382 | $ 25,631,031 | $ 212,757 | $ 463,810,679 | $ 15,008,099,540 |

See accompanying notes to the financial statements.

## Statement of Changes in Fiduciary Net Position for the year ended June 30, 2019

| | Pension Trust Fund | Medicare B Fund | Death Benefit Fund | QEBA Fund | Health Care Fund | TOTAL |
|---|---|---|---|---|---|---|
| ADDITIONS | | | | | | |
| Contributions | | | | | | |
| Employer | $ 435,388,804 | $ 27,319,485 | $ 1,975,200 | $ 351,000 | $ 65,877,673 | $ 530,912,162 |
| Employee | 345,212,684 | — | — | — | — | 345,212,684 |
| Other Income | | | | | | |
| Health Care Premiums | — | — | — | — | 71,920,959 | 71,920,959 |
| Federal Subsidies & Other Receipts | — | — | — | — | 16,067,175 | 16,067,175 |
| | 780,601,488 | 27,319,485 | 1,975,200 | 351,000 | 153,865,807 | 964,112,980 |
| Income from Investment Activity | | | | | | |
| Net Appreciation in Fair Value | 602,313,884 | 7,482,770 | 1,081,887 | — | 15,480,994 | 626,359,535 |
| Interest and Dividends | 312,042,807 | 4,061,634 | 567,730 | 3,051 | 8,957,104 | 325,632,326 |
| | 914,356,691 | 11,544,404 | 1,649,617 | 3,051 | 24,438,098 | 951,991,861 |
| Investment Expenses | (93,563,147) | (1,157,696) | (168,058) | — | (2,401,167) | (97,290,068) |
| Net Income from Investment Activity | 820,793,544 | 10,386,708 | 1,481,559 | 3,051 | 22,036,931 | 854,701,793 |
| Income from Securities Lending Activity | | | | | | |
| Gross Income | 1,140,966 | 14,175 | 2,048 | — | 29,326 | 1,186,515 |
| Brokers' Rebates | (2,113,692) | (26,259) | (3,797) | — | (54,327) | (2,198,075) |
| Management Fees | (89,601) | (1,113) | (161) | — | (2,303) | (93,178) |
| Net Income from Securities Lending Activity | (1,062,327) | (13,197) | (1,910) | — | (27,304) | (1,104,738) |
| Total Investment Income | 819,731,217 | 10,373,511 | 1,479,649 | 3,051 | 22,009,627 | 853,597,055 |
| TOTAL ADDITIONS | 1,600,332,705 | 37,692,996 | 3,454,849 | 354,051 | 175,875,434 | 1,817,710,035 |
| DEDUCTIONS | | | | | | |
| Benefits | | | | | | |
| Retirement | 1,096,960,216 | 21,734,690 | — | 356,113 | — | 1,119,051,019 |
| Disability | 95,725,624 | 1,327,303 | — | — | — | 97,052,927 |
| Survivor | 40,123,076 | 928,519 | — | — | — | 41,051,595 |
| Death | — | — | 2,289,135 | — | — | 2,289,135 |
| Health Care Expenses | — | — | — | — | 145,127,670 | 145,127,670 |
| | 1,232,808,916 | 23,990,512 | 2,289,135 | 356,113 | 145,127,670 | 1,404,572,346 |
| Refunds and Lump Sum Payments | 75,639,810 | — | — | — | — | 75,639,810 |
| Net Transfers to Other Ohio Systems | 1,311,797 | — | — | — | — | 1,311,797 |
| Administrative Expenses | 31,814,787 | 5,487 | 59,750 | 2,522 | 2,566,722 | 34,449,268 |
| | 108,766,394 | 5,487 | 59,750 | 2,522 | 2,566,722 | 111,400,875 |
| TOTAL DEDUCTIONS | 1,341,575,310 | 23,995,999 | 2,348,885 | 358,635 | 147,694,392 | 1,515,973,221 |
| Net Increase (Decrease) | 258,757,395 | 13,696,997 | 1,105,964 | (4,584) | 28,181,042 | 301,736,814 |
| FIDUCIARY NET POSITION RESTRICTED FOR PENSION AND OTHER POSTEMPLOYMENT BENEFITS | | | | | | |
| Fiduciary Net Position, Beginning of Year | 14,078,724,296 | 167,266,385 | 24,525,067 | 217,341 | 435,629,637 | 14,706,362,726 |
| Fiduciary Net Position, End of Year | $ 14,337,481,691 | $ 180,963,382 | $ 25,631,031 | $ 212,757 | $ 463,810,679 | $ 15,008,099,540 |

See accompanying notes to the financial statements.

## Notes to Financial Statements June 30, 2019

### 1. Summary of Significant Accounting Policies

**Basis of Accounting** The financial statements of the School Employees Retirement System of Ohio (SERS) are prepared using the accrual basis of accounting. Member and employer contributions are recognized in the period in which the contributions are due based on statutory or contractual requirements. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

**Use of Estimates** In preparing financial statements in conformity with governmental accounting principles generally accepted in the United States of America, SERS' management makes estimates and assumptions that affect the reported amounts of assets and liabilities, and disclosures of contingent assets and liabilities at the date of the financial statements, as well as the reported amounts of revenue and expenses during the reporting period. Actual results could differ from those estimates and assumptions. Certain SERS investment assets, in particular Global Real Assets, Global Private Equity, and Opportunistic investments, use estimates in reporting fair value in the financial statements. These estimates are subject to uncertainty in the near term, which could result in changes in the values reported for those assets in the Statement of Fiduciary Net Position.

**Health Care Expenses Incurred and Unpaid** Amounts accrued for health care expenses payable for recipients less than age 65 in the Health Care Fund are based upon estimates that have been developed from prior claims experience.

**Allocation of Expenses to Plans** Direct expenses are charged to the plan for which they are incurred. All indirect expenses are paid by the Pension Trust Fund and are reimbursed by the Medicare B, Death Benefit, and Health Care Funds in proportion to their use of the assets.

**Benefit Payments** Benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms.

**Investments** Investment purchases and sales are recorded as of the trade date. Dividend income is recognized on the ex-dividend date. Other investment income is recognized when earned.

Investments are reported at fair value. Fair value is the amount reasonably expected to be received for an investment in a current sale between a willing buyer and a willing seller. Fixed income securities, real estate investment trusts (REITs), derivative instruments, and common and preferred stocks are valued based on published market prices and quotations from national security exchanges and securities pricing services. International stocks are then adjusted to reflect the current exchange rate of the underlying currency. Investments for which no national exchanges or pricing services exist, such as private equity assets, are valued at fair value by the investment partnership based on the valuation methodology outlined in the partnership agreement. Real estate may be valued by the manager or independent appraisers.

Commingled assets that are not traded on a national exchange are valued by the commingled manager. SERS performs due diligence reviews of the investment pricing, process, and infrastructure of private equity, commingled, and real estate investments to assure that the asset values provided by the managers are reasonable.

Net appreciation (depreciation) is determined by calculating the change in the fair value of investments between the beginning of the year and the end of the year, less purchases of investments at cost, plus sales of investments at fair value. Investment expenses consist of external expenses directly related to SERS' investment operations, as well as the internal administrative expenses associated with SERS' investment program.

The monies held by the Pension Trust, Medicare B, Death Benefit, and Health Care Funds are pooled for the purpose of the investment of those plans. Each plan holds units of the investment pool, which are adjusted on a monthly basis. The value of one unit of the pool on June 30, 2019, was $2,575.73. The unit holdings and net value of each of the funds at the close of the fiscal year were:

**INVESTMENT POOL AS OF JUNE 30, 2019**

| | Units | Value |
|---|---|---|
| Pension Trust Fund | 5,614,663 | $ 14,181,121,788 |
| Medicare B Fund | 70,409 | 177,835,284 |
| Death Benefits Fund | 10,091 | 25,488,388 |
| Health Care Fund | 145,001 | 366,233,727 |
| **Total** | **5,840,164** | **$ 14,750,679,187** |

**Office Building, Equipment, and Fixtures (Non-Investment Assets)** The cost of equipment and fixtures in excess of $5,000 is capitalized at cost when acquired. Improvements that increase the useful life of the property are capitalized. Maintenance and repairs are charged to expense as incurred. Software costs in excess of $25,000 are capitalized. Intangible assets, such as internally-developed software, are capitalized in accordance with GASB Statement No. 51, *Accounting and Financial Reporting for Intangible Assets.* Depreciation and amortization have been provided using the straight-line method over the following useful lives:

| Description | Estimated Lives |
|---|---|
| Furniture, Equipment, and Software | 3-7 years |
| Building and Improvements | 40 years |
| Internally-developed Software | 17 years |

**Reserves** Ohio Revised Code Section 3309.60 establishes various reserves to account for future and current benefit payments. These are:

- **Employees' Savings Fund** Accumulated members' contributions are held in trust pending refund or transfer to another account other than the Guarantee Fund or Expense Fund.
- **Employers' Trust Fund** Accumulated employer contributions are held for future benefit payments.
- **Annuity and Pension Reserve Fund** This reserve contains the monies set aside to pay all annuities and pensions. Money is transferred to this fund from the Employees' Savings Fund, Employers' Trust Fund, and Guarantee Fund at the time of retirement.
- **Survivors' Benefit Fund** Monies in this account are set aside to finance payments to beneficiaries of deceased members. Money is transferred to this fund from the Employees' Savings Fund, Employers' Trust Fund, and Guarantee Fund in an amount to fund all liabilities at the end of each year.
- **Guarantee Fund** Income derived from the investment pool and any gifts or bequests are accumulated in this fund. The balance in this fund is transferred to other reserves to aid in the funding of future benefit payments and administrative expenses.
- **Expense Fund** This fund provides for the payment of administrative expenses with the necessary money allocated to it from the Guarantee Fund.

**RESERVE BALANCES AS OF JUNE 30, 2019**

| | | Reserve Amount Totals |
|---|---|---|
| Employees' Savings Fund | $ | 3,376,840,011 |
| Employers' Trust Fund | | (1,093,244,550) |
| Annuity and Pension Reserve Fund | | 12,344,681,229 |
| Survivors' Benefit Fund | | 379,822,850 |
| Guarantee Fund | | — |
| Expense Fund | | — |
| **Total** | **$** | **15,008,099,540** |

### 2. Description of the System

**Organization** SERS is a statewide, cost-sharing, multiple-employer defined benefit public employee retirement system. Established by state law in 1937, SERS provides retirement, disability, and survivor benefits to non-teaching employees of Ohio's public K-12 school districts, vocational, technical, and community schools, community colleges, and the University of Akron.

The Retirement Board is responsible for the general administration and management of the retirement system. The Board comprises nine members: four elected employee members; two elected retiree members; and three appointed investment expert members. One investment expert is appointed by the Governor, a second one by the State Treasurer, and the third one jointly by the Speaker of the House and President of the Senate.

Several separate plans comprise the Retirement System. The pension plans include the Pension Trust Fund, the Medicare B Fund, the Death Benefit Fund, and the Qualified Excess Benefit Arrangement (QEBA) Fund. The Pension Trust Fund holds the funds to pay the basic retirement, disability, and survivor benefits authorized under state law, Ohio Revised Code (ORC) Chapter 3309. The Medicare B Fund reimburses a portion of the Medicare Part B premiums paid by eligible benefit recipients as permitted under ORC Section 3309.69. The current reimbursement is $45.50 per month. The Death Benefit Fund pays $1,000 to a designated beneficiary of a deceased retiree or disability benefit recipient as allowed under ORC Section 3309.50. The QEBA Fund pays benefits as allowed by federal tax law to retirees whose SERS benefits exceed Internal Revenue Code (IRC) 415(b) limits. A fifth plan, the Health Care Fund, provides money for payment of health care expenses under SERS' health care coverage for retirees and other benefit recipients.

**Pension Benefits** Following the passage of Senate Bill 341, SERS' pension reform legislation, new age and service requirements for retirement became effective January 7, 2013. For members who retired on or after August 1, 2017, the new requirements are:

- age 67 with 10 years of service credit, or age 57 with 30 years of service credit, to retire with full benefits; or
- age 62 with 10 years of service credit, or age 60 with 25 years of service credit, to retire early with actuarially-reduced benefits.

To protect the benefits of longtime members, SERS included a grandfather provision and a buy-up option that gave members the opportunity to retire under the previous age and service credit requirements after August 1, 2017.

The grandfather provision allowed members, who attained 25 years of service on or before August 1, 2017, to retire under the previous age and service credit eligibility requirements.

These age and service requirements were:

- any age with 30 years of service credit to retire with full benefits; or
- age 60 with 5 years of service credit, or age 55 with 25 years of service credit to retire with actuarially-reduced benefits.

The buy-up option allowed members with fewer than 25 years of service credit as of August 1, 2017, to retire under the previous retirement eligibility requirements if they paid the actuarial difference between the benefit they would have received under the new requirements and the benefit they would have received under the previous requirements. Members who wanted to buy-up must have completed their payment on or before August 1, 2017.

The current formula used in calculating an annual retirement benefit is as follows: number of years of service credit up to 30 years x 2.2% of the member's final average salary (FAS) + number of years of service credit over 30 years x 2.5% of FAS. For SERS, FAS equals the average of the highest three years of salary. If the member does not meet the age and service requirements to retire with full benefits, the annual benefit is reduced to cover a longer period of retirement.

| **EMPLOYER AND EMPLOYEE MEMBERSHIP DATA** (as of June 30, 2019) | |
|---|---|
| **Employer Members** | |
| Local | 372 |
| City | 191 |
| Educational Service Center | 53 |
| Village | 49 |
| Higher Education | 15 |
| Vocational/Technical | 49 |
| Community Schools | 308 |
| Other | 17 |
| Total | 1,054 |
| **Employee Members and Retirees** | |
| Retirees and Beneficiaries Currently Receiving Benefits | 81,024 |
| Inactive Employees Entitled to But Not Yet Receiving Benefits | 5,464 |
| Total | 86,488 |
| **Active Employees** | |
| Vested Active Employees | 47,343 |
| Non-vested Active Employees | 112,020 |
| Total | 159,363 |

If a member has been employed in a job covered by the State Teachers Retirement System of Ohio (STRS) or the Ohio Public Employees Retirement System (OPERS) as well as in a job covered by SERS, at retirement the member may receive a retirement benefit independently from each of the systems, if eligible, or may combine the service credit and accounts in all the systems to receive one benefit. The system with the greatest service credit will be the system that will calculate and pay the benefit. While the salaries in one year will be added together, if the member has service credit in each system for the same year, the member cannot be credited with more than one year of service credit.

If a retiree from OPERS, SERS, STRS, Ohio Police & Fire, or Ohio State Highway Patrol is employed in a SERS-covered position, then employee and employer contributions are required for the new position. The retiree accrues a new benefit in the form of an annuity based on the contributions paid by the retiree and the employer payable at age 65 or termination of employment, whichever is later. This is separate from the original SERS benefit. There are no other benefits available and the retiree does not accrue any additional service credit for the period of reemployment. Prior to age 65 and after termination of employment, a reemployed retiree may request a refund of the employee contributions for the reemployed period.

**3. Contributions**

State retirement law requires contributions by covered employees and their employers, and limits the maximum rate of contributions. The Retirement Board sets contribution rates within the allowable limits. The adequacy of employer contribution rates is determined annually by actuarial valuation using the entry age normal cost method. During FY2019, employees and their employers were required to contribute 10% and 14%, respectively, of active member payroll.

Employer (excluding surcharge discussed below) and employee contributions were $481.5 million and $345.2 million, respectively, in 2019. The contribution amounts also include contributions for purchased service credit.

The Retirement Board, acting with the advice of the actuary, allocates the current employer contribution rate among the plans of the System. For FY2019, the allocation of the employer contribution rate to pension plan benefits was established as the rate necessary to cover normal cost and amortize the unfunded accrued liability. The 14% contribution rate paid by employers was allocated to the funds as follows:

| | |
|---|---|
| Pension Trust Fund | 12.61% |
| Medicare B Fund | 0.83% |
| Death Benefit Fund | 0.06% |
| Health Care Fund | 0.50% |

The portion of the employer contribution not required to actuarially fund the pension plans (Pension Trust Fund, Medicare B Fund, and Death Benefit Fund) may be available for the Health Care Fund, depending on funded ratios. The funded ratio for the basic benefits in FY2019 was 70.51%, which was above the 70% funded ratio that would permit an allocation to the Health Care Fund. The amount of employer contributions directed to the Health Care fund in FY2019 was $16.5 million. A health care surcharge on employers is collected for employees earning less than an actuarially determined minimum compensation amount, and is pro-rated according to service credit earned during the year. Statutes provide that no employer shall pay a health care surcharge greater than 2.0% of that employer's SERS-covered payroll; nor may SERS collect in aggregate more than 1.5% of total statewide SERS-covered payroll for the health care surcharge. For FY2019, the minimum compensation level was established at $21,600. The surcharge accrued for FY2019 and included in employer contributions in the Statement of Changes in Fiduciary Net Position is $49.4 million.

**4. Funding Policy**

The statute sets a contribution cap of 24% of payroll; 14% from employers and 10% from employees. Employer contributions in excess of those required to support the basic benefits may be allocated to retiree health care funding. If the funded ratio is less than 70%, the entire 14% employers' contribution shall be allocated to SERS' basic benefits. If the funded ratio is 70% but less than 80%, at least 13.50% of the employers' contribution shall be allocated to SERS' basic benefits, with the remainder (if any) allocated to the Health Care Fund. If the funded ratio is 80% but less than 90%, at least 13.25% of the employers' contribution shall be allocated to SERS' basic benefits, with the remainder (if any) allocated to the Health Care Fund. If the funded ratio is 90% or greater, the Health Care Fund may receive any portion of the employers' contribution that is not needed to fund SERS' basic benefits.

**5. Fair Value Measurement**

SERS investments are measured at fair value within the fair value hierarchy established by GASB Statement No. 72, *Fair Value Measurement and Application*. This Statement established a three-tier, hierarchal reporting framework which ranks the level of market price observations used in measuring fair value. The hierarchy is based on the valuation inputs used to measure the fair value of the investment and gives the highest ranking to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1) and the lowest ranking to unobservable inputs (Level 3). Inputs refer to the assumptions that market participants would use in valuing the asset or liability, including assumptions about risk, for example, the risk inherent in a particular valuation technique used to measure fair value (such as a pricing model) and/or the risk inherent in the inputs to the valuation technique. The categorization of the investments within the hierarchy is based upon the valuation transparency of the instrument and should not be perceived as the particular investment's risk. The three-tier hierarchy is summarized as follows:

Level 1 – Unadjusted quoted prices for identical instruments in active markets.

Level 2 – Quoted prices in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.

Level 3 – Valuations reflect practices where significant inputs are unobservable.

Investments in certain entities that calculate a net asset value (NAV) per share (or its equivalent) sometimes do not have a readily determinable fair value. For these investments, governmental accounting standards permit establishment of fair value using a practical expedient based on the NAV per share (or its equivalent).

The table on page 28, presents the fair value hierarchy of the SERS' investment portfolio as of June 30, 2019.

Bond Mutual Funds generally include investments in money market-type securities that are reported at either fair value or at cost plus accrued interest, which approximates market or fair value.

Equity, US Corporate Obligations, US Government, and derivative instruments classified in Level 1 are valued using prices quoted in active markets for those securities.

Debt and derivative instruments classified in Level 2 are valued using either a bid evaluation or a matrix based pricing technique. Bid evaluations are typically based on market quotations, yields, maturities, call features, and ratings. Matrix pricing is used to value securities based on the securities relationship to benchmark quoted prices. Index linked debt securities are valued by multiplying the external market price by the applicable day's Index Ratio. Level 2 debt securities have non-proprietary information that was readily available to market participants, from multiple independent sources, which are known to be actively involved in the market.

Equity and equity derivative instruments classified in Level 2 are securities whose values are derived daily from associated traded securities.

Debt, equities, and investment derivative instruments classified in Level 1 of the fair value hierarchy are valued directly from a predetermined primary external pricing vendor. Assets classified in Level 2 are subject to pricing by an alternative pricing source due to lack of information available by the primary vendor.

The fair values of investments in certain equity, fixed income and marketable alternative funds are based on the investments' net asset value provided by the investee. Investments that are measured at fair value using the net asset value as practical expedient are not classified in the fair value hierarchy.

**INVESTMENTS AND SHORT-TERM HOLDINGS MEASURED AT FAIR VALUE**

*($ in thousands)*

| | | Fair Value Measurements Using | | |
|---|---|---|---|---|
| **Investments by Fair Value Level** | **6/30/2019** | **Quoted Prices in Active Markets for Identical Assets (Level 1)** | **Significant Other Observable Inputs (Level 2)** | **Significant Unobservable Inputs (Level 3)** |
| ***Debt Securities*** | | | | |
| Bond Mutual Funds | $ 820,829 | $ 820,829 | $ — | $ — |
| Certificates of Deposit | 18,789 | — | 18,789 | — |
| Commercial Paper | 1,938 | — | 1,938 | — |
| Foreign Obligations | 48,198 | — | 48,198 | — |
| Mortgage and Asset Backed | 233,552 | — | 233,552 | — |
| Municipal Obligations | 30,541 | — | 30,541 | — |
| US Agency Obligations | 500,184 | — | 500,184 | — |
| US Corporate Obligations | 787,632 | 8,491 | 779,137 | 4 |
| US Government | 629,547 | 473,838 | 155,709 | — |
| Total Debt Securities | 3,071,210 | 1,303,158 | 1,768,048 | 4 |
| ***Equity Securities*** | | | | |
| Foreign Stocks | 1,920,236 | 1,920,236 | — | — |
| US Common & Preferred Stock | 3,281,056 | 3,276,204 | 4,852 | — |
| Total Equity Securities | 5,201,292 | 5,196,440 | 4,852 | — |
| Total Investments by Fair Value Level | $ 8,272,502 | $ 6,499,598 | $ 1,772,900 | $ 4 |
| **Investments Measured at the net asset value (NAV)** | | | | |
| Commingled Bond Funds | $ 16,096 | | | |
| Commingled International Equity Funds | 1,302,114 | | | |
| Commingled US Equity Funds | 213,272 | | | |
| Commingled Real Estate Investment Funds | 59,859 | | | |
| Hedge Funds | 1,153,219 | | | |
| Private Equity Funds | 1,798,688 | | | |
| Private Real Estate Funds | 2,159,510 | | | |
| Total Investments Measured at the NAV | 6,702,758 | | | |
| Total Investments Measured at Fair Value | $ 14,975,260 | | | |
| **Investment Derivative Instruments** | | | | |
| Foreign Fixed Derivatives | $ 380 | $ (136) | $ 516 | |
| Foreign Equity Derivatives | (1,808) | — | (1,808) | |
| US Equity Derivatives | 1,914 | 1,914 | — | |
| US Fixed Derivatives | 814 | 3,063 | (2,249) | |
| Total Investment Derivative Instruments | $ 1,300 | $ 4,841 | $ (3,541) | |

## INVESTMENTS MEASURED AT THE NET ASSET VALUE

($ in thousands)

| Investments by Fair Value Level | 6/30/2019 | Unfunded Commitments | Redemption Frequency (If Currently Eligible) | Redemption Notice Period |
|---|---|---|---|---|
| Commingled Bond Funds(1) | $ 16,096 | $ — | Monthly | 1-10 Days |
| Commingled International Equity Funds(1) | 1,302,114 | — | Daily, Semi-Monthly, Monthly | 1-120 Days |
| Commingled US Equity Funds(1) | 213,272 | — | Daily | 1 Day |
| Commingled Real Estate Investment Funds(1) | 59,859 | — | Daily | 1 Day |
| Hedge Funds | | | | |
| Equity Long / Short(2) | 239,817 | — | Semi-Monthly, Monthly, Quarterly | 9-45 Days |
| Event Driven(3) | 232,110 | — | Quarterly, Annually | 60-90 Days |
| Multi-Strategy / Risk Focus(4) | 239,927 | — | Daily, Monthly | 1-5 Days |
| Relative Value(5) | 252,186 | — | Quarterly | 60-90 Days |
| Tactical Trading(6) | 189,179 | — | Monthly, Quarterly | 5-60 Days |
| Private Equity Funds(7) | 1,798,688 | 268,523 | Not Eligible | Not Eligible |
| Private Real Estate Funds(7) | 2,159,510 | 1,035,440 | Not Eligible | Not Eligible |
| Total Investments Measured at the NAV | $ 6,702,758 | | | |

(1) *Commingled Bond Funds, Equity Funds and Real Estate Investment Funds* Three bond funds, 49 international equity funds, and one real estate investment fund are considered to be commingled in nature. Each is valued at the net asset value of units held at the end of the period based upon the fair value of the underlying investments.

(2) *Equity Long / Short Hedge Funds* Consisting of four funds, this strategy invests both long and short in US and global equity securities, with a goal of adding growth and minimizing market exposure. These investments are valued at NAV per share. Due to contractual lock-up restrictions, approximately 82% of the value of these investments are eligible for redemption in the next six months. The remaining 18% of the value of these investments remain restricted for anywhere ranging from 12 to 13 months.

(3) *Event Driven Hedge Funds* Consisting of seven funds, this strategy seeks to gain an advantage from pricing inefficiencies that may occur in the onset or aftermath of a corporate action or related event. These investments are valued at NAV per share. Due to contractual lock-up restrictions, approximately 99% of the value of these investments are eligible for redemption in the next six months. The remaining 1% of these investments remains restricted through the next year.

(4) *Multi-Strategy / Risk Focus Hedge Funds* The five funds included in this group aim to pursue varying strategies in order to diversify risks and reduce volatility. These investments are valued at NAV per share, and are redeemable within a month or less, as they are not subject to lock-up restrictions.

(5) *Relative Value Hedge Funds* Consisting of five funds, this strategy's main focus is to benefit from valuation discrepancies that may be present in related financial instruments by simultaneously purchasing or selling these instruments. These investments are valued at NAV per share. Due to contractual lock-up restrictions, approximately 86% of these investments are eligible for redemption in the next six months. The remaining 14% of the value of these investments are eligible within the next 12 months.

(6) *Tactical Trading Hedge Funds* The primary focus of the three funds within this group is to invest across multiple strategies based upon the outcomes of economic and technical analyses, with the goal of long-term benefit. These investments are valued at NAV per share. Due to contractual lock-up restrictions, approximately 75% of these investments are eligible for redemption in the next six months. The remaining 25% of the value of these investments are eligible within the next 7 to 15 months.

(7) *Private Equity and Real Estate Funds* SERS' Private Equity portfolio consists of ninety-four funds, investing primarily in Buyout Funds, with some exposure to Distressed Funds, Special Situations, Structured Debt, and Venture Capital. The Real Estate portfolio, comprised of thirty-two funds, invests mainly in U.S. commercial real estate. The fair values of these funds are measured at net asset value, and are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of 5 to 10 years.

### 6. Cash Deposits and Investments

**Custodial Credit Risk, Deposits** Custodial credit risk for deposits is the risk that in the event of a bank failure, SERS' deposits may not be returned. In accordance with state law, the Board of Deposit designates SERS' depository bank, and the Treasurer of State serves as custodian and contracts depository services for all SERS' deposits. Therefore, SERS does not have a policy for deposit custodial credit risk.

At June 30, 2019, the carrying amounts of SERS' operating and investment cash deposits totaled $10,974,795, and the corresponding bank balances totaled $14,558,144. Of the bank balances, the Federal Deposit Insurance Corporation insured $237,273. In accordance with state law, bank balances of $776,412 were collateralized at 102% with securities held in the name of SERS' pledging financial institutions. The remaining bank deposits of $13,544,459 were uninsured and uncollateralized.

**Custodial Credit Risk, Investments** Custodial credit risk for investments is the risk if the securities are uninsured, are not registered in the name of the SERS and are held by either the counterparty or the counterparty's trust department or agent, but not in the SERS name. As of June 30, 2019, approximately $6.7 billion of SERS' assets are not held by the custodians or registered in the SERS name.

**Credit Risk** Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. ORC 3309.15 and the Board's Statement of Investment Policy (adopted September 2015) direct that the funds of SERS will be invested following the prudent person standard. This fiduciary standard dictates that the Board consider the probable safety of investments, avoid speculative investments, and invest as persons of prudence, discretion, and intelligence would manage their own affairs. The Board accomplishes this through a combination of internal and external investment professionals.

**Concentration of Credit Risk** Concentration of credit risk is the risk of loss attributed to the magnitude of a plan's investment in a single issuer. SERS does not hold investments representing 5% or more of plan investment portfolio in any one issuer.

**Interest Rate Risk** Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment. SERS does not have a policy for managing interest rate risk.

At June 30, 2019, SERS held interest-only strips that had a total fair value of $57,161,146. These securities are based on cash flows from interest payments on underlying mortgages. Therefore, they are sensitive to prepayments by mortgagees, which may result from a decline in interest rates. SERS also held principal-only strips that had a total fair value of $9,883,457. These principal-only strips are sensitive to interest rate increases that may result in decreasing mortgage prepayments, thus increasing the average maturity of this investment.

**Foreign Currency Risk** Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. SERS' exposure to foreign currency risk derives from its positions in foreign currency and foreign currency-denominated investments.

**FAIR VALUE SUBJECT TO COUNTERPARTY CREDIT RISK**

| | S&P Credit Quality Rating | Fair Value *($ in thousands)* |
|---|---|---|
| Foreign Fixed Derivatives | A+ | $ 439 |
| | AA- | (387) |
| | NR* | 159 |
| Total | | 211 |
| US Fixed Derivatives | A+ | (5) |
| | A | 587 |
| | AA- | (2,640) |
| | BBB+ | (5) |
| | NR* | 2,877 |
| Total | | 814 |
| **Total** | | **$ 1,025** |

*Excludes Futures and Options as they are facilitated via exchange and not subject to counterparty risk.

**FAIR VALUE SUBJECT TO INTEREST RATE RISK**

| Investment | Fair Value *($ in thousands)* | Option Adjusted Duration *(in years)* |
|---|---|---|
| Bond Mutual Funds | $ 836,925 | 0.11 |
| Certificates of Deposit | 18,789 | 3.25 |
| Commercial Paper | 1,938 | 0.05 |
| Foreign Fixed Derivatives* | 211 | -21.90 |
| Foreign Obligations | 48,198 | 5.48 |
| Mortgage and Asset Backed | 233,552 | 1.83 |
| Municipal Obligations | 30,541 | 7.88 |
| US Agency | 500,184 | 2.29 |
| US Corporate Obligations | 787,633 | 6.14 |
| US Fixed Derivatives | 814 | 82.73 |
| US Government | 629,547 | 6.57 |
| **Total** | **$ 3,088,332** | **3.65** |

*Excludes Fixed Pending FX

**FAIR VALUE SUBJECT TO ISSUER CREDIT RISK**

| | Fair Value Based Upon S&P Credit Quality Rating *($ in thousands)* | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AAA | AA | A | BBB | BB | B | CCC | CC | C | D | Not Rated | Total |
| Bond Mutual Funds | $ 820,830 | $ — | $ 18 | $ — | $ 6,014 | $ 10,063 | $ — | $ — | $ — | $ — | $ — | $ 836,925 |
| Commercial Paper | — | 1,938 | — | — | — | — | — | — | — | — | — | 1,938 |
| Foreign Obligations | 4,769 | 309 | 14,598 | 7,750 | 7,102 | 3,014 | — | — | — | — | 11,037 | 48,579 |
| Mortgage and Asset Backed | 111,341 | 39,420 | 19,175 | 26,677 | 1,698 | 2,886 | 4,108 | 2,049 | 909 | 276 | 25,013 | 233,552 |
| Municipal Obligations | — | 8,622 | 16,617 | 5,139 | — | — | — | — | — | — | 163 | 30,541 |
| Negotiable Certificates of Deposit | — | — | — | — | — | — | — | — | — | — | 18,789 | 18,789 |
| US Agency | — | 500,184 | — | — | — | — | — | — | — | — | — | 500,184 |
| US Corporate Obligations | 7,403 | 27,160 | 157,061 | 469,581 | 100,994 | 18,060 | 2,848 | 26 | — | 104 | 5,209 | 788,446 |
| US Government | — | 629,547 | — | — | — | — | — | — | — | — | — | 629,547 |
| **Total** | $ 944,343 | $ 1,207,180 | $ 207,469 | $ 509,147 | $ 115,808 | $ 34,023 | $ 6,956 | $ 2,075 | $ 909 | $ 380 | $ 60,211 | $ 3,088,501 |

**FAIR VALUE SUBJECT TO FOREIGN CURRENCY RISK** *($ in thousands)*

| Currency | Cash & Cash Equivalents | Fixed Income | Non-US Equities | Real Estate | Private Equity | Derivative Instruments |
|---|---|---|---|---|---|---|
| Argentina Peso | $ 1,305 | $ 907 | $ — | $ — | $ — | $ — |
| Australian Dollar | (3,948) | — | 52,715 | — | — | — |
| Brazilian Real | 5,390 | 2,153 | 42,473 | — | — | 466 |
| British Pound Sterling | 38,475 | 3,156 | 234,629 | — | 21,681 | (160) |
| Bulgarian Lev | 6 | — | — | — | — | — |
| Canadian Dollar | (1,881) | 310 | 41,962 | — | — | — |
| Chilean Peso | 746 | 719 | — | — | — | — |
| Chinese Yuan | (117) | 147 | 11,447 | — | — | — |
| Colombian Peso | 306 | 1,656 | — | — | — | — |
| Czech Koruna | 1,239 | 552 | 945 | — | — | — |
| Danish Krone | (6,023) | — | 33,237 | — | — | — |
| Dominican Republic Peso | — | 5 | — | — | — | — |
| Egyptian Pound | 559 | — | 186 | — | — | — |
| Euro | (234,075) | 3,250 | 361,545 | 59,978 | 144,798 | (22,084) |
| Hong Kong Dollar | 11,803 | — | 214,854 | — | — | — |
| Hungarian Forint | 786 | 716 | 3,756 | — | — | — |
| Icelandic Krona | — | — | — | — | — | — |
| Indian Rupee | (3,064) | — | 38,013 | — | — | — |
| Indonesian Rupiah | (142) | 4,849 | 10,269 | — | — | — |
| Israeli Shekel | (727) | — | 5,607 | — | — | — |
| Japanese Yen | 8,895 | 24 | 244,278 | — | — | (11,448) |
| Malaysian Ringgit | 11 | 1,601 | 1,433 | — | — | — |
| Mexican Peso | (2,012) | 7,929 | 11,752 | — | — | (70) |
| Netherlands Antilles Guilder | — | — | — | — | — | — |
| New Zealand Dollar | 937 | 55 | 1,140 | — | — | (55) |
| Norwegian Krone | 56,345 | 1,048 | 2,630 | — | — | — |
| Peruvian New Sol | 281 | 691 | — | — | — | — |
| Philippines Peso | (1,227) | — | 3,443 | — | — | — |
| Polish Zloty | (1,205) | 4,897 | 6,400 | — | — | — |
| Romanian Leu | 5 | 275 | — | — | — | — |
| Russian Ruble | 15,374 | 4,954 | 29,146 | — | — | — |
| Singapore Dollar | 6,837 | — | 8,646 | — | — | — |
| South African Rand | 16,253 | 4,171 | 19,938 | — | — | — |
| South Korean Won | 421 | — | 128,214 | — | — | — |
| Swedish Krona | (6,166) | — | 19,896 | — | — | — |
| Swiss Franc | (12,638) | — | 100,005 | — | — | — |
| Taiwan Dollar | 657 | — | 36,693 | — | — | — |
| Thailand Baht | (234) | 1,478 | 6,198 | — | — | — |
| Turkish Lira | (7) | 1,006 | 8,660 | — | — | — |
| UAE Dirham | — | — | 1,545 | — | — | — |
| Uruguayan Peso | 2 | 59 | — | — | — | — |
| | $ (106,833) | $ 46,608 | $ 1,681,655 | $ 59,978 | $ 166,479 | $ (33,351) |

**Derivative Instruments** Derivative instruments are investment instruments whose cash flows or fair values are derived from the value of some other asset or index. SERS uses a variety of derivative instruments primarily to maximize yields and offset volatility due to interest rate and currency fluctuations. SERS is exposed to various types of credit, market, and legal risks related to these investments. The investment staff continually monitors these types of investments.

Foreign exchange forward currency contracts are legal agreements between two parties to purchase and sell a foreign currency, for a price specified at the contract date, with delivery and settlement in the future. SERS enters into these contracts to hedge the foreign currency movements of assets held in the underlying funds. The contracts do not subject SERS to risk due to exchange rate movements since gains and losses on the contracts offset gains and losses on the transactions being hedged. SERS could be at risk for replacing these contracts at current market rates, should the counterparty default. SERS seeks to control this risk through contracting only with counterparties who meet certain credit guidelines. A futures contract is a contract to buy or sell units of an index or financial instrument on a specified future date at a price agreed upon when the contract is originated. SERS uses equity and fixed income futures during the fiscal year to rebalance its asset allocation and overlay its cash exposure in the US and Non-US equity portfolios. Only the most liquid futures are used by SERS to overlay the temporary and transactional cash held, and to rebalance asset allocations between asset classes.

Options give buyers the right, but not the obligation, to buy or sell an asset at a predetermined strike price over a specified period. The option premium is usually a small percentage of the underlying asset's value. When writing an option, SERS receives a premium up front and bears the risk of an unfavorable change in the price of the underlying asset during the option's life.

Swaps represent an agreement between two or more parties to exchange a sequence of cash flows during a predetermined timeframe. SERS utilizes swaps to manage interest rate fluctuations, default by a borrower, and to gain market exposure without having to actually own the asset.

