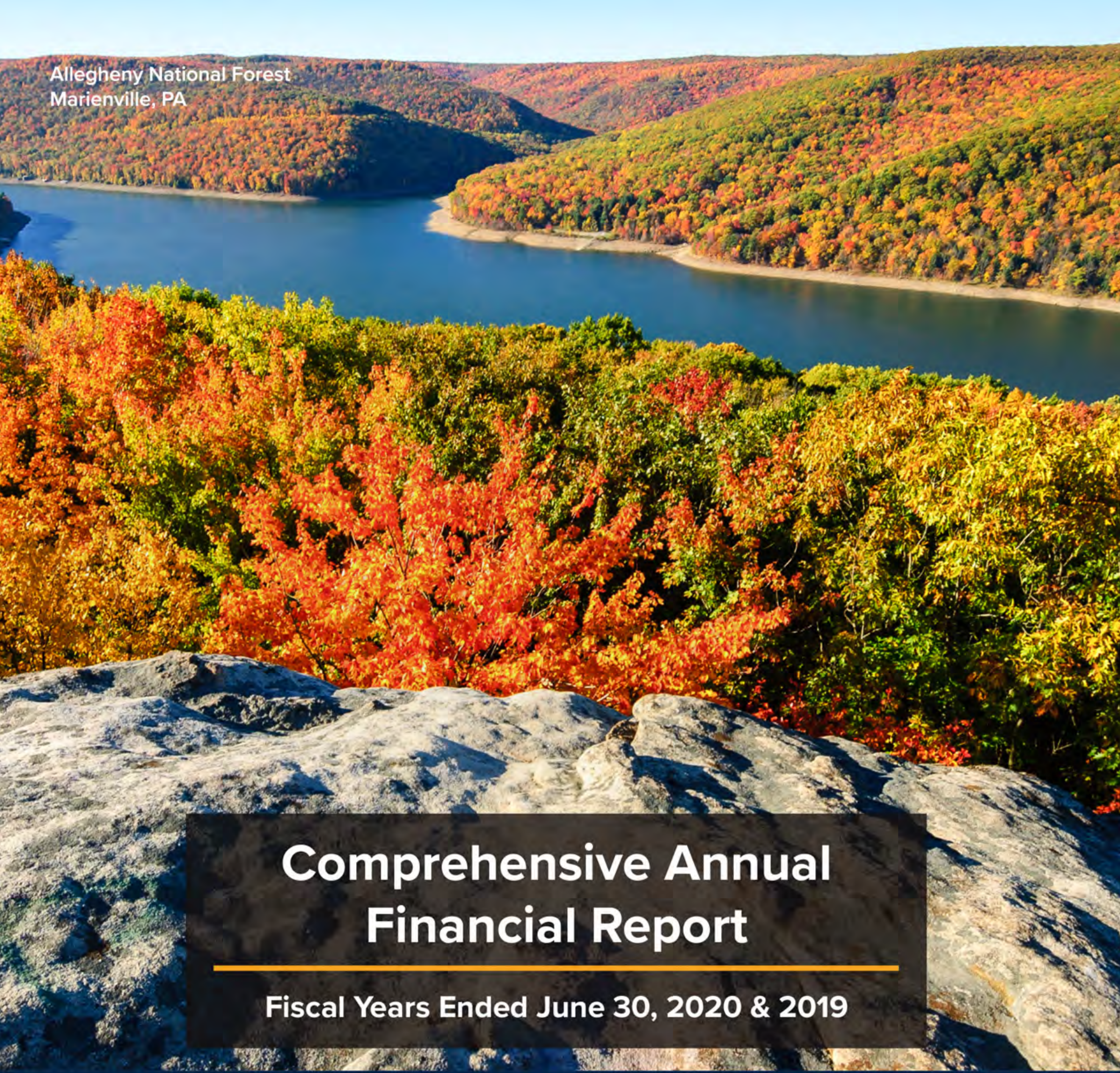

Allegheny National Forest
Marienville, PA

Comprehensive Annual Financial Report

Fiscal Years Ended June 30, 2020 & 2019

PENNSYLVANIA PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

A Component Unit of the Commonwealth of Pennsylvania

Pennsylvania
Public School Employees' Retirement System

A Component Unit of the Commonwealth of Pennsylvania

5 North 5th Street
Harrisburg, Pennsylvania 17101-1905

Telephone:
Toll-Free 888-773-7748
888-PSERS4U

Local 717-787-8540

Comprehensive Annual Financial Report
for the
Fiscal Years Ended June 30, 2020 and 2019

Report prepared by the Public School Employees' Retirement System
Office of Financial Management Staff with support from many areas of PSERS

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Forksville, PA

Photo Courtesy of Pennsylvania Department of Conservation and Natural Resources

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York County, PA

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COMMONWEALTH OF PENNSYLVANIA
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

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Web Address: www.psers.pa.gov

November 6, 2020

The Honorable Thomas W. Wolf, Governor of Pennsylvania
Members of the PA General Assembly
Members of the Retirement System
Members of the Boards of PSERS' Employers
Pennsylvania Public School Employees' Retirement System Board of Trustees

Dear Governor Wolf, Legislators, Members, Employers' Board members, and PSERS Board of Trustees:

We are pleased to present the one hundred-first edition of the Comprehensive Annual Financial Report (CAFR) for the Pennsylvania Public School Employees' Retirement System (PSERS, System, or Fund) for the fiscal years ended June 30, 2020 (FY 2020) and 2019 (FY 2019). This report is intended to provide financial, investment, actuarial, and statistical information in a single publication in accordance with the Government Finance Officers Association standards.

The theme of this year's CAFR highlights the natural beauty and wonder of Pennsylvania's great outdoors. Autumn in Pennsylvania is an exceptionally colorful display with towering mountains and lush valleys, dense forests and rolling patchwork of farmland. This year's CAFR theme is a reminder that there is much to be thankful for and we are fortunate to have the ability to escape to the solitude and tranquility of the outdoors as the country continues to battle the COVID-19 pandemic. Through good times and bad, PSERS staff's dedication and commitment to our members and employers has never wavered. PSERS' members remain our priority and we continue to operate the System for their exclusive benefit.

The management of the System is solely responsible for the accuracy and completion of this report, pursuant to section 24 Pa.C.S. §8502(n) of the Public School Employees' Retirement Code (Retirement Code). The entire report can be downloaded from PSERS' website at www.psers.pa.gov.

The System was established on July 18, 1917 to provide retirement benefits to public school employees of the Commonwealth of Pennsylvania (PA). The members eligible to participate in the System include all full-time public school employees, part-time hourly public school employees who render at least 500 hours of service in the school year, and part-time per diem public school employees who render at least 80 days of service in the school year in any of the reporting entities in Pennsylvania. As of June 30, 2020, the System had approximately 256,000 active members with an estimated annual active payroll of $14.0 billion.

The annuitant membership at June 30, 2020 was comprised of over 240,000 retirees and beneficiaries who receive approximately $520 million in pension and healthcare benefits each month. The average yearly benefit paid to annuitants is $25,843. The average benefit payment for each benefit type, grouped by years of credited service, is detailed in the Statistical Section of this report. See the Distribution of Annual Pension Amounts chart in the Introductory Section of this report.

In addition to retirement benefits, PSERS administers the Premium Assistance Program that provides a health insurance premium subsidy of up to $100 per month for those retirees who qualify. At June 30, 2020, there were over 94,000 members participating in the Premium Assistance Program. PSERS also manages a health insurance program, PSERS Health Options Program, that is entirely funded through participating member premiums and provides Medicare Supplemental, Medicare Advantage, Prescription Drug, and Dental plans to over 120,000 retirees and their dependents.

PSERS provides a stable source of revenue for local economies throughout Pennsylvania. In FY 2020, PSERS distributed $6.5 billion or nearly 94% of total pension benefits to retired members who reside in Pennsylvania. These pension benefits are a significant economic driver that benefit the economy of the Commonwealth. See the Pension Benefits by County map in the Introductory Section of this report.

The System is a governmental cost-sharing, multiple-employer defined benefit pension plan, to which most members and reporting units contribute. PSERS also administers a defined contribution plan to which all new members and reporting units contribute. PSERS is administered by a staff of 361 and has 770 reporting units as of June 30, 2020. The System is headquartered in Harrisburg, Pennsylvania, and has seven field offices in strategic areas of the Commonwealth to enable direct contact with the membership and the System's employers.

PSERS was established by law as an independent administrative board directed by a governing board of trustees (Board), which exercises control and management of the System, including the investment of its assets. PSERS is considered a component unit of the Commonwealth of Pennsylvania as defined by the Governmental Accounting Standards Board (GASB). An annual audit of the System by an independent certified public accounting firm is required by the Retirement Code. PSERS has contracted with CliftonLarsonAllen LLP for this audit of its financial statements and has received an unmodified opinion as evidenced in the Report of Independent Auditors in the Financial Section of this CAFR. An unmodified opinion means that PSERS' financial statements fairly present, in all material respects, its financial condition. In addition, no significant findings were noted during the audit and therefore, a management letter was not issued. This is the eleventh consecutive year that a management letter was not issued by the independent auditors and is reflective of the hard work and dedication of PSERS' staff to continue to improve the internal controls, operations, and efficiency of the System.