Swaptions are options on swaps that give the purchaser the right, but not the obligation, to enter into a swap at a specific date in the future. An interest-rate swaption gives the buyer the right to pay or receive a specified fixed interest rate in a swap in exchange for a floating rate for a stated time period. When writing a swaption, SERS as the seller is obligated to pay or receive a fixed rate in exchange for a floating rate for a stated period of time. When purchasing a swaption, SERS as the buyer is obligated to receive or pay a fixed rate in exchange for a floating rate for a stated period of time.

**FAIR VALUE OF FORWARD CURRENCY AND HEDGED CONTRACTS**

**As of June 30, 2019 and 2018** *($ in thousands)*

| | FY2019 | FY2018 |
|---|---|---|
| Forward Currency Purchases | $ 611,550 | $ 1,054,470 |
| Forward Currency Sales | 869,966 | 1,793,436 |
| Unrealized gain (loss) | (1,639) | 1,431 |

**SWAP CONTRACTS**

**As of June 30, 2019 and 2018** *($ in thousands)*

| | FY2019 | | FY2018 | |
|---|---|---|---|---|
| Type | Notional Value | Fair Value | Notional Value | Fair Value |
| Credit Default | $ 34,921 | $ 391 | $ 53,025 | $ (390) |
| Interest Rate | 707,561 | (2,632) | 632,570 | (803) |
| Zero Coupon | 16,731 | 45 | — | — |

**FUTURES CONTRACTS**

**As of June 30, 2019 and 2018** *($ in thousands)*

| | FY2019 | | | FY2018 | | |
|---|---|---|---|---|---|---|
| Type | Number of Contracts | Notional Value | Contract Value | Number of Contracts | Notional Value | Contract Value |
| **Equity Features** | | | | | | |
| International Equity Index Futures - Long | — | $ — | $ — | 437 | $ 40,149 | $ (525) |
| U.S. Stock Index Futures - Long | 1,477 | 166,422 | 1,914 | 1,463 | 182,058 | (3,488) |
| **Fixed Income / Cash Equivalent Futures** | | | | | | |
| Cash Equivalent (Eurodollar) Futures - Long | 466 | 113,313 | (171) | 768 | 186,613 | (313) |
| Cash Equivalent (Eurodollar) Futures - Short | (166) | (62,915) | 1,083 | (676) | (164,930) | 331 |
| International Fixed Income Index Futures - Long | 34 | 4,952 | (316) | 19 | 2,796 | 25 |
| International Fixed Income Index Futures - Short | (146) | (37,910) | 180 | (176) | (42,594) | (165) |
| US Treasury Futures Long | 1,183 | 204,268 | (1,223) | 1,602 | 232,954 | (341) |
| US Treasury Futures Short | (712) | (86,423) | 3,457 | (557) | (71,924) | 1,249 |
| **Total Futures (Net)** | **2,136** | **$ 301,707** | **$ 4,924** | **2,880** | **$ 365,122** | **$ (3,227)** |

| SWAPTIONS | | | | | | |
|---|---|---|---|---|---|---|
| As of June 30, 2019 and 2018 *($ in thousands)* | FY2019 | | | FY2018 | | |
| Type | Shares/Par | Notional Value | Fair Value | Shares/Par | Notional Value | Fair Value |
| Call Swaptions - Purchased | — | $ — | $ — | 6,900 | $ 7 | $ 3 |
| Put Swaptions - Purchased | — | — | — | (6,900) | (7) | (7) |

| OPTIONS CONTRACTS | | | | | | |
|---|---|---|---|---|---|---|
| As of June 30, 2019 and 2018 *($ in thousands)* | FY2019 | | | FY2018 | | |
| Type | Number of Contracts | Notional Value | Fair Value | Number of Contracts | Notional Value | Fair Value |
| **Fixed Income Options** | | | | | | |
| Fixed Income Call Options on Foreign Currency - Purchased | 10,498,584 | $ 10,499 | $ 337 | 9,200,000 | $ 9,200 | $ 66 |
| Fixed Income Call Options on Foreign Currency - Written | (23,390,000) | (23,390) | (56) | (5,460,000) | (5,460) | — |
| Fixed Income Put Options on Foreign Currency - Purchased | 8,612,000 | 8,612 | 202 | 6,830,000 | 6,830 | 74 |
| Fixed Income Put Options on Foreign Currency - Written | (31,340,000) | (31,340) | (189) | (6,822,969) | (6,823) | (46) |
| Fixed Income Call Options on Futures (non-dollar) - Purchased | 592 | 1 | 52 | 443 | — | 80 |
| Fixed Income Call Options on Futures (non-dollar) - Written | (187) | — | (60) | (699) | (1) | (211) |
| Fixed Income Put Options on Futures (non-dollar) - Purchased | 411 | — | 44 | 520 | — | 30 |
| Fixed Income Put Options on Futures (non-dollar) - Written | (1,417) | (1) | (120) | (315) | — | (40) |

**Securities Lending** SERS participates in a securities lending program that directly holds equity and fixed income investments using Goldman Sachs Agency Lending (GSAL) as a third-party lending agent. Securities are loaned to independent broker/dealers in exchange for cash collateral equal to approximately 102% of the market value of domestic securities on loan and 105% of the market value of international securities on loan, with a simultaneous agreement to return the collateral for the same securities in the future. At the same time, SERS records a liability for the collateral held in the securities lending program. The total net loss on the securities lending program was $1,104,738 during FY2019.

At June 30, 2019, SERS had no credit risk exposure on the securities lending collateral because the collateral exceeded the value of the securities loaned.

Under the terms of the lending agreement, SERS is fully indemnified against losses that might occur in the program due to the failure of a broker to return a security that was borrowed where the collateral is inadequate to replace the security. SERS is also indemnified should the borrower fail to pay distributions of earnings on the securities lent.

Securities on loan can be recalled on demand by SERS or returned by the borrower at any time. There is no matching of the securities lent with the invested cash collateral. The lending agent mitigates risk by focusing on intrinsic value lending, and BNY Mellon reinvests the cash collateral in accordance with contractual investment guidelines that are designed to ensure the safety of principal and obtain a moderate rate of return. Earnings generated from the collateral investments, less the amount of rebates paid to the dealers, result in the gross earnings from lending activities, which is then split on an 85%/15% basis with GSAL. SERS is at risk to contribute additional funds should the earnings from the invested SERS collateral not be sufficient to pay the negotiated dealer rebate. At June 30, 2019, the GSAL collateral portfolio had an average weighted maturity of two days. SERS receives pro-rated income from participation in the securities lending program of a commingled investment. SERS has no direct responsibility for this program and the collateral held by this securities lending program is not held in SERS' name. Total net direct proceeds from the commingled investment during FY2019 were $180,826.

| SECURITIES LENDING | | |
|---|---|---|
| As of June 30, 2019 *($ in thousands)* | Fair Value of Securities on Loan | Collateral Value (Securities and Cash) |
| Foreign Commingled Equity | $ 17 | $ 18 |
| Foreign Stocks | 37,667 | 37,852 |
| US Common & Preferred Stock | 81,691 | 82,709 |
| US Corporate Obligations | 3,896 | 4,002 |
| Municipal Obligations | 616 | 569 |
| | $ 123,887 | $ 125,150 |

**Commitments** As of June 30, 2019, unfunded commitments related to the opportunistic, private equity, and real estate investments totaled $1.3 billion.

### 7. Capital Assets (Non-Investment Assets)

| CAPITAL ASSETS ACTIVITY for the year ended June 30, 2019 | | | | | |
|---|---|---|---|---|---|
| Cost: | Land | Office Building & Improvements | Furniture & Equipment | Internally-Developed Software | Total Capital Assets |
| Balances, June 30, 2018 | $ 3,315,670 | $ 53,641,135 | $ 7,209,324 | $ 34,622,137 | $ 98,788,266 |
| Additions | — | 148,064 | 79,635 | 357,292 | 584,991 |
| Disposals | — | — | — | — | — |
| Balances, June 30, 2019 | 3,315,670 | 53,789,199 | 7,288,959 | 34,979,429 | 99,373,257 |
| **Accumulated Depreciation:** | | | | | |
| Balances, June 30, 2018 | — | 21,895,033 | 6,173,261 | 2,241,767 | 30,310,061 |
| Additions | — | 1,364,906 | 486,871 | 2,057,614 | 3,909,391 |
| Disposals | — | — | — | — | — |
| Balances, June 30, 2019 | — | 23,259,939 | 6,660,132 | 4,299,381 | 34,219,452 |
| **Net Capital Assets, June 30, 2019** | **$ 3,315,670** | **$ 30,529,260** | **$ 628,827** | **$ 30,680,048** | **$ 65,153,805** |

### 8. Net Pension Liability and Actuarial Information – Defined Benefit Plan

The components of the net pension liability as of June 30, 2019:

| Plan Funds | |
|---|---|
| Total Pension Liability (a) . . . . . . . . . . . . . | $ 20,527,251,448 |
| Fiduciary Net Position (b) . . . . . . . . . . . . . | $ 14,544,076,104 |
| Net Pension Liability (Surplus) (a) - (b) . . . | $ 5,983,175,344 |
| Fiduciary Net Position as a Percent of Total Pension Liability (b) / (a) . . . . . . . . . . | 70.85% |

The total pension liability is determined by SERS' actuaries in accordance with GASB Statement No. 67, as part of their annual actuarial valuation for each defined benefit retirement plan. Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts (e.g., salaries, credited service) and assumptions about the probability of occurrence of events far into the future (e.g., mortality, disabilities, retirements, employment terminations). Actuarially determined amounts are subject to continual review and potential modifications, as actual results are compared with past expectations and new estimates are made about the future.

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employers and plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing benefit costs between the employers and plan members to that point. The projection of benefits for financial reporting purposes does not explicitly incorporate the potential effects of legal or contractual funding limitations. Future benefits for all current plan members were projected through 2035.

Actuarial calculations reflect a long-term perspective. For a newly hired employee, actuarial calculations will take into account the employee's entire career with the employer and also take into consideration the benefits, if any, paid to the employee after termination of employment until the death of the employee and any applicable contingent annuitant. In many cases, actuarial calculations reflect several decades of service with the employer and the payment of benefits after termination.

The long-term return expectation for the Pension Plan Investments has been determined by using a building-block approach and assumes a time horizon, as defined in the Statement of Investment Policy. A forecasted rate of inflation serves as the baseline for the return expectation. Various real return premiums over the baseline inflation rate have been established for each asset class. The long-term expected nominal rate of return has been determined by calculating an arithmetic weighted average of the expected real return premiums for each asset class, adding the projected inflation rate, and adding the expected return from rebalancing uncorrelated asset classes.

The asset allocation, as used in the June 30, 2015 five-year experience study, is summarized as follows:

| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return |
|---|---|---|
| Cash | 1.00% | 0.50% |
| US Equity | 22.50 | 4.75 |
| International Equity | 22.50 | 7.00 |
| Fixed Income | 19.00 | 1.50 |
| Private Equity | 10.00 | 8.00 |
| Real Assets | 15.00 | 5.00 |
| Multi-Asset Strategies | 10.00 | 3.00 |

Total pension liability was calculated using the discount rate of 7.50%. The discount rate determination does not use a municipal bond rate. The projection of cash flows used to determine the discount rate assumed that employers would contribute the actuarially determined contribution rate of projected compensation over the remaining 25-year amortization period of the unfunded actuarial accrued liability. The actuarially determined contribution rate of FY2019 was 13.50%. Projected inflows from investment earnings were calculated using the long-term assumed investment rate of return (7.50%). Based on those assumptions, the plan's fiduciary net position was projected to be available to make all 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 benefits to determine the total pension liability. The annual money-weighted rate of return, calculated as the internal rate of return on pension plan investments, for FY2019 was 5.96%.

| Key Methods and Assumptions Used in Valuation of Total Pension Liability | |
|---|---|
| Valuation Date | June 30, 2019 |
| Actuarial Cost Method | Entry Age Normal (Level Percent of Payroll) |
| Actuarial Assumptions: | |
| Experience Study Date | Period of 5 years ended June 30, 2015 |
| Investment Rate of Return | 7.50%, net of System expenses |
| Cost of Living Increases (COLA) or "Ad Hoc" COLA | 2.50%, on and after April1, 2018, COLA's for future retirees will be delayed for three years following commencement. |
| Future Salary Increases, Including Inflation | 3.50% - 18.20% |
| Inflation | 3.00% |
| Mortality Assumptions | For post-retirement mortality, the table used in evaluating allowances to be paid is the RP-2014 Blue Collar Mortality Table with fully generational projection and Scale BB, with 120% of male rates and 110% of female rates used. The RP-2000 Disabled Mortality Table with 90% for male rates and 100% for female rates set back five years is used for the period after disability retirement. |

Net pension liability is sensitive to changes in the discount rate, and to illustrate the potential impact the table presents the net pension liability calculated using the discount rate of 7.50%, as well as what the plan's net pension liability would be if it were calculated using a discount rate that is one percentage point lower (6.50%), or one percentage point higher (8.50%) than the current rate.

| Net Pension Liability Sensitivity to Changes in the Discount Rate | |
|---|---|
| 1% Decrease (6.50%) | $ 8,384,567,692 |
| Current Discount Rate (7.50%) | $ 5,983,175,344 |
| 1% Increase (8.50%) | $ 3,969,307,340 |

**9. Defined Benefit Pension Plans**

**Net Pension Liability** The net pension liability reported on the Statement of Fiduciary Net Position represents a liability to employees for pensions. It is included in accounts payable and accrued expenses in the Statement of Fiduciary Net Position. Pensions are a component of exchange transactions, between an employer and its employees, like salaries and benefits for employee services. Pensions are provided to an employee, on a deferred-payment basis as part of the total compensation package offered by an employer for employee services each financial period. The obligation to sacrifice resources for pensions is a present obligation because it was created as a result of employment exchanges that already have occurred.

The net pension liability represents SERS' proportionate share of Ohio Public Employees Retirement System (OPERS) pension plan's collective actuarial present value of projected benefit payments attributable to past periods of service, net of OPERS pension plan's fiduciary net position. The net pension liability calculation is dependent on critical long-term variables, including estimated average life expectancies, earnings on investments, cost-of-living adjustments, and others. While these estimates use the best information available, unknown future events require this estimate to be adjusted annually.

Ohio Revised Code limits SERS' obligation for this liability to annually required payments. SERS cannot control benefit terms or the manner in which pensions are financed; however, SERS does receive the benefit of employees' services in exchange for compensation including pensions.

GASB Statement No. 68 assumes the liability is solely the obligation of the employer, because (1) they benefit from employee services; and (2) state statute requires all funding to come from these employers. All contributions to date have come solely from these employers (which also includes costs paid in the form of withholdings from employees). State statute requires the pension plans to amortize unfunded liabilities within 30 years. If the amortization period exceeds 30 years, each pension plan's board must propose corrective action to the state legislature. Any resulting legislative change to benefits or funding could significantly affect the net pension liability. Resulting adjustments to the net pension liability would be effective when the changes are legally enforceable.

**Plan Description – Ohio Public Employees Retirement System (OPERS)** SERS' employees participate in Ohio Public Employees Retirement System (OPERS), a cost-sharing, multiple-employer public employee retirement system administered by OPERS. OPERS provides retirement and disability benefits to members and death and survivor benefits to beneficiaries. OPERS also provides health care benefits to some retirees and beneficiaries. OPERS issues a stand-alone financial report that includes financial statements, required supplementary information, and detailed information, about OPERS' fiduciary net position. That report can be obtained by writing OPERS, 277 E. Town Street, Columbus, OH 43215, or by visiting the OPERS website: www.opers.org.

New members have a choice of three retirement plans: The Traditional Plan (defined benefit plan); the Combined Plan (combination of defined benefit and defined contribution plans); and the Member Directed Plan (defined contribution plan). Benefits are established by Chapter 145 of the Ohio Revised Code (ORC). The defined benefit (DB) plan offers an annual retirement allowance based on final average salary multiplied by a percentage that varies based on years of service.

Senate Bill (SB) 343 was enacted into law with an effective date of January 7, 2013. In the legislation, members were categorized into three groups with varying provisions of the law applicable to each group. Members who were eligible to retire under law in effect prior to SB 343 or who will be eligible to retire no later than five years after January 7, 2013, comprise transition Group A. Members who have 20 years of service credit prior to January 7, 2013, or who will be eligible to retire no later than 10 years after January 7, 2013, are included in transition Group B. Group C includes those members who are not in either of the other groups and members who were hired on or after January 7, 2013.

Benefit payments vary in amount depending on years of service credit, final average salary (FAS), age, and plan of payment selection. FAS is the average of the three highest years of earnable salary for Groups A and B; and the average of the five highest years of earnable salary for members in Group C. The age-and-service formula benefit cannot exceed 100% of the FAS (Law Enforcement is 90%) or the limits under Internal Revenue Code Section 415 and may be subject to the contribution-based benefit cap. The base benefit amount calculated by the formula will be reduced if a member begins receiving a retirement benefit before reaching the age-and-service requirements for an unreduced benefit.

In the Traditional Pension Plan (DB), the benefit formula for state and local members in transition Groups A and B applies a factor of 2.2% to the member's FAS for the first 30 years of service. A factor of 2.5% is applied to years of service in excess of 30 years. The benefit formula for State and Local members in transition Group C applies a factor of 2.2% to the member's FAS for the first 35 years of service and a factor of 2.5% is applied to years of service in excess of 35 years.

In the Combined Plan, the benefit formula for the defined benefit component of the plan for state and local members in transition Groups A and B applies a factor of 1.0% to the member's FAS for the first 30 years of service. A factor of 1.25% is applied to years of service in excess of 30 years. The benefit formula for transition Group C applies a factor of 1.0% to the member's FAS for the first 35 years of service and a factor of 1.25% is applied to years in excess of 35 years.

When a benefit recipient has received benefits for 12 months, an annual cost-of-living adjustment (COLA) is provided. This COLA is calculated on the base retirement benefit at the date of retirement and is not compounded. Those who retired prior to January 7, 2013, will continue to receive a 3% simple annual COLA. For those retiring after January 7, 2013, beginning in calendar year 2019, the COLA will be based on the average percentage increase in the Consumer Price Index, capped at 3%.

A DB or Combined Plan member with five or more years of credited service who is determined to be permanently disabled from the performance of their last public position, may qualify for a monthly disability benefit.

**Funding Policy – OPERS** Employees covered by OPERS are required to contribute 10% of their salary to all three plans and employers are required to contribute 14%. Both rates are at the ORC authorized maximum.

SERS' contractually required employer contributions to OPERS were $2,157,149 for FY2019. Of this amount, $158,631 is reported as an intergovernmental payable.

**Pension Liabilities (Assets), Pension Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions** The net pension liability was measured as of December 31, 2018, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of that date. SERS' proportion of the net pension liability was based on SERS' share of contributions to the pension plan relative to the contributions of all participating entities. Gains and losses related to changes in total pension liability and fiduciary net position are recognized in pension expense systematically over time. Amounts are first recognized as deferred outflows and deferred inflows of resources related to pension and are to be recognized in future pension expense. The recognition period differs depending on the source of the gain or loss: deferrals related to the net difference between projected and actual earning on pension plan investments are amortized over five years; deferrals related to differences between projected and actual experience and changes in proportionate share are amortized over the average remaining service lives of all plan members. The Traditional Plan has 2.8942 years of average remaining service life. The Combined Plan has 9.1680 years of average remaining service life.

Following is information related to the proportionate share and pension expense:

| OPERS | Traditional | Combined | Total |
|---|---|---|---|
| SERS' Proportionate Share of the Net Pension Asset | $ — | $ 242,933 | $ 242,933 |
| SERS' Proportionate Share of the Net Pension Liability | $ 26,288,404 | $ — | $ 26,288,404 |
| SERS' Proportion of the Net Pension Asset/Liability | 0.0959852% | 0.2172486% | 0.0977496% |
| SERS' Pension Expense | $ 4,473,555 | $ 82,247 | $ 4,555,802 |

At June 30, 2019, SERS reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

| OPERS | Traditional | Combined | Total |
|---|---|---|---|
| **Deferred Outflows of Resources** | | | |
| Assumption Changes | $ 2,287,910 | $ 55,332 | $ 2,343,242 |
| Net Difference Between Projected and Actual Earnings on Pension Plan Investments | 3,486,505 | 51,260 | 3,537,765 |
| Differences Between Expected and Actual Experience | 1,208 | — | 1,208 |
| Changes in Proportion | 136,486 | 14,508 | 150,994 |
| Contributions Subsequent to the Measurement Date * | 889,048 | 63,721 | 952,769 |
| **Total Deferred Outflows of Resources** | **$ 6,801,157** | **$ 184,821** | **$ 6,985,978** |
| **Deferred Inflows of Resources** | | | |
| Differences Between Expected and Actual Experience | $ (347,135) | $ (103,928) | $ (451,063) |
| Changes in Proportion | (140,543) | (669) | (141,212) |
| **Total Deferred Inflows of Resources** | **$ (487,678)** | **$ (104,597)** | **$ (592,275)** |

*$952,769 reported as deferred outflows of resources related to pensions resulting from SERS' contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ending June 30, 2019. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pension will be recognized in pension expense as indicated in the schedule above.

**OPERS - Amortization of Net Deferred Outflows (Inflows) of Resources**

| Fiscal Year Ending June 30 | Traditional | Combined | Total |
|---|---|---|---|
| 2020 | $ 2,386,976 | $ 9,558 | $ 2,396,534 |
| 2021 | 1,065,971 | (1,821) | 1,064,150 |
| 2022 | 312,067 | (664) | 311,403 |
| 2023 | 1,659,417 | 16,350 | 1,675,767 |
| 2024 | — | (4,891) | (4,891) |
| 2025 | — | (1,557) | (1,557) |
| 2026 | — | (1,741) | (1,741) |
| 2027 | — | 892 | 892 |
| 2028 | — | 377 | 377 |
| **Totals** | **$ 5,424,431** | **$ 16,503** | **$ 5,440,934** |

**Actuarial Assumptions – OPERS** OPERS' total pension liability was determined by their actuaries in accordance with GASB Statement No. 67, as part of their annual actuarial valuation for each defined benefit retirement plan. Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts (e.g., salaries, credited service) and assumptions about the probability of occurrence of events far into the future (e.g., mortality, disabilities, retirements, employment termination). Actuarially determined amounts are subject to continual review and potential modifications, as actual results are compared with past expectations and new estimates are made about the future.

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employers and plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing benefit costs between the employers and plan members to that point. The projection of benefits for financial reporting purposes does not explicitly incorporate the potential effects of legal or contractual funding limitations.

Actuarial calculations reflect a long-term perspective. For a newly hired employee, actuarial calculations will take into account the employee's entire career with the employer and also take into consideration the benefits, if any, paid to the employee after termination of employment until the death of the employee and any applicable contingent annuitant. In many cases, actuarial calculations reflect several decades of service with the employer and the payment of benefits after termination.

Key methods and assumptions used in calculating the total pension liability in the latest actuarial valuation, prepared as of December 31, 2018, are presented below:

| Key Methods and Assumptions Used in Valuation of Total Pension Liability | | |
|---|---|---|
| **Actuarial Information** | **Traditional Pension Plan** | **Combined Plan** |
| Valuation Date | December 31, 2018 | December 31, 2018 |
| Experience Study | 5-Year Period Ended Dec. 31, 2015 | 5-Year Period Ended Dec. 31, 2015 |
| Actuarial Cost Method | Individual entry age | Individual entry age |
| Actuarial Assumptions: | | |
| Investment Rate of Return | 7.20% | 7.20% |
| Wage Inflation | 3.25% | 3.25% |
| Projected Salary Increases | 3.25% - 10.75%<br>(includes wage inflation at 3.25%) | 3.25% - 8.25%<br>(includes wage inflation at 3.25%) |
| Cost-of-living Adjustments | Pre-1/7/2013 Retirees: 3.00% Simple<br>Post-1/7/2013 Retirees: 3.00% Simple<br>through 2018, then 2.15% Simple | Pre-1/7/2013 Retirees: 3.00% Simple<br>Post-1/7/2013 Retirees: 3.00% Simple<br>through 2018, then 2.15% Simple |

Pre-retirement mortality rates are based on the RP-2014 Employees mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The base year for males and females was then established to be 2015 and 2010, respectively. Post-retirement mortality rates are based on the RP-2014 Healthy Annuitant mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The base year for males and females was then established to be 2015 and 2010, respectively. Post-retirement mortality rates for disabled retirees are based on the RP-2014 Disabled mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The base year for males and females was then established to be 2015 and 2010, respectively. Mortality rates for a particular calendar year are determined by applying the MP-2015 mortality improvement scale to all of the above described tables.

**Sensitivity of SERS' Proportionate Share of the Net Pension Liability (Asset) to Changes in the Discount Rate** The discount rate used to measure the total pension liability was 7.2% for both the Traditional Pension Plan and the Combined Plan. The projection of cash flows used to determine the discount rate assumed that contributions from plan members and those of the contributing employers are made at the contractually required rates, as actuarially determined. Based on those assumptions, the pension plan'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 for both the Traditional Pension Plan and the Combined Plan was applied to all periods of projected benefit payments to determine the total pension liability.

The following table presents SERS' proportionate share of the net pension liability calculated using the current period discount rate assumption, as well as what SERS' proportionate share of the net pension liability would be if it were calculated using a discount rate that is one-percentage-point lower (6.2%) or one-percentage-point higher (8.2%) than the current rate:

**SERS' Proportionate Share of the Sensitivity of Net Pension Liability/(Asset) to Changes in the Discount Rate**

| | 1% Decrease (6.2%) | Current Discount Rate (7.2%) | 1% Increase (8.2%) |
|---|---|---|---|
| Traditional Plan | $ 38,835,617 | $ 26,288,404 | $ 15,861,556 |
| Combined Plan | (80,382) | (242,933) | (360,633) |

The following table displays OPERS' Board-approved asset allocation policy of the Defined Benefit portfolio for 2018 and the long-term expected real rates of return.

| Asset Class | Target Allocation for 2018 | Weighted Average Long-Term Expected Real Rate of Return (Arithmetic) |
|---|---|---|
| Fixed Income | 23.00% | 2.79% |
| Domestic Equities | 19.00 | 6.21 |
| Real Estate | 10.00 | 4.90 |
| Private Equity | 10.00 | 10.81 |
| International Equities | 20.00 | 7.83 |
| Other Investments | 18.00 | 5.50 |
| **TOTAL** | **100.00%** | **5.95%** |

The long-term expected rate of return on defined benefit investment assets was determined using a building-block method in which best-estimate ranges of expected future real rates of return 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, adjusted for inflation.

OPERS manages investments in three investment portfolios: the Defined Benefit portfolio, the Health Care portfolio, and the Defined Contribution portfolio. The Defined Benefit portfolio includes the investment assets of the Traditional Pension Plan, the defined benefit component of the Combined Plan, and the annuitized accounts of the Member-Directed Plan. Within the

Defined Benefit portfolio, contributions into the plans are all recorded at the same time, and benefit payments all occur on the first of the month. Accordingly, the money-weighted rate of return is considered to be the same for all plans within the portfolio. The money-weighted rate of return, net of investment expense and adjusted for the changing amounts actually invested, for the Defined Benefit portfolio was 2.94% for 2018.

**10. Compensated Absences**

As of June 30, 2019, and 2018, $2,737,675, and $2,579,095, respectively, were accrued for the unused vacation leave of all employees and the unused sick leave of SERS' employees who are eligible to retire within five years with the following limitations. Employees who retire or become disabled after five years of service are entitled to receive payment for all unused sick time up to 960 hours. If an employee accumulated unused sick time in excess of 960 hours as of June 30, 2018, then compensation of 50% of the excess hours of their unused sick time balance as of June 30, 2018, will also be paid. Unused sick leave pay is forfeited upon resignation or termination. Employees who retire or separate employment from SERS are entitled to full compensation for all earned unused vacation. If an employee dies after five years of service, the beneficiaries are entitled to receive the same unused vacation and sick leave benefits as an employee who retires.

**11. Self-insured Health Care for Employees of SERS**

SERS is self-insured for employee benefits for dental, medical, and hospitalization. A third-party administrator manages the program. SERS holds a stop-loss policy of $250,000 per employee per year. SERS also accrues incurred claims from the current fiscal year that have not yet been billed in the current fiscal year. The amount accrued in FY2018 was $225,000, and the amount accrued in FY2019 was $135,000.

**12. Federal Income Tax Status**

The SERS Pension Trust Fund is a qualified plan under Internal Revenue Code (IRC) Section 401(a) and is therefore exempt from federal income taxes. The Medicare B Fund is established pursuant to IRC Section 401(h). The Death Benefit Fund is an insurance fund and is in compliance with IRC Section 101(a). The QEBA Fund is a qualified entity, created in accordance with IRC Section 415(b). The Health Care Fund is structured to meet the requirements of IRC Section 105(e).

**13. Risk Management**

SERS is exposed to various risks of loss, including theft or destruction of assets, general liability, employee injuries, and legal challenges to fiduciary decisions. SERS self-insures some risks through deductibles and retention, and purchases insurance for the remainder. For the past five years, there has been no reduction in coverage, and no claims have exceeded purchased limits.

**14. Contingent Liabilities**

Deutsche Bank Trust Company Americas, et al. v. Huntington National Bank, et. al. - The Litigation Trustee and certain former creditors for the Tribune Company brought intentional and constructive fraudulent conveyance claims against SERS and thousands of other former Tribune shareholders for amounts paid to them in connection with Tribune's leveraged buyout in 2007. All of the claims pending against SERS have been dismissed, but remain subject to either pending appeals in the Second Circuit or prospective appeals anticipated by the Plaintiffs once they have a final appealable order. Recently, the District Court of New York denied the Litigation Trustee's motion to amend the complaint to include a federal constructive fraudulent conveyance claim. While the final outcome of this litigation cannot be determined at this time, management is of the opinion that the liability, if any, for these legal actions will not have a material adverse effect on SERS' financial position.

Ohio Association of Public School Employees (OAPSE) v. School Employees Retirement System, et al. - On January 29, 2018, SERS was named as a defendant in a lawsuit filed by the Ohio Association of Public School Employees (OAPSE) pertaining to the SERS Board's October 9, 2017, decision to enact a three-year COLA freeze, as well as legislation that allows the Board to determine the number of anniversaries a new benefit recipient must achieve before they are eligible for their first COLA. SERS' actuary and the Ohio Attorney General's Office were also named as defendants.

OAPSE alleged that:

- SERS exceeded its statutory authority by adopting a three-year freeze instead of reviewing the COLA annually;
- The Ohio Legislature improperly delegated its lawmaking duties to SERS;
- The COLA provisions in HB 49 (makes the COLA discretionary) violate the One Subject Rule;
- The COLA freeze violates retirees' equal protection rights;
- COLA eligibility for new retirees contained in SB 8 violates the One Subject Rule; and
- The three-year COLA freeze was procured through fraud and misrepresentation on the part of SERS' management and its actuary.

OAPSE asked the Court to void the COLA freeze passed by the Board in October 2017, and declare that the COLA provisions contained in HB 49 and SB 8 are void and unenforceable. SERS filed a Motion to Dismiss OAPSE's lawsuit in March 2018. On April 2, 2019, the Franklin County Court of Common Pleas issued a Decision and Entry granting SERS' Motion to Dismiss (the Court also granted Motions to Dismiss filed by the other defendants in the case). On May 1, 2019, OAPSE appealed the Decision and Entry granting the Motions to Dismiss to the 10th District Court of Appeals. The parties have filed their briefs with the Court of Appeals.

## 15. Net Other Postemployment Benefits (OPEB) Liability and Actuarial Information - Defined Benefit Plan

**Plan Administration** School Employees Retirement System of Ohio (SERS) administers School Employees Retirement System of Ohio Health Care Plan – a cost-sharing, multiple-employer, defined benefit OPEB plan that provides various levels of health care to retired and disabled members, surviving beneficiaries, and eligible dependents, of non-teaching personnel of 1,044 Ohio schools, the University of Akron, ten community colleges, and four technical colleges. The Board of SERS governs the plan under Section 3309.375 of the Ohio Revised Code.

**Plan Membership** At June 30, 2019, SERS' Health Care Plans membership consisted of the following:

| Plan Membership | |
|---|---|
| Currently Receiving Benefits: | |
| Retirees, or Their Beneficiaries | 37,012 |
| Inactive Members Entitled to But Not Yet Receiving Benefits | 5,464 |
| Active Members | 159,363 |
| Total | 201,839 |

**Benefits Provided** SERS' Health Care Plan provides health care benefits to eligible individuals receiving retirement, disability, and survivor benefits, and to their eligible dependents. Members who retire after June 1, 1986 need 10 years of service credit, exclusive of most types of purchased credit, to qualify to participate in SERS' health care coverage. The following types of credit purchased after January 29, 1981 do not count toward health care coverage eligibility: military, federal, out-of-state, municipal, private school, exempted, and early retirement incentive credit. In addition to age and service retirees, disability benefit recipients and beneficiaries who are receiving monthly benefits due to the death of a member or retiree, are eligible for SERS' health care coverage. Most retirees and dependents choosing SERS' health care coverage are over the age of 65 and, therefore, enrolled in a fully insured Medicare Advantage plan; however, SERS maintains a traditional, self-insured preferred provider organization for its non-Medicare retiree population. For both groups, SERS offers a self-insured prescription drug program. Health care is a benefit that is permitted, not mandated, by statute.

**Contributions** The Health Care Plan is financed through a combination of employer contributions, recipient premiums, investment returns, and any funds received on behalf of SERS' participation in Medicare programs. The System's goal is to maintain a health care reserve account with a 20-year solvency period in order to ensure that fluctuations in the cost of health care do not cause an interruption in the program. However, during any period in which the 20-year solvency period is not achieved, the System shall manage the Health Care Fund on a pay-as-you-go basis.

**Investment Policy** The Health Care Plan follows the same investment policy as the Pension Plan, as defined in the Statement of Investment Policy.

**Discount Rate (SEIR)** The discount rate used to measure the total OPEB liability at June 30, 2019 was 3.22%. The discount rate used to measure total OPEB liability prior to June 30, 2019, was 3.70%. The projection of cash flows used to determine the discount rate assumed that contributions will be made from members and the System at the contribution rate of 1.50% of projected covered payroll each year, which includes a 1.50% payroll surcharge and no contributions from the basic benefits plan. Based on these assumptions, the OPEB plan's fiduciary net position was projected to become insufficient to make future benefit payments during the fiscal year ending June 30, 2029. However, since SERS' actuaries indicate the fiduciary net position is projected to be depleted at a future measurement date, the single equivalent interest rate is determined as the single rate that will generate a present value of benefit payments equal to the sum of the present value determined by the long-term expected rate of return, and the present value determined by discounting those benefits after the date of depletion by the Fidelity General Obligation 20-year Municipal Bond Index rate of 3.13%, as of June 30, 2019 (i.e., municipal bond rate).

**Rate of Return** The long-term expected rate of return is reviewed as part of the regular experience studies prepared every five years for SERS. The most recent five-year experience study was performed for the period covering fiscal years 2010 through 2015, and was adopted by the Board on April 21, 2016. Several factors are considered in evaluating the long-term rate of return assumption including long-term historical data, estimates inherent in current market data, and a long-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected return, net of investment expense and inflation) were developed by the investment consultant for each major asset class. These ranges were combined to produce the long-term expected rate of return, 7.50%, by weighting the expected future real rates of return by the target asset allocation percentage and then adding expected inflation. The capital market assumptions developed by the investment consultant are intended for use over a 10-year horizon and may not be useful in setting the long-term rate of return for funding pension plans which covers a longer time frame. The assumption is intended to be a long-term assumption and is not expected to change absent a significant change in the asset allocation, a change in the inflation assumption, or a fundamental change in the market that alters expected returns in future years.

**Periods of Projected Benefit Payments** The projection of future benefit payments for all current plan members was until benefit payments ran out.

**Assumed Asset Allocation** The target asset allocation and best estimates of arithmetic real rates of return for each major asset class, as used in the June 30, 2015 five-year experience study, are summarized as follows:

| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return |
|---|---|---|
| Cash | 1.00% | 0.50% |
| US Equity | 22.50 | 4.75 |
| International Equity | 22.50 | 7.00 |
| Fixed Income | 19.00 | 1.50 |
| Private Equity | 10.00 | 8.00 |
| Real Assets | 15.00 | 5.00 |
| Multi-Asset Strategies | 10.00 | 3.00 |

**Net OPEB Liability of SERS** The components of the net OPEB liability of SERS at June 30, 2019, were as follows:

| Plan Funds | |
|---|---|
| Total OPEB Liability (a) | $ 2,978,600,373 |
| Plan Fiduciary Net Position (b) | 463,810,679 |
| SERS' Net OPEB Liability (a) - (b) | $ 2,514,789,694 |
| Plan Fiduciary Net Position as a Percent of Total OPEB Liability (b) / (a) | 15.57% |

**Sensitivity of the Net OPEB Liability to Changes in the Discount Rate and Health Care Cost Trend Rate** The following table presents the net OPEB liability of SERS, what SERS' net OPEB liability would be if it were calculated using a discount rate that is 1% lower (2.22%) and higher (4.22%) than the current discount rate (3.22%).

| Net OPEB Liability | | |
|---|---|---|
| 1% Decrease (2.22%) | Discount Rate (3.22%) | 1% Increase (4.22%) |
| $3,052,477,754 | $2,514,789,694 | $2,087,264,735 |

The following table presents the OPEB liability of SERS, what SERS' net OPEB liability would be based on health care cost trend rates that are 1% lower (6.25% decreasing to 3.75%) and 1% higher (8.25% decreasing to 5.75%) than the current rate.

| Net OPEB Liability | | |
|---|---|---|
| 1% Decrease (6.00% decreasing to 3.75%) | Health Care Cost Trend Rates (7.00% decreasing to 4.75%) | 1% Increase (8.00% decreasing to 5.75%) |
| $2,014,855,953 | $2,514,789,694 | $3,178,080,686 |

**Actuarial Assumptions** The total OPEB liability was determined by an actuarial valuation as of June 30, 2019. The actuarial assumptions used in the valuation are based on results from the most recent actuarial experience study, which covered the five-year period ending June 30, 2015. The experience study report is dated April 2016.