Economic Summary

The past fiscal year will be remembered as a tale of two halves. The first half was highlighted by a strong period for equity returns due to the easing of monetary policies in the United States and Europe as well as a "phase one" trade deal between the U.S. and China which alleviated trade tensions between the two countries. The second half was dominated by a global pandemic with many economies in the world completely shutting down and plunging the global economy into a recession. However, the challenge of falling incomes was met by unprecedented monetary and fiscal policies in the United States and elsewhere to prevent depression-like conditions. The U.S. economy languished in contraction territory during a large part of the fiscal year as measured by the Institute of Supply Management (ISM) Purchasing Managers' Index (PMI), an indicator of activity in the sector. During the fiscal year, the ISM PMI fell from 51.6 at June 30, 2019 to a low of 41.5 on April 30, 2020 during the depths of the COVID-19 crisis before recovering to 52.6 on June 30, 2020. The COVID-19 pandemic affected economies globally with economic activity being negatively impacted in Europe and Asia.

The U.S. economy suffered a significant economic contraction during the fiscal year due to the pandemic. However, these negative economic conditions were alleviated by swift and aggressive fiscal and monetary policy. The Federal Reserve dropped the Federal Funds target rate range by 2.25% during the fiscal year from 2.25% - 2.50% in June 2019 to 0.00% - 0.25% in June 2020. In addition, the Federal Reserve implemented numerous liquidity programs to ensure the proper function of the bond markets. The Federal Government approved over $3 trillion of fiscal spending in the form of tax rebates, a Payroll Protection Program, unemployment insurance benefits, and other forms of fiscal relief. The official unemployment rate rose significantly during the fiscal year from 3.7% at June 30, 2019 to 11.1% at June 30, 2020.

The Euro Area economy was struggling prior to the pandemic and has only worsened since that time. The Euro Area's response to the COVID-19 pandemic was more modest than the U.S. response. The European Central Bank (ECB) and the European Union adopted various monetary and fiscal stimulus programs which amounted to over $1.7 trillion. As of the second quarter 2020, the Euro Area was contracting at a 14.5% annual pace, meaningfully down from the modest 1.3% growth rate one year earlier. The unemployment rate remained relatively stable at 7.7% as of June 2020 compared to 7.5% a year earlier due to companies receiving financial incentives to maintain employee payroll during the pandemic. The Euro Area economy remained in contraction territory as evidenced by the Markit Eurozone Manufacturing PMI measurement of 47.4 in June 2020 down slightly from 47.6 last June, and falling as low as 33.4 during the depth of the pandemic. The ECB continued its policy of very accommodative overnight interest rates (negative 0.5% at June 30, 2020, down from negative 0.4% at June 30, 2019).

Japan's economy was not spared difficulties from the COVID-19 pandemic, although from a health perspective Japan had little in the way of COVID-19 cases relative to the U.S. and Europe. As of the second quarter 2020, Japan's real GDP fell by a year-over-year rate of 9.9% versus a 0.9% year-over-year growth rate for the second quarter 2019. Japanese policy makers continued to aggressively attempt to stimulate their economy through a combination of low interest rates, the purchase of higher risk assets by the Bank of Japan, coordinated diversification into higher risk assets by large public investors, and fiscal spending policies to encourage liquidity to move into riskier assets.

China had robust growth compared to the other developed regions of the world and their aggressive actions fighting the COVID-19 virus allowed them to recover more quickly economically. China's real GDP increased by 3.2% over the past year, significantly slower than the 6.2% pace for the year ended June 2019 due to the weak March 2020 quarter when the economy was shut down due to the pandemic.

The Board has continued to fulfill its mission to maintain stability and the long-term optimum value of the Fund. This is evidenced in the long-term growth of the System's assets and the actuarial soundness of the Fund. The annualized time-weighted rate of return for the twenty five-year period ended June 30, 2020 was 7.48% and exceeded the Fund's long-term investment rate of return assumption. Of utmost importance to the Board is the assurance that the required reserves are available for payment of retirement benefits.

Status of Pension Funding Initiatives

The ongoing budgetary commitment of Gov. Tom Wolf and the Legislature authorizing the state and school employers to pay the full amount of the actuarially required contributions continues to help improve PSERS' funded status.

From FY 2017 to FY 2020 PSERS received full actuarial funding from school employers and the Commonwealth after 15 previous years of underfunding. Full actuarial funding from employers, along with member contributions and investment income, are all necessary sources of funds that will pay down the unfunded liability and bring PSERS back to fully funded status.

During FY 2020, however, investment markets were volatile and challenging. PSERS' fiscal year return of 1.11% was below the Fund's long-term earnings assumption of 7.25%. Pension plans like PSERS are well-diversified and built to generate long-term returns, so one negative year is not expected to have a significant impact on the System's funded status. On an actuarial basis, the funded ratio was 58.1% at June 30, 2019. Subject to future investment returns and continued commitment to making employer contributions, the actuarial funded ratio is expected to climb to 70% by 2028.

The System's funded ratio on a market-value basis was 54.3% at June 30, 2020. A small decrease in the FY 2020 funded ratio on a market-value basis was expected based on the negative impact of the ongoing COVID-19 pandemic on investment markets during FY 2020. Since June 30, 2016, when full actuarial funding began, the System's market value unfunded ratio has increased from 50.14% to 54.3% at June 30, 2020.

Major Initiatives

PSERS Adapted Quickly to Pandemic Impacts

Since March 16th, most of PSERS employees have been working remotely from their homes with very limited visits to physical office locations. PSERS operations and processes had to be adjusted with staff working remotely, moving from a 100% on-site presence to a 95+% teleworking presence.

Over 250 laptops were deployed and PSERS staff adapted to the situation and kept up their work with minimal, if any, delays in service. While office locations, including the member call center, were initially closed, PSERS continued to process daily and monthly benefit payrolls, invest assets, process retirements, respond to members inquiries through emails, and issue refunds, all while working remotely.

Since the March 16th office closure PSERS has processed over 6,600 retirements, issued over 3,000 refunds, responded to over 38,500 emails, answered over 66,500 phone calls, and processed eight monthly benefit payrolls that included over 1.8 million payments to members of approximately $4.1 billion, remotely. PSERS Employer Service Center (ESC) has responded to nearly 17,800 emails from employers since working from home began on March 16th. Additionally, since March 16th over 91,300 agency-wide workflows were created for class elections, estimates, address changes, nomination of beneficiaries, power of attorney, disability, account verification, and many other types of services.

When office locations closed, PSERS encouraged members to email, rather than call, the member service center. As a result, PSERS saw email volumes more than triple within weeks of closing. Email continues to be a medium being used by members at a higher than normal average, despite the fact that PSERS prioritized reopening the member service call center using remote technology in May. Moreover, regional offices were opened with additional safety precautions in place while maintaining minimal staffing to ensure safety while also being available to assist walk-ins at PSERS locations beginning in June.

PSERS Retirement Exit Counseling (REC) sessions also needed to be migrated to remote technology. PSERS quickly converted REC sessions for members who are retiring, from small in-person group meetings of 8 to 10 members to small group online counseling sessions using Skype technology at the end of March. As of October 2020, over 659 small group online counseling sessions have been conducted with over 3,849 members attending these online retirement counseling sessions.

The COVID-19 pandemic has certainly been a challenge for PSERS. Processes and communication methods had to rapidly change as the pandemic progressed. PSERS was able to continue to provide excellent service to our members without any major interruptions due to prior emergency planning and the ability to quickly adapt to migrating conditions.

Member Self-Service

Members continued to benefit from improvements to the PSERS Member Self-Service (MSS) Portal, particularly during the pandemic. Even as offices were temporarily closed, the MSS Portal remained available and has continued to be a tremendous success.

Since being implemented in April 2018, more than 160,000 members have created their online account and conducted more than 200,000 transactions for themselves. The most common actions taken are to create their own retirement estimates, update their beneficiaries, update their address and generate their own income verification. MSS also allows members to “Go Green” and as a result, nearly 96% of all MSS accounts have opted to go paperless and receive information from PSERS electronically.

In July of 2020, in an ongoing effort to ensure the protection of members’ data, PSERS implemented Multi-Factor Authentication (MFA) in the MSS portal. MFA is an authentication method in which a user is granted account access only after successfully presenting two or more pieces of information. It provides additional security beyond requiring a standard username and password to ensure sensitive data remains secure.

Secure messaging functionality, which will enable members and employers to communicate with PSERS securely within the online portal, will be coming later in 2020.

Defined Contribution Plan

The Defined Contribution (DC) Plan was successfully implemented with the assistance of Voya Institutional Plan Services (VIPS), as the Third Party Administrator for the DC plan, and Charles W. Cammack Associates, as the pension consultant. School employees who become new members of PSERS on or after July 1, 2019 can choose from three classes of membership: two consisting of defined benefit and defined contribution components and one that is a stand-alone defined contribution plan. As of June 2020, over 16,000 participants were enrolled in the DC plan. Additionally, current members who were active on July 1, 2019 had a one-time option to elect prospectively into one of the new membership classes; only 10 current members made such election.

The Retirement Code requires the DC plan to provide no less than ten investment options offered by three or more investment providers. Currently, the DC plan has nine providers offering twelve investment options. As of June 2020, the total DC plan balance was approximately $21 million.

Improved Communication to Members

Throughout the year PSERS completed many undertakings to improve communication with members. PSERS created a Twitter account (Twitter handle is @PA_PSERS) and a Facebook account (PA Public School Employees’ Retirement System) and posts valuable content daily. Multiple videos have been added to our website ranging from general updates, investments, and PSERS services during the pandemic, with many more being planned for the upcoming year.

Monthly financial education messages were provided to members of the DC plan focusing on a variety of topics from budgeting, saving, retirement planning, and understanding the investment options within the DC plan. Specialized emails were also sent to members with targeted messages such as the need to nominate a beneficiary or update other information within their account. Multiple surveys were conducted on a variety of topics as well as a focus group and an experience survey about choosing membership class, contact preferences, and outreach experiences. The results will assist in developing PSERS' short-term and long-term communication plan and the redesign of current communication materials and efforts.