The total OPEB liability used the following assumptions and other inputs:

| Key Methods and Assumptions Used in Valuation of Total OPEB Liability | |
|---|---|
| Long-term Rate of Return, Net of System Expenses, Including Price Inflation | 7.50% |
| Price Inflation | 3.00% |
| Wage Increases, Including Price Inflation | 3.50% - 18.20% |
| Municipal Bond Index Rate | |
| Prior Measurement Date | 3.62% |
| Measurement Date | 3.13% |
| Year FNP is Projected to be Depleted | 2029 |
| Single Equivalent Interest Rate, Net of Plan Investment Expense, Including Price Inflation | |
| Prior Measurement Date | 3.70% |
| Measurement Date | 3.22% |
| Medical Trend Assumption | |
| Pre-Medicare | 7.00% - 4.75% |
| Medicare | 5.25% - 4.75% |
| Mortality | RP-2014 Blue Collar Mortality Table with fully generational projection and Scale BB, 120% of male rates and 110% of female rates. RP-2000 Disabled Mortality Table with 90% for male rates and 100% for female rates set back five years. |

### 16. Defined Benefit OPEB Plan

**Net OPEB Liability** The net OPEB liability reported on the Statement of Fiduciary Net Position represents the liability of employers and non-employer contributing entities to employees for defined benefit other postemployment benefits other than pensions. It is included in accounts payable and accrued expenses in the Statement of Fiduciary Net Position. SERS, a cost-sharing employer, is required under GASB Statement No. 75 to recognize a liability for its proportionate share of the net OPEB liability from Ohio Public Employees Retirement System (OPERS). The net OPEB liability is an actuarially determined portion of the present value of projected benefit payments to be provided to current active and inactive employees that is attributed to those employees' past periods of total service (total OPEB liability), less the amount of the OPEB plan's fiduciary net position. SERS is also required to recognize OPEB expense and report deferred outflows and inflows of resources related to OPEB.

**OPEB Plan Description - Ohio Public Employees Retirement System (OPERS)** OPERS is a cost-sharing, multiple-employer public employee retirement system comprised of three separate pension plans: the Traditional Pension Plan, a defined benefit plan; the Combined Plan, a combination defined benefit/defined contribution plan; and the Member-Directed Plan, a defined contribution plan. All state and local governmental employees in Ohio, except those covered by one of the other state or local retirement systems in Ohio, are members of OPERS. New public employees (those who establish membership in OPERS on or after January 1, 2003) have 180 days from the commencement of employment to select membership in one of the three pension plans. Contributions to OPERS are effective with the first day of the member's employment. Contributions made prior to the member's plan selection are maintained in the Traditional Pension Plan and later transferred to the plan elected by the member, as appropriate.

As of December 2016, OPERS maintains one health care trust, the 115 Health Care Trust (115 Trust), which was established in 2014 to initially provide a funding mechanism for a health reimbursement arrangement (HRA), as the prior trust structure could not support the HRA. In March 2016, OPERS received two favorable rulings from the Internal Revenue Service (IRS) allowing OPERS to consolidate health care assets into the 115 Trust. The 401(h) Health Care Trust (401(h) Trust) was a pre-funded trust that provided health care funding for eligible members of the Traditional Pension Plan and the Combined Plan through December 31, 2015, when plans funded through the 401(h) Trust were terminated. The Voluntary Employees' Beneficiary Association Trust (VEBA Trust) accumulated funding for retiree medical accounts for participants in the Member-Directed Plan through June 30, 2016. The 401(h) Trust and the VEBA Trust were closed as of June 30, 2016, and the net positions transferred to the 115 Trust on July 1, 2016. Beginning in 2016, the 115 Trust, established under Internal Revenue Code (IRC) Section 115, is the funding vehicle for all health care plans.

The OPERS health care plans are reported as other post-employment benefit plans (OPEB) based on the criteria established by the Governmental Accounting Standards Board (GASB). Periodically, OPERS modifies the health care program design to improve the ongoing solvency of the plans. Eligibility requirements for access to the OPERS health care options have changed over the history of the program for Traditional Pension Plan and Combined Plan members. Prior to January 1, 2015, 10 or more years of service were required to qualify for health care coverage. Beginning January 1, 2015, generally, members must be at least age 60 with 20 years of qualifying service credit to qualify for health care coverage or 30 years of qualifying service at any age. Beginning 2016, Traditional Pension Plan and Combined Plan retirees enrolled in Medicare A and B were eligible to participate in the OPERS Medicare Connector (Connector). The Connector, a vendor selected by OPERS, assists eligible retirees in the selection and purchase of Medicare supplemental coverage through the Medicare market. Retirees that purchase supplemental coverage through the Connector may receive a monthly allowance in their HRA that can be used to reimburse eligible health care expenses. Health care coverage is neither guaranteed nor statutorily required.

OPERS is administrated in accordance with Chapter 145 of the Ohio Revised Code (ORC). OPERS is not part of the state of Ohio financial-reporting entity, nor is OPERS a component unit of the state of Ohio. Responsibility for the organization is vested in the OPERS Board of Trustees (Board); there is no financial interdependency with the state of Ohio. The Board is the governing body of OPERS, with responsibility for administration and management. Of the Board, seven members are elected by the group they represent: the retirees (two representatives), employees of the state, employees of counties, employees of municipalities, non-teaching employees of state colleges and universities and miscellaneous employees. The remaining four members are appointed or designated by position. The Governor, General Assembly and the Treasurer of the state of Ohio each appoint a representative. The Director of the Ohio Department of Administrative Services completes the Board.

The Board appoints the Executive Director, an actuary, investment consultants and other consultants necessary for the transaction of business. The Board meets monthly and receives no compensation, but is reimbursed for necessary expenses.

All state and local governmental employees, except those covered by another state retirement system in Ohio or the Cincinnati Retirement System, are required to become contributing members of OPERS when they begin public employment unless they are exempted or excluded as defined by the ORC. For actuarial purposes, employees who have earned sufficient service credit (5 years) are entitled to a future pension benefit from OPERS. Employer, employee, and retiree data as of December 31, 2018, can be found in the OPERS 2018 CAFR.

**OPEB Benefits - OPERS** All benefits of the System, and any benefit increases, are established by the legislature pursuant to ORC Chapter 145. The Board, pursuant to ORC Chapter 145, has elected to maintain funds to provide health care coverage to eligible Traditional Pension Plan and Combined Plan retirees and survivors of members. Health care coverage does not vest and is not required under ORC Chapter 145. As a result, coverage may be reduced or eliminated at the discretion of the Board. The health care portion of the employer contribution rate for the Traditional Pension Plan and Combined Plan is comparable, as the same coverage options are provided to participants in both plans.

Prior to January 1, 2015, the System provided comprehensive health care coverage to retirees with 10 or more years of qualifying service credit and offered coverage to their dependents on a premium deduction or direct bill basis. Beginning January 1, 2015, the service eligibility criteria for health care coverage increased from 10 years to 20 years with a minimum age of 60, or 30 years of qualifying service at any age. Beginning with January 2016 premiums, Medicare-eligible retirees could select supplemental coverage through the Connector, and may be eligible for monthly allowances deposited to an HRA to be used for reimbursement of eligible health care expenses. Coverage for non-Medicare retirees includes hospitalization, medical expenses, and prescription drugs. The System determines the amount, if any, of the associated health care costs that will be absorbed by the System and attempts to control costs by using managed care, case management, and other programs.

Participants in the Member-Directed Plan are not eligible for health care coverage offered to benefit recipients in the Traditional Pension Plan and Combined Plan. A portion of employer contributions for these participants is allocated to a retiree medical account (RMA). Upon separation or retirement, participants may be reimbursed for qualified medical expenses from these accounts.

An additional RMA was also established several years ago when three health care coverage levels were available to retirees. Monthly allowance amounts in excess of the cost of the retiree's selected coverage were notionally credited to the retiree's RMA. Retirees and their dependents could seek reimbursements from the RMA balances for qualified medical expenses. In 2013, the number of health care options available to retirees was reduced from three to one, eliminating the majority of deposits to the RMA. Wellness incentive payments were the only remaining deposits made to this RMA. Wellness incentives are no longer awarded starting with the 2017 plan year. These RMA balances were transferred to the HRA for retirees with both types of accounts. In addition, OPERS initiated an automatic claims payment process for reimbursements for retiree health care costs paid through pension deduction. This process will reimburse members for eligible health care premiums paid to OPERS, currently through pension deduction, up to the member's available RMA balance.

**OPEB Funding Policy - OPERS** The OPERS funding policy provides for periodic member and employer contributions to all three plans (Traditional Pension, Combined and Member-Directed) at rates established by the Board, subject to limits set in statute. The rates established for member and employer contributions were approved based upon the recommendations of the System's external actuary. All contribution rates were within the limits authorized by the ORC.

Member and employer contribution rates, as a percent of covered payroll, were the same for each covered group across all three plans for the year ended December 31, 2018. Within the Traditional Pension Plan and Combined Plan, member and employer contributions (employer contributions only for the Combined Plan) and an actuarially determined rate of return are adequate to accumulate sufficient assets to pay defined benefits when due. Member contributions within the Combined Plan are not used to fund the defined benefit retirement allowance. Employer contribution rates as a level percent of payroll dollars are determined using the entry age actuarial funding method. This formula determines the amount of contributions necessary to fund: (1) the current service cost, representing the estimated amount necessary to pay for defined benefits earned by the members during the current service year; and (2) the prior service cost for service earned prior to the current year and subsequent benefit increases. These contributions represent the amount necessary to fund accrued liabilities for retirement allowances and survivor benefits over a period of time. The annual employer contributions reported for the Traditional Pension Plan for 2018 were $1,895,462,837. Employer contributions for the Combined Plan for 2018 were $60,249,275. Employers satisfied 100% of the contribution requirements.

The member and employer contribution rates for the State and Local divisions are currently set at the maximums authorized by the ORC of 10% and 14%, respectively. With the assistance of the System's actuary and Board approval, a portion of each employer contribution to OPERS may be set aside for the funding of post-employment health care coverage. The portion of Traditional Pension Plan and Combined Plan employer contributions allocated to health care was zero for 2018.

Due to the discretionary nature of health care funding and the potential for frequent changes in allocations, including no funding to health care for some plans, the calculation of proportionate shares of employers is based on total employer contributions. Total employer contributions were $2,037,635,971 for the year ended December 31, 2018. These contributions are included in the OPERS Combining Statement of Changes in Fiduciary Net Position included in the OPERS 2018 CAFR and provided the basis for the proportionate share percentages calculated by OPERS and reported in the Schedule of Employer Allocations.

As of December 31, 2018, the date of the last pension actuarial study, the funding period for all defined benefits of the System was 27 years.

SERS' contractually required employer contributions to OPERS for OPEB funding were $52,621 for FY2019. Of this amount, $3,921 is reported as an intergovernmental payable.

**OPEB Liabilities (Assets), OPEB Expense, and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB** The net OPEB liability and total OPEB liability were determined by an actuarial valuation as of December 31, 2017, rolled forward to the measurement date of December 31, 2018, by incorporating the expected value of health care cost accruals, the actual health care payments, and interest accruals during the year for the defined benefit health care plans.

SERS' proportionate share of the net OPEB liability was based on SERS' portion of employer contributions to the pension plan that were allocated to health care. Gains and losses related to changes in total OPEB liability and fiduciary net position are recognized in OPEB expense systematically over time. Amounts are first recognized as deferred outflows and deferred inflows of resources related to OPEB and are to be recognized in future OPEB expense. The recognition period differs depending on the source of the gain or loss. GASB Statement No. 75 requires that changes arising from differences between expected and actual experience or from changes in actuarial assumptions be amortized over the average remaining service life of all employees provided with coverage through the health care plans (active and inactive). This is to consider these differences on a pooled basis, rather than an individual basis, to reflect the expected remaining service life of the entire pool of employees with the understanding that inactive employees have no remaining service period. The remaining service life as of December 31, 2018 was 3.0305 years. Changes arising from differences between projected and actual earnings on OPEB plan investments are to be amortized over five years.

The following is information relative to the OPEB proportionate share and OPEB expense:

| OPERS | |
|---|---|
| SERS' Proportionate Share of the Net OPEB Liability | $ 13,666,743 |
| SERS' Proportion of the Net OPEB Liability | 0.1048253% |
| SERS' OPEB Expense | $ 1,074,549 |

| OPERS | |
|---|---|
| **Deferred Outflows of Resources** | |
| Assumption Changes | $ 445,827 |
| Net Difference Between Projected and Actual Earnings on OPEB Plan Investments | 618,902 |
| Differences Between Expected and Actual Experience | 4,683 |
| Changes in Proportion | 48,390 |
| Contributions Subsequent to the Measurement Date* | 25,776 |
| **Total Deferred Outflows of Resources** | **$ 1,143,578** |
| **Deferred Inflows of Resources** | |
| Differences Between Expected and Actual Experience | $ (37,082) |
| **Changes in Proportion** | (91,600) |
| **Total Deferred Inflows of Resources** | **$ (128,682)** |

*$25,776 reported as deferred outflows of resources related to OPEB resulting from SERS' contributions subsequent to the measurement date will be recognized as a reduction of the net OPEB liability in the year ending June 30, 2019. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in OPEB expense as indicated in the schedule above.

| OPERS - Amortization of Net Deferred Outflows (Inflows) of Resources | | |
|---|---|---|
| Fiscal Year Ending June 30 | | |
| 2020 | $ | (491,331) |
| 2021 | | (82,878) |
| 2022 | | (99,278) |
| 2023 | | (315,630) |
| **Totals** | **$** | **(989,117)** |

**OPEB Actuarial Assumptions - OPERS** Projections of health care costs for financial reporting purposes are based on the substantive plan and include the types of coverage provided at the time of each valuation and the historical pattern of sharing of costs between the System and plan members. The total OPEB liability was determined by an actuarial valuation as of December 31, 2017, rolled forward to the measurement date of December 31, 2018.

The actuarial valuation used the following actuarial assumptions applied to all prior periods included in the measurement in accordance with the requirements of GASB Statement No. 74:

| Key Methods and Assumptions Used in Valuation of Total OPEB Liability | |
|---|---|
| **Actuarial Information** | |
| Actuarial Valuation Date | December 31, 2017 |
| Rolled-Forward Measurement Date | December 31, 2018 |
| Experience Study | 5-Year Period Ended December 31, 2015 |
| Actuarial Cost Method | Individual entry age normal |
| Actuarial Assumptions: | |
| Single Discount Rate | 3.96% |
| Investment Rate of Return | 6.00% |
| Municipal Bond Rate | 3.71% |
| Wage Inflation | 3.25% |
| Projected Salary Increases (with wage inflation) | 3.25% - 10.75% |
| Health Care Cost Trend Rate | 10.00% initial, 3.25% ultimate in 2029 |
| Pre-retirement mortality rates are based on the RP-2014 Employees mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The base year for males and females was then established to be 2015 and 2010, respectively. Post-retirement mortality rates are based on the RP-2014 Healthy Annuitant mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The base year for males and females was then established to be 2015 and 2010, respectively. Post-retirement mortality rates for disabled retirees are based on the RP-2014 Disabled mortality table for males and females, adjusted for mortality improvement back to the observation period base year of 2006. The base year for males and females was then established to be 2015 and 2010, respectively. Mortality rates for a particular calendar year are determined by applying the MP-2015 mortality improvement scale to all of the above described tables. | |

**OPEB Discount Rate - OPERS** A single discount rate of 3.96% was used to measure the OPEB liability on the measurement date of December 31, 2018. Projected benefit payments are required to be discounted to their actuarial present value using a single discount rate that reflects (1) a long-term expected rate of return on OPEB plan investments (to the extent that the health care fiduciary net position is projected to be sufficient to pay benefits), and (2) tax-exempt municipal bond rate based on an index of 20-year general obligation bonds with an average AA credit rating as of the measurement date (to the extent that the contributions for use with the long-term expected rate are not met). This single discount rate was based on an expected rate of return on the health care investment portfolio of 6.00% and a municipal bond rate of 3.71%. The projection of cash flows used to determine this single discount rate assumed that employer contributions will be made at rates equal to the actuarially determined contribution rate. Based on these assumptions, the health care fiduciary net position and future contributions were sufficient to finance health care costs through 2031. As a result, the long-term expected rate of return on health care investments was applied to projected costs through the year 2031, and the municipal bond rate was applied to all health care costs after that date.

The allocation of investment assets within the Health Care portfolio is approved by the Board as outlined in the annual investment plan. Assets are managed on a total return basis with a long-term objective of continuing to offer a sustainable health care program for current and future retirees. The System's primary goal is to achieve and maintain a fully funded status for benefits provided through the defined benefit pension plans. Health care is a discretionary benefit. The table below displays the Board-approved asset allocation policy for 2018 and the long-term expected real rates of return.

| Asset Class | Target Allocation for 2018 | Weighted Average Long-Term Expected Real Rate of Return (Arithmetic) |
|---|---|---|
| Fixed Income | 34.00% | 2.42% |
| Domestic Equities | 21.00 | 6.21 |
| Real Estate | 6.00 | 5.98 |
| International Equities | 22.00 | 7.83 |
| Other Investments | 17.00 | 5.57 |
| **Total** | **100.00%** | **5.16%** |

The long-term expected rate of return on health care investment assets was determined using a building-block method in which best-estimate ranges of expected future real rates of return are developed for each major asset class. These ranges are combined to produce the long-term expected real rate of return by weighting the expected future real rates of return by the target asset allocation percentage, adjusted for inflation.

During 2018, OPERS managed investments in three investment portfolios: the Defined Benefit portfolio, the Health Care portfolio, and the Defined Contribution portfolio. The Health Care portfolio includes the assets for health care expenses for the Traditional Pension Plan, Combined Plan, and Member-Directed Plan eligible members. Within the Health Care portfolio, contributions into the plans are assumed to be received continuously throughout the year based on the actual payroll payable at the time contributions are made, and health care-related payments are assumed to occur mid-year. Accordingly, the money-weighted rate of return is considered to be the same for all plans within the portfolio. The annual money-weighted rate of return expressing investment performance, net of investment expenses and adjusted for the changing amounts actually invested, for the Health Care portfolio was a loss of 5.60% for 2018.

**Sensitivity of SERS' Proportionate Share of the Net OPEB Liability to Changes in the Discount Rate** The following table presents SERS' proportionate share of the OPEB liability calculated using the single discount rate of 3.96%, and the expected net OPEB liability if it were calculated using a discount rate that is 1.0% lower (2.96%) or 1.0% higher (4.96%) than the current rate:

**Sensitivity of SERS' Proportionate Share of the Net OPEB Liability to Changes in the Discount Rate**

| | 1% Decrease (2.96%) | Single Discount Rate (3.96%) | 1% Increase (4.96%) |
|---|---|---|---|
| As of December 31, 2018 | $ 17,484,857 | $ 13,666,743 | $10,630,332 |

**Sensitivity to SERS' Proportionate Share of the Net OPEB Liability to Changes in the Health Care Cost Trend Rate** Retiree health care valuations use a health care cost-trend assumption that changes over several years built into the assumption. The near-term rates reflect increases in the current cost of health care; the trend starting in 2019 is 10.00%. If this trend continues for future years, the projection indicates that years from now virtually all expenditures will be for health care. A more reasonable alternative is that in the not-too-distant future, the health plan cost trend will decrease to a level at, or near, wage inflation. On this basis, the actuaries project premium rate increases will continue to exceed wage inflation for approximately the next decade, but by less each year, until leveling off at an ultimate rate, assumed to be 3.25% in the most recent valuation.

Changes in the health care cost trend rate may also have a significant impact on the net OPEB liability. The following table presents SERS' proportionate share of the net OPEB liability calculated using the assumed trend rate of 10.00%, and the expected net OPEB liability if it were calculated using a health care cost trend rate that is 1.0% lower (9.00%) or 1.0% higher (11.00%) than the current rate:

**Sensitivity of SERS' Proportionate Share of the Net OPEB Liability to Changes in the Health Care Cost Trend Rate**

| | 1% Decrease (9.00%) | Current Health Care Cost Trend Rate Assumption (10.00%) | 1% Increase (11.00%) |
|---|---|---|---|
| As of December 31, 2018 | $ 13,136,705 | $ 13,666,743 | $ 14,277,204 |

### 17. Recently Issued Accounting Pronouncements

The GASB issued Statement No. 83, *Certain Asset Retirement Obligations*. The requirements of this Statement are effective for fiscal years ending on or after June 15, 2018. This Statement requires the measurement and recognition of a legally enforceable liability for retirement of an asset. The measurement of an asset retirement obligation is required to be based on the best estimate of the *current value* of outlays to be incurred. Additionally, the Statement requires that a deferred outflow of resources be measured at the amount of the corresponding liability upon initial measurement, and that the current value be adjusted for general inflation and deflation annually. Management has reviewed this Statement and determined SERS is not impacted.

The GASB issued Statement No. 84, *Fiduciary Activities*. The requirements for this Statement are effective for reporting periods ending on or after December 15, 2018. The focus of this Statement is on identifying fiduciary activities of all state and local governments. Activity meeting the criteria set forth in the Statement should be reported in a fiduciary fund in the basic financial statements. There are four fiduciary funds that should be reported, if applicable: pension trust funds, investment trust funds, private-purpose trust funds, and custodial funds. The requirements of this Statement are reflected in this report.

The GASB issued Statement No. 87, *Leases*. The requirements for this Statement are effective for financial statements beginning after December 15, 2019. This Statement's objective is to improve accounting and financial reporting for leases by governments. The payments for short-term leasing of equipment should be recognized as outflows of resources based on the provisions of the lease contract. The impact of the requirements of this Statement to SERS is still being determined by management.

The GASB issued Statement No. 88, *Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements*. The requirements of this Statement are effective for reporting periods beginning after June 15, 2018. The objective of this Statement is to improve note disclosures in government financial statements related to debt, including direct borrowings and direct placements. Requirements include that additional essential information related to debt be disclosed in notes to financial statements, including unused lines of credit; assets pledged as collateral for the debt; and terms specified in debt agreements related to significant events of default with finance-related consequences, significant termination events with finance-related consequences, and significant subjective acceleration clauses. Management has reviewed this Statement and determined SERS is not impacted.

The GASB issued Statement No. 89, *Accounting for Interest Cost Incurred before the End of a Construction Period.* The requirements of this Statement are effective for reporting periods beginning after December 15, 2019. This Statement requires that interest cost incurred before the end of a construction period be recognized as an expense in the period in which the cost is incurred for financial statements prepared using the economic resources measurement focus. As a result, interest cost incurred before the end of a construction period will not be included in the historical cost of a capital asset reported in a business-type activity or enterprise fund. Management has reviewed this Statement and determined SERS is not impacted.

The GASB issued Statement No. 90, *Majority Equity Interests-an amendment of GASB Statements No. 14 and No. 61*. The requirements for this Statement are effective for reporting periods beginning after December 15, 2018. This Statement will improve financial reporting by providing users of financial statements with essential information related to presentation of majority equity interests in legally separate organizations that was previously reported inconsistently. In addition, requiring reporting of information about component units if the government acquires a 100 percent equity interest provides information about the cost of services to be provided by the component unit in relation to the consideration provided to acquire the component unit. It defines a majority equity interest, specifies that majority equity interest in a legally separate organization should be reported as an investment if a government's holding of the equity interest meets the definition of an investment, and establishes that ownership of a majority equity interest in a legally separate organization results in the government being financially accountable for the legally separate organization and, therefore, the government should report that organization as a component unit. The impact of the requirements of this Statement to SERS is still being determined by management.

The GASB issued Statement No. 91, *Conduit Debt Obligations*. The requirements of this Statement are effective for reporting periods beginning after December 15, 2020. The primary objectives of this Statement will improve financial reporting by eliminating the existing option for issuers to report conduit debt obligations as their own liabilities, thereby ending significant diversity in practice. The clarified definition will resolve stakeholders' uncertainty as to whether a given financing is, in fact, a conduit debt obligation. Requiring issuers to recognize liabilities associated with additional commitments extended by issuers and to recognize assets and deferred inflows of resources related to certain arrangements associated with conduit debt obligations also will eliminate diversity, thereby improving comparability in reporting by issuers. Revised disclosure requirements will provide financial statement users with better information regarding the commitments issuers extend and the likelihood that they will fulfill those commitments. That information will inform users of the potential impact of such commitments on the financial resources of issuers and help users assess issuers' roles in conduit debt obligations. The impact of the requirements of this Statement to SERS is still being determined by management.

## Required Supplementary Pension Information

| SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY[1] | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|---|
| **Total pension liability** | | | | | | |
| Service Cost | $ 355,452,912 | $ 368,167,321 | $ 335,918,449 | $ 344,059,634 | $ 338,060,547 | $ 332,975,336 |
| Interest | 1,449,726,066 | 1,420,093,605 | 1,436,626,290 | 1,385,878,598 | 1,341,777,662 | 1,296,763,757 |
| Benefit changes | — | (357,618,668) | (998,484,758) | — | — | — |
| Difference between expected and actual experience | 60,411,674 | 286,313,613 | 275,031,424 | 50,307,199 | 78,749,615 | 53,951,305 |
| Changes of assumptions | — | — | — | 668,216,579 | — | — |
| Benefit payments | (1,260,400,360) | (1,248,097,556) | (1,170,689,006) | (1,110,694,355) | (1,076,498,383) | (993,355,839) |
| Refunds of contributions | (75,639,810) | (59,575,036) | (60,692,833) | (70,340,495) | (60,635,651) | (55,668,466) |
| **Net change in total pension liability** | 529,550,482 | 409,283,279 | (182,290,434) | 1,267,427,160 | 621,453,790 | 634,666,093 |
| **Total pension liability – beginning** | 19,997,700,966 | 19,588,417,687 | 19,770,708,121 | 18,503,280,961 | 17,881,827,171 | 17,247,161,078 |
| **Total pension liability – ending (a)** | $20,527,251,448 | $19,997,700,966 | $19,588,417,687 | $19,770,708,121 | $18,503,280,961 | $17,881,827,171 |
| **Plan fiduciary net position** | | | | | | |
| Contributions – employer | $ 464,683,489 | $ 435,103,620 | $ 467,796,738 | $ 436,421,681 | $ 395,804,105 | $ 405,029,627 |
| Contributions – member | 345,212,684 | 324,842,074 | 336,627,658 | 314,325,716 | 303,866,076 | 295,690,550 |
| Net investment income | 831,584,377 | 1,242,021,081 | 1,613,368,560 | 106,543,126 | 441,455,552 | 1,888,288,396 |
| Benefit payments | (1,260,400,360) | (1,248,097,556) | (1,170,689,006) | (1,110,694,355) | (1,076,498,383) | (993,355,839) |
| Administrative expense | (31,880,024) | (26,993,893) | (24,403,350) | (21,808,880) | (19,305,477) | (19,582,190) |
| Refunds of contributions | (75,639,810) | (59,575,036) | (60,692,833) | (70,340,495) | (60,635,651) | (55,668,466) |
| Other | — | — | — | — | 1,874,997 | — |
| **Net change in plan fiduciary net position** | 273,560,356 | 667,300,290 | 1,162,007,767 | (345,553,207) | (13,438,781) | 1,520,402,078 |
| **Plan fiduciary net position – beginning** | 14,270,515,748 | 13,603,215,458* | 12,451,630,823 | 12,797,184,030 | 12,810,622,811* | 11,300,482,029 |
| **Plan fiduciary net position – ending (b)** | 14,544,076,104 | 14,270,515,748 | 13,613,638,590* | 12,451,630,823 | 12,797,184,030 | 12,820,884,107* |
| **Net pension liability – ending (a) – (b)** | $ 5,983,175,344 | $ 5,727,185,218 | $ 5,974,779,097 | $ 7,319,077,298 | $ 5,706,096,931 | $ 5,060,943,064 |

[1]The effort and cost to re-create financial statement information for the previous four years was not practical. Information was prepared prospectively from June 30, 2014 for GASB 67 purposes. Additional years will be added to the schedule as they become available.

*Beginning Fiduciary Net Position was restated in FY2015 due to the implementation of GASB 68, and in FY2018 due to the implementation of GASB 75.

## SCHEDULE OF THE NET PENSION LIABILITY[1] *($ in millions)*

| | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|---|
| Total pension liability | $ 20,527 | $ 19,998 | $ 19,588 | $ 19,771 | $ 18,503 | $ 17,882 |
| Plan fiduciary net position | 14,544 | 14,271 | 13,614 | 12,452 | 12,797 | 12,821 |
| Net pension liability | $ 5,983 | $ 5,727 | $ 5,974 | $ 7,319 | $ 5,706 | $ 5,061 |
| Ratio of plan fiduciary net position to total pension liability | 70.85% | 71.36% | 69.50% | 62.98% | 69.16% | 71.70% |
| Covered payroll | $ 3,463 | $ 3,332 | $ 3,303 | $ 2,932 | $ 2,845 | $ 2,922 |
| Net pension liability as a percentage of covered payroll | 172.80% | 171.86% | 180.90% | 249.61% | 200.53% | 173.18% |

[1]The effort and cost to re-create financial statement information for the previous four years was not practical. Information was prepared prospectively from June 30, 2014 for GASB 67 purposes. Additional years will be added to the schedule as they become available.

See accompanying notes to the required supplementary information.

## SCHEDULE OF EMPLOYER CONTRIBUTIONS *($ in millions)*

| | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| Actuarially determined employer contribution | $ 464.7 | $ 435.1 | $ 467.8 | $ 436.4 | $ 397.7 | $ 402.0 | $ 402.2 | $ 399.7 | $ 379.3 | $ 402.0 |
| Actual employer contributions | 464.7 | 435.1 | 467.8 | 436.4 | 397.7 | 402.0 | 402.2 | 399.7 | 379.3 | 402.0 |
| Annual contribution deficiency (excess) | $ 0.0 | $ 0.0 | $ 0.0 | $ 0.0 | $ 0.0 | $ 0.0 | $ 0.0 | $ 0.0 | $ 0.0 | $ 0.0 |
| Covered payroll | $3,462.5 | $3,332.4 | $3,302.8 | $2,932.2 | $2,845.4 | $2,922.3 | $2,905.7 | $2,971.9 | $3,017.5 | $2,969.3 |
| Actual contributions as a percentage of covered payroll | 13.42% | 13.06% | 14.16% | 14.88% | 13.98% | 13.76% | 13.84% | 13.45% | 12.57% | 13.54% |

## SCHEDULE OF INVESTMENT RETURNS[1]

| *Year ended June 30* | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---|---|---|---|---|---|
| Annual money weighted rate of return, net of investment expense | 5.96% | 9.37% | 13.27% | 0.81% | 3.45% | 17.21% |

[1]The effort and cost to re-create financial statement information for the previous four years was not practical. Information was prepared prospectively from June 30, 2014 for GASB 67 purposes. Additional years will be added to the schedule as they become available.

See accompanying notes to the required supplementary information.

# Notes to Required Supplementary Pension Information June 30, 2019

### Changes of Benefit Terms

No changes of benefit terms were implemented in FY2019.

### Changes of Benefit Terms from 2018

With the authority granted to the Board under SB 8, the Board enacted a three-year COLA delay for future benefit recipients commencing on or after April 1, 2018.

### Changes of Benefit Terms from 2017

The COLA was changed from a fixed 3.00% to a COLA that is indexed to CPI-W not greater than 2.50% with a floor of 0.0% beginning January 1, 2018. In addition, with the authority granted the Board under HB 49, the Board has enacted a three-year COLA delay for benefit recipients in calendar years 2018, 2019, and 2020.

### Changes of Assumption from 2016

- Assumed rate of inflation was reduced from 3.25% to 3.00%.
- Payroll Growth Assumption was reduced from 4.00% to 3.50%.
- Assumed real wage growth was reduced from 0.75% to 0.50%.
- Rates of withdrawal, retirement, and disability were updated to reflect recent experience.
- Mortality among active members, service retirees and beneficiaries, and disabled members were updated.

### Additional Actuarial Information

The following actuarial methods and assumptions (from the June 30, 2018 actuarial valuation) were used to determine the Actuarially Determined Contribution reported for FY2019 in the Schedule of Employer Contributions:

| | |
|---|---|
| Actuarial cost method: | Entry age normal |
| Amortization method: | Level percent of payroll |
| Remaining amortization period: | 26 years |
| Asset valuation method: | 4-year smoothed market |
| Inflation: | 3.00% |
| Salary increase, including price inflation: | 3.50% - 18.20% |
| Investment rate of return: | 7.50% net of investment expense, including inflation |
| Mortality: | The RP-2014 Blue Collar Mortality Table with fully generational projection and Scale BB, 120% of male rates and 110% of female rates is used to evaluate allowances to be paid. The RP-2000 Disabled Mortality Table with 90% for male rates and 100% for female rates set back five years is used for the period after disability retirement. These assumptions are used to measure the probabilities of each benefit payment being made after retirement. |

# Required Supplementary Health Care Information

## SCHEDULE OF CHANGES IN NET OPEB LIABILITY(1)

| | 2019 | 2018 | 2017 |
|---|---|---|---|
| **Total OPEB liability** | | | |
| Service Cost | $ 160,601,083 | $ 155,385,800 | $ 178,649,865 |
| Interest | 117,411,967 | 109,982,145 | 101,409,264 |
| Benefit changes | — | — | — |
| Difference between expected and actual experience | (653,300,118) | 53,656,583 | — |
| Changes of assumptions | 217,194,383 | (102,900,217) | (295,667,088) |
| Benefit payments* | (73,206,711) | (72,071,363) | (86,257,389) |
| **Net change in total OPEB liability** | (231,299,396) | 144,052,948 | (101,865,348) |
| **Total OPEB liability - beginning** | 3,209,899,769 | 3,065,846,821 | 3,167,712,169 |
| **Total OPEB liability - ending (a)** | $ 2,978,600,373 | $ 3,209,899,769 | $ 3,065,846,821 |
| **Plan fiduciary net position** | | | |
| Contributions - employer | $ 81,944,848 | $ 100,056,736 | $ 65,013,891 |
| Net investment income | 22,009,627 | 28,167,652 | 35,730,747 |
| Benefit payments* | (73,206,711) | (72,071,363) | (86,257,389) |
| Administrative expense | (2,566,722) | (2,632,948) | (2,582,204) |
| Other | — | — | — |
| **Net change in plan fiduciary net position** | 28,181,042 | 53,520,077 | 11,905,045 |
| **Plan fiduciary net position - beginning** | 435,629,637 | 382,109,560 | 370,204,515 |
| **Plan fiduciary net position - ending (b)** | 463,810,679 | 435,629,637 | 382,109,560 |
| **Net OPEB liability - ending (a) - (b)** | $ 2,514,789,694 | $ 2,774,270,132 | $ 2,683,737,261 |

*Benefit payments are net of retiree contributions

(1)Additional years will be added to the schedule as they become available.

## SCHEDULE OF NET OPEB LIABILITY(1)

| | 2019 | 2018 | 2017 |
|---|---|---|---|
| Total OPEB liability | $ 2,978,600,373 | $ 3,209,899,769 | $ 3,065,846,821 |
| Plan fiduciary net position | 463,810,679 | 435,629,637 | 382,109,560 |
| Net OPEB liability | $ 2,514,789,694 | $ 2,774,270,132 | $ 2,683,737,261 |
| Ratio of plan fiduciary net position to total OPEB liability | 15.57% | 13.57% | 12.46% |
| Covered payroll | $ 3,462,524,396 | $ 3,332,395,171 | $ 3,303,055,969 |
| Net OPEB liability as a percentage of covered payroll | 72.63% | 83.25% | 81.25% |

(1)Additional years will be added to the schedule as they become available.

## SCHEDULE OF EMPLOYER CONTRIBUTIONS *($ in millions)*

| | 2019 | 2018 | 2017 | 2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|---|---|---|---|---|
| Actuarially determined employer contribution | $ 190.1 | $ 189.4 | $ 178.0 | $ 161.6 | $ 164.2 | $ 190.4 | $ 171.4 | $ 155.9 | $ 169.1 | $ 315.5 |
| Actual employer contributions | 81.9 | 100.1 | 65.0 | 77.3 | 89.0 | 75.3 | 45.5 | 56.5 | 86.9 | 84.6 |
| Annual contribution deficiency (excess) | $ 108.2 | $ 89.3 | $ 113.0 | $ 84.3 | $ 75.2 | $ 115.1 | $ 125.9 | $ 99.4 | $ 82.2 | $ 230.9 |
| Covered payroll | $3,462.5 | $3,332.4 | $3,303.1 | $2,932.2 | $2,845.4 | $2,759.3 | $2,746.8 | $2,788.2 | $2,852.4 | $2,842.7 |
| Actual contributions as a percentage of covered payroll | 2.37% | 3.00% | 1.97% | 2.64% | 3.13% | 2.73% | 1.66% | 2.03% | 3.05% | 2.97% |

## SCHEDULE OF OPEB INVESTMENT RETURNS(1)

| *Year ended June 30* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Annual money weighted rate of return, net of investment expense | 5.41% | 8.05% | 11.59% |

(1)Additional years will be added to the schedule as they become available.
See accompanying notes to the required supplementary information.

# Notes to Required Supplementary Health Care Information June 30, 2019

### Changes of Benefit and Funding Terms

No changes of benefit or funding terms were implemented in FY2019.

### Changes in Actuarial Assumptions from 2016

- Assumed rate of inflation was reduced from 3.25% to 3.00%.
- Payroll Growth Assumption was reduced from 4.00% to 3.50%.
- Assumed real wage growth was reduced from 0.75% to 0.50%.
- Rates of withdrawal, retirement, and disability were updated to reflect recent experience.
- Mortality among active members, service retirees and beneficiaries, and disabled members were updated.