PSERS Health Options Program Updates

The PSERS Health Options Program (HOP) continues to see steady growth in enrollment and now has more than 120,000 PSERS retirees, spouses, and dependents enrolled as of June 30, 2020. Within the plan, there is a Dental Program offering which has eclipsed 21,000 enrollees. Additionally, efforts are currently underway to add a Vision Plan as an additional offering in conjunction with the Dental Program.

Once again, the HOP Prescription Drug Employer Group Waiver Plan earned a 4.5 star rating (out of 5 stars) from the Centers for Medicare and Medicaid Services (CMS) for the 2020 calendar year. Each year, CMS evaluates applicable health and prescription drug plans based on a plan's quality and performance. CMS uses a 5-star rating system that helps beneficiaries know how well a plan is doing. The star rating is a quality rating system of 14 measures of Medicare beneficiaries' experience with their drug plans. Star ratings can be used by beneficiaries to compare a plan's performance with other plans. PSERS' HOP Prescription Drug Plan scored very high in its recent CMS evaluation in the following areas: Quality Improvement, Rating of Drug Plan, and Obtaining Needed Prescription Drugs. PSERS is committed to keeping the HOP prescription drug program affordable, offering meaningful member choice, and holding vendors accountable to provide our members with best-in-class service.

PSERS Increased Internal Management

PSERS Investment Office received approval to increase its professional complement by ten during the past fiscal year. We are in the process of filling those positions with very capable investment professionals which will allow us to continue our efforts to bring additional assets in-house as well as provide additional depth to the investment team. The complement increase will allow the Investment Office to support the large amount of assets managed in-house at a significantly lower cost than if those assets were managed externally. Over the past three years, the Investment Office increased the amount of assets managed internally from 34% to 39%, or by $5.6 billion. The estimated savings from managing those assets in-house is over $46 million per year.

Investment Book of Record

The Investment Operations group began implementation of an Investment Book of Record ("IBOR") this year, following a robust 18 month needs assessment, future state identification, and competitive selection process where Ernst & Young served as the Board's consultant. The IBOR will become the Fund's investment technology "engine", designed to deliver the best available view of investment data suitable for investment decision-making, incorporating the current status and forward projections of portfolio investment holdings and cash positions, as well as reference data and derived analytics supporting the investment decision-making process. Implementation of the IBOR will modernize PSERS' Investment Operations, facilitating more complete straight-through processing, stronger data quality control, and enhanced analytics tools supporting the allocation, performance, risk, compliance, and deep reporting needs of PSERS' stakeholders.

Custodial Bank Service Level Agreement

PSERS, in conjunction with the Pennsylvania Office of the State Treasury, was able to successfully negotiate a Service Level Agreement with PSERS' custodial bank, BNY Mellon. The agreement documents PSERS' operational and service expectations for the quality, responsibilities, and service levels provided by BNY Mellon, including various performance metrics.

Budgetary and Financial Governance

PSERS manages multiple budgets/appropriations which support its ongoing operations. Each October, the agency submits its budget requests to the Governor's Office of the Budget. PSERS' Administrative and Directed Commissions Recapture Program Budgets each require legislative approval. None of PSERS' budgets are funded from the Commonwealth's General Fund, but rather from the earnings of the Fund itself or participant charges. Historically, PSERS has underspent its approved budgets, keeping more funds available to invest for PSERS' members.

PSERS continues to be a leader among large U.S. public pension funds in its effective control of expenses while providing necessary services to its membership. In the past two years, the System has added significantly to the number of active and retired members electing to receive newsletters, statement of accounts, 1099-Rs and other publications electronically, which saves the agency over $200,000 per year in postage, printing and paper costs.

During FY 2020 specifically, the agency achieved substantial savings in postage, reduced overtime, decreased rental of equipment and software, and lowered consultant and legal fees, all of which helps to maintain more investment earnings for the benefit of the Fund. In addition to these savings, PSERS purchased programming hours from its pension administration system vendor at a reduced prepaid rate in order to allow for vital changes to be made in the near future to the pension administration system.

PSERS participates in an independent, international benchmarking survey evaluating its costs and service performance in comparison to other similar public pension funds. Based on the most recent survey, PSERS had a 13% lower pension administration cost per member than the average cost for its peer group. By running a lean and efficient operation, PSERS saves the Commonwealth and school employers approximately $6.4 million annually in administrative expenses compared to its peers.

In addition, during FY 2020, PSERS continued its ongoing efforts to recover funds from securities class action litigation. The System received $2.1 million in settlements from these cases in FY 2020 and $53 million over the past five years.

PSERS Commitment to Fee Transparency

PSERS remains one of the most transparent among large public pension funds in the nation for the disclosure of management fees. On December 6, 2019, PSERS Board of Trustees approved an investment transparency policy that codified many of the agency's long-standing methods of disseminating investment records to the public, press and policymakers in accordance with existing state laws, Commonwealth directives and best practices in government finance. The policy stresses that PSERS will abide by its legal and fiduciary obligations when using the agency's website and other means to release investment returns and fee data under the Pennsylvania Right to Know Law, Sunshine Act, Public School Retirement Code, various other state codes, and Institutional Limited Partners Association (ILPA) standards. The policy also states PSERS has the discretion to publicize voluntarily "additional financial and investment information" that may go beyond the above-mentioned laws, rules and standards.

The policy also asserts that PSERS has the legal and fiduciary right to protect itself from demands for "additional fee disclosure" that could contain trade secrets and other non-public contractual agreements, which if exposed could hurt investment returns, lead to violations of state and federal statutes, or costly litigation. The policy also urges policymakers and stakeholders to defend the System against "false comparisons" with other pension funds that may not disclose similar data.

Additionally, PSERS investment professionals have provided the Trustees with an end-of-the-year private markets report for more than two decades. As part of PSERS' historic commitment to transparency, the report has evolved to provide more information on asset performance, profits and costs. For the second year in a row, the report tabulated cumulative carried interest paid and accrued across asset classes.

Carried interest is a share of investment profits that is paid out when fund performance is strong. Contractually, the general partner only receives profit shares if it repays all of PSERS' start-up, investment and fixed management fees, and hits an annual preferred rate of return.

Financial Highlights

The fair value of the System's fiduciary net position declined $0.1 billion during FY 2020 to $59.0 billion as of June 30, 2020. The System is the 16th largest state-sponsored public defined benefit pension fund in the nation and the 37th largest among public and corporate pension funds in the nation. More specific information on the System's net position is detailed in the Statements of Fiduciary Net Position and Management's Discussion and Analysis included in the Financial Section of this report.

One of PSERS' mission critical objectives is the timely and accurate payment of benefits. In FY 2020, PSERS provided approximately $7.4 billion in pension and healthcare benefits to its members.

The System's administrative budget request is appropriated by the PA General Assembly and funded by the investment income of the System. For FY 2020, the appropriation was $51.8 million. PSERS' Investment Related Expenses budget, which is also entirely sourced by the investment income of the System, totaled $35.3 million for FY 2020.

Funding

Funding is the process of specifically setting aside money for current and future use. Proper funding for a defined benefit pension plan entails an actuarial examination of the fund balances and liabilities to ensure money will be available for current and future benefit payments. The actuarial valuation measures the progress toward funding pension obligations of the System by comparing the actuarial assets to the actuarial liabilities of the System.

The results of PSERS' latest published actuarial valuation (as of June 30, 2019) indicated that the rates of contribution payable by the members and employers, when taken together with the current assets of the System, are adequate to fund the actuarial liabilities for all benefits payable under the System at that date. The total funded status as of the latest actuarial valuation was 58.1%. Additional comparative information on the funded status of PSERS can be found in the Financial Section and in the Actuarial Section of this report.

Investments

In the years following the Great Recession of 2008-2009, PSERS' Board and investment professionals made significant changes to the Fund's investment asset allocation, including further refining its investment strategy and increasing the diversification of assets. In particular, PSERS actively reduced its risk profile by significantly decreasing its equity exposure and by moving portions of the Fund's assets into asset classes that are less correlated to the equity markets.

Income from the investment portfolio represents the major source of revenue to the System, accounting for 59% of total revenues over the twenty five-year period from FY 1996 to FY 2020. During FY 2020, net investment income was $1.0 billion. The investment portfolio, which is one part of the System's net position, totaled $57.8 billion, at fair value, as of June 30, 2020. For FY 2020, the time-weighted net rate of return on the System's investments was 1.11%.

The Board is responsible for the formulation of investment policies for the System. Professional Staff is responsible for the implementation of those investment policies. The overall investment objectives of the System are as follows:

- to generate returns to support the System's actuarial soundness so it may provide its members with benefits as required by law;
- to earn a long-term total return, net of fees, investment, and administrative expenses, that equals or exceeds the Actuarial Assumed Rate approved by the Board (currently 7.25%);
- to earn a long-term total return, net of fees, investment and administrative expenses, that equals or exceeds the Policy Index approved by the Board; and
- to prudently manage investment risks that are related to the achievement of investment goals.

Additional information on the System's investments is contained in the Investment Section of this report.

Federal and State Tax Status

The System's defined benefit and defined contribution plans are qualified trust funds under Section 401(a) of the Internal Revenue Code (IRC). As a result of the qualified status, the trust funds are entitled to an exemption, under Section 501(a) of the IRC, from federal income taxation on their investment earnings. Additionally, contributions made on behalf of the active members are tax deferred under Section 414(h) of the IRC. The trust funds and any benefits accruing to the members of PSERS are exempt from Pennsylvania state and municipal taxes. The Internal Revenue Service (IRS) issued a determination letter dated March 16, 2017 which stated that the defined benefit plan and its underlying trust qualify under the provisions of Section 501(a) of the IRC and therefore are exempt from federal income taxes. A similar letter from the IRS dated April 3, 2019 was received for the defined contribution plan.

Internal Controls and Reporting

PSERS' management is responsible for and has implemented internal controls designed to provide reasonable assurances for the safeguarding of assets and the reliability of financial records. This report has been prepared in accordance with accounting principles generally accepted in the United States of America. The System maintains a full accrual accounting system. More specific accounting information is detailed in the Summary of Significant Accounting Policies (Note 2) in the notes to the financial statements found in the Financial Section of this report.

A system of internal controls provides reasonable, but not absolute, assurance that assets are properly safeguarded and that financial statements are reliable. The concept of reasonable assurance recognizes that first, the cost of a control should not exceed the benefits likely to be derived, and second, the valuation of the cost and benefits requires estimates and judgments by management.

PSERS' management believes the internal accounting controls currently in place are adequate to meet the purpose for which they were intended and also believes the financial statements, supporting schedules, and statistical tables are fairly presented.

In addition, each year PSERS undergoes a very thorough internal controls assessment. This past year the in-depth assessment reviewed five areas of PSERS operations: Benefit Processing, Communications, Healthcare, Investments, and Financial Reporting. Each internal control assessment was based on five major components. The five components included, Control Environment, Risk Assessment, Control Activities, Information and Communication, and Monitoring.

As required by the Commonwealth, PSERS submitted the assessment and monitoring plan in a timely manner to the Commonwealth's Office of Budget. No significant deficiencies were identified in this past year's internal control assessment; therefore no corrective action plan was needed.

Professional Services

Professional consultants are appointed by the Board of Trustees to perform services essential to the efficient operation of the System. An annual audit by an independent certified public accounting firm and an annual valuation by an actuarial consultant attest to the financial and actuarial soundness of PSERS. The investment performance of the System is reviewed by an investment evaluation firm on a quarterly basis. The consultants providing services to the System are listed in the Financial Section and Investment Section of this report.

Other Information

In compliance with the Retirement Code, actuarial tables and the computational procedures used by the System in calculating annuities and other benefits were published in the Pennsylvania Bulletin (Vol. 48, No. 26). This information can be found at https://www.pabulletin.com/secure/data/vol48/48-26/1029.html.

System Awards

Government Finance Officers Association of the United States and Canada Certificate of Achievement for Excellence in Financial Reporting

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to PSERS for its Comprehensive Annual Financial Report for the fiscal year ended June 30, 2019. The Certificate of Achievement is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports. To be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report whose contents conform to program standards. Such a comprehensive annual financial report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year. PSERS has received a Certificate of Achievement for 37 consecutive years from FY 1983 to FY 2019. A photograph of this award appears in the Introductory Section of this report. Its attainment represents a significant accomplishment by the System, whose Office of Financial Management holds general responsibility for the compilation and validity of the financial data presented in the Comprehensive Annual Financial Report.

The System believes the current report continues to conform to the Certificate of Achievement program requirements and will be submitting this report to GFOA to determine eligibility for the 2020 certificate.

GFOA Popular Annual Financial Reporting Award

The Government Finance Officers Association of the United States and Canada (GFOA) has given an Award for Outstanding Achievement in Popular Annual Financial Reporting to PSERS for its Popular Annual Financial Report for the fiscal year ended June 30, 2019, which PSERS refers to as its Summary Annual Financial Report. The Award for Outstanding Achievement in Popular Annual Financial Reporting is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government popular reports.

In order to receive an Award for Outstanding Achievement in Popular Annual Financial Reporting, a government unit must publish a Popular Annual Financial Report, whose contents conform to program standards of creativity, presentation, understandability, and reader appeal.

A Certificate of Achievement is valid for a period of one year. PSERS has received a Certificate of Achievement for four consecutive years from FY 2016 to FY 2019. Its attainment represents an important accomplishment by the System.

Public Pension Coordinating Council Public Pension Standards Award

The Public Pension Coordinating Council has awarded its Public Pension Standards Award for Funding and Administration to PSERS for 2019. This award is in recognition of meeting professional standards for plan design and administration as set forth in the Public Pension Standards. Achievement of the Funding portion of this award is in recognition of the commitment of the Governor and General Assembly to fund 100% of the actuarially required contributions.

The Public Pension Coordinating Council was formed in 1990 to assist the public employee retirement community. The Council is composed of representatives from three national associations whose members are directly involved in the administration of public employee retirement systems: the National Association of State Retirement Administrators (NASRA); the National Conference on Public Employee Retirement Systems (NCPERS); and the National Council on Teacher Retirement (NCTR). A reproduction of this award appears in the Introductory Section.

Acknowledgements

The preparation of this report reflects the combined efforts of PSERS' staff under the direction of the PSERS Board. Our sincere appreciation is extended to all who assisted in and contributed to the completion of this document. This report is intended to provide complete and reliable information in conformance with accepted standards and to document responsible stewardship of the System's assets.

We embrace our responsibilities of being prudent stewards and to proactively prepare for the anticipated challenges ahead. We will continue to take responsible action and will work with our members, employers and stakeholders to position PSERS to be a strong pension system.

Respectfully submitted,

Glen R. Grell

Glen R. Grell
Executive Director

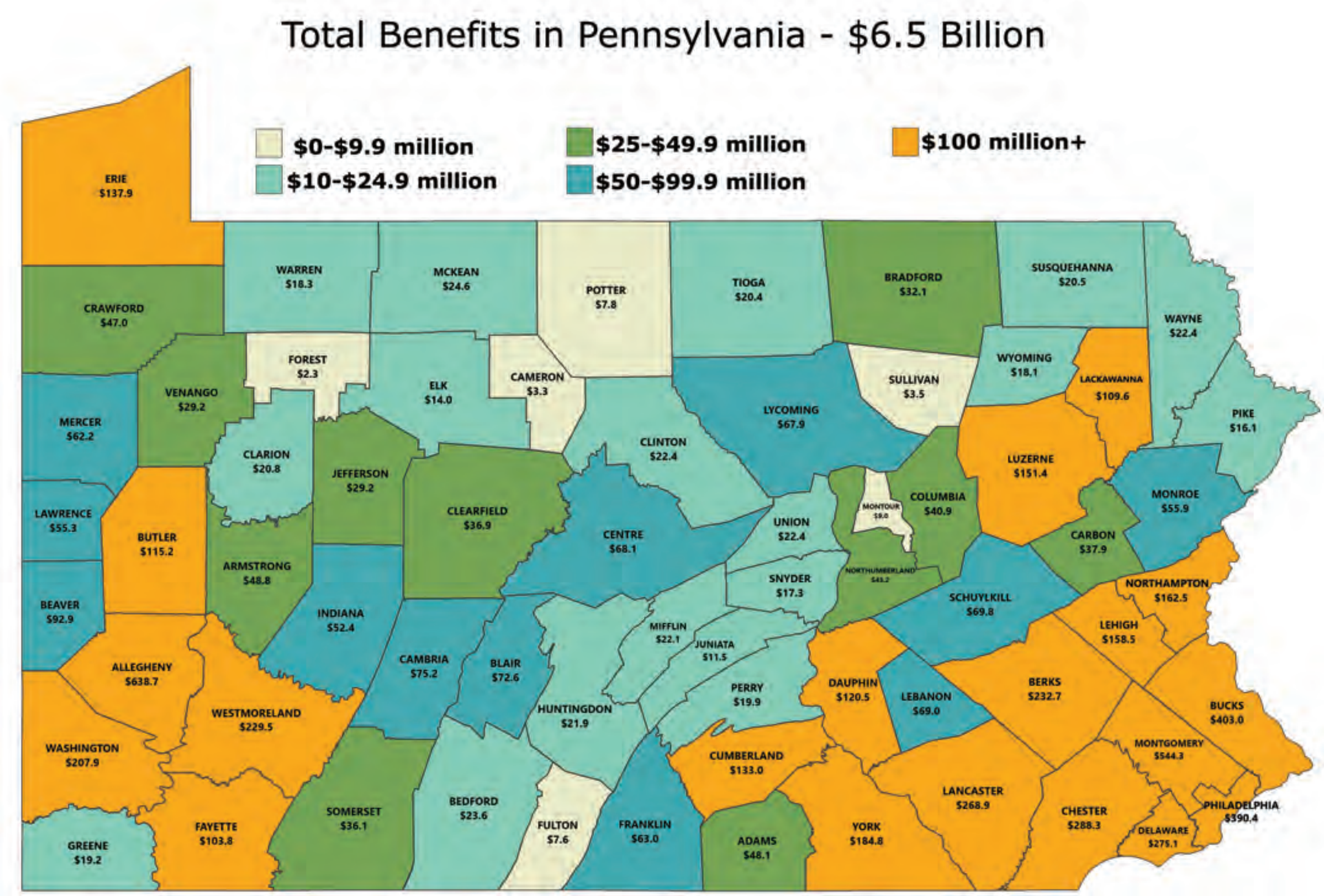
Brian S. Carl

Brian S. Carl, CPA, CTP
Chief Financial Officer

Pension Benefits by County
Fiscal Year 2020
(Dollar Amounts in Millions)

PSERS provides a stable source of revenue for local economies throughout Pennsylvania. Each year PSERS pays out billions in pension benefits to retired members who reside in Pennsylvania. In fiscal year 2020, PSERS pension benefits to retirees totaled approximately $6.9 billion. Of this amount nearly 94%, or $6.5 billion, went directly into state and local economies. These pension benefits are a significant economic driver that benefit the economy of the Commonwealth.