### Additional Actuarial Information

The following actuarial methods and assumptions (from the June 30, 2018 actuarial valuation) were used to determine the Actuarially Determined Contribution reported for FY2019 in the Schedule of Employer Contributions – OPEB:

| | |
|---|---|
| Actuarial cost method: | Entry age normal |
| Amortization method: | Level percent of payroll |
| Remaining amortization period: | 30 years |
| Asset valuation method: | Market value |
| Price inflation: | 3.00% |
| Salary increase, including price inflation: | 3.50% - 18.20% |
| Actuarial assumptions: | Investment rate of return 5.25%, compounded annually |
| Medical trend assumptions: | Pre-Medicare - 7.25% initially, decreasing to 4.75%<br>Medicare - 5.375% initially, decreasing to 4.75% |

# OPERS related Required Supplementary Pension Information

**Schedule of SERS' Proportionate Share of the Net Pension Liability**
**Ohio Public Employees Retirement Plan - Traditional Pension Plan**

| Last 10 Fiscal Years* | 2019 | 2018 | 2017 | 2016 | 2015 |
|---|---|---|---|---|---|
| SERS' proportion of the net pension liability (asset) | 0.0958985% | 0.0973540% | 0.0956142% | 0.0937745% | 0.0925739% |
| SERS' proportionate share of the net pension liability (asset) | $ 26,288,404 | $ 15,272,959 | $ 21,712,365 | $ 16,242,931 | $ 11,165,446 |
| SERS' covered payroll | 12,963,846 | 11,946,483 | 10,594,473 | 10,003,875 | 9,728,270 |
| SERS' proportionate share of the net pension liability (asset) as a % of its covered payroll | 203% | 128% | 205% | 162% | 115% |
| Plan fiduciary net position as a % of the total pension liability | 74.70% | 84.66% | 77.25% | 81.08% | 86.45% |

*The amounts presented were determined as of 12/31 of the prior calendar year. GASB 68 was implemented in 2015. Additional years will be added to the schedule as they become available.

**Schedule of SERS' Proportionate Share of the Net Pension Liability**
**Ohio Public Employees Retirement Plan - Combined Pension Plan**

| Last 10 Fiscal Years* | 2019 | 2018 | 2017 | 2016 | 2015 |
|---|---|---|---|---|---|
| SERS' proportion of the net pension liability (asset) | 0.0217249 % | 0.2256010 % | 0.2277590 % | 0.2364605 % | 0.2391363 % |
| SERS' proportionate share of the net pension liability (asset) | $ (242,933) | $ (307,116) | $ (126,764) | $ (115,067) | $ (92,073) |
| SERS' covered payroll | 929,157 | 857,951 | 759,911 | 737,594 | 749,257 |
| SERS' proportionate share of the net pension liability (asset) as a % of its covered payroll | (26%) | (36%) | (17%) | (16%) | (12%) |
| Plan fiduciary net position as a % of the total pension liability | 126.64% | 137.28% | 116.55% | 116.90% | 114.83% |

*The amounts presented were determined as of 12/31 of the prior calendar year. GASB 68 was implemented in 2015. Additional years will be added to the schedule as they become available.

**Schedule of Contributions**
**Ohio Public Employees Retirement Plan - Traditional Pension Plan**

| Last 10 Fiscal Years* | 2019 | 2018 | 2017 | 2016 | 2015 |
|---|---|---|---|---|---|
| Contractually required contribution | $ 1,781,661 | $ 1,616,321 | $ 1,517,599 | $ 1,457,881 | $ 1,361,957 |
| Contributions in relation to the contractually required contribution | 1,781,661 | 1,616,321 | 1,517,599 | 1,457,881 | 1,361,957 |
| Contribution deficiency (excess) | — | — | — | — | — |
| SERS' covered payroll | $ 12,726,150 | $ 11,545,152 | $ 10,839,992 | $ 10,413,435 | $ 9,877,201 |
| Contributions as a % of covered payroll | 14% | 14% | 14% | 14% | 14% |

*The amounts presented were determined as of 6/30 of the fiscal year. GASB 68 was implemented in 2015. Additional years will be added to the schedule as they become available.

**Schedule of Contributions**
**Ohio Public Employees Retirement Plan - Combined Pension Plan**

| Last 10 Fiscal Years* | 2019 | 2018 | 2017 | 2016 | 2015 |
|---|---|---|---|---|---|
| Contractually required contribution | $ 127,825 | $ 116,006 | $ 110,430 | $ 109,964 | $ 104,896 |
| Contributions in relation to the contractually required contribution | 127,825 | 116,006 | 110,430 | 109,964 | 104,896 |
| Contribution deficiency (excess) | — | — | — | — | — |
| SERS' covered payroll | $ 913,034 | $ 828,612 | $ 788,786 | $ 785,457 | $ 760,728 |
| Contributions as a % of covered payroll | 14% | 14% | 14% | 14% | 14% |

*The amounts presented were determined as of 6/30 of the fiscal year. GASB 68 was implemented in 2015. Additional years will be added to the schedule as they become available.

# OPERS related Required Supplementary OPEB Information

**Schedule of SERS' Proportionate Share of the Net OPEB Liability**
**Ohio Public Employees Retirement Plan**

| Last 10 Fiscal Years* | 2019 | 2018 | 2017 |
|---|---|---|---|
| SERS' proportion of the net OPEB liability | 0.0104825% | 0.1060842% | 0.1047274% |
| SERS' proportionate share of the net OPEB liability | $ 13,666,743 | $ 11,519,966 | $ 10,577,819 |
| SERS' covered payroll | 375,863 | 1,338,357 | 2,243,369 |
| SERS' proportionate share of the net OPEB liability as a % of its covered payroll | 3,636% | 861% | 472% |
| Plan fiduciary net position as a % of the total OPEB liability | 46.33% | 54.14% | 54.05% |

*The amounts presented were determined as of 12/31 of the prior calendar year. GASB 75 was implemented in 2018. Additional years will be added to the schedule as they become available.

**Schedule of OPEB Contributions**
**Ohio Public Employees Retirement Plan**

| Last 10 Fiscal Years* | 2019 | 2018 | 2017 |
|---|---|---|---|
| Contractually required contribution | $ 125,775 | $ 262,029 | $ 295,539 |
| Contributions in relation to the contractually required contribution | 125,775 | 262,029 | 295,539 |
| Contribution deficiency (excess) | — | — | — |
| SERS' covered payroll | $ 898,395 | $ 1,871,633 | $ 2,110,993 |
| Contributions as a % of covered payroll | 14% | 14% | 14% |

*The amounts presented were determined as of 6/30 of the fiscal year. GASB 75 was implemented in 2018. Additional years will be added to the schedule as they become available.

# Other Supplementary Information

## Schedule of Administrative Expenses
## for the year ended June 30, 2019

| | General Expenses | Investment Related Expenses | Total |
|---|---|---|---|
| **Personnel Services** | | | |
| Salaries | $ 13,481,848 | $ 3,147,040 * | $ 16,628,888 |
| Retirement Contributions | 7,073,178 | 359,890 | 7,433,068 |
| Insurance | 2,942,101 | 304,511 | 3,246,612 |
| Total Personnel Services | 23,497,127 | 3,811,441 | 27,308,568 |
| **Professional Services** | | | |
| Actuarial Advisors | 302,475 | — | 302,475 |
| Audit Services | 222,795 | — | 222,795 |
| Custodial Banking | 149,646 | 898,732 | 1,048,378 |
| Master Recordkeeper | — | 1,403,682 | 1,403,682 |
| Investment Related Consulting | 55,320 | 1,555,659 | 1,610,979 |
| Medical | 40,000 | — | 40,000 |
| Technical | 1,341,582 | 215,310 | 1,556,892 |
| Total Professional Services | 2,111,818 | 4,073,383 | 6,185,201 |
| **Communications** | | | |
| Postage | 547,329 | — | 547,329 |
| Telecommunications Services | 145,899 | — | 145,899 |
| Member / Employer Education | 54,164 | — | 54,164 |
| Printing and Publication | 124,635 | — | 124,635 |
| Total Communications | 872,027 | — | 872,027 |
| **Other Services** | | | |
| Computer Support Services | 1,900,563 | — | 1,900,563 |
| Office Equipment and Supplies | 164,477 | 669 | 165,146 |
| Training | 198,550 | 14,495 | 213,045 |
| Transportation and Travel | 110,536 | 68,950 | 179,486 |
| Memberships and Subscriptions | 94,278 | 61,230 | 155,508 |
| Property and Fiduciary Insurance | 360,686 | — | 360,686 |
| Facilities Expense | 921,207 | — | 921,207 |
| Maintenance | 77,076 | — | 77,076 |
| Staff Support | 124,507 | 50 | 124,557 |
| Ohio Retirement Study Council | 48,338 | — | 48,338 |
| Miscellaneous | 58,687 | — | 58,687 |
| Total Other Services | 4,058,905 | 145,394 | 4,204,299 |
| Total Administrative Expenses before Depreciation | 30,539,877 | 8,030,218 | 38,570,095 |
| **Depreciation** | | | |
| Furniture & Equipment | 2,544,485 | — | 2,544,485 |
| Building | 1,364,906 | — | 1,364,906 |
| Total Depreciation | 3,909,391 | — | 3,909,391 |
| Total Administrative Expenses | $ 34,449,268 | $ 8,030,218 | $ 42,479,486 |

*Includes salary and incentive payments for investment staff.

See accompanying independent auditor's report.

# Other Supplementary Information

## Schedule of Investment Expenses
## for the year ended June 30, 2019

| Description of Expenses | Net Assets Under Management | Direct Fees |
|---|---|---|
| US Equity | $ 3,588,281,099 | $ 7,233,021 |
| Non-US Equity | 3,142,186,772 | 12,960,027 |
| Global Private Equity | 1,489,410,467 | 17,900,545 |
| Global Fixed Income | 2,274,304,349 | 4,240,073 |
| Multi-Asset Strategies | 1,193,194,032 | 15,044,872 |
| Global Real Assets | 2,219,360,239 | 21,308,587 |
| Opportunistic Investments | 371,763,673 | 6,324,181 |
| Cash Equivalents | 472,129,774 | 4,248,544 |
| Total Investment Management Fees | | $ 89,259,850 |
| | | |
| Custody Service Fees | | 898,732 |
| Master Recordkeeper Fees | | 1,403,682 |
| Investment Consulting and Performance/Analytics Fees | | 1,555,659 |
| Investment Administrative Expenses | | 4,172,145 |
| Total Other Investment Expenses | | 8,030,218 |
| Total Investment Expenses | | $ 97,290,068 |

# Schedule of Payments to Consultants

SERS paid the following non-investment related consulting fees in FY2019:

| | |
|---|---|
| Actuarial Advisors | $ 302,475 |
| Audit Services | 222,795 |
| Legal Counsel | 69,771 |
| Medical Consultant | 40,000 |
| Information Technology Consultants | 802,116 |
| Health Care Consultants | 165,112 |
| Other Consultants | 509,549 |
| Total | $ 2,111,818 |

See accompanying independent auditor's report.

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# Investment Section

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**SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO**
300 E. BROAD ST., SUITE 100 • COLUMBUS, OHIO 43215-3746
614-222-5853 • Toll-Free 800-878-5853 • www.ohsers.org

RICHARD STENSRUD
Executive Director

KAREN ROGGENKAMP
Deputy Executive Director

November 1, 2019

Retirement Board, Members, Retirees, and Beneficiaries of the Retirement System:

On behalf of the SERS Investment Department, I respectfully submit the Investment Section of the *Comprehensive Annual Financial Report* for the year ended June 30, 2019. Information in this section was compiled by SERS' Investment and Finance Staff, and BNY Mellon Global Risk Solutions. Investment results are based upon a time-weighted rate of return methodology, and assets are shown at fair value.

SERS' portfolio generated strong performance in FY2019 in both absolute and relative terms in a difficult market environment. The Total Fund return of 6.6% (net) for FY2019 exceeded the policy benchmark by 0.1%. Global Private Equity recorded the highest return at 15.2% (net), followed by Real Assets at 9.3% (net), and US Equities at 7.6% (net). Non-US Equities was a drag on the Total Fund with a return of 1.6% (net). The fund posted five-year net returns of 6.8%, exceeding the policy benchmark by 0.5%. SERS' five-year gross return ranks in the top decile of the public fund peer universe. However, the one-year and three-year returns were below the 7.5% actuarial rate. Ten-year net returns were impressive at 9.4%, exceeding the benchmark by 0.2% and the actuarial rate. While returns over the past five years have moderated, staff expects this to continue due to expected slower economic growth globally and above average market valuations currently. Investment performance relative to benchmarks has steadily improved over the past seven years with the implementation of the Investment Strategic Plan adopted in 2012.

In FY2019, Staff continued to implement the Strategic Investment Plan. Significant progress continued in terms of improving the portfolio structures within asset classes to optimize risk and return, rationalizing manager line-ups, and reducing fees. These initiatives have resulted in excess returns over the benchmark as noted above. Details about each portfolio are included on the following pages.

I wish to thank the Investment staff for their dedication and accomplishments this year, and I appreciate the support of the Board and the Executive team. We look forward to working with the Board and the Executive team in the coming year to serve our members with excellence.

Respectfully,

Farouki Majeed

Farouki Majeed
*Chief Investment Officer*

# Investment Report

Chapter 3309 of the Ohio Revised Code and the Board-adopted Investment Policy govern investment activity at the School Employees Retirement System of Ohio (SERS). The Board is responsible for managing the assets of the Fund effectively, prudently, and for the exclusive benefit of SERS' members and beneficiaries.

## INVESTMENT POLICY

The Board approves the Statement of Investment Policy. The purpose of the policy is to set forth SERS' investment philosophy and objectives. The policy establishes investment policies and describes the organization and division of responsibilities necessary to implement the Board's philosophy and objectives prudently; and establishes a framework for making investment decisions, monitoring investment activity, and promotes effective communication between the Board, Staff, and other involved parties.

## INVESTMENT OBJECTIVES

The primary objective of the investment portfolio is to achieve investment returns exceeding the return of our Policy Benchmark within prudent risk parameters. Over the long term, it is expected that investment returns also should meet or exceed the Board approved actuarial assumed rate of 7.5%.

## INVESTMENT STRATEGIES

**Asset Allocation** The most recent adjustment was made during FY2013 to reduce multi-asset strategies from 15% to 10% with a corresponding increase in real assets. No changes to the asset allocation were made in FY2019. On June 30, 2019, SERS' asset allocation and its corresponding benchmarks were as follows:

| Asset Class | Policy | Benchmark |
|---|---|---|
| Global Equities | 45% | 50% Russell 3000 Index; 50% MSCI ACWI ex-US Index (net dividends) |
| Global Private Equity | 10% | Burgiss All Private Equity Benchmark (BAPE) (one quarter in arrears) |
| Global Fixed Income | 19% | Bloomberg Barclays Capital US Aggregate Bond Index |
| Global Real Assets | 15% | NCREIF Property Index (one quarter in arrears) |
| Cash Equivalents | 1% | Citigroup 30-day T-Bill Index |
| **Strategy** | | **Benchmark** |
| Multi-Asset Strategies | 10% | HFRI Fund of Funds Composite Index plus 1.0% |
| Opportunistic Investments | 0% | Total Fund Benchmark Return |

**Diversification** Broad diversification within an investment portfolio is used to control the level of risk and volatility within the portfolio over the long term. SERS has adopted a broadly diversified asset allocation policy, and the strategies used within each asset class also have been diversified.

Besides the broad diversification of assets and strategies within SERS' portfolio, SERS also employs a diverse group of investment managers with the goal of outperforming the respective benchmark while managing relative risks.

SERS' multi-asset strategies consultant, Aksia LLC, assists the Staff with the construction and diversification of SERS' multi-asset strategies portfolio and the selection of multi-asset strategies managers. Wilshire Associates, Inc., SERS' general investment consultant, assists the Board on matters of investment policy and asset allocation recommendations. Wilshire also reports to the Board on quarterly performance reviews of the Fund and each portfolio.

**Proxy Voting** In 2012, the Board adopted SERS' Corporate Governance Principles. The Board authorizes the Proxy Review Committee, which consists of staff members from Executive and Investments, to vote proxies according to the SERS Proxy Voting Guidelines. This committee implements a process for voting proxies as described in the Proxy Voting Policy and Procedures document. Staff hires a proxy voting advisor, Institutional Shareholder Services (ISS), to vote proxies according to SERS' custom vote policy and provide advice on corporate governance-related matters.

**Sustainability and Corporate Governance** Good governance of markets and entities comprising the markets improves outcomes for investors. SERS' Board and Staff will exercise corporate ownership responsibly and with the best fiduciary interest of members and stakeholders. SERS' Board and Staff must be attentive to important environmental, social, and governance issues that affect markets and promote its interests in a responsible manner in the best fiduciary interest of members and stakeholders.

## Global Equities

Equity markets experienced increased volatility amidst concerns about a slowdown in global economic growth and Fed tightening in the US. US equity indices reached all-time highs in August but declined sharply in the fourth quarter by more than 10% as the Fed continued to raise rates. The US market recovered early in 2019 when the Fed announced a halt to rate increases. However, overall equity returns were lower in FY2019 than the prior year.

During the fiscal year, the US Equity portfolio generated net returns of 7.6% which was below the Russell 3000 index benchmark by 1.4%. The underperformance was due to active managers in the large cap space lagging their benchmarks. Active management in general has been challenged in the US Equity large cap space with a majority of managers underperforming the market index. SERS will continue to move large cap equity exposure to the index portfolio to arrest this problem. US small cap equities were negative in FY2019, lagging the large cap returns by more than 10%. The SERS small cap portfolio generated a net return of 1.6%, exceeding the Russell 2000 index (3.3%), by 4.9%.

Non-US Equities lagged US Equities by a large margin in FY2019. Developed markets index (MSCI EAFE) had a net return of 1.3% compared to the US Equity (Russell 3000) return of 9.0%. US dollar strength explains part of the discrepancy in these returns. The emerging market index also had a low net return of 1.2%, which was outperformed by the SERS emerging markets net return of 3.1%. Overall the Non-US Equity net return of 1.6% exceeded the benchmark index by 0.3%.

## Global Private Equity

2018 was another impressive calendar year for the global private equity market, however, there are signs that the market may be softening as we continue to move ahead. Asset values and exit prices showed modest gains from the previous year. Although the pace slowed in 2018, fundraising remained strong driving a further increase in the level of capital available for investment, commonly referred to as “Dry Powder”. Taking a closer look, the total number of platform companies purchased in 2018 was down by 13% to 2,936 transactions globally as stiff competition and rising prices cut into deal count. However, the value of these purchases was up by 10% to $582 billion reflecting the increased deal size. The abundance of low-cost debt financing and the estimated $2 trillion of dry powder available across all fund types and all geographies at the end of 2018 contributed to the deal activity. The intense competition for assets has led to increased purchase price multiples and made it challenging for private equity transactions. Purchase price multiples have risen from 8.5 times earnings in 2008 to an average of 10.5 times earnings in 2018. Nevertheless, the same factors that complicated deal making in 2018 paved the way for an excellent exit market for private equity funds in 2018. Although total exit transactions of 1,146 valued at $378 billion were slightly lower than 2017, the total was still a solid contributor to the strong five-year stretch of exits that have produced significant levels of distributions for investors. The continued positive momentum for private equity was favorable for fundraising and private equity backed funds were able to raise an additional $714 billion in 2018. Buyout funds led the way closing on over $300 billion of new commitments, however, this total was aided by the number of large and mega buyout funds raised during the year. The level of investment activity at increased purchase valuations and steady uplift in dry powder underscores the importance of identifying and backing high quality private equity managers that remain disciplined in their process, due diligence, and selection criteria throughout investment cycles. SERS’ Private Equity portfolio generated a net return of 15.2% for FY2019, exceeding its benchmark by 4.9%.

## Global Fixed Income

Fixed income outperformed the benchmark during FY2019 primarily due to over-weighting corporates. The Federal Reserve raised interest rates twice during the fiscal year with a 2.3% - 2.5% ending Fed Fund rate. Even with the Fed raising rates, US Treasuries declined 0.9% to 2.0% by fiscal year-end, as global growth began to slow. This decline in rates was helpful to fixed income as US investment grade corporates returned 10.7%, emerging market debt local currency increased 8.2%, high yield posted a 7.5% return, and US Treasuries earned 7.2% over the last fiscal year.

## Multi-Asset Strategies

The Multi-Asset Strategies (MAS) portfolio consists of long/short hedge fund strategies and other liquid alternatives. For FY2019, the MAS portfolio outperformed the benchmark by having a diversified portfolio of strategies that has lower beta and correlation to equities, which was especially helpful in Q4 2018. The portfolio net return was 3.0% compared to the MAS custom benchmark of 2.36%. Among the HFRI sector indices, the relative value sector performed best at 3.3% with gains led by sovereign, corporate, and asset-backed strategies and not surprisingly, volatility strategies producing the only negative return at (1.4%). Macro strategies were up 2.4%, the highest return for the sector since 2015, and all subsectors were positive. In the MAS multi-strategy sector, risk parity performed best with 4.6%, while alternative risk premia was at 1.1%, and the other strategies with mixed performance led to 1.7% overall for the sector. Performance was mixed in event driven sector, 1.2%, as credit and merger arbitrage strategies outperformed while activist and multi-strategy subsectors produced negative returns. Equity Hedge index performance was 0.3% for the fiscal year and was hurt by the Q4 selloff in equity markets and falling energy prices.

## Global Real Assets

During the fiscal year, market conditions and fundamentals were favorable for both commercial real estate and infrastructure assets. Interest rates and vacancy rates remained low, rent and net operating income growth remained healthy, yet moderated, and construction levels remained reasonable in most markets. Real estate returns for the fiscal year moderated to long-term average levels of 7.0% - 9.0%, with expectations that returns going forward will be below long-term averages due to high valuations. Infrastructure assets continued to produce returns in excess of 10.0% for the fiscal year with long-term visibility into the assets' net operating income. Cash yield continues to be the focus for the asset class, which produced a one-year income return in excess of 4.0% gross of fees.

## Opportunistic Investments

The Opportunistic portfolio returned 5.3%, net of fees. The portfolio is comprised of non-traditional investment opportunities which do not fit neatly within SERS' strategic asset classes. Opportunistic investments are defined as tactical or non-traditional investment opportunities. Such investments may involve capitalizing on short-term market dislocations or other unique situations or innovative strategies including tactical allocation. The opportunistic portfolio has a 0.0% policy target allocation with a maximum of 5.0%, giving Staff flexibility to invest only when market conditions present attractive opportunities. SERS made one opportunistic investment in FY2019, committing a total of $50 million, including follow-on commitments to an existing manager who will invest in distressed debt.

## Cash Equivalents

The Cash Equivalent portfolio consists primarily of short-term cash and any gains or losses of the overlay program. Short-term cash is a source of liquidity of the Total Fund. For FY2019, the short-term cash returned 2.4%, net of fees, outperforming the Citigroup 30-day T-Bill Index by 9 basis points.

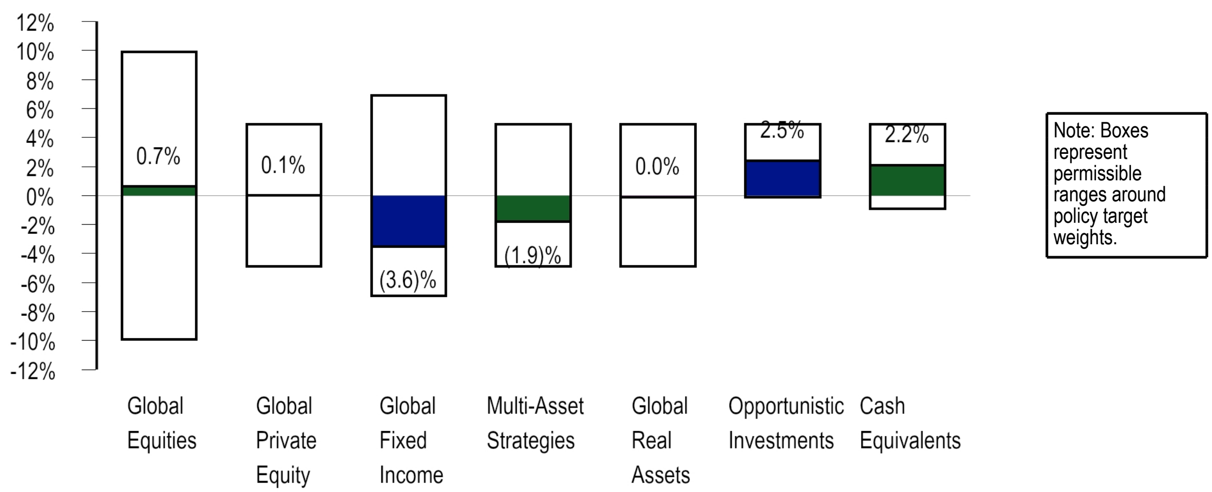
The overlay program comprised of the enhanced asset allocation and active currency programs, aims at adding value by taking active long/short positions in the broad asset classes and foreign exchange markets, with a tight risk budget. For FY2019, the overlay program generated a gain of $11.6 million in aggregate. These programs do not require full cash funding except for the margin requirements since they are implemented through futures/forward contracts.

As of June 30, 2019, the weight of cash equivalents was 3.2%, net of fees, of the Total Fund.

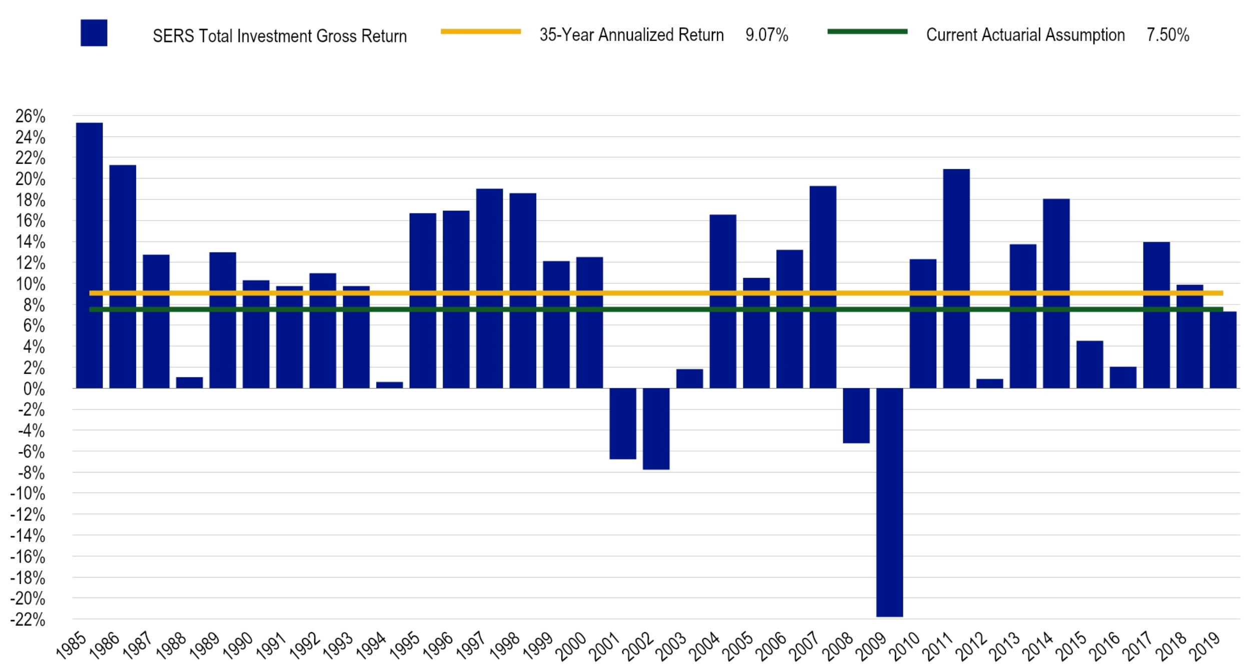
## Investment Summary as of June 30, 2019

| | Fair Value | % of Fair Value | Policy | Range |
|---|---|---|---|---|
| Global Equities | $ 6,730,467,871 | 45.7% | 45.0% | 35% - 55% |
| Global Private Equity | 1,489,410,467 | 10.1 | 10.0 | 5 - 15 |
| Global Fixed Income | 2,274,304,349 | 15.4 | 19.0 | 12 - 26 |
| Multi-Asset Strategies | 1,193,194,032 | 8.1 | 10.0 | 5 - 15 |
| Global Real Assets | 2,219,360,239 | 15.0 | 15.0 | 10 - 20 |
| Opportunistic Investments | 371,763,673 | 2.5 | 0.0 | 0 - 5 |
| Cash Equivalents | 472,129,774 | 3.2 | 1.0 | 0 - 5 |
| **Total Portfolio** | **$ 14,750,630,405** | **100.0%** | **100.0%** | |

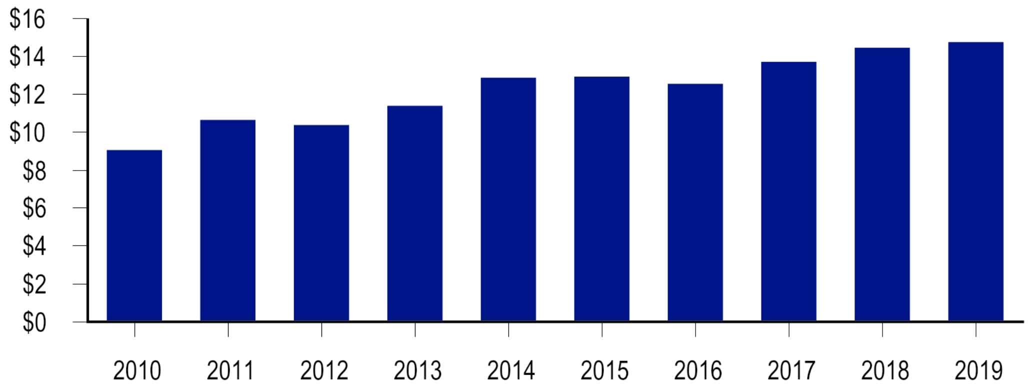
## Asset Allocation vs. Policy




## SERS Total Investment Return (Gross of Fees)



## Total Investment Fund at Fair Value *($ in billions)*




## Schedule of Investment Results for the years ended June 30 (Gross of Fees)

| | | 2019 | 2018 | 2017 | Annualized Rates of Return: 3 Years | 5 Years | 10 Years |
|---|---|---|---|---|---|---|---|
| **Global Equities** | | | | | | | |
| SERS | | 5.0% | 11.3% | 20.3% | 12.0% | 6.7% | 11.4% |
| Custom Global Equities Benchmark | (1) | 5.2 | 11.0 | 19.6 | 11.8 | 6.2 | 10.6 |
| **Global Private Equity** | | | | | | | |
| SERS | (2) | 16.7 | 21.3 | 18.4 | 18.8 | 17.9 | 17.3 |
| Custom Global Private Equity Benchmark | (3) | 10.3 | 16.3 | 11.7 | 13.5 | 11.1 | 17.2 |
| **Global Fixed Income** | | | | | | | |
| SERS | | 8.3 | 0.1 | 2.1 | 3.5 | 3.4 | 5.7 |
| Barclays Capital US Aggregate Bond Index | | 7.9 | (0.4) | (0.3) | 2.3 | 3.0 | 3.9 |
| **Multi-Asset Strategies** | | | | | | | |
| SERS | (4) | 4.3 | 5.4 | 10.8 | 6.8 | 4.1 | 6.9 |
| Custom Multi-Asset Strategies Benchmark | (5) | 2.4 | 6.5 | 7.3 | 5.3 | 3.2 | 4.3 |
| **Global Real Assets** | | | | | | | |
| SERS | (6) | 10.5 | 10.9 | 8.9 | 10.1 | 11.4 | 10.1 |
| Custom Global Real Assets Benchmark | (7) | 6.8 | 7.1 | 7.3 | 7.1 | 9.1 | 9.3 |
| **Opportunistic Investments** | | | | | | | |
| SERS | (8) | 7.1 | 13.0 | 21.6 | 13.8 | 8.2 | n/a |
| Policy Benchmark | (9) | 6.5 | 8.3 | 11.5 | 8.8 | 6.3 | n/a |
| **Cash Equivalents** | | | | | | | |
| SERS | | 5.1 | 2.3 | (0.1) | 2.4 | 2.4 | 1.3 |
| Citigroup 30 Day Treasury Bill Index | | 2.3 | 1.3 | 0.4 | 1.3 | 0.8 | 0.4 |
| ***Total Fund (Gross of Fees)*** | | | | | | | |
| SERS | | 7.3 | 9.9 | 13.9 | 10.3 | 7.5 | 10.2 |
| Policy Benchmark | (9) | 6.5 | 8.3 | 11.5 | 8.8 | 6.3 | 9.2 |
| ***Total Fund (Net of Fees)*** | | | | | | | |
| SERS | | 6.6 | 9.2 | 13.2 | 9.6 | 6.8 | 9.4 |
| Policy Benchmark | (9) | 6.5 | 8.3 | 11.5 | 8.8 | 6.3 | 9.2 |

Source: BNY Mellon Global Risk Solutions
Investment results provided by BNY Mellon Global Risk Solutions are based upon a time-weighted rate of return methodology. Market value adjustments made to global private equity, global real assets, opportunistic investments, and multi-asset strategies as of June 30 will be reflected in the investment returns in the next financial statement.

## Notes to Investment Results

(1) Custom Global Equities Benchmark:
- a) Effective January 1, 2014
  50.0% Russell 3000 Index
  50.0% MSCI ACWI ex-US (net dividends) Index
- b) Effective July 1, 2013
  50.0% Russell 3000 Index
  50.0% MSCI ACWI ex-US (net dividends) Index (developed markets 50% hedged)
- c) Prior to July 1, 2013
  50.0% Russell 3000 Index
  50.0% MSCI ACWI ex-US (gross dividends) Index (developed markets 50% hedged)

(2) Global Private Equity returns are reported one quarter in arrears.

(3) Custom Global Private Equity Benchmark:
- a) Effective January 1, 2014 Burgiss All Private Equity Benchmark (BAPE) (one quarter in arrears)
- b) Prior to January 1, 2014 S&P 500 Index plus 3%

(4) Prior to July 1, 2013 Multi-Asset Strategies was known as Hedge Funds.

(5) Custom Multi-Asset Strategies Benchmark:
- a) Effective July 1, 2013 HFRI Fund of Funds Composite Index + 1.0%
- b) Effective July 1, 2010 HFRI Fund of Funds Composite Index
- c) Effective June 1, 2008 (inception of the strategy) HFRI fund Weighted Index

(6) Global Real Asset partnership returns are reported one quarter in arrears. Public real asset returns are reported in the current quarter.

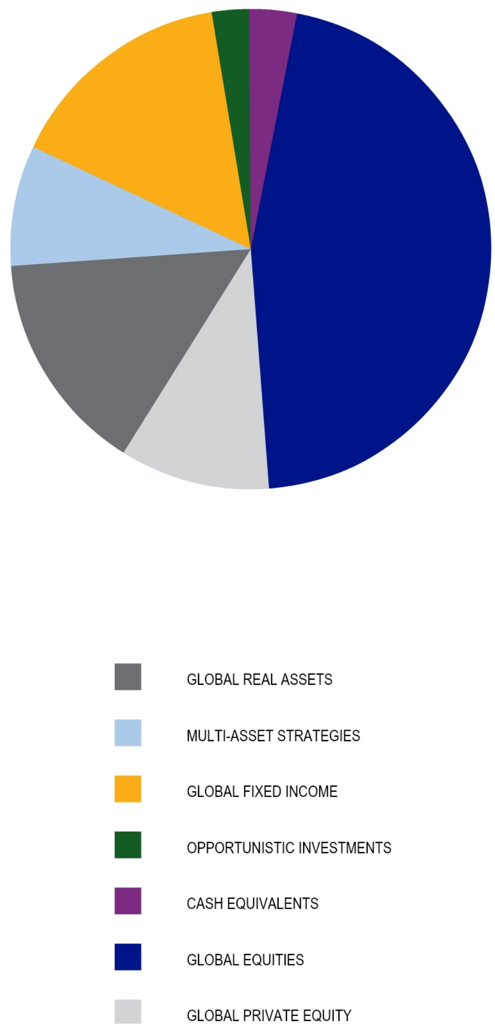
(7) Custom Global Real Assets Benchmark:
- a) Effective July 1, 2010 NCREIF Property Index (one quarter in arrears)
- b) Prior to July 1, 2010
  80.0% NCREIF Property Index (one quarter in arrears)
  20.0% FTSE EPRA/NAREIT Developed Index

(8) Opportunistic Investments inception date occurred in June 2013.