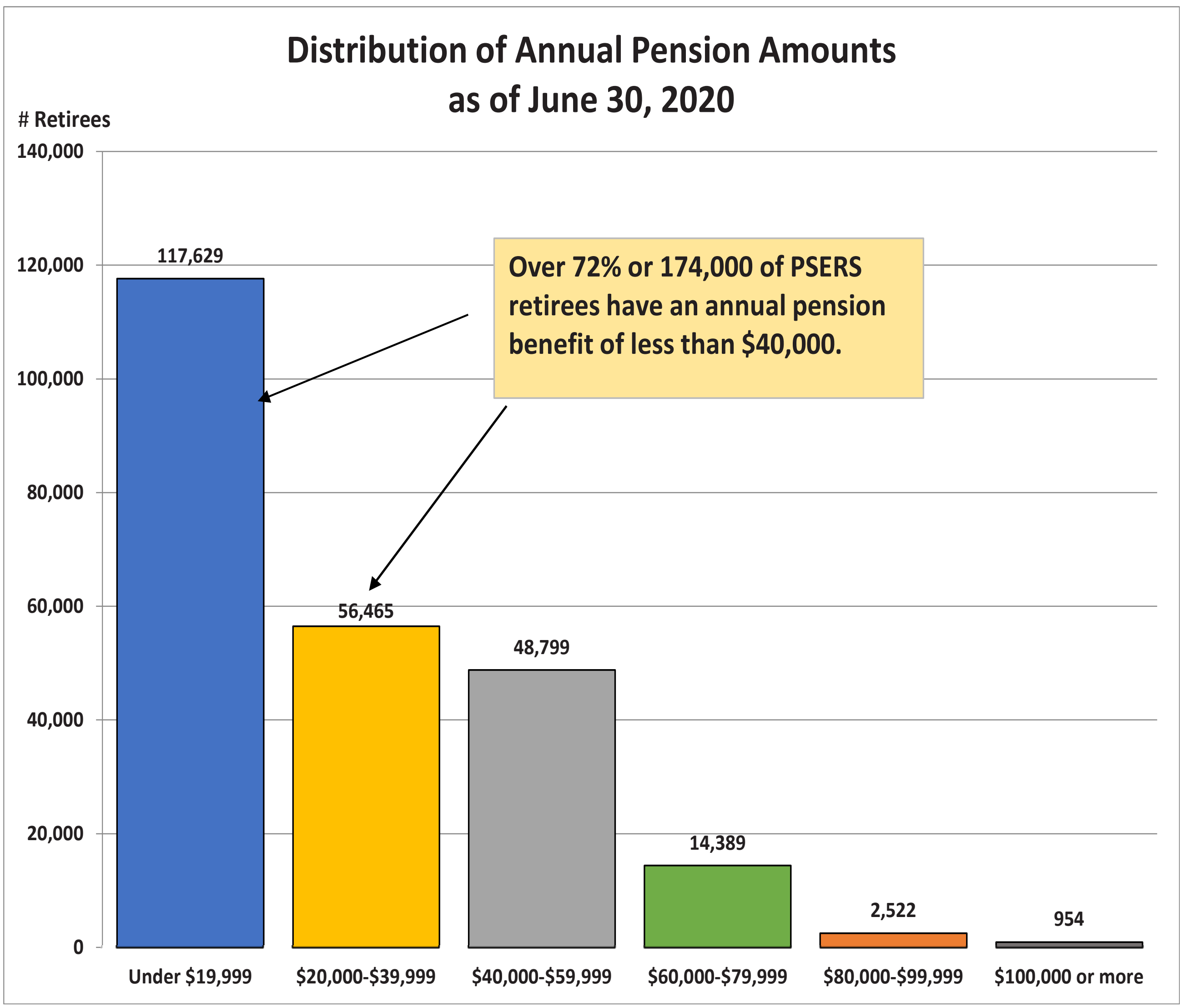
Top 10 Counties Based on Pension Benefits (Dollars in Millions)	
Allegheny	$638.7
Montgomery	$544.3
Bucks	$403.0
Philadelphia	$390.4
Chester	$288.3
Delaware	$275.1
Lancaster	$268.9
Berks	$232.7
Westmoreland	$229.5
Washington	$207.9



Pension Benefit Amounts
Fiscal Year 2020
(Dollar Amounts in Millions)

The average PSERS retiree receives a modest pension of $25,843 on an annual basis, a benefit earned through a lengthy career of 23 years in public education. During their career, members make mandatory contributions between 7.50% and 10.30% of their pay depending on their class of membership to help fund their own retirement benefit. In accordance with Act 120, new members as of July 1, 2011 and thereafter are funding the majority of the cost of their benefit. This is in contrast to many non-public (private) pension plans. In over 90% of such plans, members do not contribute and the employers bear 100% of the cost of the benefit.

Six-figure pensions are rare. At June 30, 2020, there were 954 retired members receiving an annual benefit over $100,000 out of a total 240,000 PSERS retirees. These six-figure pension retirees spent an average of 38 years working in their public education careers and contributing to their benefit.




2012
2013
2014
2015
2016
2017
2018
2019
GOVERNMENT FINANCE OFFICERS ASSOCIATION
Certificate of Achievement
for Excellence
in Financial Reporting
Presented to
Pennsylvania Public School
Employees' Retirement System
Executive Director / CEO

PPCC

Public Pension Coordinating Council

Public Pension Standards Award
For Funding and Administration

2019

Presented to

Pennsylvania Public School Employees' Retirement System

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

Presented by the Public Pension Coordinating Council, a confederation of

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

Alan H. Winkle

Alan H. Winkle
Program Administrator

Mission Statement

The Board of Trustees and the employees of the Public School Employees' Retirement System (System) serve the members and stakeholders of the System by:

- *Providing timely and accurate payment of benefits*
- *Maintaining a financially sound System*
- *Prudently investing the assets of the System*
- *Clearly communicating members' and employers' rights and responsibilities, and*
- *Effectively managing the resources of the System*

adopted June 20, 2008

Administrative Organization
PSERS Board of Trustees

Seated, front row: *Secretary Robin L. Wiessmann**; Melva S. Vogler, Susan C. Lemmo; Deborah J. Beck*

Standing, second row: *Honorable Francis X. Ryan; Miriam Fox** designee for Honorable Matthew D. Bradford; Stacey Connors, designee for Honorable Patrick M. Browne; Jonathan Berger Designee for Nathan G. Mains; Christopher SantaMaria, Board Chairman; Honorable Joseph M. Torsella; Jason M. Davis; Patrick Lord, designee for Secretary Pedro A. Rivera; Honorable John P. Blake*

Not pictured: *Eric DiTullio and Acting Secretary Richard Vague*

* Robin Wiessmann, former Secretary of Banking and Securities, was replaced by Acting Secretary Richard Vague in February 2020.

** Miriam Fox, designee for the Honorable Matthew D. Bradford, retired effective December 2019.

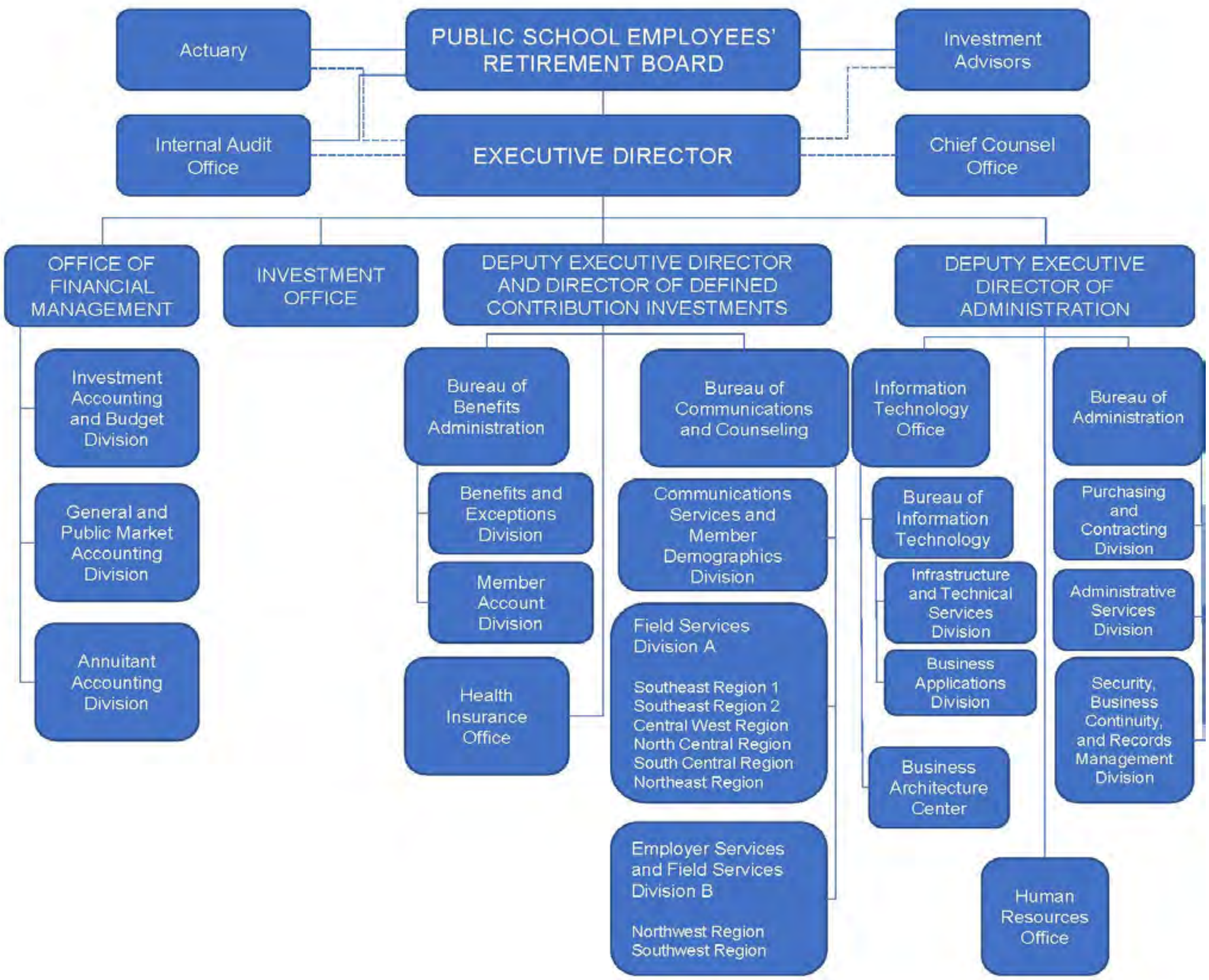
PSERS Board of Trustees
as of June 30, 2020

2020 Board Committees

	Appeals/Member & Employer Services Ms. Beck, Chair Ms. Vogler, Vice Chair Representative Ryan Mr. Davis Ms. Lemmo Treasurer Torsella	
Audit/Compliance Representative Ryan, Chair Mr. Mains, Vice Chair Representative Bradford Mr. Davis Mr. Vague Treasurer Torsella	**Budget/Finance** Senator Browne, Chair Mr. DiTullio, Vice Chair Ms. Beck Representative Blake Mr. Rivera	**Bylaws/Policy** Representative Bradford, Chair Treasurer Torsella, Vice Chair Senator Browne Mr. DiTullio Mr. Mains Mr. Vague
Corporate Governance Treasurer Torsella, Chair Senator Browne, Vice Chair Representative Bradford Mr. DiTullio Ms. Vogler	**Defined Contribution Plan** Senator Blake, Chair Mr. Vague, Vice Chair Representative Bradford Mr. Davis Mr. DiTullio Ms. Lemmo Mr. Mains	**Elections** Mr. Rivera, Chair Vacant, Vice Chair Senator Browne Mr. Davis Representative Ryan Mr. Vague
Health Care Ms. Lemmo, Chair Ms. Beck, Vice Chair Senator Blake Mr. Rivera Representative Ryan Ms. Vogler	**Investment** Mr. Davis, Chair Mr. DiTullio, Vice Chair Committee is comprised of all Board Members	**Personnel** Ms. Vogler, Chair Mr. Mains, Vice Chair Senator Blake Representative Bradford Ms. Lemmo Mr. Rivera

NOTE: Mr. SantaMaria, the chair of the Board of Trustees, is a voting ex officio member of all Committees.

Organizational Chart of the Public School Employees' Retirement System



For Schedules of Fees and Commissions please refer to the Financial section page 82 and Investment section page 100.

As of June 30, 2020

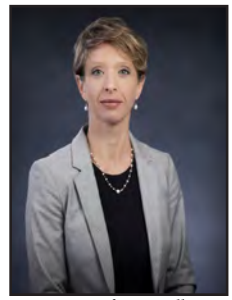
Administrative Staff

As of June 30, 2020

Glen R. Grell
Executive Director

James H. Grossman Jr.
Chief Investment Officer

Joseph E. Wasiak
Deputy Executive Director
of Administration



Jennifer A. Mills
Deputy Executive Director and Director
of Defined Contribution Investments

Charles K. Serine
Chief Counsel

Brian S. Carl
Chief Financial Officer

Steven C. Goldstein
Chief Technology Officer

Patricia Dence
Director of Administration

Peter Camacci
Director of Health Insurance

Eugene W. Robison
Director of Communications and Counseling

Charles Hodge
Director of Human Resources

Todd Fulton
Director of Benefits Administration

Tony Parisi
Legislative Liaison

Evelyn M. Williams
Communications Director

The Chief Audit Officer position was vacant.

PSERS REGIONAL OFFICES

Northwest

Pennwood Center
464 Allegheny Boulevard, Suite C
Franklin, PA 16323-6210
Local: 1.814.437.9845
FAX: 1.814.437.5826
Toll-Free: 1.888.773.7748
Donald Gregory, Administrator

Northcentral

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Lock Haven, PA 17745-1903
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FAX: 1.570.893.4414
Toll-Free: 1.888.773.7748
Jeremy Wible, Administrator

Northeast

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FAX: 1.412.920.2015
Toll-Free: 1.888.773.7748
Russell Miller, Administrator

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Ebensburg, PA 15931-1540
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FAX: 1.814.419.1189
Toll-Free: 1.888.773.7748
Brian Farester, Administrator

Southcentral

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Toll-Free: 1.888.773.7748
Joshua Catalfu, Administrator
Linda Visco, Administrator

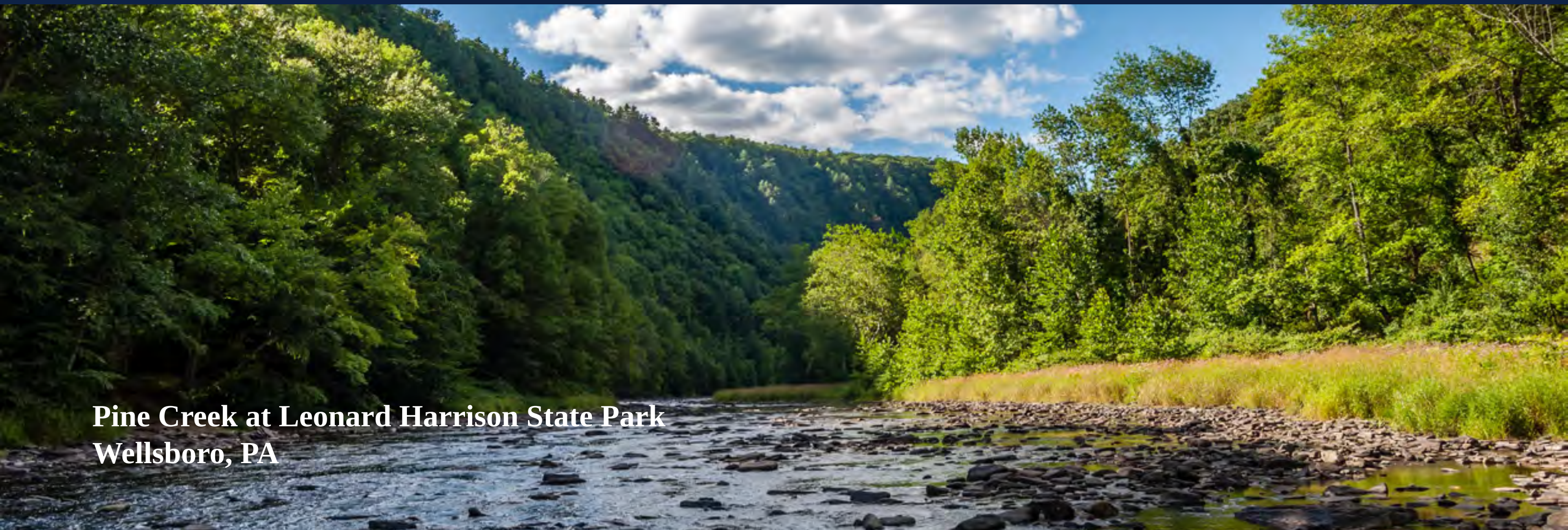
As of June 30, 2020

PSERS Headquarters Building

The administrative headquarters of the Public School Employees' Retirement System (PSERS) is located at 5 North Fifth Street in downtown Harrisburg, Pennsylvania within the State Capitol complex. Regional field offices are also maintained in Ebensburg, Franklin, Lock Haven, Harrisburg, Pittsburgh, Warminster, and Scranton.

The headquarters building was constructed and first occupied by the Retirement System in 1987. It is the first time a building was constructed for PSERS' use. It is owned by the Five North Fifth Street Corporation, a holding entity formed by PSERS, and is managed by Property Management, Inc.

Financial Section



Pine Creek at Leonard Harrison State Park
Wellsboro, PA

CliftonLarsonAllen LLP
CLAconnect.com

INDEPENDENT AUDITORS' REPORT

The Board of Trustees of
Commonwealth of Pennsylvania Public School Employees' Retirement System
Harrisburg, Pennsylvania

Report on the Financial Statements

We have audited the financial statements of the Commonwealth of Pennsylvania Public School Employees' Retirement System (PSERS), a component unit of the Commonwealth of Pennsylvania, which comprise the Statements of Fiduciary Net Position as of June 30, 2020 and 2019, and the related Statements of Changes in Fiduciary Net Position for the years then ended, and the related Notes to the 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.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the net position of PSERS as of June 30, 2020 and 2019, and the respective changes in its net position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

A member of Nexia International

The Board of Trustees of
Commonwealth of Pennsylvania Public School Employees' Retirement System
Harrisburg, Pennsylvania

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 Schedules of Changes in the Employer Net Pension Liability, Employer Net Pension Liability, Employer Pension Contributions, Changes in the Employer Net OPEB (Premium Assistance) Liability, Employer Net OPEB (Premium Assistance) Liability, Employer OPEB (Premium Assistance) Contributions, Investment Returns – Pension and OPEB, and related Notes, as listed in the table of contents, be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audits 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 Information
Our audits were conducted for the purpose of forming an opinion on the basic financial statements. The Schedule of Administrative and Investment Expenses, Summary of Investment Expenses, and the Schedule of Payments to Non-Investment Consultants (collectively, the supplementary information), as listed in the table of contents, for the year ended June 30, 2020 are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The supplementary information is the responsibility of management and was derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audits of the basic financial statements for the year ended June 30, 2020 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 accompanying supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole for the year ended June 30, 2020.