(9) SERS Policy Benchmark weightings for the past 10 years:
- a) Effective January 1, 2016
  22.5% Russell 3000 Index
  22.5% MSCI ACWI ex-US (net dividends) Index
  19.0% Barclays Capital US Aggregate Bond Index
  15.0% NCREIF Property Index (one quarter in arrears)
  10.0% Burgiss All Private Equity Benchmark (BAPE) (one quarter in arrears)
  10.0% HFRI Fund of Funds Composite Index + 1.0%
  1.0% Citigroup 30 Day T-Bill Index
- b) Effective January 1, 2015
  22.5% Russell 3000 Index
  19.0% Barclays Capital US Aggregate Bond Index
  12.0% NCREIF Property Index (one quarter in arrears)
  10.0% Burgiss All Private Equity Benchmark (BAPE) (one quarter in arrears)
  13.0% HFRI Fund of Funds Composite Index + 1.0%
  1.0% Citigroup 30 Day T-Bill Index
- c) Effective July 1, 2014
  22.5% Russell 3000 Index
  22.5% MSCI ACWI ex-US (net dividends) Index
  19.0% Barclays Capital US Aggregate Bond Index
  15.0% NCREIF Property Index (one quarter in arrears)
  10.0% Burgiss All Private Equity Benchmark (BAPE) (one quarter in arrears)
  10.0% HFRI Fund of Funds Composite Index + 1.0%
  1.0% Citigroup 30 Day T-Bill Index
- d) Effective January 1, 2014
  22.5% Russell 3000 Index
  22.5% MSCI ACWI ex-US (net dividends) Index
  19.0% Barclays Capital US Aggregate Bond Index
  12.0% NCREIF Property Index (one quarter in arrears)
  10.0% Burgiss All Private Equity Benchmark (BAPE) (one quarter in arrears)
  13.0% HFRI Fund of Funds Composite Index + 1.0%
  1.0% Citigroup 30 Day T-Bill Index
- e) Effective July 1, 2013
  22.5% Russell 3000 Index
  22.5% MSCI ACWI ex-US (net dividends) Index (developed markets 50% hedged)
  19.0% Barclays Capital US Aggregate Bond Index
  12.0% NCREIF Property Index (one quarter in arrears)
  10.0% SERS Custom Private Equity Benchmark
  13.0% HFRI Fund of Funds Composite Index + 1.0%
  1.0% Citigroup 30 Day T-Bill Index
- f) Effective July 1, 2010
  22.5% Russell 3000 Index
  22.5% MSCI ACWI ex-US Index (developed markets 50% hedged)
  19.0% Barclays Aggregate Index
  10.0% NCREIF
  10.0% SERS Custom Private Equity Benchmark
  15.0% HFRI Fund of Fund Index
  1.0% Citigroup 30 Day T-Bill Index
- g) Effective February 1, 2009
  27.5% Russell 3000 Index
  27.5% MSCI ACWI ex-US Index (developed markets 50% hedged)
  24.0% Barclays Aggregate Index
  10.0% SERS Custom Real Estate Benchmark
  10.0% SERS Custom Private Equity Benchmark
  1.0% Citigroup 30 Day T-Bill Index

## SERS Detailed Asset Allocation

| | |
|---|---|
| **GLOBAL REAL ASSETS** | **15.0%** |
| **Global Real Assets w/o REITs** | **14.6%** |
| Office | 3.1% |
| Industrial | 3.6% |
| Residential | 3.1% |
| Retail | 1.7% |
| Infrastructure | 2.0% |
| Hospitality/ Other | 1.1% |
| **REITs** | **0.4%** |
| **MULTI-ASSET STRATEGIES** | **8.1%** |
| Event Driven | 1.4% |
| Relative Value | 1.7% |
| Equity Long/Short | 1.6% |
| Multi Asset | 1.4% |
| Tactical Trading | 2.0% |
| **GLOBAL FIXED INCOME** | **15.4%** |
| US Government & Government Backed Mortgages | 3.2% |
| Corporate Bonds | 11.1% |
| Collaterized Mortgage Obligations and Asset-Backed | 0.9% |
| Foreign Bonds | 0.2% |




| | |
|---|---|
| **OPPORTUNISTIC INVESTMENTS** | **2.5%** |
| **CASH EQUIVALENTS** | **3.2%** |
| Short-Term | 2.7% |
| Currency Overlay | 0.1% |
| Enhanced Asset Allocation | 0.4% |
| **GLOBAL EQUITIES** | **45.7%** |
| **US Equity** | **24.3%** |
| Market-Oriented | 15.5% |
| Large Cap Core | 2.8% |
| Large Cap Growth | 1.4% |
| Large Cap Value | 1.2% |
| Small Cap Growth | 1.3% |
| Small Cap Value | 2.1% |
| **Non-US Equity** | **21.4%** |
| Developed Markets Market-Oriented | 6.3% |
| Emerging Markets | 6.0% |
| Developed Markets Core | 4.2% |
| Developed Markets Growth | 3.4% |
| Developed Markets Value | 1.5% |
| **GLOBAL PRIVATE EQUITY** | **10.1%** |
| Buyout | 8.1% |
| Special Situations | 1.4% |
| Venture Capital | 0.6% |

## Largest Individual Global Equities Holdings as of June 30, 2019

| | Description | Country | Shares | Market Price | Fair Value |
|---|---|---|---|---|---|
| 1 | Microsoft Corp. | United States | 759,958 | $ 133.96 | $ 101,803,974 |
| 2 | Apple, Inc. | United States | 453,836 | 197.92 | 89,823,221 |
| 3 | Amazon.com, Inc. | United States | 41,004 | 1,893.63 | 77,646,405 |
| 4 | Facebook, Inc. | United States | 238,538 | 193.00 | 46,037,834 |
| 5 | Johnson & Johnson | United States | 310,604 | 139.28 | 43,260,925 |
| 6 | Berkshire Hathaway Inc. | United States | 172,721 | 213.17 | 36,818,936 |
| 7 | Roche Holding AG | Switzerland | 130,130 | 281.69 | 36,656,620 |
| 8 | Alphabet, Inc. Class A | United States | 31,973 | 1,082.80 | 34,620,364 |
| 9 | UnitedHealth Group, Inc. | United States | 136,106 | 244.01 | 33,211,225 |
| 10 | Taiwan Semiconductor Manufacturing Co. | Taiwan | 822,580 | 39.17 | 32,220,459 |

*All monetary values stated in US dollars.*
*A complete listing of holdings is available upon request.*

## Largest Individual Global Fixed Income Holdings as of June 30, 2019

| | Description | Rating | Par Value | Market Price | Fair Value |
|---|---|---|---|---|---|
| 1 | US Treasury Note 2.25% 04/30/2024 | AA+ | $ 24,974,000 | $ 1.02 | $ 25,540,910 |
| 2 | GNMA TBA 4.50% 07/20/2049 | AA+ | 21,600,000 | 1.04 | 22,514,328 |
| 3 | US Treasury Bond 2.75% 08/15/2047 | AA+ | 20,647,000 | 1.04 | 21,548,654 |
| 4 | US Treasury Note 2.25% 04/30/2021 | AA+ | 16,399,000 | 1.01 | 16,536,752 |
| 5 | GNMA II TBA 4.50% 08/20/2049 | AA+ | 15,000,000 | 1.03 | 15,482,850 |
| 6 | FNMA Pool #0MA3616 4.50% 03/01/2049 | AA+ | 13,343,136 | 1.05 | 13,968,796 |
| 7 | US Treasury Bond 2.50% 02/15/2045 | AA+ | 12,550,000 | 1.00 | 12,502,436 |
| 8 | US Treasury CPI Inflation 0.50% 01/15/2028 | AA+ | 11,585,759 | 1.02 | 11,774,143 |
| 9 | US Treasury Note 3.12% 11/15/2028 | AA+ | 10,474,000 | 1.10 | 11,488,302 |
| 10 | US Treasury Bond 2.87% 05/15/2043 | AA+ | 10,312,000 | 1.07 | 11,028,993 |

*All monetary values stated in US dollars.*
*A complete listing of holdings is available upon request.*

# Investment Consultants and Investment Managers as of June 30, 2019

**Investment Consultants**

Aksia LLC
Wilshire Associates, Inc.

**Investment Managers - US Equity**

AllianceBernstein, LP
BNY Mellon Asset Management North America
Brown Capital Management, Inc.
Coho Partners Ltd.
Martingale Asset Management, LP
Neumeier Poma Investment Counsel, LLC
PineBridge Investments, LLC
State Street Global Advisors
TWIN Capital Management, Inc.

**Investment Managers - Non-US Equity**

Arrowstreet Capital, LP
Axiom International Investors, LLC
City of London Investment Management Co. Ltd.
Genesis Asset Managers
GlobeFlex Capital, LP
Highclere International Investors
LSV Asset Management
State Street Global Advisors
Walter Scott & Partners Ltd.

**Investment Manager - Futures**

Russell Implementation Services, Inc.

**Investment Managers - Global Private Equity**

Bridgepoint Advisers Ltd.
Charterhouse Capital Partners
Cinven Capital Management Ltd.
Coller Investment Management Ltd.
Evergreen Pacific Partners
FdG Associates, LLC
Ford Ultimate Management II, LLC
Francisco Partners
Freeman Spogli Management Co., LP
FS CRH Group Holdings GP, LLC
Goldman Sachs Asset Management, LP
Graham Partners
J.P. Morgan Investment Management, Inc.
Kohlberg & Co.
Leonard Green & Partners
Levine Leichtman Capital Partners, Inc.
Linsalata Capital Partners, LLC
Mason Wells, Inc.
Monomoy Capital Partners
NGP Energy Capital Management, LLC
Oak Hill Capital Partners
Oaktree Capital Management, LP
Odyssey Investment Partners
Primus Venture Partners
Quantum Energy Partners
Silver Lake Partners
Swander Pace Capital Partners
Thomas H. Lee Partners
Transportation Resource Partners
Warburg Pincus

**Investment Managers - Global Fixed Income**

C.S. McKee, LP
Dodge & Cox
Goldman Sachs Asset Management, LP
J.P. Morgan Investment Management, Inc.
Johnson Investment Counsel, Inc.
Loomis, Sayles & Co.
Stone Harbor Investment Partners, LP
Western Asset Management Co.

**Investment Managers - Multi-Asset Strategies**

Angelo, Gordon & Co.
Aristeia Capital, LLC
Arrowstreet Capital, LP
Bain Capital, LP
BlackRock Institutional Trust Co., N.A.
Bridgewater Associates, Inc.
BRG Fund Management Services LLC
D.E. Shaw & Co., LLC
Eminence Capital, LLC
Fund Wind Down Services Limited
GoldenTree Asset Management, LP
GSA Capital Partners, LLP
Invesco National Trust Co.
King Street Capital Management, LLC
Marathon Asset Management, LLC
Nephila Capital Ltd.
Oceanwood Capital Management, LLP
Parametric Portfolio Associates LLC
Pharo Global Advisors Ltd.
PineBridge Investments LLC
Redwood Capital Management, LLC
Rockhampton
Schroder Investment Management North America Ltd.
Stone Milliner Asset Management, LLP
Viking Global Investors, LP

**Investment Managers - Global Real Assets**

Almanac Realty Investors, LLC
AMP Capital Investors Ltd.
Beacon Capital Partners, LLC
BlackRock Institutional Trust Co., N.A.
CBRE Global Investors, LLC
Clarion Partners, LLC
Colony Capital, LLC
Deutsche Asset & Wealth Management
Fiera Infrastructure Inc.
Fillmore Capital Partners, LLC
Harrison Street Real Estate Capital, L.L.C.
J.P. Morgan Investment Management, Inc.
Industry Fund Management Pty, Ltd.
LA Financial Management, LLC
Mesa West Capital, LLC
Patrizia, AG
PGIM Real Estate
The Carlyle Group
UBS Realty Investors, LLC

**Investment Managers - Opportunistic Investments**

Barings LLC
Blackstone Group LLC
BlueBay Asset Management, LLP
GoldenTree Asset Management, LP
HPS Investment Partners, LLC
LBC Credit Partners
Oceanwood Capital Management, LLP
Pacific Investment Management Co.

**Currency Overlay**

BNP Paribas Asset Management USA, Inc.
J.P. Morgan Investment Management, Inc.
P/E Global, LLC

**Securities Lending Agent**

Goldman Sachs Agency Lending

**Custodians**

The Bank of New York Mellon
Huntington National Bank

**Master Recordkeeper**

BNY Mellon Asset Servicing

**Investment Analytics**

BNY Mellon Global Risk Solutions

## Summary Schedule of Brokers' Fees for US Equity Transactions for the Year Ended June 30, 2019

| Broker Name | Fees Paid | # of Shares Traded | Avg. Commission per Share |
|---|---|---|---|
| State Street Global Markets, LLC | $ 152,948 | 18,486,139 | $ 0.008 |
| J.P. Morgan Securities, LLC | 67,549 | 7,915,055 | 0.009 |
| UBS Securities, LLC | 56,982 | 3,084,317 | 0.018 |
| Evercore Group, LLC | 51,216 | 2,379,216 | 0.022 |
| Instinet, LLC | 48,284 | 2,911,799 | 0.017 |
| Citigroup Global Markets, Inc. | 33,943 | 2,916,930 | 0.012 |
| Goldman Sachs & Co. | 32,898 | 2,965,720 | 0.011 |
| Jefferies, LLC | 30,260 | 1,255,221 | 0.024 |
| Morgan Stanley & Co., Inc. | 30,220 | 1,441,513 | 0.021 |
| Pershing, LLC | 29,789 | 2,567,535 | 0.012 |
| HSBC Securities, Inc. | 26,626 | 2,982,149 | 0.009 |
| Barclays Capital, Inc. | 25,675 | 738,436 | 0.035 |
| SG Americas Securities, LLC | 24,986 | 1,399,815 | 0.018 |
| Merrill Lynch, Pierce, Fenner & Smith, Inc. | 24,973 | 3,211,049 | 0.008 |
| Cowen & Co., LLC | 22,067 | 1,194,304 | 0.018 |
| Euroclear Bank SA/NV | 17,675 | 981,411 | 0.018 |
| Robert W. Baird & Co., Inc. | 16,116 | 469,579 | 0.034 |
| Stifel, Nicolaus & Co., Inc. | 15,181 | 382,444 | 0.040 |
| Wolfe Research Securities | 11,884 | 594,199 | 0.020 |
| Deutsche Bank Securities, Inc. | 11,773 | 547,842 | 0.021 |
| ITG, Inc. | 11,582 | 3,132,687 | 0.004 |
| Sanford C. Bernstein & Co., LLC | 11,154 | 2,898,984 | 0.004 |
| Loop Capital Markets, LLC | 9,727 | 341,382 | 0.028 |
| Abel Noser Corp. | 8,891 | 218,492 | 0.041 |
| Cantor, Fitzgerald & Co. | 8,173 | 274,404 | 0.030 |
| William Blair & Co., LLC | 8,058 | 265,571 | 0.030 |
| Needham & Co., LLC | 7,797 | 194,936 | 0.040 |
| Convergex Execution Solutions, LLC | 7,353 | 1,290,422 | 0.006 |
| BMO Capital Markets Corp. | 7,171 | 691,181 | 0.010 |
| Lloyds Bank Corporate Markets | 7,158 | 715,788 | 0.010 |
| Piper Jaffray & Co. | 6,484 | 178,097 | 0.036 |
| Credit Suisse Securities, LLC | 6,432 | 279,601 | 0.023 |
| Jonestrading Institutional Services, LLC | 6,306 | 381,325 | 0.017 |
| Raymond James & Associates, Inc. | 6,272 | 172,404 | 0.036 |
| Dinosaur Group Holdings, LLC | 5,998 | 1,101,830 | 0.005 |
| Weeden & Co., LP | 5,973 | 1,529,574 | 0.004 |
| B.Riley & Co., LLC | 5,910 | 147,750 | 0.040 |
| D. A. Davidson & Co. | 5,643 | 141,075 | 0.040 |
| RBC Capital Markets, LLC | 5,629 | 198,762 | 0.028 |
| Roth Capital Partners, LLC | 4,757 | 118,925 | 0.040 |
| BTIG, LLC | 4,685 | 125,831 | 0.037 |
| KeyBanc Capital Markets, Inc. | 4,591 | 114,775 | 0.040 |
| Sidoti & Co., LLC | 4,420 | 110,500 | 0.040 |
| Bank of America National Trust & Savings | 3,677 | 367,650 | 0.010 |
| Marquarie Capital Markets North America Ltd. | 3,447 | 2,210,452 | 0.002 |
| Oppenheimer & Co., Inc. | 3,314 | 187,019 | 0.018 |
| Liquidnet, Inc. | 3,265 | 268,736 | 0.012 |
| Craig-Hallum Capital Group, LLC | 3,153 | 78,825 | 0.040 |
| Stephens, Inc. | 3,135 | 78,375 | 0.040 |
| North South Capital, LLC | 3,084 | 154,201 | 0.020 |
| Brokers with less than $3,084 (43) | 34,643 | 3,216,771 | 0.011 |
| Total US | $ 948,927 | $ 79,610,998 | $ 0.012 |

## Summary Schedule of Brokers' Fees for Non-US Equity Transactions for the Year Ended June 30, 2019

| Broker Name | Fees Paid | # of Shares Traded | Avg. Commission per Share |
|---|---|---|---|
| Instinet, LLC | $ 200,394 | 110,513,999 | $ 0.002 |
| UBS Securities, LLC | 69,616 | 22,795,887 | 0.003 |
| CSLA Americas, LLC | 61,633 | 12,426,669 | 0.005 |
| Goldman Sachs & Co. | 59,611 | 22,048,700 | 0.003 |
| Credit Agricole Securities, Inc. | 58,943 | 29,648,513 | 0.002 |
| J.P. Morgan Securities, LLC | 46,786 | 15,093,559 | 0.003 |
| Citigroup Global Markets, Inc. | 46,602 | 29,162,938 | 0.002 |
| ITG, Inc. | 41,781 | 40,123,945 | 0.001 |
| HSBC Securities, Inc. | 37,770 | 27,707,949 | 0.001 |
| Merrill Lynch Professional Clearing Corp. | 32,696 | 28,021,844 | 0.001 |
| Morgan Stanley & Co., Inc. | 32,481 | 6,835,481 | 0.005 |
| Sanford C. Bernstein & Co., LLC | 31,026 | 14,419,827 | 0.002 |
| Marquarie Capital Markets North America Ltd. | 30,401 | 39,044,223 | 0.001 |
| SG Securities, LLC | 25,935 | 20,234,743 | 0.001 |
| Convergex Execution Solutions, LLC | 22,358 | 6,692,862 | 0.003 |
| Daiwa Capital Markets, Inc. | 18,040 | 5,500,842 | 0.003 |
| UBS Financial Services, Inc. | 17,321 | 4,547,235 | 0.004 |
| BNP Parabas Investment Services, LLC | 16,768 | 5,921,281 | 0.003 |
| Credit Suisse Securities, LLC | 14,964 | 4,233,598 | 0.004 |
| Exane, Inc. | 14,487 | 4,109,297 | 0.004 |
| North South Capital, LLC | 12,429 | 504,387 | 0.025 |
| Societe Generale Securities Services | 12,082 | 790,912 | 0.015 |
| Deutsche Bank Securities, Inc. | 10,082 | 2,878,283 | 0.004 |
| XP Securities, LLC | 10,052 | 2,980,981 | 0.003 |
| ICICI Securities, Inc. | 9,884 | 6,126,329 | 0.002 |
| Nomura Securities International, Inc. | 9,730 | 914,379 | 0.011 |
| Cowen & Co., LLC | 9,722 | 1,291,668 | 0.008 |
| Jefferies, LLC | 9,084 | 4,261,791 | 0.002 |
| Bradesco S/A Ctvm | 8,534 | 3,394,370 | 0.003 |
| Cantor, Fitzgerald & Co. | 6,947 | 274,888 | 0.025 |
| Auerbach Grayson & Co., Inc. | 6,302 | 3,321,133 | 0.002 |
| RBC Capital Markets, LLC | 5,649 | 194,889 | 0.029 |
| SMBC NIKKO Securities America, Inc. | 5,637 | 93,246 | 0.060 |
| ITAU International Securities, Inc. | 5,511 | 366,450 | 0.015 |
| SG Warburg & Co., Inc. | 3,273 | 263,910 | 0.012 |
| SG Americas Securities, LLC | 3,165 | 1,282,516 | 0.002 |
| Socgen-Crosby Securities, Inc. | 3,049 | 1,656,803 | 0.002 |
| Garantia, Inc. | 2,844 | 1,263,773 | 0.002 |
| DBS Vickers Securities, Inc. | 2,792 | 1,540,400 | 0.002 |
| Merrill Lynch, Pierce, Fenner & Smith, Inc. | 2,767 | 247,166 | 0.011 |
| Kepler Capital Markets, Inc. | 2,645 | 119,631 | 0.022 |
| Winterflood Securities, Inc. | 2,440 | 613,891 | 0.004 |
| First Rand Bank Co. | 2,439 | 234,449 | 0.010 |
| Penserra Securities, LLC | 2,432 | 338,806 | 0.007 |
| Santander Securities, LLC | 2,170 | 265,200 | 0.008 |
| Numis Securities, Inc. | 1,442 | 217,913 | 0.007 |
| Pavilion Global Markets, Ltd. | 1,317 | 173,248 | 0.008 |
| Bradesco Securities, Inc. | 998 | 82,800 | 0.012 |
| Redburn, LLC | 982 | 74,707 | 0.013 |
| Barclays Capital, Inc. | 930 | 215,400 | 0.004 |
| Brokers with less than $930 (24) | 9,280 | 4,781,595 | 0.002 |
| Total Non-US | $ 1,046,223 | $ 489,849,306 | $ 0.002 |

## Reconciliation to Statement of Fiduciary Net Position

| Asset Class/Strategy | | Fair Value | % of Total Fair Value |
|---|---|---|---|
| Global Equities | $ | 6,730,467,871 | 45.7% |
| Global Private Equity | | 1,489,410,467 | 10.1 |
| Global Fixed Income | | 2,274,304,349 | 15.4 |
| Multi-Asset Strategies | | 1,193,194,032 | 8.1 |
| Global Real Assets | | 2,219,360,239 | 15.0 |
| Opportunistic Investments | | 371,763,673 | 2.5 |
| Cash Equivalents | | 472,129,774 | 3.2 |
| Net Portfolio Value | $ | 14,750,630,405 | 100.0% |
| | | | |
| Investments receivable, securities sold | | (198,957,411) | |
| Investments payable, securities purchased | | 255,481,154 | |
| Cash and cash equivalents | | (655,816,449) | |
| Investments per Statement of Fiduciary Net Position | $ | 14,151,337,699 | |

## Statement of Investment Policy (effective September 17, 2015)

### I. Purpose of Statement of Investment Policy

The purpose of this Statement of Investment Policy (SIP) is to set forth the investment philosophy and objectives of the Retirement Board (Board) for the School Employees Retirement System of Ohio (SERS).

This SIP:

A. incorporates and is subject to all restrictions and obligations set forth in Chapter 3309 of the Ohio Revised Code;

B. establishes investment policies and describes the organization and division of responsibilities necessary to implement the Board's philosophy and objectives prudently; and

C. establishes a framework for making investment decisions, and monitoring investment activity, and promotes effective communication between the Board, Staff, and other involved parties.

This SIP is subject to change at any time by the Board. The Board will review the SIP and revise it periodically to assure it continues to reflect the investment philosophy, objectives and strategies of the Board.

### II. Investment Philosophy

The Board recognizes the need to manage SERS assets prudently (the Total Fund) to meet its statutory and fiduciary obligations and to achieve or exceed its objectives. The Board's investment philosophy is grounded in fundamental, prudent investment principles, incorporating modern portfolio theory, risk management and portfolio management practices. These principles are incorporated in the "Investment Beliefs" below. The Board believes it can provide consistent, long-term performance at appropriate levels of risk. By delineating responsibilities and defining policy objectives, this SIP reflects the Board's investment philosophy and governance.

SERS Investment Beliefs:

Financial Markets

A. Capital markets are not perfectly efficient. Inefficiencies create opportunities that skilled investors could exploit to generate excess returns. Investment Staff will prudently attempt to add value by exploiting such inefficiencies across different assets selectively, although it is not easily achieved.

B. Markets generally afford higher prospective returns for riskier assets, such as equity or credit risk premiums over the long term. Anomalies could occur in intermittent periods on account of shifting valuations. When valuations are elevated returns tend to be lower.

Investment Process

C. Strategic asset allocation is the key determinant of risk and return and represents the Board's tolerance for risk in achieving funding goals. It is important to diversify across risk factors and return sources and to be explicit about the role of asset classes.

D. Risk is the likelihood of loss or less than expected outcomes and is not fully captured by a single metric such as volatility. Risk has many dimensions, subjective and objective, which must be comprehensively assessed and managed in the investment process.

E. Long-term horizon is an advantage as it enables SERS to tolerate volatility, capture illiquidity and other risk premia, and take advantage of trends and opportunities.

F. Costs matter. Managing fees and transaction costs adds value to the Fund. Costs must be judged relative to expected value added.

Organizational Skills and Design

G. Investment success is dependent on good governance, decision process, skill and judgment. Having an experienced and talented staff with appropriate decision authority is an advantage. SERS' Board will delegate authority as appropriate to staff to facilitate execution of the investment process, but retain policy and oversight powers.

H. Explicit investment objectives, guidelines and collaborative teamwork among staff as well as external partners is essential for success.

Sustainability and Corporate Governance

I. Good governance of markets and entities comprising the markets improves outcomes for investors. SERS Board and Staff will exercise corporate ownership responsibly and with the best fiduciary interest of members and stakeholders.

J. SERS Board and Staff must be attentive to important environmental, social and governance issues that affect markets and promote its interests in a responsible manner in the best fiduciary interest of members and stakeholders.

**III. Investment Objectives**

The Investment Objectives of SERS are:

A. to assure that SERS provides statutorily-mandated retirement benefits;

B. to earn a net-of-fees total return that equals or exceeds over the long term the Actuarial Assumed Rate approved by the Board; and

C. to enhance risk-adjusted investment returns of the Total Fund in a prudent and cost-effective manner.

**IV. Risk Management**

A. The Board evaluates risk in terms of the probability of not earning the actuarial assumed rate over the long term. Diversification across asset classes, within asset classes, and across investment styles, sectors, and securities will be employed to manage overall portfolio risk and volatility.

B. SERS utilizes a risk budgeting approach in management of volatility risk of investment portfolios. Active risk of the Total Fund, asset class and individual portfolios and their respective risk contribution to total risk are important factors in the management of the capital allocations to individual asset classes and portfolios. The Total Fund shall be managed within a forecast active risk (tracking error) range of 0% to 3.0% relative to the policy benchmark and within the asset allocation range specified elsewhere in this SIP. Active risk is determined by asset allocation deviations and active security selection decisions as well as underlying market volatility. In times of high market volatility the active risk may exceed 3%. In any event, if the active risk exceeds 3% staff will discuss this with the Board and present appropriate recommendations. The realized tracking error is also expected to be below 3% over rolling three-year periods. Individual asset classes will be managed within the tracking error range specified in the respective asset class implementation guideline. Private asset classes (Private Equity and Real Asset) are excluded at this point from tracking error guidelines.

C. Other risks, including but not limited to those such as interest rate risk, credit risk, and liquidity risk, will be managed and carefully monitored by Investment Managers and Investment Staff.

**V. Implementation Approach**

A. The Board reserves certain responsibilities for itself, while delegating other responsibilities to the Executive Director, the Chief Investment Officer, the Investment Committee, Investment Staff, Investment Managers, Investment Consultants, the Investment Compliance and Governance Officer, and other Investment Service Providers. These responsibilities are described in this SIP.

B. In fulfilling its fiduciary duties the Board utilizes a competent and qualified Staff to implement the investment program and to manage daily operations.

C. The Board utilizes Investment Managers or Funds selected by Staff to invest most assets of the Total Fund. The Board recognizes that costs associated with external Investment Managers and Funds are typically higher than costs associated with internal management. However, the Board believes external Investment Managers that act as fiduciaries possess specialized investment expertise and economies of scale, and can generate higher returns on a net-of-fee basis.

D. The Board requires regular reporting on the Total Fund's investment program to ensure compliance with its SIP.

**VI. Investment Organization and Responsibilities**

A. Responsibilities of the ***Board***

The Board as a fiduciary is responsible for ensuring that Total Fund assets are managed prudently and effectively, in compliance with applicable laws and with this SIP, for the exclusive benefit of participants and beneficiaries.

Responsibilities of the Board include:

1. establishing controls and systems to ensure that Total Fund fiduciaries comply with applicable laws;
2. establishing asset allocation and investment policies for SERS assets;
3. appointing and discharging the Executive Director and Board Investment consultants;
4. confirming or rejecting the Executive Director's proposed appointment of a Chief Investment Officer for SERS;
5. designating the individual as Chief Investment Officer of SERS for purposes of R.C. 3309.043, and then notifying the Ohio Department of Commerce, Division of Securities in writing of the designation as required by the Ohio Revised Code;

6. monitoring and reviewing investment performance and policy compliance;
7. requesting, receiving and reviewing reports from Investment Staff, Board consultants and other entities, if applicable;
8. approving an Annual Investment Plan;
9. approving Statement of Investment Policy and changes thereto; and
10. conducting an annual evaluation of the performance of the Board's Investment Consultant.

B. Responsibilities of ***Staff***

Staff will administer Total Fund assets as fiduciaries in accordance with applicable federal and state laws and regulations, and in accordance with this SIP, ethics laws, codes of professional conduct (in particular, the CFA Code of Ethics and Standards of Professional Conduct), and other applicable codes and/or regulations. Staff will establish plans, policies and procedures to carry out these duties.

1. The ***Executive Director*** is responsible for:
   a. ensuring that reports of the Total Fund's investment performance are presented on a timely basis;
   b. retaining vendors, consultants and advisors as necessary to assist Staff, and assist the Board in the retention of Investment consultants;
   c. appointing, discharging and retaining the Chief Investment Officer, and Investment Staff;
   d. overseeing the investment function,
   e. executing investment documents when necessary,
   f. Conducting a fiduciary audit of investment operations at least on a seven- to ten-year cycle unless circumstances require an audit to be conducted sooner, and
   g. Conducting a peer group benchmarking of SERS investment costs performed by an independent entity every two- to three-years.
2. The ***Chief Investment Officer*** is responsible for:
   a. overseeing the Investment Program and keeping the Executive Director advised;
   b. conducting periodic asset liability studies with the assistance of investment consultants and recommending asset allocation targets and ranges.
   c. reviewing the SIP on an annual basis and recommending changes as needed for approval by the Board.
   d. preparing and presenting the Annual Investment Plan to the Board for approval;
   e. implementing the Annual Investment Plan;
   f. investigating, researching and recommending new and emerging investment concepts and strategies, and implementing appropriate strategies in accordance with approved policies and procedures;
   g. informing Investment Managers, Investment Consultants and others providing investment services to SERS about the requirements of applicable laws and Board policies, and monitoring their compliance with said laws and policies;
   h. adjusting allocations to Asset Classes, Investment Managers and Funds as needed, subject to any approved allocation ranges;
   i. approving implementation guidelines for each asset class to establish allocation ranges for sub-strategies, risk parameters and risk limits and providing such guidelines to the Board.
   j. appointing and discharging Investment Managers and approving investments in or redemptions from Funds subject to conditions and guidelines in Section VII.;
   k. activating previously approved Backup Investment Managers;
   l. executing investment documents;
   m. approving Investment Manager guidelines, changes and additions;
   n. supervising Investment Staff;

o. monitoring and evaluating the effectiveness of executed securities transactions and reporting annually to the Board regarding the performance of agents who execute securities transactions on behalf of SERS; and

p. regularly reporting the status of the Total Fund and its multi-period performance to the Board relative to benchmarks and on market conditions. Performance will be calculated on a gross-of-fees and net-of-fees basis.

3. The ***Investment Committee*** is responsible for:

a. ensuring that a procedure is in place defining the Committee's structure and establishing rules for reviewing and approving investments;

b. reviewing Investment Manager and Fund due diligence; and

c. approving or discharging Investment Managers or Funds.

4. The ***Investment Staff*** is responsible for:

a. regularly reporting the status of the respective asset classes and Total Fund and its multi-period performance to the Chief Investment Officer;

b. periodically meeting and speaking with existing or potential Investment Managers to review and assess the quality of their investments and management of assets;

c. performing ongoing due diligence to evaluate and monitor Investment Manager capabilities relative to managing Total Fund assets;

d. recommending to the Chief Investment Officer implementation guidelines for the respective asset classes to establish allocation ranges for sub-strategies, risk parameters and risk limits; and managing the portfolio to the approved implementation guidelines.

e. recommending to the Chief Investment Officer any additions or withdrawals from Investment Manager accounts or Funds, or rebalancing of asset class allocations;

f. recommending to the Chief Investment Officer and the Investment Committee the appointment or discharge of Investment Managers and investments in or redemptions from Funds;

g. investing assets of the cash equivalents portfolio;

h. investigating and researching new and emerging investment concepts and strategies, and recommending those strategies to the Chief Investment Officer;

i. preparing periodic reports for the Chief Investment Officer on the performance of agents who execute securities transactions on behalf of SERS; and

j. maintaining a list of Ohio-qualified Investment Managers and their investment products.

C. Responsibilities of ***Investment Service Providers***

Investment Service Providers who do business or seek to do business with SERS will act in the best interest of SERS when providing services to SERS or the Total Fund. Investment Service Providers will:

1. comply with all applicable federal and state laws and regulations, with this SIP, and with all applicable professional codes and regulations;

2. have established ethics and conflict of interest policies and procedures, and proper internal compliance controls in place as needed;

3. at the earliest opportunity disclose to Investment Staff any actual or potential conflict of interest;

4. as permitted by law disclose any investigation of, or litigation involving, its operations to Investment Staff; and

5. provide annual or other periodic disclosures as required.

The Chief Investment Officer will adopt procedures as appropriate to implement this section.

D. Responsibilities of ***Investment Managers***

Investment Managers and Investment Staff managing assets internally are responsible as fiduciaries for investing prudently the Total Fund assets. In addition to those applicable responsibilities described in VI.B., Investment Managers and internal staff members will:

1. manage assets within their control in compliance with all applicable federal and state laws and regulations, including but not limited to applicable ethics requirements, this SIP, contractual obligations, and applicable professional codes of conduct;

2. inform the Chief Investment Officer and Investment Staff of any substantial changes in investment strategy, portfolio structure, asset value, and of any organizational changes, including that of ownership, affiliation, organizational structure, financial condition, or changes in professional personnel staffing in the investment management organization;
3. present in-depth reports to Investment Staff;
4. recommend to Investment Staff changes to investment guidelines the Investment Manager believes would enhance investment performance on a risk adjusted basis; and
5. select such agents for the execution of transactions, at such prices, and at such commission rates as in the good faith judgment of the Investment Manager will be in the best interest of the Total Fund, taking into consideration in the selection of such agents not only the available prices and rates of brokerage commissions, but also other factors relevant to the transaction.

E. Responsibilities of ***Investment Consultants***

Investment Consultants will:

1. provide services as fiduciaries and in accordance with all applicable federal and state laws and regulations, including but not limited to applicable ethics requirements; in accordance with this SIP; and with all applicable professional codes and/or regulations;
2. provide independent and unbiased research, information and advice to the Board and Staff;
3. assist in the development and amendment of this SIP;
4. assist in the development of investment guidelines as may be requested by Staff;
5. assist in the development of strategic asset allocation targets and ranges;
6. assist in the development of performance measurement standards;
7. monitor and evaluate Investment Manager and Fund performance as appropriate on an ongoing basis;
8. recommend to Staff the retention or discharge of Investment Managers and investment in or redemption from Funds;
9. collaborate with Investment Staff on the due diligence of potential Investment Managers and Funds, and existing Investment Managers and Funds, as requested by Staff;
10. assist in the development of criteria for and procedures to be utilized in the selection of Investment Managers and Funds;
11. provide research, information and advice on investment topics and strategies considered relevant by the Investment Consultant, or when requested by the Board or Investment Staff;
12. provide those services delineated in the Advisory or Consultant Agreement;
13. provide any other advice or services that the Board, Executive Director or Chief Investment Officer determines are necessary, useful or appropriate to fulfill the objectives of this SIP; and
14. regularly report the status of the Total Fund and its multi-period performance to the Board. Performance will be calculated on a net-of-fee basis.

F. Responsibilities of the ***Investment Compliance and Governance Officer***

The Investment Compliance and Governance Officer is responsible for:

1. monitoring and reporting compliance with this SIP and Board Resolutions;
2. ensuring that investment management agreements and related contracts comply with the SIP;
3. ensuring that Investment Service Providers and Investment Managers comply with Sections VI.C. and D., herein;
4. identifying and, in concert with Investment Staff, resolving compliance violations by Investment Managers and Investment Staff relative to their respective investment guidelines. Staff will ensure that those accounts with guideline violations are efficiently and effectively brought back into compliance;
5. promptly voting proxies and related actions in accordance with Board approved procedures, and maintaining detailed records of proxy votes and related actions for the Proxy Review Committee; and
6. reporting proxy voting activity to the Board on a quarterly basis and highlighting any emerging issues related to this activity.

## VII. Conditions and Guidelines for Making Investments

A. Conditions

1. In cooperation with legal counsel, Staff will endeavor to ensure that the legal structure of each investment limits potential losses to no more than the amount invested;
2. Investments will be of institutional quality;
3. Investments will require the approval of the Chief Investment Officer and the Investment Committee;
4. Investment documents must be approved by SERS' Legal Department and the Investment Compliance and Governance Officer;
5. The Investment Committee will develop and implement definitive procedures for approving investments in accordance with this SIP
6. The Chief Investment Officer or the Executive Director must sign the necessary investment documents when making investments.

B. Guidelines

1. Selected Investment Managers and Funds will have proven track records in the strategy;
2. Monthly reporting by the Fund or Investment Manager is preferred, but there shall be quarterly reporting at a minimum;
3. The liquidity of an investment will be prudent, both for the strategy and for the Total Fund;
4. The amount invested with an Investment Manager or in a Fund will be prudent for the strategy;
5. Investment limits established by Board resolution remain in effect unless modified or eliminated by the Board.

## VIII. Implementation Strategies

A. Asset Allocation

The Board will conduct an asset and liability study every three- to five-years or sooner, if necessary, in order to establish allocation targets and ranges for asset classes within distinct capital markets. Staff, with the assistance of consultants, will review annually the market outlook and expected returns for asset classes with the Board. If there are significant changes in return assumptions, Staff will conduct an interim review of the Asset Allocation Policy.