The Introductory, Actuarial, Investment and Statistical sections, as listed in the table of contents, have not been subjected to the auditing procedures applied in the audits of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on them.

CliftonLarsonAllen LLP

CliftonLarsonAllen LLP

Baltimore, Maryland
September 30, 2020

Management's Discussion and Analysis

Management's Discussion and Analysis (MD&A) of the Commonwealth of Pennsylvania Public School Employees' Retirement System (PSERS, System, Fund) for the fiscal year ended June 30, 2020 (FY 2020) provides a narrative summary of PSERS' financial position and performance, including highlights and comparative data. The MD&A is presented as required supplementary information to the financial statements and should be read in conjunction with the financial statements, the notes to financial statements, and the supplementary schedules.

Overview of Financial Statements

PSERS is primarily responsible for administering a defined benefit pension plan for public school employees in the Commonwealth of Pennsylvania. PSERS also administers a Defined Contribution (DC) plan and two voluntary postemployment healthcare programs, the Health Insurance Premium Assistance Program (Premium Assistance) and the Health Options Program (HOP), for its annuitants. As part of the HOP, PSERS has an Employer/Union Direct Contract with the Centers for Medicare and Medicaid Services (CMS) to provide a Medicare Part D Prescription Drug Plan to participants. The financial statements present the financial position and activities for the pension plan, the DC plan and the two postemployment healthcare programs.

The ***Statements of Fiduciary Net Position*** provide a snapshot of the financial position of PSERS at June 30, 2020 and 2019. Amounts are shown for the most recent and previous fiscal years for comparison and analysis of changes in individual line items.

The ***Statements of Changes in Fiduciary Net Position*** summarize PSERS' financial activities that occurred during the fiscal period from July 1, 2019 to June 30, 2020 and from July 1, 2018 to June 30, 2019. Amounts are shown for the most recent and previous fiscal years for comparison and analysis of changes in individual line items.

The ***Notes to Financial Statements*** provide additional information that is essential for a full understanding of the financial statements. The notes are an integral part of the financial statements and include detailed information not readily evident in the basic financial statements such as accounting policies, plan membership and benefits, and summary disclosures of selected financial data.

The ***Required Supplementary Information*** immediately following the notes to financial statements provide seven schedules illustrating the Changes in the Employer Net Pension Liability, Employer Net Pension Liability, Employer Pension Contributions, Changes in the Employer Net OPEB (Premium Assistance) Liability, Employer Net OPEB (Premium Assistance) Liability, Employer OPEB (Premium Assistance) Contributions, and Investment Returns - Pension and OPEB.

The remaining supplementary schedules provide additional detailed information concerning the administrative expenses, investment expenses, and payments to non-investment consultants. These schedules emphasize the long-term nature of the pension and premium assistance plans and show the progress of PSERS in accumulating assets sufficient to pay benefits when due. All of this supplementary information is considered useful in understanding and evaluating the financial activities of PSERS.

Financial Highlights

- The time-weighted rate of return on investments was 1.11% for FY 2020, 6.68% for the fiscal year ended June 30, 2019 (FY 2019), and 9.27% for the fiscal year ended June 30, 2018 (FY 2018). The return for the ten-year period ended June 30, 2020 was 7.70%, which exceeded the 7.25% actuarial investment rate of return assumption. Unless otherwise noted, all rates of return are net of fees.

- PSERS' total net position decreased slightly by $0.1 billion from $59.1 billion at June 30, 2019 to $59.0 billion at June 30, 2020. The decrease at June 30, 2020 was due mostly to deductions for benefit and administrative expenses exceeding net investment income plus member and employer contributions. The change in total net position from June 30, 2018 to June 30, 2019 was an increase of $2.4 billion from $56.7 billion at June 30, 2018 to $59.1 billion at June 30, 2019. The increase at June 30, 2019, was due mostly to net investment income plus member and employer contributions exceeding deductions for benefit and administrative expenses.

- PSERS' Plan fiduciary net position as a percentage of the total pension liability (market value funded ratio) declined from 55.66% at June 30, 2019 to 54.32% at June 30, 2020 due to investment returns below the actuarial investment return assumption. Over the past four years, the longer term trend of the market value funded ratio increased from 50.14% at June 30, 2016 to 54.32% at June 30, 2020 due primarily to PSERS receiving the full actuarially required contributions in each of the past four years and positive investment returns.

- Total employer contributions increased from $4.6 billion in FY 2019 to $4.8 billion in FY 2020. This increase was primarily attributable to an increase in the total employer contribution rate from 33.43% in

Management's Discussion and Analysis (continued)

FY 2019 to 34.29% in FY 2020. The increase in the employer contribution rate was the smallest since FY 2010. PSERS' employers fully funded the actuarially required contributions from FY 2016 to FY 2020 and these contributions are making a positive difference in PSERS' funding.

- PSERS' total benefit expense increased from $7.2 billion in FY 2019 to $7.4 billion in FY 2020. The average monthly benefit and the number of members receiving benefits increased in FY 2020.

Progress of Act 120 on PSERS' Funding

On November 23, 2010, the Governor signed HB 2497 into law. The legislation is now known as Act 120 of 2010. Act 120 preserved the benefits of existing members and included a series of actuarial and funding changes to PSERS and benefit reductions for individuals who became new members of PSERS on or after July 1, 2011 to June 30, 2019.

The Act created two new membership classes, T-E and T-F. T-E and T-F members are "shared-risk," meaning that their employee contributions can increase or decrease due to investment performance. Act 120 addressed the pending employer contribution rate spike projected for FY 2013 by smoothing the projected rate increases over a five-to nine-year time period. Instead of a large rate spike in one year, under Act 120, the employer contribution rate has increased steadily each year from the 5.64% in effect when Act 120 became law to the 34.29% rate in FY 2020. Prior to Act 120, PSERS' Annual Required Contribution (ARC) percentage of contributions received under Governmental Accounting Standards Board (GASB) standards was only 27%. As a result of the Act 120 funding increases, on July 1, 2016, PSERS began receiving 100% of actuarially required contributions based on sound actuarial practices and principles for the first time in 15 years. This marked a significant milestone in PSERS' contribution history and established a path to full funding. PSERS received the actuarially required contributions from FY 2016 to

Analysis of Fiduciary Net Position

(Dollar Amounts in Thousands)

Summary of Fiduciary Net Position	**FY2020**	Increase (Decrease)	FY2019	Increase (Decrease)	FY2018
Assets:					
Receivables	**$ 2,594,546**	$ 22,808	$ 2,571,738	$ 367,737	$ 2,204,001
Investments	**57,773,701**	45,144	57,728,557	1,826,227	55,902,330
Securities lending collateral pool	**4,491,237**	(27,135)	4,518,372	1,538,253	2,980,119
Capital assets	**19,183**	(2,162)	21,345	(2,085)	23,430
Miscellaneous	**22,996**	(2,382)	25,378	7,849	17,529
Total Assets	**$ 64,901,663**	$ 36,273	$ 64,865,390	$ 3,737,981	$ 61,127,409
Liabilities:					
Payables and other liabilities	**1,380,640**	168,839	1,211,801	(206,762)	1,418,563
Obligations under securities lending	**4,491,237**	(27,135)	4,518,372	1,538,253	2,980,119
Total Liabilities	**$ 5,871,877**	$ 141,704	$ 5,730,173	$ 1,331,491	$ 4,398,682
Net Position	**$ 59,029,786**	$ (105,431)	$ 59,135,217	$ 2,406,490	$ 56,728,727
Summary of Changes in Fiduciary Net Position					
Additions:					
Contributions	**$ 5,877,206**	$ 210,814	$ 5,666,392	$ 278,420	$ 5,387,972
Commonwealth of Pennsylvania	**-**	(5,200)	5,200	(1,601)	6,801
Participant premiums and CMS	**472,131**	35,303	436,828	12,934	423,894
Net investment income	**1,006,717**	(2,628,233)	3,634,950	(1,082,676)	4,717,626
Total Additions	**$ 7,356,054**	$ (2,387,316)	$ 9,743,370	$ (792,923)	$ 10,536,293
Deductions:					
Benefit expense	**7,365,198**	127,954	7,237,244	93,903	7,143,341
Administrative expenses	**96,287**	(3,349)	99,636	8,541	91,095
Total Deductions	**$ 7,461,485**	$ 124,605	$ 7,336,880	$ 102,444	$ 7,234,436
Effect of change in accounting principle	**-**	-	-	80,076	(80,076)
Changes in Net Position	**$ (105,431)**	$ (2,511,921)	$ 2,406,490	$ (815,291)	$ 3,221,781

Management's Discussion and Analysis (continued)

FY 2020, and the large annual employer contribution rate increases that occurred from FY 2012 to FY 2018 are now complete. Employer contribution rate increases in the future are expected to be in line with inflation.