In order to identify the investment horizon of SERS and its cash flow requirements, liability considerations will include but not be limited to current and expected future values of the benefits, contributions and total assets.

After giving due consideration to an asset and liability study conducted by the Investment Consultant, which study meets the requirements of this SIP, the Board hereby recognizes and reaffirms the following asset allocation for SERS:

| ASSET CLASS | TARGET | RANGE |
|---|---|---|
| **Equity** | **55%** | **45% - 65%** |
| Global Equities | 45% | 35% - 55% |
| Global Private Equity | 10% | 5% - 15% |
| **Income** | **35%** | **30% – 40%** |
| Global Bonds | 19% | 12% - 26% |
| Global Real Assets | 15% | 10% - 20% |
| Cash Equivalents | 1% | 0% - 5% |
| **STRATEGY** | | |
| Multi-Asset Strategies | 10% | 5% - 15% |
| Opportunistic Investments | 0% | 0 – 5% |
| **Total** | | **100%** |

B. Derivative Instruments

The Board authorizes the use of derivative instruments in the Total Fund and authorizes the Chief Investment Officer, with the advice and assistance of the Investment Consultant, to develop and implement derivative instrument strategies as needed. The Chief Investment Officer will adopt a derivative instruments policy setting forth general guidelines for the use of derivative instruments.

C. Leverage

The Board authorizes the use of leverage in the Total Fund and authorizes the Chief Investment Officer, with the advice and assistance of the Investment Consultant, to develop and implement certain leverage strategies. The Chief Investment Officer will adopt a leverage policy setting forth general guidelines for the use of leverage.

D. Rebalancing

The Chief Investment Officer will adopt a rebalancing strategy for the Total Fund which ensures adherence to the asset allocation strategy in Section VIII.A. The strategy may delegate certain authority to Investment Staff.

E. Currency Hedging

The Board authorizes currency hedging in the Total Fund and authorizes the Chief Investment Officer, with the advice and assistance of the Investment Consultant, to develop and implement currency hedging strategies as needed.

F. Transition Management

The Board authorizes the Executive Director and the Chief Investment Officer to hire Transition Managers as needed.

G. Proxy Voting

The Board authorizes the Proxy Review Committee, which consists of staff members from Executive and Investments, to vote proxies of common stock owned by SERS and to hire proxy services as required to implement this strategy. The Proxy Review Committee will adopt and implement a process for voting proxies as described in the Proxy Voting Procedures document.

H. Securities Lending

The Board authorizes Investment Staff to develop and implement a securities lending program which may involve the appointment or discharge of third party securities lending agents by the Executive Director or the Chief Investment Officer. The Board recognizes that while the practice of securities lending can generate meaningful income for the Total Fund, it is not without investment risk. To mitigate investment risk the securities lending program will focus on intrinsic value lending and use conservative collateral reinvestment guidelines similar to current SEC 2a-7 guidelines. If Staff determines the risk/reward relationship of the program is no longer advantageous for the Total Fund, the program will be discontinued.

I. Opportunistic Investments

The Board authorizes Investment Staff to invest up to 5% of Total Assets in Opportunistic Investment Strategies. These investments will comply with the Opportunistic Investment Policy approved by the Board.

J. Investment Managers and Funds

The Board authorizes the Chief Investment Officer and the Investment Committee to approve and discharge Investment Managers, Funds and Backup Investment Managers based upon recommendations of Investment Staff or Investment Consultants, as may be appropriate, and discussions with Managers. Allocations to approved Investment Managers and Funds will be determined or adjusted by the Chief Investment Officer in accordance Section VI.B.2.f. Allocations and adjustments are subject to any maximum allocation amounts established by the Board.

Investment Managers will adhere to investment guidelines established by Investment Staff, as well as all applicable laws and policies. The Chief Investment Officer is authorized to establish and amend investment guidelines as needed.

It is a goal of the Board to increase the utilization of Ohio-qualified Investment Managers when an Ohio-qualified Investment Manager offers quality, services and safety comparable to other Investment Managers available to the Board, and the use of such Investment Manager is consistent with the Board's fiduciary duties.

The Board will require that a list of Ohio-qualified Investment Managers and their investment products be maintained, and that public notice be given to Ohio-qualified Investment Managers of Investment Manager searches and search criteria. Staff will report to the Board annually on the utilization of Ohio-qualified managers and efforts to increase utilization.

SERS will give equal consideration to minority owned and controlled firms, and firms owned and controlled by women.

K. Collective Investment Funds

To the extent SERS' assets are invested in a group trust described in IRS Revenue Ruling 81-100, the instruments governing such trusts, as they may be amended from time to time, are hereby incorporated by reference and made part of the SIP as if fully set forth herein.

L. Approved Brokers

Brokers (or broker/dealers) who may provide execution of securities transactions for SERS will be evaluated on the basis of financial soundness, underwriting capabilities, research services, execution costs, and any other capabilities necessary in the execution of such transactions. Investment Managers which use such brokers will use their good faith judgment to ensure that said brokers will perform in the best interest of the Total Fund.

It is a goal of the Board to increase its utilization of Ohio-qualified brokers for the execution of domestic equity and domestic fixed income trades when an Ohio-qualified broker offers quality, services, and safety comparable to other brokers available to the Board or its Investment Managers, and the use of such broker is consistent with the Board's fiduciary duties.

SERS will give equal consideration to minority owned and controlled firms, and firms owned and controlled by women.

M. Soft Dollars

SERS allows investment managers to enter into limited soft dollar trading arrangements as governed by the "safe harbor" provision of Section 28(e) of the Securities and Exchange Act of 1934, and guided by the CFA Institute Soft Dollar Standards. SERS does not support any new soft dollar arrangements outside of these noted provisions.

N. Securities Litigation

SERS will follow the securities litigation policy and procedures as approved by the Board in setting out a course of action that best represents the interests of SERS' participants and beneficiaries.

O. Other

The strategies listed herein are not meant to constrain the Chief Investment Officer from managing the Investment Program in a prudent manner. The Chief Investment Officer may develop additional investment strategies as needed and will discuss such additional strategies with the Board prior to implementation.

**IX. Performance**

A. Performance Measurement Standard

Performance evaluation for the Total Fund will focus on total return, on an accrual accounting basis, including realized and unrealized capital gains and losses, and income. Valuations are to be made at least on a quarterly basis, and period returns are to be geometrically linked. Private market asset returns may be reported one quarter in arrears. Cash and cash equivalents will be included in the portfolio's return. Performance will be calculated on a gross-of-fee and net-of-fee basis.

B. Performance Benchmark – Total Fund

Performance of the Total Fund relative to benchmarks will be examined monthly, and will be reported for multiple time periods as needed. The Board's Investment Consultant will calculate and report performance net-of-fees on a quarterly basis.

The performance benchmark for the Total Fund will be the target-weighted average of the performance benchmark for each asset class and strategy grouping as stated in Section VIII. A.

In the event of a significant change in policy targets, the Board may approve interim targets for a period to move progressively toward the final target; interim targets may be used for the purpose of calculating the Total Fund policy benchmark in the interim period.

C. Performance Benchmarks – Asset Classes and Strategies

The long-term performance benchmark for each asset class is shown below. Performance benchmarks are determined as appropriate for SERS in cooperation with SERS' Investment Consultant. For purposes of this section, long-term refers to rolling three- to five-year periods. Performance in each asset class should meet or exceed the Benchmark measure.

| Asset Class | Benchmark Measure |
|---|---|
| Global Equities | 50% Russell 3000 Index; 50% MSCI ACWI ex-US Index (net dividends) |
| Global Private Equity | Burgiss All Private Equity Benchmark (BAPE)(one quarter in arrears) |
| Global Fixed Income | Barclays Capital US Aggregate Bond Index |
| Global Real Assets | NCREIF Property Index (one quarter in arrears) |
| Cash Equivalents | Citigroup 30-day T-Bill Index |
| Strategy | Benchmark Measure |
| Multi-Asset Strategies | HFRI Fund of Funds Composite Index plus 1.0% |
| Opportunistic Investments | Total Fund Benchmark Return |

D. Performance Benchmarks – Individual Investment Managers

Investment Staff will establish performance benchmarks for each Investment Manager based on its respective style.

### X. Review and Evaluation

The Board will review and evaluate periodic reports on the investment performance of Total Fund assets. Greater emphasis will be placed on three- to five-year results. The intended frequency for review and evaluation, subject to change by the Board, is as follows:

A. Monthly – Investment Report including Total Fund market value, asset allocation, performance of the Total Fund and each asset class, and the Total Fund's compliance with this SIP.

B. Quarterly – Summary Investment Report presented by the Investment Consultant, including highlights and commentary about market conditions, investment performance, asset composition and characteristics for each asset class, and relevant manager level information.

This policy supersedes the policy adopted August 2, 1985 and all revised policies dated 6/18/15; 12/18/14; 5/01/14; 1/01/14; 7/01/13; 1/19/12; 7/21/11; 7/01/10; 2/01/09; 8/01/08; 2/21/08; 10/01/07; 10/20/05; 9/15/00; 10/23/98; 6/19/98; 12/12/97; 7/25/97; 3/21/97; 12/20/96; 11/22/96; 6/21/96; 4/25/96; 9/15/95; 7/28/95; 6/16/95; 3/17/95; 1/20/95; 10/21/94; 5/20/94; 3/06/92; 4/07/89; 9/04/87; 1/09/87.

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# Actuarial Section

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Cavanaugh Macdonald
CONSULTING, LLC
*The experience and dedication you deserve*

November 1, 2019

Board of Trustees
School Employees Retirement System of Ohio
300 East Broad Street, Suite 100
Columbus, OH 43215-3746

Dear Board Members:

The basic financial objective of the School Employees Retirement System of Ohio (SERS) is to establish and receive contributions which, when expressed in terms of percents of active member payroll, will remain approximately level from generation to generation of members, and which, when combined with present assets and future investment returns, will be sufficient to meet the present and future financial obligations of SERS.

In order to measure progress toward this fundamental objective, SERS has an actuarial valuation performed each year. The valuation (i) measures present financial position, and (ii) establishes contribution rates that provide for the current cost and level percent of payroll amortization of the unfunded actuarial accrued liability over a reasonable period. The valuation performed as of June 30, 2019 indicates that a contribution rate of 10.68% of payroll for 159,363 school employees meets the basic financial objective over a 25-year period.

The statutory employer contribution is 14.00% of payroll. The funding policy establishes ranges of the funded ratio for basic benefits that restrict the allocation of employer contributions to the Health Care Fund. The funded ratio is equal to the actuarial value of assets divided by the actuarial accrued liability of promised benefits. The Board seeks to maintain a funded ratio of at least 90% for basic benefits. If the basic benefit funded ratio is less than 70%, the entire 14.00% of the employers' contribution shall be allocated to basic benefits. If the funded ratio is at least 70% but less than 80%, the minimum portion of the employers' contribution allocated to basic benefits is 13.50% of payroll, with the remainder (if any) allocated to the Health Care Fund. If the funded ratio is at least 80% but less than 90%, at least 13.25% of the employers' contribution shall be allocated to basic benefits, with the remainder (if any) allocated to the Health Care Fund. If the funded ratio is 90% or greater, the Health Care Fund may receive any portion of the employers' contribution that is not needed to fund basic benefits. The funding policy is intended to accelerate the pace at which SERS' basic benefits will achieve a funded ratio equal to 90%.

The funded ratio for basic benefits is 70.51%. Since the funded ratio is at least 70% but less than 80%, at least 13.50% of the employer's 14.00% of payroll contribution must be allocated toward basic benefits. The Board may allocate up to 0.50% of the employer's contribution to the Health Care fund. Any portion of the 0.50% employer's contribution which is not allocated to the Health Care Fund will be allocated toward basic benefits. On October 17, 2019, the Board adopted a resolution to allocate the entire 14.00% of payroll contribution to the basic benefits for the fiscal year ended June 30, 2020.

The actuarial valuation of the pension benefits, the post-retirement death benefit, and the Medicare Part B reimbursement are based upon two factors. The first is financial and participant data as of the valuation date and the second is economic and demographic assumptions.

The valuation is based upon data concerning active, inactive and retiree members along with pertinent financial information. The data was furnished by the SERS staff and has been certified by the System's auditor. While not verifying the data at the source, we performed tests for consistency and reasonableness.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE

Board of Trustees
November 1, 2019
Page 2

Economic assumptions address future rates of investment return and inflation; and demographic assumptions relate to future rates of retirement, turnover, death and disability among SERS members and their beneficiaries. We review the data for internal and year-to-year consistency as well as general reasonableness prior to its use in the actuarial valuations. It is also summarized and tabulated for the purpose of analyzing trends. The assumptions were adopted by the Board of Trustees and were based upon actual experience of SERS during the 2011-2015 fiscal years. Assets are valued according to a method that fully recognizes expected investment returns and averages unanticipated market return over a four-year period. The assumptions and methods used for financial reporting purposes meet the parameters set by the Actuarial Standards of Practice (ASOPs).

The financial condition of health care is different and is being significantly affected by the provisions of Act 290 of 1988 and Act 270 of 2001. Act 290 established a health care surcharge, a program to determine a minimum annual pay for use in calculating employer contribution dollars. Act 270 placed limits on the amount of health care surcharge that can be assessed to each employer and in total.

On the basis of projections of health care fund activity and the surcharge limit established by Act 270, the allocated contributions are insufficient in the long-term to provide for a 20-year solvency period for the health care fund. This result is based on the projected claims and premium contributions for the next 20 years, as is described in the Statement of Funding Policy adopted by the Board. Since total claims are projected to exceed total contributions in future years, it is currently anticipated that future fund amounts will be depleted in 2034.

The current benefit structure is outlined in the Plan Summary. There have been no changes since the prior valuation.

We provided information used in the schedules of Actuarial Accrued Liabilities, Active Member Valuation Data, Retirees and Beneficiaries Added To and Removed From Rolls, Analysis of Financial Experience, the Schedule of Funding Progress, and the Schedule of Employer Contributions in the Financial Section.

The main purpose of the Basic Benefits Valuation is to determine the System’s funded status and the actuarially determined employer contribution rate as of June 30, 2019 necessary to satisfy the funding objectives of the Board. The Basic Benefit Valuation indicates the School Employees Retirement System of Ohio is expected to continue in sound condition in accordance with actuarial principles of level percent of payroll financing provided all actuarial assumptions for future experience are met. Should future adverse experience develop, SERS may find it necessary to seek benefit reductions and/or contribution rate increases from employers, members, or both.

In addition to the annual valuation, a risk analysis was performed which provided a more robust indication of the future actuarial condition of the System.

Sincerely,

Todd B. Green ASA, FCA, MAAA
President

Alisa Bennett, FSA, EA, FCA, MAAA
President

John Garrett, ASA, FCA, MAAA
Principal and Consulting Actuary

# PENSION
## Summary of Actuarial Assumptions and Methods

The SERS Retirement Board adopted the following actuarial assumptions and methods April 21, 2016, on the recommendation of its actuary. These assumptions were based on an analysis of plan experience for the five-year period July 1, 2010 through June 30, 2015, and were adopted for use in the valuation as of June 30, 2019.

**Funding Method** Basic benefits are determined using the entry age normal actuarial cost method. Under this cost method, projected service retirement, termination, disability, and death benefits are determined for all active members. Cost factors, which are developed to produce level annual costs in each year from the age at hire (entry age) to the assumed retirement age, are applied to the projected benefits to determine the "normal cost." The normal cost is the portion of the total cost of the plan allocated to the current year. The normal cost for contribution refunds is assumed to end in the last year of the assumed eligibility, and is spread over all years of service.

The "actuarial accrued liability" for active members is then calculated as the portion of the total cost of the plan allocated to prior years. The actuarial accrued liability for retirees currently receiving benefits, for active members beyond the assumed retirement age, and for inactive members entitled to future benefits, is equal to the present value of the benefits expected to be paid.

The dollar amount of the total actuarial accrued liability in excess of the value of the plan fiduciary net position is called the "unfunded actuarial accrued liability." Funding requirements under the entry age actuarial cost method are determined by adding the normal cost and the cost to amortize the unfunded liability.

Actuarial assumptions are used to determine the projected benefits and cost factors. The effect of differences between these assumptions and the actual experience of the plan is calculated each year when the annual actuarial valuation is performed. These differences produce either actuarial gains or losses that result in an adjustment of the unfunded liability.

**Funding Policy** The Board adopted a new funding policy on June 18, 2015, effective with the June 30, 2015 valuation. The funding policy established ranges of the funded ratio for basic benefits that restrict the allocation of employer contributions to the Health Care Fund. The Board seeks to maintain a funded ratio of at least 90% for basic benefits. If the basic benefit funded ratio is less than 70%, the entire 14% of the employers' contributions shall be allocated to basic benefits. If the funded ratio is at least 70% but less than 80%, the minimum portion of the employers' contribution allocated to basic benefits is 13.50% of payroll; the remainder may be allocated to the Heath Care Fund at the Board's discretion. If the funded ratio is at least 80% but less than 90%, at least 13.25% of the employers' contribution shall be allocated to basic benefits; the remainder may be allocated to the Health Care Fund at the Board's discretion. If the funded ratio is 90% or greater, the Health Care Fund may receive any portion of the employers' contribution that is not needed to fund basic benefits.

**Contributions** During FY2019, active members and their employers were required to contribute 10% and 14%, respectively, of active member payroll. The Board allocates the employer contribution rate of 14% among basic benefits (pension, Medicare B, and death benefit) and health care in accordance with its funding policy. For the year ended June 30, 2019, the policy required the determination of a rate for basic benefits to cover normal cost and to amortize the unfunded actuarial accrued liabilities over a 25-year period.

| | |
|---|---|
| Pension Trust Fund | 12.61% |
| Death Benefit Fund | 0.83% |
| Medicare B Fund | 0.06% |
| Health Care Fund | 0.50% |
| | 14.00% |

The Ohio Revised Code (ORC) also provides for an employer contribution surcharge as an additional source of funding for health care. The surcharge is equal to 14% of the difference between a minimum pay amount and the member's pay, if below that minimum, it is pro-rated for partial service credit. For FY2019, the minimum pay amount was established at $21,600. The employer surcharge cap is applied at 2.0% of each employer's payroll and at 1.5% of total payroll statewide.

**Asset Valuation Method** Differences between assumed and actual experience (actuarial gains and losses) become part of unfunded actuarial accrued liabilities. When these differences between assumed and actual experience have been observed to be sizeable and persistent, a change is made to the actuarial assumptions.

SERS' Board adopted a method of valuing investment assets that recognizes a "smoothed" market value of those assets. The smoothed value of assets recognizes the difference between actual and expected performance for each year in equal amounts over a four-year period.

**Economic Assumptions** The following economic assumptions were used in the actuarial valuation as of June 30, 2019:

- **Investment Return** Net after all SERS' expenses, the return on investments is compounded annually at 7.50%.
- **Inflation Rate** The inflation assumption is 3.00% per year. The real rate of return is the portion of total investment return, which is more than the inflation rate. Considering inflation recognition of 3.00%, the 7.50% investment return rate translates to an assumed real rate of return of 4.50%.

- **Benefit increases** Cost-of-living adjustments of 2.50% per year on anniversary of retirement are assumed. On and after April 1, 2018, COLA's for future retirees are delayed for three years following commencement.
- **Payroll Growth** Salary increases attributable to payroll growth of 3.50% are projected and compounded annually. Additional projected salary increases ranging from 0.0% to 14.2% per year are attributable to seniority and merit. Pay increase assumptions for individual active members are shown for service durations in the table below.

| Years of Service | Merit & Seniority | Salary Inflation | Total |
|---|---|---|---|
| 0 | 14.20% | 3.50% | 18.20% |
| 1 | 5.55 | 3.50 | 9.25 |
| 2 | 3.14 | 3.50 | 6.75 |
| 3 | 2.17 | 3.50 | 5.75 |
| 4 | 1.45 | 3.50 | 5.00 |
| 5 | 1.20 | 3.50 | 4.75 |
| 6 | 0.97 | 3.50 | 4.50 |
| 7 | 0.72 | 3.50 | 4.25 |
| 8 | 0.48 | 3.50 | 4.00 |
| 9 | 0.24 | 3.50 | 3.75 |
| 10 & over | — | 3.50 | 3.50 |

### Non-Economic Assumptions

- **Retirements** Representative values of the assumed annual rates of service retirement are:

| | Annual Rates of Retirement | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Eligible prior to 8/1/17 | | | | Eligible on or after 8/1/17 | | | |
| Age | Reduced | Reduced (55/25) | First Eligible Unreduced | Subsequent Unreduced | Reduced | Reduced (60/25) | First Eligible Unreduced | Subsequent Unreduced |
| 50 | | | 27% | 19% | | | | |
| 55 | | 10% | 27 | 19 | | | | |
| 60 | 11% | 14 | 27 | 19 | | 14% | 30% | 19% |
| 65 | | | 25 | 19 | 11% | 14 | 30 | 19 |
| 70 | | | 20 | 22 | | | 30 | 22 |
| 75 | | | 100 | 100 | | | 100 | 100 |

- **Death-in-Service and Disability Benefits** Separation from active service other than retirement or termination of employment assumed rates are:

| | Annual Rates of | | | |
|---|---|---|---|---|
| | Death* | | Disability | |
| Age | Male | Female | Male | Female |
| 20 | 0.022% | 0.013% | 0.020% | 0.010% |
| 25 | 0.053 | 0.018 | 0.038 | 0.010 |
| 30 | 0.059 | 0.019 | 0.068 | 0.026 |
| 35 | 0.063 | 0.024 | 0.122 | 0.055 |
| 40 | 0.068 | 0.032 | 0.212 | 0.102 |
| 45 | 0.081 | 0.044 | 0.311 | 0.170 |
| 50 | 0.126 | 0.074 | 0.411 | 0.300 |
| 55 | 0.218 | 0.124 | 0.530 | 0.450 |
| 60 | 0.361 | 0.188 | 0.590 | 0.450 |
| 65 | 0.607 | 0.274 | 0.550 | 0.300 |
| 70 | 1.071 | 0.415 | 0.300 | 0.200 |
| 74 | 1.570 | 0.629 | 0.300 | 0.200 |

*Pre-retirement mortality is based on the RP-2014 Blue Collar Mortality Table with fully generational projection and a five-year set-back for both males and females. The rates in the table above represent the base rates used.

- **Death after Retirement** The RP-2014 Blue Collar Mortality Table with fully generational projection and Scale BB, 120% of male rates and 110% of female rates is used to evaluate allowances to be paid. The RP-2000 Disabled Mortality Table with 90% for male rates and 100% for female rates set back five years is used for the period after disability retirement. These assumptions are used to measure the probabilities of each benefit payment being made after retirement.

- **Marriage Assumption** Based on prior experience, it is assumed that 80% of retirees are married, with the husband three years older than his wife.

## Actuarial Accrued Liabilities

Actuarial accrued liabilities are the present value of plan promises to pay benefits in the future, based upon service already rendered. A liability has been established or accrued because the service has been performed, but the resulting monthly cash benefit may not be payable until years in the future. Actuarial accrued liabilities are the result of complex mathematical calculations performed by the plan's actuaries. The results of the computed actuarial accrued liabilities, using the entry age normal actuarial cost method, are disclosed in the following schedule.

**ACTUARIAL ACCRUED LIABILITIES AS OF JUNE 30, 2019**

| Present value of: | Pension Benefits | Medicare Part B | Post-Retirement Death Benefit | Total Basic Benefits |
|---|---|---|---|---|
| Future benefits to present retirees and survivors | $ 12,053,886,231 | $ 227,492,251 | $ 30,439,827 | $ 12,311,818,309 |
| Benefits and refunds to present inactive members | 612,246,591 | 16,539,111 | 916,395 | 629,702,097 |
| Allowances to present active members | | | | |
| Service | 7,088,787,739 | 138,539,049 | 7,360,817 | 7,234,687,605 |
| Disability | 237,436,261 | 3,803,512 | 441,893 | 241,681,666 |
| Survivor benefits | 128,306,072 | 2,224,598 | — | 130,530,670 |
| Withdrawal | (30,410,837) | 8,856,392 | 385,546 | (21,168,899) |
| Total Active AAL | 7,424,119,235 | 153,423,551 | 8,188,256 | 7,585,731,042 |
| Total AAL | $ 20,090,252,057 | $ 397,454,913 | $ 39,544,478 | $ 20,527,251,448 |

## Active Member Valuation Data

| Actuarial Valuation as of June 30 | Number of Active Members* | Annual Payroll ($ in millions) | Average Annual Salary | % Increase in Average Salary |
|---|---|---|---|---|
| 2019 | 159,363 | $ 3,463 | $ 21,727 | 3.2% |
| 2018 | 158,343 | 3,332 | 21,045 | 0.7 |
| 2017 | 157,981 | 3,303 | 20,906 | (11.2) |
| 2016 | 124,540 | 2,932 | 23,545 | 1.7 |
| 2015 | 122,855 | 2,845 | 23,161 | 1.8 |
| 2014 | 121,251 | 2,759 | 22,757 | 0.8 |
| 2013 | 121,642 | 2,747 | 22,581 | (1.3) |
| 2012 | 121,811 | 2,788 | 22,889 | 0.6 |
| 2011 | 125,337 | 2,852 | 22,758 | 0.9 |
| 2010 | 126,015 | 2,843 | 22,558 | 1.5 |

*Beginning with FY2017, members with 0.25 or less years of service during the fiscal year are categorized as active members.

## Pension Retirees and Beneficiaries Added to and Removed from Rolls

| Year Ended | Added to Rolls | | Removed from Rolls | | Rolls at Year End | | % increase in Annual Allowances | Average Annual Allowances |
|---|---|---|---|---|---|---|---|---|
| | No. | Annual Allowances | No. | Annual Allowances | No. | Annual Allowances | | |
| 2019 | 3,055 | $ 56,557,169 | 3,363 | $ 49,537,299 | 81,024 | $ 1,218,955,506 | 0.6% | $ 15,044 |
| 2018 | 5,339 | 74,311,354 | 3,164 | 24,391,232 | 81,332 | 1,211,935,637 | 4.3 | 14,901 |
| 2017 | 5,499 | 70,973,748 | 2,622 | (7,420,188) | 79,157 | 1,162,015,515 | 7.2 | 14,680 |
| 2016 | 4,388 | 66,860,652 | 2,480 | 3,607,967 | 76,280 | 1,083,621,579 | 6.2 | 14,206 |
| 2015 | 4,909 | 70,608,680 | 3,142 | 8,777,486 | 74,372 | 1,020,368,894 | 6.5 | 13,720 |
| 2014 | 4,144 | 61,331,002 | 2,310 | 1,060,903 | 72,605 | 958,537,700 | 6.7 | 13,202 |
| 2013 | 4,197 | 62,841,820 | 2,464 | 2,650,786 | 70,771 | 898,267,601 | 7.2 | 12,693 |
| 2012 | 4,137 | 61,519,329 | 2,320 | 1,353,680 | 69,038 | 838,076,567 | 7.7 | 12,139 |
| 2011 | 3,472 | 49,577,804 | 2,378 | 1,526,603 | 67,221 | 777,910,918 | 6.6 | 11,572 |
| 2010 | 2,694 | 37,351,889 | 2,324 | 1,331,166 | 66,127 | 729,859,717 | 5.2 | 11,037 |

## Medicare B Retirees and Beneficiaries Added to and Removed from Rolls(1)

| Year Ended | Added to Rolls | | Removed from Rolls | | Rolls at Year End | | % Decrease in Annual Allowances | Average Annual Allowances |
|---|---|---|---|---|---|---|---|---|
| | No. | Annual Allowances | No. | Annual Allowances | No. | Annual Allowances | | |
| 2019 | 2,222 | $ 1,213,212 | 2,333 | $ 1,273,818 | 43,534 | $ 23,769,564 | (0.3)% | $ 546 |
| 2018 | 1,752 | 956,592 | 2,848 | 1,555,008 | 43,645 | 23,830,170 | (2.5) | 546 |
| 2017 | 1,853 | 1,011,738 | 3,278 | 1,789,788 | 44,741 | 24,428,586 | (3.1) | 546 |
| 2016 | 2,006 | 1,095,276 | 2,459 | 1,342,614 | 46,166 | 25,206,636 | (1.0) | 546 |
| 2015 | 1,853 | 1,011,738 | 2,532 | 1,382,472 | 46,619 | 25,453,974 | (1.4) | 546 |
| 2014 | 2,225 | 1,214,850 | 2,303 | 1,257,438 | 47,298 | 25,824,708 | (0.2) | 546 |
| 2013 | 2,569 | 1,402,674 | 2,824 | 1,541,904 | 47,376 | 25,867,296 | (0.5) | 546 |

(1) The effort and cost to re-create financial statement information for the previous three years was not practical. Additional years will be displayed as they become available.

## Short-Term Solvency Test

SERS' financing objective is to pay for pension benefits through contributions that remain approximately level from year to year as a percent of member payroll.

If the contributions are level in concept and soundly executed, SERS will pay all promised benefits when due, which is the ultimate test of financial soundness. Testing for level contribution rates is the long-term test. A short-term solvency test is one means of checking a system's progress under its funding program. In a short-term solvency test, the present assets (cash and investments) are compared with:

1. Active member contributions on deposit.

2. The liabilities for future benefits to present retired lives.

3. The liabilities for service already rendered by active members.

Under the level percent of payroll financing, liabilities for active member contributions on deposit and the liabilities for future benefits to present retirees and beneficiaries will be fully covered by present assets except in rare circumstances. In addition, liabilities for active member benefits earned or to be earned in the future will be partially covered by the remainder of present assets. Generally, because SERS has been using level cost financing, the funded portion of active member benefits will increase over time.

## Solvency Test *($ in millions)*

| Valuation as of June 30 | Aggregate Accrued Liabilities For | | | Actuarial Value of Assets | Portion of Accrued Liabilities Covered by Reported Asset | | |
|---|---|---|---|---|---|---|---|
| | (1) Active Member Contributions | (2) Retired Members & Beneficiaries | (3) Active Members (Employer Financed Portion) | | (1) | (2) | (3) |
| **PENSION** | | | | | | | |
| 2019 | $ 2,842 | $ 12,666 | $ 4,582 | $ 14,268 | 100.0% | 90.2% | 0.0% |
| 2018 | 2,733 | 12,427 | 4,399 | 13,824 | 100.0 | 89.0 | 0.0 |
| 2017 | 3,010 | 11,690 | 4,449 | 13,537 | 100.0 | 90.0 | 0.0 |
| 2016 | 2,914 | 11,689 | 4,728 | 13,015 | 100.0 | 86.0 | 0.0 |
| 2015 | 2,979 | 11,046 | 4,062 | 12,446 | 100.0 | 86.0 | 0.0 |
| 2014 | 2,892 | 10,437 | 4,128 | 11,882 | 100.0 | 86.0 | 0.0 |
| 2013 | 2,860 | 9,796 | 4,196 | 10,988 | 100.0 | 83.0 | 0.0 |
| 2012 | 2,826 | 9,190 | 4,322 | 10,266 | 100.0 | 81.0 | 0.0 |
| 2011 | 2,749 | 8,525 | 4,636 | 10,378 | 100.0 | 90.0 | 0.0 |
| 2010 | 2,569 | 7,850 | 4,404 | 10,766 | 100.0 | 100.0 | 7.9 |
| **MEDICARE B** | | | | | | | |
| 2019 | $ 0 | $ 244 | $ 153 | $ 180 | 100.0% | 73.8% | 0.0% |
| 2018 | 0 | 251 | 149 | 164 | 100.0 | 65.3 | 0.0 |
| 2017 | 0 | 251 | 151 | 153 | 100.0 | 61.0 | 0.0 |
| 2016 | 0 | 251 | 151 | 142 | 100.0 | 57.0 | 0.0 |
| 2015 | 0 | 252 | 130 | 134 | 100.0 | 53.0 | 0.0 |
| 2014 | 0 | 259 | 131 | 128 | 100.0 | 49.0 | 0.0 |
| 2013 | 0 | 255 | 132 | 119 | 100.0 | 47.0 | 0.0 |
| 2012 | 0 | 251 | 132 | 113 | 100.0 | 45.0 | 0.0 |
| 2011 | 0 | 245 | 138 | 116 | 100.0 | 47.0 | 0.0 |
| 2010 | 0 | 239 | 128 | 122 | 100.0 | 51.0 | 0.0 |
| **DEATH BENEFIT** | | | | | | | |
| 2019 | $ 0 | $ 31 | $ 8 | $ 25 | 100.0% | 80.6% | 0.0% |
| 2018 | 0 | 31 | 8 | 24 | 100.0 | 77.4 | 0.0 |
| 2017 | 0 | 30 | 8 | 23 | 100.0 | 77.0 | 0.0 |
| 2016 | 0 | 30 | 8 | 22 | 100.0 | 73.0 | 0.0 |
| 2015 | 0 | 28 | 7 | 21 | 100.0 | 75.0 | 0.0 |
| 2014 | 0 | 27 | 8 | 21 | 100.0 | 76.0 | 0.0 |
| 2013 | 0 | 27 | 7 | 19 | 100.0 | 73.0 | 0.0 |
| 2012 | 0 | 26 | 8 | 18 | 100.0 | 70.0 | 0.0 |
| 2011 | 0 | 26 | 7 | 19 | 100.0 | 74.0 | 0.0 |
| 2010 | 0 | 25 | 7 | 21 | 100.0 | 84.0 | 0.0 |

# Analysis of Financial Experience

### Gains and Losses in Accrued Liabilities Resulting from Differences Between Assumed Experience and Actual Experience in the Pension, Medicare B, and Death Benefit Funds

*($ in millions)*

| Type of Risk Area | 2019 | | | | 2018 | | | | 2017 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Pension | Med B | Death Benefit | Total | Pension | Med B | Death Benefit | Total | Pension | Med B | Death Benefit | Total |
| **Age and Service Retirements**<br>If members retire at older ages, there is a gain. If younger ages, there is a loss. | $ 3.4 | $ 3.8 | $ 0.6 | **$ 7.8** | $ (211.1) | $ 1.2 | $ 0.3 | **$(209.6)** | $ (211.0) | $ (0.5) | $ (0.3) | **$(211.8)** |
| **Disability Retirements**<br>If disability claims are less than assumed, there is a gain. If more claims, there is a loss. | (9.5) | 0.0 | 0.0 | **(9.5)** | (14.6) | (0.1) | 0.0 | **(14.7)** | (37.0) | (0.7) | (0.1) | **(37.8)** |
| **Post-Retirement Death Benefits**<br>If survivor claims are less than assumed, there is a gain. If more claims, there is a loss. | (3.8) | (0.2) | 0.0 | **(4.0)** | (6.4) | (0.2) | 0.0 | **(6.6)** | (0.1) | 0.0 | 0.0 | **(0.1)** |
| **Pay Increases**<br>If there are smaller pay increases than assumed, there is a gain. If greater increases, there is a loss. | 20.3 | 0.0 | 0.0 | **20.3** | 85.2 | 0.0 | 0.0 | **85.2** | (69.2) | 0.0 | 0.0 | **(69.2)** |
| **Investment Income (Loss)**<br>If there is greater investment income than assumed, there is a gain. If less income, there is a loss. | (44.1) | 0.1 | (0.1) | **(44.1)** | (159.0) | (1.9) | (0.2) | **(161.1)** | (12.1) | 0.1 | 0.0 | **(12.0)** |
| **Withdrawal From Employment**<br>If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, there is a loss. | (105.9) | (0.4) | 0.0 | **(106.3)** | (124.0) | (0.5) | 0.0 | **(124.5)** | 21.7 | 0.2 | 0.0 | **21.9** |
| **New Members**<br>Additional accrued liability attributable to members who entered the plan since the last valuation. | (21.6) | (0.8) | 0.0 | **(22.4)** | (34.6) | (1.0) | (0.1) | **(35.7)** | (45.0) | (2.9) | (0.2) | **(48.1)** |
| **Death After Retirement**<br>If retired members live longer than assumed, there is a loss. If not as long, there is a gain. | (35.6) | 10.7 | 0.0 | **(24.9)** | 4.6 | 10.5 | (0.1) | **15.0** | 85.3 | 14.0 | (2.1) | **97.2** |
| **Other**<br>Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc. | 75.7 | 2.7 | 0.0 | **78.4** | (0.7) | 5.5 | (0.2) | **4.6** | (32.1) | 1.8 | 3.6 | **(26.7)** |
| **Non-Recurring Items**<br>Adjustments for plan amendments, assumption changes, or method changes. | 0.0 | 0.0 | 0.0 | **0.0** | 357.6 | 0.0 | 0.0 | **357.6** | 998.5 | 0.0 | 0.0 | **998.5** |
| **Total Gain (Loss) During Year** | $ (121.1) | $ 15.9 | $ 0.5 | **$(104.7)** | **$ (103.0)** | $13.5 | $ (0.3) | **$ (89.8)** | $ 699.0 | $12.0 | $ 0.9 | **$ 711.9** |

| 2016 | | | | 2015 | | | | 2014 | | | | 2013* | 2012* | 2011* | 2010* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pension | Med B | Death Benefit | Total | Pension | Med B | Death Benefit | Total | Pension | Med B | Death Benefit | Total | | | | |
| $ (141.6) | $ 0.7 | $ (0.1) | **$(141.0)** | $ (124.4) | $ 1.5 | $ (0.1) | **$(123.0)** | $ (122.0) | $(0.5) | $ (0.1) | **$(122.6)** | $(121.9) | $(154.8) | $ (59.2) | $ (40.6) |
| (49.9) | (0.6) | (0.1) | **(50.6)** | (52.4) | (0.6) | (0.1) | **(53.1)** | (55.3) | (0.6) | (0.1) | **(56.0)** | (53.6) | (47.7) | (28.1) | (23.4) |
| (27.9) | (0.6) | 0.0 | **(28.5)** | 0.0 | 0.0 | 0.0 | **0.0** | 0.1 | 0.0 | 0.0 | **0.1** | 0.0 | (0.2) | (0.7) | (0.5) |
| 70.0 | 0.0 | 0.0 | **70.0** | 53.3 | 0.0 | 0.0 | **53.3** | 103.4 | 0.0 | 0.0 | **103.4** | 219.2 | 178.7 | 198.4 | 182.5 |
| 49.6 | 0.9 | 0.1 | **50.6** | 60.6 | 1.3 | 0.2 | **62.1** | 398.0 | 4.5 | 0.8 | **403.3** | 241.0 | (692.0) | (1,082.9) | 390.5 |
| 29.2 | 1.1 | 0.1 | **30.4** | 63.2 | 1.7 | 0.2 | **65.1** | 43.0 | 5.1 | 0.2 | **48.3** | 61.1 | 46.5 | 15.4 | 11.0 |
| (42.3) | (1.6) | (0.1) | **(44.0)** | (46.0) | (1.5) | (0.1) | **(47.6)** | (26.7) | (1.4) | (0.1) | **(28.2)** | (35.1) | (29.5) | (36.4) | (38.1) |
| 104.4 | 10.6 | (1.2) | **113.8** | 39.0 | 16.9 | (0.1) | **55.8** | 2.5 | 0.5 | 0.1 | **3.1** | 2.9 | 51.9 | (1.0) | 46.5 |
| (3.3) | 1.0 | 1.6 | **(0.7)** | (0.8) | 0.4 | 0.3 | **(0.1)** | (4.6) | 2.3 | 0.2 | **(2.1)** | 1.9 | (6.2) | (10.0) | (29.6) |
| (643.5) | (22.4) | (2.3) | **(668.2)** | 0.0 | 0.0 | 0.0 | **0.0** | 0.0 | 0.0 | 0.0 | **0.0** | 27.8 | 194.7 | (436.2) | 0.0 |
| $ 0.0 | $ 0.0 | $ 0.0 | **$(668.2)** | $ (7.5) | $19.7 | $ 0.3 | **$ 12.5** | $ 338.4 | $ 9.9 | $ 1.0 | **$ 349.3** | $ 343.3 | $(458.6) | $(1,440.7) | $ 498.3 |

*Breakdowns by fund for prior years are not available.

# HEALTH CARE

## Summary of Actuarial Assumptions and Methods

Governmental Accounting Standards Board (GASB) Statement No. 74 and Statement No. 75 require actuarial valuations of retiree medical and other post-employment benefit plans.

**Funding Method** The medical and drug benefits of the plan are included in the actuarially calculated contribution rates, which are developed using the entry age normal actuarial cost method with the normal cost rate determined as a level percentage of payroll. GASB requires the discount rate used to value a plan to be based on the likely return of the assets held in trust to pay benefits. The discount rate used in this valuation is 5.25%.

**Contributions** Gains and losses are reflected in the unfunded accrued liability that is amortized by regular annual contributions as a level percentage of payroll within a 30-year period, on the assumption that payroll will increase 3.50% annually. The assumptions recommended by the actuary are, in the aggregate, reasonably related to the experience under the plan and to reasonable expectations of anticipated experience under the plan. They also meet the parameters for the disclosures under GASB Statement No. 74 and Statement No. 75.

| Year Ended June 30 | Annual Required Contribution (ARC) | Employer Contribution | Retiree Drug Subsidy (RDS) & Other Contribution | Total Contribution | Percentage of ARC Contributed |
|---|---|---|---|---|---|
| | (a) | (b) | (c) | (d) = (b) + (c) | (d) / (a) |
| 2019 | $ 190,092,589 | $ 65,877,673 | $ 16,067,175 | $ 81,944,848 | 43.1% |
| 2018 | 176,950,184 | 63,539,354 | 36,517,382 | 100,056,736 | 56.5 |
| 2017 | 178,034,717 | 47,672,886 | 17,341,005 | 65,013,891 | 36.5 |
| 2016 | 161,566,234 | 44,855,441 | 32,493,250 | 77,348,691 | 47.9 |
| 2015 | 164,182,107 | 68,904,867 | 20,084,826 | 88,989,693 | 54.2 |
| 2014 | 190,390,431 | 46,097,206 | 29,200,200 | 75,297,406 | 39.5 |
| 2013 | 171,402,038 | 45,489,443 | — | 45,489,443 | 26.5 |
| 2012 | 155,857,785 | 56,476,230 | — | 56,476,230 | 36.2 |
| 2011 | 169,146,052 | 86,908,283 | — | 86,908,283 | 51.4 |
| 2010 | 315,535,278 | 60,142,014 | 24,414,855 | 84,556,869 | 26.8 |

**Asset Valuation Method** Fair Market Value

**Economic Assumptions** The following economic assumptions were used in the actuarial valuation as of June 30, 2019:

- **Investment Return** Net after all plan expenses, the return on investments is compounded annually at 5.25%.
- **Inflation Rate** The inflation assumption is 3.00% per year. The real rate of return is the portion of total investment return, which is more than the inflation rate. Considering inflation recognition of 3.00%, the 5.25% investment return rate translates to an assumed real rate of return of 2.25%.
- **Health Care Cost Trend Rates** To the right, is a chart detailing trend assumptions:

| Calendar Year | Non-Medicare | Medicare |
|---|---|---|
| 2019 | 7.00% | 5.25% |
| 2020 | 6.75 | 5.13 |
| 2021 | 6.50 | 5.00 |
| 2022 | 6.25 | 4.75 |
| 2023 | 6.00 | 4.75 |
| 2024 | 5.75 | 4.75 |
| 2025 | 5.50 | 4.75 |
| 2026 | 5.25 | 4.75 |
| 2027 | 5.00 | 4.75 |
| 2028 and beyond | 4.75 | 4.75 |

**Non-Economic Assumptions**

- **Age-related morbidity** Per capita costs are adjusted to reflect expected cost changes related to age. The increase to the net incurred claims is assumed to be:

| | Annual Increase | |
|---|---|---|
| Participant Age | Medical | Prescription |
| 41 - 45 | 2.50% | 1.25% |
| 46 - 50 | 2.60 | 1.30 |
| 51 - 55 | 3.20 | 1.60 |
| 56 - 60 | 3.40 | 1.70 |
| 61 - 65 | 3.70 | 1.85 |
| 66 - 70 | 3.20 | 1.60 |
| 71 - 75 | 2.40 | 1.20 |
| 76 - 80 | 1.80 | 0.90 |
| 81 - 85 | 1.30 | 0.65 |

- **Anticipated Plan Participation** 50% of male retirees will choose spousal coverage, while only 30% of female retirees will choose spousal coverage.

| Years of Service at Retirement | Service Retiree Participation | Disabled Retiree Participation |
|---|---|---|
| 5 - 9 | 0.0% | 50.0% |
| 10 - 14 | 25.0 | 50.0 |
| 15 - 19 | 45.0 | 70.0 |
| 20 - 24 | 70.0 | 75.0 |
| 25 - 29 | 75.0 | 75.0 |
| 30 - 34 | 80.0 | 80.0 |
| 35 and over | 90.0 | 90.0 |

## Actuarial Accrued Liabilities

The results of the computed actuarial accrued liabilities, using the entry age normal actuarial cost method, are disclosed in the following schedule:

| HEALTH CARE FUND ACTUARIAL ACCRUED LIABILITIES AS OF JUNE 30, 2019 | |
|---|---|
| Present value of benefits payable on account of present retired members and beneficiaries | $ 788,785,002 |
| Present value of benefits payable on account of active members | 2,240,307,955 |
| Present value of benefits payable on account of deferred vested members | 24,274,070 |
| Total AAL | $ 3,053,367,027 |

## Analysis of Financial Experience

**Gains and Losses in Accrued Liabilities Resulting from Differences Between Assumed Experience and Actual Experience in the Health Care Fund**
*($ in millions)*

| Type of Risk Area | 2019 | 2018 | 2017 | 2016 | 2015 | 2014* |
|---|---|---|---|---|---|---|
| **Age and Service Retirements**<br>If members retire at older ages or participate in lower numbers, there is a gain. If younger ages or higher participation, there is a loss. | $ (3.9) | $ 30.8 | $ (4.8) | $ (10.6) | $ 2.8 | $ 2.7 |
| **Disability Retirements**<br>If disability claims are less than assumed, there is a gain. If more claims, there is a loss. | (1.6) | (0.4) | (5.1) | 2.8 | 2.6 | 3.8 |
| **Post-Retirement Death Benefits**<br>If survivor claims are less than assumed, there is a gain. If more claims, there is a loss. | (2.0) | (1.9) | (2.4) | (1.0) | (0.7) | (1.5) |
| **Claims Increases (Including Wrap Plan)**<br>If there are smaller claims increases than assumed, there is a gain. If greater increases, there is a loss. | 415.3 | (71.4) | 124.0 | 170.7 | 112.7 | 561.2 |
| **Investment Income (Loss)**<br>If there is greater investment income than assumed, there is a gain. If less income, there is a loss. | (3.7) | 4.7 | 14.3 | (21.0) | (12.5) | 29.2 |
| **Withdrawal From Employment**<br>If more liabilities are released by withdrawals than assumed, there is a gain. If smaller releases, there is a loss. | 17.9 | 39.2 | 3.4 | 29.4 | 30.1 | 51.0 |
| **Contribution Shortfall**<br>If there are more contributions than the ACR, there is a gain. If less contributions, there is a loss. | (111.0) | (78.9) | (116.0) | (86.4) | (77.2) | (118.1) |
| **New Members**<br>Additional accrued liability attributable to members who entered the plan since the last valuation. | (20.5) | (21.2) | (39.0) | (24.7) | (18.2) | (31.4) |
| **Death after Retirement**<br>If retirees live longer than assumed, there is a loss. If not as long, there is a gain. | 16.3 | 35.4 | 18.4 | 12.2 | 14.3 | 24.3 |
| **Other**<br>Miscellaneous gains and losses resulting from changes in valuation software, data adjustments, timing of financial transactions, etc. | 63.4 | 9.2 | 31.1 | (2.9) | 9.0 | 19.3 |
| **Non-Recurring Items**<br>Adjustments for plan amendments, assumption changes, or method changes. | 0.0 | 0.0 | 0.0 | (72.1) | 0.0 | (36.1) |
| **Total Gain (Loss) During Year** | **$ 370.2** | **$ (54.5)** | **$ 23.9** | **$ (3.6)** | **$ 62.9** | **$ 504.4** |

*Breakdowns by fund for prior years are not available.

## Health Care Solvency Test

*($ in millions)*

The following table provides the Health Care solvency test for SERS members:

| Valuation as of June 30 | Aggregate Accrued Liabilities For (1) Active Member Contributions | (2) Retired Members & Beneficiaries | (3) Active Members (Employer Financed Portion) | Actuarial Value of Assets | Portion of Accrued Liabilities Covered by Reported Asset (1) | (2) | (3) |
|---|---|---|---|---|---|---|---|
| 2019 | $ 0 | $ 813 | $ 1,386 | $ 464 | 100.0% | 57.0% | 0.0% |
| 2018 | 0 | 968 | 1,557 | 436 | 100.0 | 45.0 | 0.0 |
| 2017 | 0 | 916 | 1,480 | 382 | 100.0 | 41.7 | 0.0 |
| 2016 | 0 | 918 | 1,489 | 370 | 100.0 | 40.3 | 0.0 |
| 2015 | 0 | 979 | 1,507 | 408 | 100.0 | 41.7 | 0.0 |
| 2014 | 0 | 968 | 1,508 | 414 | 100.0 | 42.8 | 0.0 |
| 2013 | 0 | 1,157 | 1,761 | 379 | 100.0 | 32.8 | 0.0 |
| 2012 | 0 | 1,074 | 1,617 | 355 | 100.0 | 33.1 | 0.0 |
| 2011 | 0 | 897 | 1,513 | 356 | 100.0 | 39.7 | 0.0 |
| 2010 | 0 | 970 | 1,399 | 325 | 100.0 | 33.5 | 0.0 |

## Health Care Retirees and Beneficiaries Added to and Removed from Rolls

| Year Ended | Added to Rolls No. | Added to Rolls Projected Benefits | Removed from Rolls[1] No. | Removed from Rolls[1] Projected Benefits | Rolls at Year-End No. | Rolls at Year-End Projected Benefits | % Increase in Projected Benefits | Average Projected Benefits |
|---|---|---|---|---|---|---|---|---|
| 2019 | 1,791 | $ 6,375,244 | 2,665 | $ 4,496,857 | 42,547 | $ 82,778,168 | (8.73)% | $ 1,946 |
| 2018 | 2,383 | 10,099,985 | 2,820 | 5,004,204 | 43,421 | 90,696,175 | (0.94) | 2,089 |
| 2017 | 2,355 | 10,099,985 | 2,774 | 4,834,866 | 43,858 | 91,554,056 | 1.18 | 2,088 |
| 2016 | 2,820 | 10,209,470 | 2,650 | 4,258,016 | 44,277 | 90,484,518 | (0.41) | 2,044 |
| 2015 | 2,329 | 8,897,861 | 2,932 | 4,682,901 | 44,107 | 90,855,858 | 4.42 | 2,060 |
| 2014 | 2,251 | 8,658,731 | 2,873 | 4,834,922 | 44,710 | 87,007,272 | (13.44) | 1,946 |
| 2013 | 2,110 | 8,944,566 | 3,217 | 4,370,993 | 45,332 | 100,514,730 | 10.81 | 2,217 |
| 2012 | 2,073 | 9,280,779 | 3,785 | 5,391,796 | 46,439 | 90,708,513 | 11.49 | 1,953 |
| 2011 | 1,842 | 6,078,819 | 4,296 | 6,244,776 | 48,151 | 81,358,997 | (7.63) | 1,690 |
| 2010 | 1,779 | 5,931,864 | 3,039 | 6,978,743 | 50,605 | 88,077,033 | n/a | 1,740 |

[1]The benefits removed from rolls do not include subsidies that were changed due to premium changes, plan election changes, or reductions due to members obtaining Medicare eligibility.

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# Statistical Section

# Statistical Section

The objectives of the statistical section are to provide additional historical perspective, context, and relevant details to assist readers in using information in the financial statements, notes to the financial statements, and required supplementary information in order to understand and assess SERS' overall financial condition.

The schedules and graphs beginning on page 99 show financial trend information about the change in SERS' assets for the past 10 years. These schedules provide detailed information about the trends of key sources of asset additions and deductions, which assist in providing a context framing how SERS' financial position has changed over time. The financial trend schedules presented are:

- Fiduciary Net Position by Fund
- Total Fiduciary Net Position
- Changes in Fiduciary Net Position
- Benefit and Refund Deductions from Fiduciary Net Position by Type

The schedules beginning on page 106 show demographic and economic information. This information is designed to assist in understanding the environment in which SERS operates. The demographic and economic information and the operating information presented include:

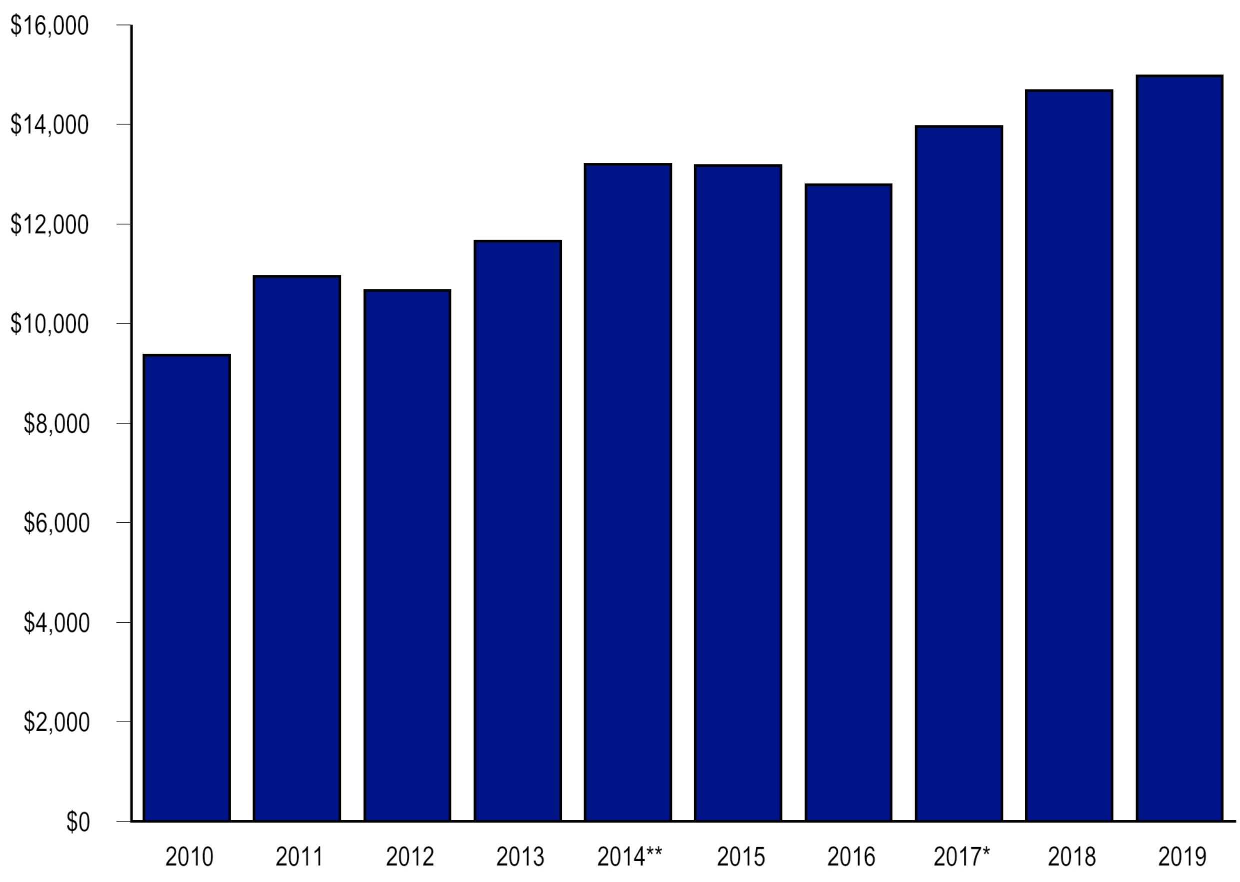
- Employee and Employer Contribution Rates
- Demographics of New Pension Benefit Recipients
- Demographics of Active and Retired Members Used for Valuation Purposes
- Retired Members by Type of Benefit
- Retirees, Spouses, and Dependents Receiving Health Care Coverage
- Principal Participating Employers
- Average Benefit Payments - New Retirees (Service Only)

## Fiduciary Net Position by Fund

Last 10 years

| June 30 | Pension Trust Fund | Medicare B Fund | Death Benefit Fund | QEBA Fund | Health Care Fund | Total Fund |
|---|---|---|---|---|---|---|
| 2019 | $ 14,337,481,691 | $ 180,963,382 | $ 25,631,031 | $ 212,757 | $ 463,810,679 | $ 15,008,099,540 |
| 2018 | 14,078,724,296 | 167,266,385 | 24,525,067 | 217,341 | 435,629,637 | 14,706,362,726 |
| 2017* | 13,428,420,143 | 151,581,147 | 23,214,168 | 217,398 | 382,109,560 | 13,985,542,416 |
| 2016 | 12,296,016,233 | 134,623,247 | 20,991,343 | 223,565 | 370,204,515 | 12,822,058,903 |
| 2015 | 12,638,892,425 | 136,580,030 | 21,711,575 | 193,687 | 408,363,598 | 13,205,741,315 |
| 2014** | 12,652,514,842 | 136,115,160 | 21,992,809 | 165,480 | 413,858,201 | 13,224,646,492 |
| 2013 | 11,160,574,582 | 120,363,782 | 19,543,665 | 144,750 | 379,181,026 | 11,679,807,805 |
| 2012 | 10,201,185,790 | 112,200,252 | 18,272,350 | 107,877 | 355,110,407 | 10,686,876,676 |
| 2011 | 10,483,076,014 | 116,849,347 | 19,249,940 | 102,596 | 355,705,744 | 10,974,983,641 |
| 2010 | 8,953,363,488 | 101,513,452 | 17,054,072 | 87,129 | 325,004,169 | 9,397,022,310 |

### Total Fiduciary Net Position *($ in millions)*




* Fiduciary Net Position was restated due to the implementation of GASB 75 during FY2018.
** Fiduciary Net Position was restated due to the implementation of GASB 68 during FY2015.

## Changes in Fiduciary Net Position

Last 10 fiscal years

| ALL FUNDS COMBINED | 2019 | 2018 | 2017* | 2016 |
|---|---|---|---|---|
| ADDITIONS | | | | |
| Employer Contributions | $ 530,912,162 | $ 499,018,574 | $ 515,834,904 | $ 481,635,982 |
| Employee Contributions | 345,212,684 | 324,842,074 | 336,627,658 | 314,325,716 |
| Other Income | 87,988,134 | 116,893,434 | 98,190,524 | 113,932,903 |
| Total Investment Income (Loss), Net | 853,597,055 | 1,270,190,442 | 1,649,100,073 | 108,787,810 |
| TOTAL ADDITIONS | 1,817,710,035 | 2,210,944,524 | 2,599,753,159 | 1,018,682,411 |
| DEDUCTIONS | | | | |
| Benefits | 1,404,572,346 | 1,407,652,952 | 1,341,304,984 | 1,309,740,098 |
| Refunds and Lump Sum Payments | 75,639,810 | 59,575,036 | 60,692,833 | 70,340,495 |
| Net Transfers to Other Ohio Systems | 1,311,797 | (6,734,065) | (3,139,875) | (2,272,514) |
| Administrative Expenses | 34,449,268 | 29,630,291 | 37,411,704 | 24,556,744 |
| TOTAL DEDUCTIONS | 1,515,973,221 | 1,490,124,214 | 1,436,269,646 | 1,402,364,823 |
| Net Increase (Decrease) | 301,736,814 | 720,820,310 | 1,163,483,513 | (383,682,412) |
| Fiduciary Net Position Held in Trust: | | | | |
| Beginning of Year | 14,706,362,726 | 13,985,542,416 | 12,822,058,903 | 13,205,741,315 |
| **End of Year** | **$ 15,008,099,540** | **$ 14,706,362,726** | **$ 13,985,542,416** | **$ 12,822,058,903** |

| PENSION TRUST FUND | 2019 | 2018 | 2017* | 2016 |
|---|---|---|---|---|
| ADDITIONS | | | | |
| Employer Contributions | $ 435,388,804 | $ 406,953,261 | $ 442,032,882 | $ 412,712,475 |
| Employee Contributions | 345,212,684 | 324,842,074 | 336,627,658 | 314,325,716 |
| Other Income | — | — | — | — |
| Total Investment Income (Loss), Net | 819,731,217 | 1,226,089,090 | 1,593,050,588 | 105,116,336 |
| TOTAL ADDITIONS | 1,600,332,705 | 1,957,884,425 | 2,371,711,128 | 832,154,527 |
| DEDUCTIONS | | | | |
| Pension Benefits | 1,232,808,916 | 1,227,807,547 | 1,146,987,656 | 1,085,216,541 |
| Refunds and Lump Sum Payments | 75,639,810 | 59,575,036 | 60,692,833 | 70,340,495 |
| Net Transfers to Other Ohio Systems | 1,311,797 | (6,734,065) | (3,139,875) | (2,272,514) |
| Administrative Expenses | 31,814,787 | 26,931,754 | 34,766,604 | 21,746,197 |
| TOTAL DEDUCTIONS | 1,341,575,310 | 1,307,580,272 | 1,239,307,218 | 1,175,030,719 |
| Net Increase (Decrease) | 258,757,395 | 650,304,153 | 1,132,403,910 | (342,876,192) |
| Fiduciary Net Position Held in Trust: | | | | |
| Beginning of Year | 14,078,724,296 | 13,428,420,143 | 12,296,016,233 | 12,638,892,425 |
| **End of Year** | **$ 14,337,481,691** | **$ 14,078,724,296** | **$ 13,428,420,143** | **$ 12,296,016,233** |

| HEALTH CARE FUND | 2019 | 2018 | 2017* | 2016 |
|---|---|---|---|---|
| ADDITIONS | | | | |
| Employer Contributions | $ 65,877,673 | $ 63,539,354 | $ 47,672,886 | $ 44,855,441 |
| Other Income | 87,988,134 | 116,893,434 | 98,190,524 | 113,932,903 |
| Total Investment Income (Loss), Net | 22,009,627 | 28,167,652 | 35,730,747 | 2,244,300 |
| TOTAL ADDITIONS | 175,875,434 | 208,600,440 | 181,594,157 | 161,032,644 |
| DEDUCTIONS | | | | |
| Health Care Expenses | 145,127,670 | 152,447,415 | 167,106,908 | 196,445,600 |
| Administrative Expenses | 2,566,722 | 2,632,948 | 2,582,204 | 2,746,127 |
| TOTAL DEDUCTIONS | 147,694,392 | 155,080,363 | 169,689,112 | 199,191,727 |
| Net Increase (Decrease) | 28,181,042 | 53,520,077 | 11,905,045 | (38,159,083) |
| Fiduciary Net Position Held in Trust: | | | | |
| Beginning of Year | 435,629,637 | 382,109,560 | 370,204,515 | 408,363,598 |
| **End of Year** | **$ 463,810,679** | **$ 435,629,637** | **$ 382,109,560** | **$ 370,204,515** |

*Fiduciary Net Position was restated due to the implementation of GASB 75 during FY2018.

| | 2015 | 2014** | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|---|
| | $ 466,904,369 | $ 451,402,553 | $ 447,901,887 | $ 456,375,083 | $ 466,365,125 | $ 462,322,570 |
| | 303,866,076 | 295,690,550 | 292,958,056 | 296,974,146 | 303,114,258 | 301,649,643 |
| | 116,501,166 | 127,867,227 | 135,705,046 | 154,832,793 | 122,232,090 | 96,449,404 |
| | 452,598,520 | 1,939,269,151 | 1,329,495,903 | (37,922,409) | 1,789,850,651 | 1,087,495,208 |
| | 1,339,870,131 | 2,814,229,481 | 2,206,060,892 | 870,259,613 | 2,681,562,124 | 1,947,916,825 |
| | 1,248,400,086 | 1,174,068,175 | 1,120,377,591 | 1,083,844,151 | 1,033,791,708 | 999,045,882 |
| | 60,635,651 | 55,668,466 | 48,979,203 | 47,920,393 | 42,223,739 | 37,159,685 |
| | 28,139,159 | 7,535,690 | 22,301,557 | 4,976,841 | 6,394,075 | 5,085,923 |
| | 21,600,412 | 32,118,463 | 21,471,412 | 21,625,193 | 21,191,271 | 20,244,156 |
| | 1,358,775,308 | 1,269,390,794 | 1,213,129,763 | 1,158,366,578 | 1,103,600,793 | 1,061,535,646 |
| | (18,905,177) | 1,544,838,687 | 992,931,129 | (288,106,965) | 1,577,961,331 | 886,381,179 |
| | 13,224,646,492 | 11,679,807,805 | 10,686,876,676 | 10,974,983,641 | 9,397,022,310 | 8,510,641,131 |
| | **$ 13,205,741,315** | **$ 13,224,646,492** | **$ 11,679,807,805** | **$ 10,686,876,676** | **$ 10,974,983,641** | **$ 9,397,022,310** |

| | 2015 | 2014** | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|---|
| | $ 374,724,343 | $ 382,098,970 | $ 380,083,642 | $ 376,816,938 | $ 355,959,304 | $ 378,201,685 |
| | 303,866,076 | 295,690,550 | 292,958,056 | 296,974,146 | 303,114,258 | 301,649,643 |
| | — | — | — | — | — | — |
| | 435,966,343 | 1,864,902,017 | 1,277,940,348 | (38,010,415) | 1,722,754,363 | 1,042,542,982 |
| | 1,114,556,762 | 2,542,691,537 | 1,950,982,046 | 635,780,669 | 2,381,827,925 | 1,722,394,310 |
| | 1,020,154,456 | 957,757,668 | 901,072,882 | 845,683,445 | 784,875,283 | 734,080,237 |
| | 60,635,651 | 55,668,466 | 48,979,203 | 47,920,393 | 42,223,739 | 37,159,685 |
| | 28,139,159 | 7,535,690 | 22,301,557 | 4,976,841 | 6,394,075 | 5,085,923 |
| | 19,249,913 | 29,789,453 | 19,239,612 | 19,090,214 | 18,622,302 | 17,594,183 |
| | 1,128,179,179 | 1,050,751,277 | 991,593,254 | 917,670,893 | 852,115,399 | 793,920,028 |
| | (13,622,417) | 1,491,940,260 | 959,388,792 | (281,890,224) | 1,529,712,526 | 928,474,282 |
| | 12,652,514,842 | 11,160,574,582 | 10,201,185,790 | 10,483,076,014 | 8,953,363,488 | 8,024,889,206 |
| | **$ 12,638,892,425** | **$ 12,652,514,842** | **$ 11,160,574,582** | **$ 10,201,185,790** | **$ 10,483,076,014** | **$ 8,953,363,488** |

| | 2015 | 2014** | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|---|
| | $ 68,904,867 | $ 46,097,206 | $ 45,489,443 | $ 56,476,230 | $ 86,908,283 | $ 60,142,014 |
| | 116,501,166 | 127,867,227 | 135,705,046 | 154,832,793 | 122,232,090 | 96,449,404 |
| | 11,142,837 | 50,980,652 | 35,523,491 | 541,940 | 45,247,242 | 31,472,744 |
| | 196,548,870 | 224,945,085 | 216,717,980 | 211,850,963 | 254,387,615 | 188,064,162 |
| | 199,750,908 | 187,994,468 | 190,468,991 | 209,965,344 | 221,167,270 | 236,915,618 |
| | 2,292,565 | 2,273,442 | 2,178,370 | 2,480,956 | 2,518,770 | 2,603,597 |
| | 202,043,473 | 190,267,910 | 192,647,361 | 212,446,300 | 223,686,040 | 239,519,215 |
| | (5,494,603) | 34,677,175 | 24,070,619 | (595,337) | 30,701,575 | (51,455,053) |
| | 413,858,201 | 379,181,026 | 355,110,407 | 355,705,744 | 325,004,169 | 376,459,222 |
| | **$ 408,363,598** | **$ 413,858,201** | **$ 379,181,026** | **$ 355,110,407** | **$ 355,705,744** | **$ 325,004,169** |

**Fiduciary Net Position was restated due to the implementation of GASB 68 during FY2015.

## Changes in Fiduciary Net Position (continued)

Last 10 fiscal years

| MEDICARE B FUND | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|
| ADDITIONS | | | | |
| Employee Contributions | $ 27,319,485 | $ 26,291,404 | $ 24,155,026 | $ 22,208,623 |
| Other Income | — | — | — | — |
| Total Investment Income (Loss), Net | 10,373,511 | 13,784,587 | 17,527,764 | 1,233,948 |
| TOTAL ADDITIONS | 37,692,996 | 40,075,991 | 41,682,790 | 23,442,571 |
| DEDUCTIONS | | | | |
| Pension Benefits | 23,990,512 | 24,384,610 | 24,718,613 | 25,391,810 |
| Administrative Expenses | 5,487 | 6,143 | 6,277 | 7,544 |
| TOTAL DEDUCTIONS | 23,995,999 | 24,390,753 | 24,724,890 | 25,399,354 |
| Net Increase (Decrease) | 13,696,997 | 15,685,238 | 16,957,900 | (1,956,783) |
| Fiduciary Net Position Held in Trust: | | | | |
| Beginning of Year | 167,266,385 | 151,581,147 | 134,623,247 | 136,580,030 |
| **End of Year** | **$ 180,963,382** | **$ 167,266,385** | **$ 151,581,147** | **$ 134,623,247** |

| DEATH BENEFIT FUND | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|
| ADDITIONS | | | | |
| Employer Contributions | $ 1,975,200 | $ 1,858,955 | $ 1,608,830 | $ 1,500,583 |
| Other Income | — | — | — | — |
| Total Investment Income (Loss), Net | 1,479,649 | 2,147,404 | 2,790,208 | 192,842 |
| TOTAL ADDITIONS | 3,454,849 | 4,006,359 | 4,399,038 | 1,693,425 |
| DEDUCTIONS | | | | |
| Death Benefits | 2,289,135 | 2,639,464 | 2,122,612 | 2,358,518 |
| Administrative Expenses | 59,750 | 55,996 | 53,601 | 55,139 |
| TOTAL DEDUCTIONS | 2,348,885 | 2,695,460 | 2,176,213 | 2,413,657 |
| Net Increase (Decrease) | 1,105,964 | 1,310,899 | 2,222,825 | (720,232) |
| Fiduciary Net Position Held in Trust: | | | | |
| Beginning of Year | 24,525,067 | 23,214,168 | 20,991,343 | 21,711,575 |
| **End of Year** | **$ 25,631,031** | **$ 24,525,067** | **$ 23,214,168** | **$ 20,991,343** |

| QEBA FUND | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|
| ADDITIONS | | | | |
| Employer Contributions | $ 351,000 | $ 375,600 | $ 365,280 | $ 358,860 |
| Other Income | — | — | — | — |
| Total Investment Income (Loss), Net | 3,051 | 1,709 | 766 | 384 |
| TOTAL ADDITIONS | 354,051 | 377,309 | 366,046 | 359,244 |
| DEDUCTIONS | | | | |
| Pension Benefits | 356,113 | 373,916 | 369,195 | 327,629 |
| Administrative Expenses | 2,522 | 3,450 | 3,018 | 1,737 |
| TOTAL DEDUCTIONS | 358,635 | 377,366 | 372,213 | 329,366 |
| Net Increase (Decrease) | (4,584) | (57) | (6,167) | 29,878 |
| Fiduciary Net Position Held in Trust: | | | | |
| Beginning of Year | 217,341 | 217,398 | 223,565 | 193,687 |
| **End of Year** | **$ 212,757** | **$ 217,341** | **$ 217,398** | **$ 223,565** |

| 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|
| $ 21,499,206 | $ 21,517,805 | $ 20,672,040 | $ 21,450,368 | $ 22,172,922 | $ 22,619,935 |
| — | — | — | — | — | — |
| 4,716,932 | 20,040,557 | 13,702,584 | (378,593) | 18,521,800 | 11,348,331 |
| 26,216,138 | 41,558,362 | 34,374,624 | 21,071,775 | 40,694,722 | 33,968,266 |
| 25,743,861 | 25,800,345 | 26,204,777 | 25,715,070 | 25,353,175 | 25,694,354 |
| 7,407 | 6,639 | 6,317 | 5,800 | 5,652 | 4,111 |
| 25,751,268 | 25,806,984 | 26,211,094 | 25,720,870 | 25,358,827 | 25,698,465 |
| 464,870 | 15,751,378 | 8,163,530 | (4,649,095) | 15,335,895 | 8,269,801 |
| 136,115,160 | 120,363,782 | 112,200,252 | 116,849,347 | 101,513,452 | 93,243,651 |
| **$ 136,580,030** | **$ 136,115,160** | **$ 120,363,782** | **$ 112,200,252** | **$ 116,849,347** | **$ 101,513,452** |

| 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|
| $ 1,455,553 | $ 1,412,852 | $ 1,398,442 | $ 1,454,763 | $ 1,166,996 | $ 1,225,772 |
| — | — | — | — | — | — |
| 772,277 | 3,345,822 | 2,329,326 | (75,490) | 3,327,059 | 2,130,920 |
| 2,227,830 | 4,758,674 | 3,727,768 | 1,379,273 | 4,494,055 | 3,356,692 |
| 2,460,907 | 2,262,136 | 2,410,943 | 2,309,922 | 2,254,894 | 2,236,215 |
| 48,157 | 47,394 | 45,510 | 46,941 | 43,293 | 40,872 |
| 2,509,064 | 2,309,530 | 2,456,453 | 2,356,863 | 2,298,187 | 2,277,087 |
| (281,234) | 2,449,144 | 1,271,315 | (977,590) | 2,195,868 | 1,079,605 |
| 21,992,809 | 19,543,665 | 18,272,350 | 19,249,940 | 17,054,072 | 15,974,467 |
| **$ 21,711,575** | **$ 21,992,809** | **$ 19,543,665** | **$ 18,272,350** | **$ 19,249,940** | **$ 17,054,072** |

| 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|
| $ 320,400 | $ 275,720 | $ 258,320 | $ 176,784 | $ 157,620 | $ 133,164 |
| — | — | — | — | — | — |
| 131 | 103 | 154 | 149 | 187 | 231 |
| 320,531 | 275,823 | 258,474 | 176,933 | 157,807 | 133,395 |
| 289,954 | 253,558 | 219,998 | 170,370 | 141,086 | 119,458 |
| 2,370 | 1,535 | 1,603 | 1,282 | 1,254 | 1,393 |
| 292,324 | 255,093 | 221,601 | 171,652 | 142,340 | 120,851 |
| 28,207 | 20,730 | 36,873 | 5,281 | 15,467 | 12,544 |
| 165,480 | 144,750 | 107,877 | 102,596 | 87,129 | 74,585 |
| **$ 193,687** | **$ 165,480** | **$ 144,750** | **$ 107,877** | **$ 102,596** | **$ 87,129** |

## Benefit and Refund Deductions from Fiduciary Net Position by Type

Last 10 fiscal years

| PENSION BENEFITS | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|
| Service Retirement | $ 1,096,960,216 | $ 1,091,624,986 | $ 1,012,404,884 | $ 952,950,117 |
| Disability Retirement | 95,725,624 | 97,027,548 | 96,312,675 | 94,595,437 |
| Survivor Benefits | 40,123,076 | 39,155,013 | 38,270,097 | 37,670,987 |
| **Total Pension Benefits** | $ 1,232,808,916 | $ 1,227,807,547 | $ 1,146,987,656 | $ 1,085,216,541 |
| | | | | |
| **Refunds** | | | | |
| Separation | $ 75,630,053 | $ 59,496,216 | $ 59,541,576 | $ 68,857,916 |
| Beneficiaries | 9,757 | 78,820 | 1,151,257 | 1,482,579 |
| **Total Refunds** | $ 75,639,810 | $ 59,575,036 | $ 60,692,833 | $ 70,340,495 |

| MEDICARE B REIMBURSEMENT | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|
| Service Retirement | $ 21,734,690 | $ 22,072,596 | $ 22,336,187 | $ 22,855,321 |
| Disability Retirement | 1,327,303 | 1,330,670 | 1,336,790 | 1,413,048 |
| Survivor Benefits | 928,519 | 981,344 | 1,045,636 | 1,123,441 |
| **Total Medicare B Reimbursement** | $ 23,990,512 | $ 24,384,610 | $ 24,718,613 | $ 25,391,810 |

| DEATH BENEFITS | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|
| Service | $ 2,083,499 | $ 2,377,087 | $ 1,939,771 | $ 2,133,523 |
| Disability | 205,636 | 262,377 | 182,841 | 224,995 |
| **Total Death Benefits** | $ 2,289,135 | $ 2,639,464 | $ 2,122,612 | $ 2,358,518 |

| HEALTH CARE EXPENSES | 2019 | 2018 | 2017 | 2016 |
|---|---|---|---|---|
| Medical | $ 72,447,500 | $ 81,873,185 | $ 87,845,475 | $ 108,821,435 |
| Prescription | 72,680,170 | 70,574,230 | 79,261,433 | 86,997,168 |
| Other | — | — | — | 626,997 |
| **Total Health Care Expenses** | $ 145,127,670 | $ 152,447,415 | $ 167,106,908 | $ 196,445,600 |

| 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|
| $ 891,831,626 | $ 834,865,512 | $ 781,736,903 | $ 731,236,350 | $ 675,549,301 | $ 629,474,136 |
| 91,265,121 | 87,804,462 | 85,514,086 | 81,219,934 | 77,524,938 | 74,632,571 |
| 37,057,709 | 35,087,694 | 33,821,893 | 33,227,161 | 31,801,044 | 29,973,530 |
| $ 1,020,154,456 | $ 957,757,668 | $ 901,072,882 | $ 845,683,445 | $ 784,875,283 | $ 734,080,237 |
| | | | | | |
| 59,875,564 | 55,018,577 | 48,392,410 | 47,272,246 | 41,753,113 | 36,344,287 |
| 760,087 | 649,889 | 586,793 | 648,147 | 470,626 | 815,398 |
| $ 60,635,651 | $ 55,668,466 | $ 48,979,203 | $ 47,920,393 | $ 42,223,739 | $ 37,159,685 |

| 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|
| $ 23,105,680 | $ 23,099,058 | $ 23,460,682 | $ 23,006,643 | $ 22,677,282 | $ 23,024,413 |
| 1,428,700 | 1,436,026 | 1,425,456 | 1,405,443 | 1,373,592 | 1,364,728 |
| 1,209,481 | 1,265,261 | 1,318,639 | 1,302,984 | 1,302,301 | 1,305,213 |
| $ 25,743,861 | $ 25,800,345 | $ 26,204,777 | $ 25,715,070 | $ 25,353,175 | $ 25,694,354 |

| 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|
| $ 2,256,060 | $ 2,052,993 | $ 2,197,804 | $ 2,101,093 | $ 2,040,327 | $ 1,969,489 |
| 204,847 | 209,143 | 213,139 | 208,829 | 214,567 | 266,726 |
| $ 2,460,907 | $ 2,262,136 | $ 2,410,943 | $ 2,309,922 | $ 2,254,894 | $ 2,236,215 |

| 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |
|---|---|---|---|---|---|
| $ 117,389,938 | $ 109,622,130 | $ 110,990,977 | $ 112,818,198 | $ 119,184,041 | $ 120,931,746 |
| 80,843,448 | 76,945,975 | 78,135,361 | 94,731,407 | 100,474,453 | 113,971,467 |
| 1,517,522 | 1,426,363 | 1,342,653 | 2,415,739 | 1,508,776 | 2,012,405 |
| $ 199,750,908 | $ 187,994,468 | $ 190,468,991 | $ 209,965,344 | $ 221,167,270 | $ 236,915,618 |

## Employee and Employer Contribution Rates

Last 10 fiscal years

| Fiscal Year | Employee Rate | Employer Rate | | | | |
|---|---|---|---|---|---|---|
| | | Pension | Medicare B | Death Benefit | Health Care | Total |
| 2019 | 10.00% | 12.61% | 0.83% | 0.06% | 0.50% | 14.00% |
| 2018 | 10.00 | 12.59 | 0.85 | 0.06 | 0.50 | 14.00 |
| 2017 | 10.00 | 13.20 | 0.75 | 0.05 | 0.00 | 14.00 |
| 2016 | 10.00 | 13.21 | 0.74 | 0.05 | 0.00 | 14.00 |
| 2015 | 10.00 | 12.39 | 0.74 | 0.05 | 0.82 | 14.00 |
| 2014 | 10.00 | 13.05 | 0.76 | 0.05 | 0.14 | 14.00 |
| 2013 | 10.00 | 13.05 | 0.74 | 0.05 | 0.16 | 14.00 |
| 2012 | 10.00 | 12.65 | 0.75 | 0.05 | 0.55 | 14.00 |
| 2011 | 10.00 | 11.77 | 0.76 | 0.04 | 1.43 | 14.00 |
| 2010 | 10.00 | 12.74 | 0.76 | 0.04 | 0.46 | 14.00 |

## Demographics of New Pension Benefit Recipients

Last 10 fiscal years

### Average Service Benefit

| Year Ended June 30 | Service Credit | Monthly Amount | Age | Final Average Salary |
|---|---|---|---|---|
| 2019 | 25.8 | $ 1,659 | 65.1 | $ 37,047 |
| 2018 | 21.2 | 1,281 | 63.9 | 34,090 |
| 2017 | 19.8 | 1,078 | 63.4 | 30,256 |
| 2016 | 21.4 | 1,224 | 63.4 | 31,785 |
| 2015 | 21.6 | 1,254 | 63.2 | 32,263 |
| 2014 | 21.7 | 1,228 | 63.4 | 31,617 |
| 2013 | 21.7 | 1,236 | 63.2 | 31,558 |
| 2012 | 22.9 | 1,246 | 63.6 | 31,600 |
| 2011 | 22.7 | 1,203 | 63.4 | 30,579 |
| 2010 | 23.5 | 1,159 | 64.0 | 29,644 |

### Average Disability Benefit

| Year Ended June 30 | Service Credit | Monthly Amount | Age | Final Average Salary |
|---|---|---|---|---|
| 2019 | 17.2 | $ 1,348 | 55.4 | $ 33,255 |
| 2018 | 17.4 | 1,315 | 55.5 | 31,736 |
| 2017 | 17.0 | 1,245 | 56.6 | 30,570 |
| 2016 | 16.5 | 1,296 | 55.9 | 31,118 |
| 2015 | 15.9 | 1,291 | 54.1 | 31,091 |
| 2014 | 15.8 | 1,250 | 54.5 | 29,965 |
| 2013 | 16.1 | 1,254 | 54.0 | 29,484 |
| 2012 | 16.0 | 1,249 | 54.9 | 29,071 |
| 2011 | 15.4 | 1,272 | 55.7 | 29,417 |
| 2010 | 18.0 | 1,258 | 55.4 | 29,055 |

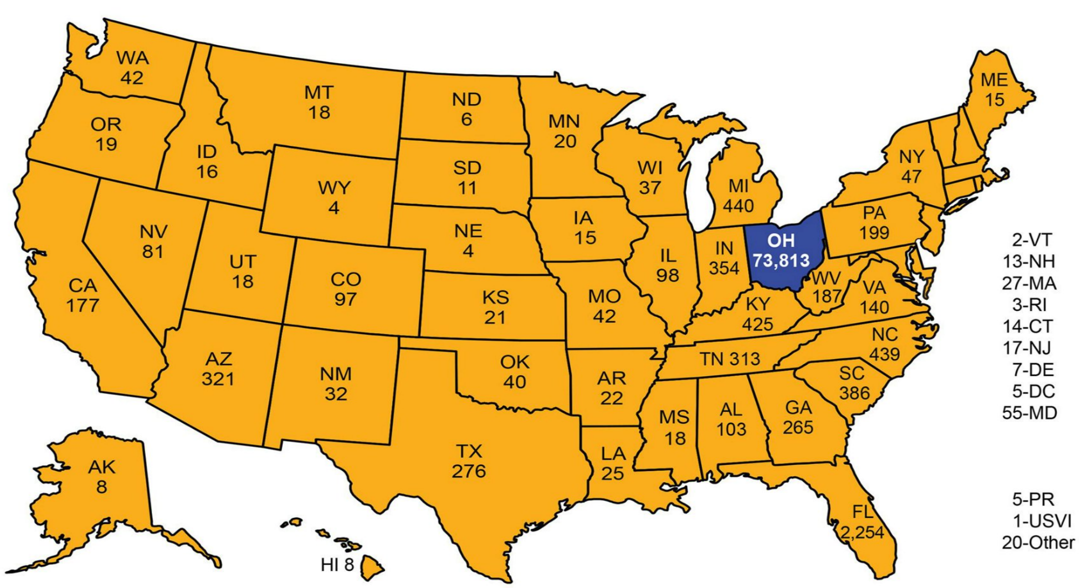
# Demographics of Active and Retired Members Used for Valuation Purposes

Fiscal Year 2019

| | Active Members | | | Percentage of Distribution | | |
|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total |
| Under 20 | 1,775 | 1,350 | 3,125 | 1% | 1% | 2% |
| 20 to 29 | 9,081 | 11,969 | 21,050 | 5 | 7 | 12 |
| 30 to 39 | 8,392 | 16,555 | 24,947 | 5 | 10 | 15 |
| 40 to 49 | 10,568 | 25,484 | 36,052 | 7 | 16 | 23 |
| 50 to 54 | 5,764 | 15,434 | 21,198 | 4 | 10 | 14 |
| 55 to 59 | 5,818 | 17,278 | 23,096 | 4 | 11 | 15 |
| 60 to 64 | 5,099 | 12,821 | 17,920 | 3 | 8 | 11 |
| 65 to 69 | 2,618 | 5,082 | 7,700 | 2 | 3 | 5 |
| 70 and over | 1,722 | 2,553 | 4,275 | 1 | 2 | 3 |
| | 50,837 | 108,526 | 159,363 | 32% | 68% | 100% |

| | All Benefit Recipients | | | Percentage of Distribution | | |
|---|---|---|---|---|---|---|
| | Male | Female | Total | Male | Female | Total |
| Under 55 | 461 | 737 | 1,198 | 1% | 1% | 2% |
| 55 to 59 | 1,134 | 1,612 | 2,746 | 1 | 2 | 3 |
| 60 to 64 | 2,772 | 7,109 | 9,881 | 4 | 9 | 13 |
| 65 to 69 | 4,346 | 11,892 | 16,238 | 5 | 15 | 20 |
| 70 to 74 | 4,250 | 11,481 | 15,731 | 5 | 14 | 19 |
| 75 to 79 | 3,430 | 9,625 | 13,055 | 4 | 12 | 16 |
| 80 to 84 | 2,645 | 7,910 | 10,555 | 3 | 10 | 13 |
| 85 to 89 | 1,588 | 5,263 | 6,851 | 2 | 6 | 8 |
| 90 to 94 | 687 | 2,882 | 3,569 | 1 | 4 | 5 |
| 95 to 99 | 164 | 886 | 1,050 | — | 1 | 1 |
| 100 and over | 12 | 138 | 150 | — | — | — |
| | 21,489 | 59,535 | 81,024 | 26% | 74% | 100% |

**All Benefit Recipients by State**



## Retired Members by Type of Benefit

| Amount of Monthly Benefit | | | | Total | Service | Disability | Survivor |
|---|---|---|---|---|---|---|---|
| $ | 1 | - $ | 250 | 10,379 | 9,585 | 37 | 757 |
| | 251 | - | 500 | 11,492 | 10,005 | 341 | 1,146 |
| | 501 | - | 750 | 10,973 | 9,521 | 631 | 821 |
| | 751 | - | 1,000 | 9,700 | 8,251 | 857 | 592 |
| | 1,001 | - | 1,500 | 14,319 | 12,401 | 1,377 | 541 |
| | 1,501 | - | 2,000 | 8,725 | 7,661 | 855 | 209 |
| | over | | 2,000 | 15,436 | 14,032 | 1,163 | 241 |
| | | | | 81,024 | 71,456 | 5,261 | 4,307 |

| | | | |
|---|---|---|---|
| Average Monthly Benefit | $ 1,264 | $ 1,475 | $ 762 |
| Average Age | 74.7 | 66.0 | 72.6 |

## Retirees, Spouses, and Dependents Receiving Health Care Coverage

| Attained Age | Number of | | Total Number |
|---|---|---|---|
| | Males | Females | |
| Under 30 | 106 | 144 | 250 |
| 30 - 39 | 3 | 7 | 10 |
| 40 - 49 | 24 | 29 | 53 |
| 50 - 59 | 578 | 729 | 1,307 |
| 60 - 64 | 1,239 | 2,234 | 3,473 |
| 65 - 69 | 2,100 | 4,709 | 6,809 |
| 70 - 74 | 2,193 | 5,552 | 7,745 |
| 75 - 79 | 2,170 | 5,469 | 7,639 |
| 80 - 84 | 2,090 | 4,922 | 7,012 |
| 85 - 89 | 1,230 | 3,355 | 4,585 |
| 90 - 94 | 521 | 2,125 | 2,646 |
| 95 - 99 | 126 | 763 | 889 |
| 100 and over | 11 | 118 | 129 |
| | **12,391** | **30,156** | **42,547** |

## Principal Participating Employers

Current fiscal year and nine years ago

| | Fiscal Year 2019 | | | Fiscal Year 2010 | | |
|---|---|---|---|---|---|---|
| | Covered Employee Members | Rank | Percentage of Total System | Covered Employee Members | Rank | Percentage of Total System |
| Columbus City Schools | 3,844 | 1 | 2.41% | 3,976 | 1 | 3.16% |
| Cincinnati Public Schools | 3,348 | 2 | 2.10 | 2,948 | 3 | 2.34 |
| Cleveland Metropolitan School District | 3,164 | 3 | 1.99 | 3,219 | 2 | 2.55 |
| Educational Service Center Council of Governments | 1,920 | 4 | 1.20 | — | — | — |
| Akron Public Schools | 1,875 | 5 | 1.18 | 1,585 | 6 | 1.26 |
| Toledo City Schools | 1,807 | 6 | 1.13 | 1,643 | 5 | 1.30 |
| Olentangy Local Schools | 1,438 | 7 | 0.90 | — | — | — |
| South-Western City Schools | 1,308 | 8 | 0.82 | 1,162 | 8 | 0.92 |
| University of Akron | 1,288 | 9 | 0.81 | 2,196 | 4 | 1.74 |
| Lakota Local Schools | 1,189 | 10 | 0.75 | 1,071 | 9 | 0.85 |
| Dayton City Schools | — | — | — | 1,371 | 7 | 1.09 |
| Columbus State Community College | — | — | — | 1,009 | 10 | 0.80 |
| All Other | 138,182 | | 86.71 | 105,835 | | 83.99 |
| **Total** | **159,363** | | **100.00%** | **126,015** | | **100.00%** |

**In FY2019 "All Other" consisted of:**

| | Covered Employee Members | Number of School Districts |
|---|---|---|
| City School Districts | 58,396 | 185 |
| Local School Districts | 49,871 | 370 |
| Educational Service Centers | 8,922 | 52 |
| Exempted Village Districts | 7,365 | 49 |
| Community Schools | 5,343 | 308 |
| Higher Education | 3,585 | 14 |
| Vocational Schools | 3,153 | 49 |
| Other | 1,547 | 17 |

## Average Benefit Payments - New Retirees (Service Only)

Last 10 fiscal years

| | Years of Credited Service | | | | | |
|---|---|---|---|---|---|---|
| Retirement Effective Dates | 5-9 | 10-14 | 15-19 | 20-24 | 25-29 | 30+ |
| Period 7/1/18 to 6/30/19 | | | | | | |
| Average Monthly Benefit | $ 414 | $ 478 | $ 747 | $ 1,040 | $ 1,519 | $ 2,551 |
| Monthly Final Average Salary | 3,351 | 2,240 | 2,402 | 2,544 | 2,965 | 3,770 |
| Number of Retirees | 2 | 279 | 265 | 216 | 444 | 863 |
| Period 7/1/17 to 6/30/18 | | | | | | |
| Average Monthly Benefit | $ 243 | $ 497 | $ 880 | $ 1,241 | $ 1,555 | $ 2,537 |
| Monthly Final Average Salary | 1,734 | 2,151 | 2,700 | 2,950 | 3,027 | 3,741 |
| Number of Retirees | 500 | 668 | 949 | 977 | 656 | 1,021 |
| Period 7/1/16 to 6/30/17 | | | | | | |
| Average Monthly Benefit | $ 212 | $ 488 | $ 767 | $ 1,044 | $ 1,487 | $ 2,439 |
| Monthly Final Average Salary | 1,532 | 2,084 | 2,360 | 2,498 | 2,937 | 3,654 |
| Number of Retirees | 715 | 847 | 951 | 948 | 692 | 857 |
| Period 7/1/15 to 6/30/16 | | | | | | |
| Average Monthly Benefit | $ 241 | $ 510 | $ 762 | $ 1,110 | $ 1,456 | $ 2,392 |
| Monthly Final Average Salary | 1,608 | 2,104 | 2,341 | 2,644 | 2,869 | 3,582 |
| Number of Retirees | 535 | 671 | 615 | 630 | 769 | 1,013 |
| Period 7/1/14 to 6/30/15 | | | | | | |
| Average Monthly Benefit | $ 247 | $ 511 | $ 804 | $ 1,123 | $ 1,459 | $ 2,404 |
| Monthly Final Average Salary | 1,587 | 2,157 | 2,479 | 2,675 | 2,875 | 3,576 |
| Number of Retirees | 515 | 636 | 535 | 505 | 764 | 994 |
| Period 7/1/13 to 6/30/14 | | | | | | |
| Average Monthly Benefit | $ 239 | $ 506 | $ 756 | $ 1,053 | $ 1,390 | $ 2,391 |
| Monthly Final Average Salary | 1,554 | 2,130 | 2,357 | 2,511 | 2,785 | 3,586 |
| Number of Retirees | 468 | 622 | 489 | 527 | 736 | 957 |
| Period 7/1/12 to 6/30/13 | | | | | | |
| Average Monthly Benefit | $ 227 | $ 483 | $ 732 | $ 1,086 | $ 1,403 | $ 2,815 |
| Monthly Final Average Salary | 1,540 | 2,069 | 2,270 | 2,585 | 2,830 | 3,224 |
| Number of Retirees | 483 | 639 | 437 | 538 | 744 | 965 |
| Period 7/1/11 to 6/30/12 | | | | | | |
| Average Monthly Benefit | $ 237 | $ 475 | $ 759 | $ 1,066 | $ 1,376 | $ 2,439 |
| Monthly Final Average Salary | 1,555 | 2,029 | 2,342 | 2,548 | 2,863 | 3,136 |
| Number of Retirees | 468 | 557 | 478 | 498 | 643 | 1,089 |
| Period 7/1/10 to 6/30/11 | | | | | | |
| Average Monthly Benefit | $ 211 | $ 456 | $ 706 | $ 1,018 | $ 1,354 | $ 2,490 |
| Monthly Final Average Salary | 1,462 | 1,998 | 2,168 | 2,455 | 2,782 | 3,255 |
| Number of Retirees | 493 | 473 | 315 | 375 | 540 | 901 |
| Period 7/1/09 to 6/30/10 | | | | | | |
| Average Monthly Benefit | $ 196 | $ 427 | $ 680 | $ 993 | $ 1,283 | $ 2,216 |
| Monthly Final Average Salary | 1,343 | 1,848 | 2,105 | 2,422 | 2,681 | 2,906 |
| Number of Retirees | 393 | 349 | 275 | 315 | 346 | 725 |

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# Plan Summary

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# Plan Summary

Established by state law in 1937, SERS is a statewide defined benefit plan that provides retirement, disability, and survivor benefits to non-teaching employees of Ohio's public, vocational, technical, and community schools; community colleges; and the University of Akron.

The Retirement Board is responsible for the general administration and management of the Retirement System. The Board comprises nine members: four elected employee members; two elected retiree members; and three appointed investment expert members. One investment expert is appointed by the Governor, a second one by the State Treasurer, and the third one jointly by the Speaker of the House and President of the Senate of the General Assembly.

The day-to-day operations are administered by a professional staff led by the Executive Director.

The plan summary in effect at June 30, 2019, is described below.

## COVERED EMPLOYEES

All non-teaching employees of Ohio's public, vocational, technical, and community schools; community colleges; and the University of Akron are required to be members unless their position permits exemption from membership, optional membership, or the position is excluded from membership.

### Compulsory or Mandatory Coverage

Compulsory coverage is required for any employee who:

- Is employed in a position for which the person is not required to have a certificate or license issued pursuant to sections 3319.22 to 3319.31 of the Revised Code; or
- Performs a service common to the normal daily operation of an educational unit even though the person is employed and paid by one who has contracted with the school to perform the service.

### Exemption from Coverage

The following individuals may choose exemption from coverage by filing a written application with the employer within the first month after being employed:

- A student who is not a member at the time of the student's employment and who is employed by the school, college, or university in which the student is enrolled and regularly attending classes;
- An emergency employee serving on a temporary basis in case of fire, snow, earthquake, flood, or other similar emergency; or
- An individual employed in a program established under the Workforce Innovation and Opportunity Act.

### Optional Coverage

A school or governing board member may choose to become a member by making application within thirty (30) days of taking office. A school board member is a member of a city, local, exempted village, or joint vocational school district board of education, and a governing board member is a member of an educational service center governing board.

### Exclusion from Coverage

The following employees are excluded from SERS coverage:

- Any person having a license issued by the Ohio Department of Education (ODE) and employed in a public school in this state in an educational position, as determined by the ODE, under programs under federal law and financed in whole or in part from federal funds, but for which no licensure requirements for the position can be made under the provisions of such federal law.
- Any person who participates in an alternative retirement plan (ARP) established by a college or university.
- University of Akron police officers who are covered by the Ohio Public Employees Retirement System (OPERS).
- Nonteaching University of Akron employees hired on or after September 28, 2016. These employees are covered by OPERS unless terminated and rehired within one (1) year of September 28, 2016.
- Employees of community school operators who withhold Social Security taxes beginning with their first paycheck: whose initial employment with the community school operator is on or after July 1, 2016, or; who previously worked for a community school operator and returned to work for that same operator on or after July 1, 2016, provided the employee was not previously employed by the same operator at any time between July 1, 2015 to June 30, 2016, and whose date of reemployment is before July 1, 2017. The community school operator must have withheld Social Security taxes for employees on or before February 1, 2016, in order for employers to fall under this exemption.

## CONTRIBUTIONS

The employee and employer are required to contribute a percentage of the employee's compensation to SERS to fund the benefits available. Employees contribute 10% of their gross compensation. Employers contribute 14% of the employee's compensation. Members are entitled to a return of their contributions, either in the form of monthly benefits, provided they meet eligibility requirements, or a single lump-sum payment after the termination of employment.

## SERVICE CREDIT

The amount of a member's service credit is a factor in determining:

- Eligibility for retirement or disability benefits
- The amount of a benefit
- Eligibility for health care coverage and the amount of the health care premium

It also determines the eligibility of a member's dependents for survivor benefits, the amount of benefits, and availability of health care coverage.

Service credit is accrued through contributions during school employment, for other periods at no cost, and for other service that may be purchased.

### Contributing Service Credit

One year of service credit is granted upon completion of 120 or more days of paid school employment within a fiscal year (July 1 through the following June 30). Any portion of a day constitutes one full day. If service is less than 120 days, a fractional amount of service credit is prorated on the basis of a 180-day school year.

### Free Service Credit

Additional service credit up to three years is available at no cost for periods a member received Workers' Compensation. In addition, certain periods of military service or disability credit may be available at no cost.

### Purchased Service Credit

The following additional service credit may be available for purchase:

- Previously refunded SERS service credit
- Employer authorized unpaid leaves of absence
- Any service after July 1, 1991, in a position for which SERS membership was compulsory, but for which a member was permitted to, and did, sign an exemption from membership form
- Any service before July 1, 1991, in a position for which SERS membership was optional, and a member did not choose to become a member
- Up to five years of service with a public or private school, college, or university in another state, or operated by the federal government, which has been chartered or accredited by the proper government agency if the service in a comparable position in Ohio would have been covered by an Ohio state retirement system, or an Ohio municipal retirement system except the Cincinnati Retirement System
- Periods of military service
- Up to two years for periods when the member resigned because of pregnancy or adoption of a child
- School board member service prior to July 1, 1991
- Cincinnati Retirement System covered service
- Service covered by the Ohio Police & Fire Pension Fund or Ohio Highway Patrol Retirement System if not being used in a benefit under those systems
- Disability credit, if member received SERS disability benefits for more than two (2) years and returned to work for at least two (2) years after the disability benefit terminated.

### Other Ohio State Retirement System Service Credit

If a member has been employed in a job covered by the State Teachers Retirement System of Ohio (STRS) or the Ohio Public Employees Retirement System (OPERS) as well as in a job covered by SERS, at retirement the member may receive a retirement benefit independently from each of the systems if eligible, or may combine the service credit and accounts in all the systems to receive one benefit. The system with the greatest service credit will be the system that will calculate and pay the benefit. While the salaries in one year will be added together, if the member has service credit in each system for the same year, the member cannot be credited with more than one year of service credit for each twelve (12) months in a year.

### Early Retirement Incentive Program

An employer may establish an Early Retirement Incentive program (ERI), which allows employees who are at least 57 years old to retire early. Under an ERI, an employer may purchase up to five years of service credit for its eligible employees. If an employer has an ERI, it notifies all eligible employees of the plan and its requirements.

## AGE AND SERVICE RETIREMENT

### Eligibility

A member who retired on or before August 1, 2017, from SERS retired under the following age and service credit guidelines:

- Five (5) years of service credit and is at least 60 years old,
- 25 years of service credit and is at least 55 years old, or
- 30 years of service credit irrespective of age.

These guidelines also apply to grandfathered members. To be grandfathered, as of August 1, 2017, the member must have had at least 25 years of service credit or purchased the right to be grandfathered.

A member who is not grandfathered may retire under the following age and service credit guidelines:

- 10 years of service credit and is at least 62 years old,
- 25 years of service credit and is at least 60 years old, or

- 30 years of service credit and is at least 57 years old.

### Calculating a Benefit

The calculation of a benefit is determined using the member's salary, service credit, and age.

The **salary** used is the Final Average Salary (FAS) which is the average of the three (3) highest years of salary. If a member has more than one covered job, the salaries will be combined.

The **service credit** used is the total service credit at the time of retirement.

The **age** used to calculate a benefit is the member's actual age at the time of retirement.

The formula used in calculating a benefit is as follows:

1. The value of a year of service credit is determined by multiplying the member's FAS by 2.2%, and by 2.5% for each year above 30 years of service credit. If the result is less than $86.00, then $86.00 is the value of each year.
2. The number of years of service credit is then multiplied by this value of each year to determine the annual retirement benefit.
3. Depending on the member's service credit and age at retirement, the annual benefit may be reduced to cover a longer period of retirement.

### Payment Plans

At retirement, a member must choose a payment plan. There are three categories of plans. All plans pay a monthly benefit for the retiree's life. Under the first category, payments cease with the retiree's death; this is Plan B (Single Life Allowance). Another category provides a continuing benefit to a designated beneficiary after the retiree's death. The plans in this category are Plan A, C, D (Joint Life plans), and F (Multiple Beneficiaries plan). The third category provides payment to a designated beneficiary for a specified period of time if the retiree dies during the specified period; this is Plan E (Time Limited). Choosing a plan other than the Single Life Allowance will result in a reduced monthly benefit to the retiree depending on the retiree's age, the beneficiary's age, and the plan chosen.

### Partial Lump Sum Option Payment

In addition to selecting a payment plan, a member may take part of a benefit in a one-time partial lump sum option payment (PLOP), which will permanently reduce the lifetime monthly benefit.

### Reemployment

A retiree may be reemployed after retirement. A job in the private sector does not affect the retiree's benefit.

However, if the job is in a position covered by SERS, the State Teachers Retirement System of Ohio, the Ohio Public Employees Retirement System, the Ohio Police & Fire Pension Fund, or the Ohio Highway Patrol Retirement System, SERS must be notified. If the retiree returns to work in a job covered by any of these systems before the retiree has received a SERS benefit for two months, the retiree forfeits the benefit payment for each of the two months in which the retiree worked.

If the retiree returns to a SERS-covered position, then employee and employer contributions are required for the new position. The retiree accrues a new benefit in the form of an annuity based on the contributions paid by the retiree and the employer. This is separate from the original SERS benefit. There are no other benefits available, and the retiree does not accrue any additional service credit for the period of reemployment.

## DISABILITY BENEFITS

A member is entitled to a benefit under one of two disability plans. A member who became a member on or after July 29, 1992, is covered under the **new disability plan**. A member who became a member before July 29, 1992, is covered by the **old disability plan** unless they exercised a one-time election to switch to the new plan.

The following describes the common and different features of both plans.

### Eligibility

Under both plans, a member is eligible for disability benefits if the member:

- Has at least five (5) years of total service credit;
- Files an application no later than two (2) years from the date that the contributing service stopped;
- Is permanently disabled, either physically or mentally, for work in a SERS-covered position as determined by a physician appointed by SERS;
- Became disabled after becoming a SERS member;
- Did not receive a refund of the member's contributions;
- Does not receive a service retirement benefit;
- Is not receiving a disability benefit from State Teachers Retirement System of Ohio, the Ohio Public Employees Retirement System, the Ohio Police & Fire Pension Fund, the Ohio Highway Patrol Retirement System, or the Cincinnati Retirement System;
- Is not applying for a disability benefit based on a disabling condition that resulted from a felony the member was convicted of, pled guilty to, or was found not guilty of by reason of insanity.

Under the old disability plan, a member also must apply before turning 60 years old. Under the new disability plan a member may apply at any age.

All disability recipients enrolled in a SERS health care plan, are required to apply for Social Security disability benefits, if eligible.

**Benefit Payment**

**Old Disability Plan**

Under the old disability plan, an annual benefit is calculated by the following formula using total service credit and Final Average Salary (FAS):

1. The value of a year of service credit is determined by multiplying the member's FAS by 2.2%. If the result is less than $86.00, then $86.00 is the value of each year.
2. The number of years of service credit is then multiplied by this value of each year.

Service credit includes all service credit the member has at the time of the benefit effective date plus the number of years between the member's current age and age 60. The benefit cannot be less than 30% of FAS or more than 75%.

**New Disability Plan**

Under the new disability plan, the amount of an annual benefit is the greater of 45% of FAS, or total service credit at the time of the application multiplied by 2.2% of FAS. The following chart shows the approximate applicable percentage amounts under this plan:

| Years of Service Credit | Percentage of the Member's FAS |
|---|---|
| 5-21 | 45.0% |
| 22 | 48.4 |
| 23 | 50.6 |
| 24 | 52.8 |
| 25 | 55.0 |
| 26 | 57.2 |
| 27 | 59.4 |
| 28 or more | 60.0 |

**Termination of Benefits**

Under the **new disability plan**, benefits also will end after a specified number of months as shown:

| Age at Effective Date | Period Benefits Payable |
|---|---|
| Younger than 60 | Until age 65 |
| 60 or 61 | 60 months |
| 62 or 63 | 48 months |
| 64 or 65 | 36 months |
| 66, 67, or 68 | 24 months |
| 69 or older | 12 months |

At the end of the period, the member can apply for a conversion retirement benefit.

A disability benefit under either plan stops if any one of the following events occur:

- A subsequent SERS medical re-examination finds that the member meets the applicable standard for termination, which changes three (3) or five (5) years after the disability benefits began (depending on whether the member is receiving rehabilitation or treatment).
- The member is no longer disabled from their SERS-covered position, or
- The member is capable of performing other job duties with pay at or above 75% of his or her annual compensation and can reasonably find such a position with his or her qualifications.
- The member returns to a SERS-covered job.
- The member's death.
- The member requests that benefits end.

**DEATH BENEFIT**

At death after retirement or receipt of a disability benefit, the retiree's beneficiary or disability benefit recipient's beneficiary is entitled to a one-time lump sum payment of $1,000.

**SURVIVOR BENEFITS**

**Eligibility**

If a member dies while working, before the member begins receiving a monthly service retirement benefit, or while receiving a disability benefit, the member's qualified survivors are entitled to certain benefits.

A beneficiary qualifies for benefits in the following order:

1. Person designated in writing by the member on a form provided by SERS
2. If there is no designated beneficiary or the beneficiary died before the member, the statutory order of beneficiaries applies

The statutory order of succession is as follows, the member's:

1. Surviving spouse
2. Surviving children
3. Dependent parent who is age 65 or older
4. Surviving parents
5. Estate

The first qualifying beneficiary is entitled to a one-time, lump-sum payment of only the member's employee contributions to SERS, or monthly benefits if otherwise eligible. However, if the member is survived by children under age 19, only a monthly benefit is available to the qualifying survivors.

Monthly benefit payments are available if the member:

1. Had at least one and one-half (1½) years of contributing service credit
2. Had at least one-quarter (¼) year of Ohio service credit earned within two and one-half (2½) years prior to death
3. Was not receiving a service retirement benefit

The following survivors are eligible for monthly benefits:

1. Surviving spouse at age 62
2. Surviving spouse at any age if the member had 10 or more years of service credit; or if there are qualified children; or has been declared mentally or physically incompetent by a court
3. Children who have never married, are under 19, or have been declared mentally or physically incompetent by a court
4. Dependent parent age 65 or older

**Benefit Payments**

The amount of the monthly benefit is determined under one of the following schedules, whichever pays the greater benefit:

| | SCHEDULE I | SCHEDULE II |
|---|---|---|
| Number of Qualified Beneficiaries | Monthly Benefit Shall Not be Less than | As a Percentage of the Member's Final Average Salary |
| 1 | $96* | 25% |
| 2 | 186 | 40 |
| 3 | 236 | 50 |
| 4 | 236 | 55 |
| 5 or more | 236 | 60 |

*Not less than $106 to spouse if the member had 10 or more years of service credit.

| SCHEDULE III | |
|---|---|
| Years of Service | As a Percent of the Member's Final Average Salary |
| 20 | 29% |
| 21 | 33 |
| 22 | 37 |
| 23 | 41 |
| 24 | 45 |
| 25 | 48 |
| 26 | 51 |
| 27 | 54 |
| 28 | 57 |
| 29 or more | 60 |

**COST-OF-LIVING ADJUSTMENT**

An individual whose benefit effective date is before April 1, 2018, is eligible for a cost of living adjustment (COLA) on the first anniversary date of the benefit. Beginning April 1, 2018, new benefit recipients must wait until the fourth anniversary of their benefit for COLA eligibility. The COLA is added each year to the base benefit amount on the anniversary date of the benefit.

A three-year COLA suspension is in effect for all benefit recipients for the years 2018, 2019, and 2020. Upon resumption of the COLA, it will be indexed to the percentage increase in the CPI-W, not to exceed 2.5% and with a floor of 0%.

**HEALTH CARE**

Currently, SERS offers medical and prescription drug coverage to qualifying benefit recipients. To the extent that resources permit, SERS intends to continue offering access to health care coverage. However, the Retirement System reserves the right to change or discontinue any plan or program at any time.

Currently a **service retiree** qualifies for health care coverage if the retiree has ten (10) qualified years of service credit at retirement. Qualifying service credit does <u>not</u> include:

- Military, other than free or interrupted military service credit;
- Other government and school service credit;
- Exempted service credit;
- Service credit purchased by an employer under an Early Retirement Incentive plan (ERI).

A beneficiary of a deceased service retiree who receives a monthly benefit qualifies for health care coverage if the retiree had qualified for such coverage.

**Disability benefit recipients** qualify for the SERS health care coverage upon receipt of a disability benefit.

**Survivor benefit recipients** qualify for health care coverage upon receipt of a survivor benefit.

**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**

**Independent Auditor's Report**

The Retirement Board
School Employees Retirement System of
Ohio and The Honorable Keith Faber

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 School Employees Retirement System of Ohio (SERS), which comprise the statement of net position as of June 30, 2019, the related statement of changes in net position for the year then ended, and the related notes to the financial statements, which collectively comprise SERS's basic financial statements, and have issued our report thereon dated December 16, 2019.

**Internal Control over Financial Reporting**
In planning and performing our audit of the financial statements, we considered SERS'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 SERS's internal control. Accordingly, we do not express an opinion on the effectiveness of SERS'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 a 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 SERS'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*.

**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 entity'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 entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

RSM US LLP

Cleveland, Ohio
December 16, 2019

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OHIO AUDITOR OF STATE
KEITH FABER

**SCHOOL EMPLOYEES RETIREMENT SYSTEM OF OHIO**

**FRANKLIN COUNTY**

**CLERK'S CERTIFICATION**

**This is a true and correct copy of the report which is required to be filed in the Office of the Auditor of State pursuant to Section 117.26, Revised Code, and which is filed in Columbus, Ohio.**

Susan Babbitt

**CLERK OF THE BUREAU**

**CERTIFIED**
**JANUARY 21, 2020**