Funded Status and State Accumulation Account

PSERS uses an actuarial reserve type of funding that is financed by member contributions, employer contributions, and earnings from invested assets. Figure 1 illustrates a thirty six-year history of PSERS' funded status. An independent actuarial valuation of PSERS' actuarial assets and liabilities is performed annually. As part of this valuation, the progress toward funding pension obligations of PSERS is measured by comparing the actuarial value of assets to the actuarial accrued liability. This measurement is referred to as the funded ratio or funded status. PSERS' funded ratio increased from 56.5% at June 30, 2018 to 58.1% as of June 30, 2019, the most recent actuarial valuation, due to fully funded employer contributions, favorable demographic experience, and positive investment returns. The actuarial funded ratio improved to 58.1% as of June 30, 2019 after reaching a significant turning point at June 30, 2018 when it increased to 56.5%. After years of decline since the 123.8% peak at June 30, 2000, the funded ratio is now improving and is projected to continue to rise in the future.

The results of operations for FY 2020 will be reflected in the actuarial valuation for the year ended June 30, 2020. Due to the normal lag time for completion of the actuarial valuation, the resulting funded status will be available at the end of the 2020 calendar year and will be reported in the financial statements for the fiscal year ending June 30, 2021 (FY 2021). Based on the investment performance for the ten-year period ended June 30, 2020, which is above the investment rate of return assumption during that time period, and due to receiving the full actuarially required contributions, the funded ratio at June 30, 2020 is expected to increase.

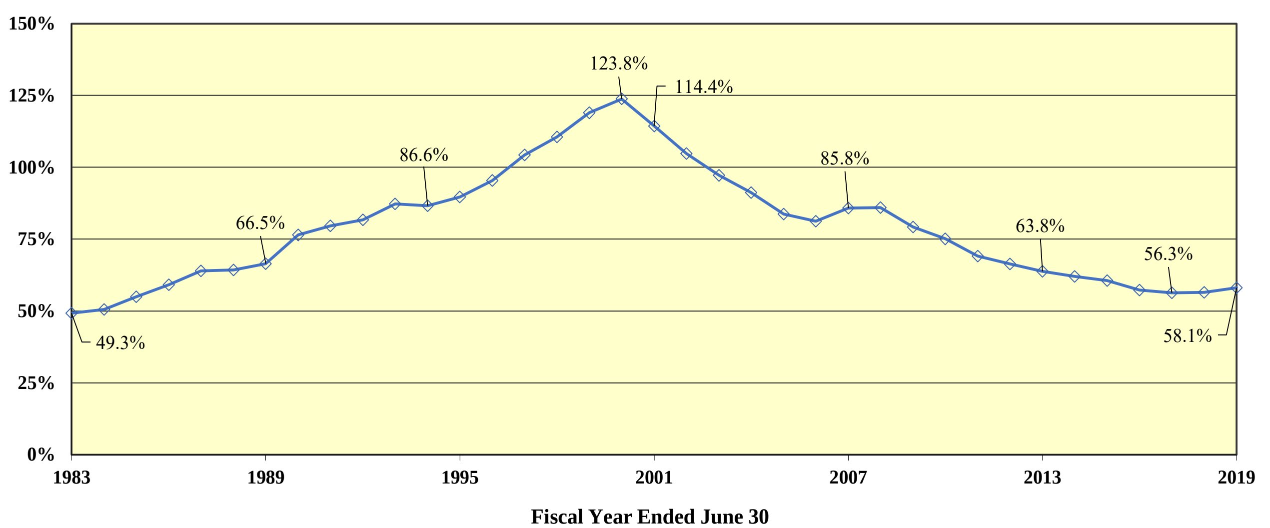
Under GASB 67, the market value funded ratio, which is referred to as the plan fiduciary net position as a percentage of total pension liability, decreased from 55.66% at June 30, 2019 to 54.32% at June 30, 2020 due to investment returns below the actuarial investment return assumption. Unlike the actuarial funded ratio which recognizes the investment performance over 10 years, the market value funded ratio is expected to fluctuate more every year due to the immediate recognition of the fund's fiscal year investment performance. Over the past four years, the longer term trend of the market value funded ratio increased from 50.14% at June 30, 2016 to 54.32% at June 30, 2020 due primarily to PSERS receiving the full actuarially required contributions for all four years and positive investment returns. All the ingredients remain in place and a path to full funding has been established.

PSERS' State Accumulation Account declined from $(15.4) billion at June 30, 2019 to $(16.9) billion at June 30, 2020 due to benefit payments and administrative expenses that exceeded employer contributions at the actuarially required level and investment performance. Investment earnings and actuarially required employer contributions will reduce the deficit in this account in the future (See Note 3).

Investments

PSERS is a long-term investor and manages the pension fund with long-term objectives in mind. A primary element of PSERS' investment philosophy is diversification among various asset classes, which is the best way to achieve its goals. PSERS makes estimates of future long-term market

Figure 1 - PSERS' Funded Ratio
Funded Ratio = Actuarial Value of Assets / Actuarial Accrued Liability



Management's Discussion and Analysis (continued)

returns and establishes an asset allocation plan taking into account the risk associated with each asset class as well as the financial objectives of the Fund.

The past fiscal year will be remembered as a tale of two halves. The first half was highlighted by a strong period for equity returns due to the easing of monetary policies in the United States and Europe as well as a "phase one" trade deal between the U.S. and China which alleviated trade tensions between the two countries. The second half was dominated by a global pandemic with many economies in the world completely shutting down and plunging the global economy into a recession. However, the challenge of falling incomes was met by unprecedented monetary and fiscal policies in the United States and elsewhere to prevent depression-like conditions. The U.S. economy languished in contraction territory during a large part of the fiscal year as measured by the Institute of Supply Management (ISM) Purchasing Managers' Index (PMI), an indicator of activity in the sector. During the fiscal year, the ISM PMI fell from 51.6 at June 30, 2019 to a low of 41.5 on April 30, 2020 during the depths of the COVID-19 crisis before recovering to 52.6 on June 30, 2020. The COVID-19 pandemic affected economies globally with economic activity being negatively impacted in Europe and Asia.

The U.S. economy suffered a significant economic contraction during the fiscal year due to the pandemic. However, these negative economic conditions were alleviated by swift and aggressive fiscal and monetary policy. The Federal Reserve dropped the Federal Funds target rate range by 2.25% during the fiscal year from 2.25% - 2.50% in June 2019 to 0.00% - 0.25% in June 2020. In addition, the Federal Reserve implemented numerous liquidity programs to ensure the proper function of the bond markets. The Federal Government approved over $3 trillion of fiscal spending in the form of tax rebates, a Payroll Protection Program, unemployment insurance benefits, and other forms of fiscal relief. The official unemployment rate rose significantly during the fiscal year from 3.7% at June 30, 2019 to 11.1% at June 30, 2020.

The Euro Area economy was struggling prior to the pandemic and has only worsened since that time. The Euro Area's response to the COVID-19 pandemic was more modest than the U.S. response. The European Central Bank (ECB) and the European Union adopted various monetary and fiscal stimulus programs which amounted to over $1.7 trillion. As of the second quarter 2020, the Euro Area was contracting at a 14.5% annual pace, meaningfully down from the modest 1.3% growth rate one year earlier. The unemployment rate remained relatively stable at 7.7% as of June 2020 compared to 7.5% a year earlier due to companies receiving financial incentives to maintain employee payroll during the pandemic. The Euro Area economy remained in contraction territory as evidenced by the Markit Eurozone Manufacturing PMI measurement of 47.4 in June 2020 down slightly from 47.6 last June, and falling as low as 33.4 during the depth of the pandemic. The ECB continued its policy of very accommodative overnight interest rates (negative 0.5% at June 30, 2020, down from negative 0.4% at June 30, 2019).

Japan's economy was not spared difficulties from the COVID-19 pandemic, although from a health perspective Japan had little in the way of COVID-19 cases relative to the U.S. and Europe. As of the second quarter 2020, Japan's real GDP fell by a year-over-year rate of 9.9% versus a 0.9% year-over-year growth rate for the second quarter 2019. Japanese policy makers continued to aggressively attempt to stimulate their economy through a combination of low interest rates, the purchase of higher risk assets by the Bank of Japan, coordinated diversification into higher risk assets by large public investors, and fiscal spending policies to encourage liquidity to move into riskier assets.

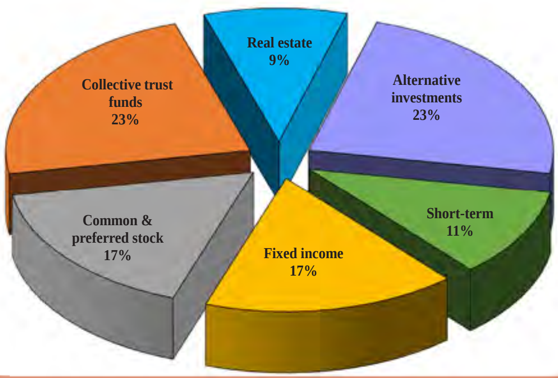
China had robust growth compared to the other developed regions of the world and their aggressive actions fighting the COVID-19 virus allowed them to recover more quickly economically. China's real GDP increased by 3.2% over the past year, significantly slower than the 6.2% pace for the year ended June 2019 due to the weak March 2020 quarter when the economy was shut down due to the pandemic.

For FY 2020, PSERS' time-weighted rate of return on investments was 1.11% which was below PSERS' total fund Policy Index of 2.74% for the same time period. A time-weighted rate of return considers investment performance of a hypothetical dollar invested from the beginning of an investment period to the period's end. The Policy Index is a custom benchmark, based on the Board-established asset allocation structure, that seeks to generate a return that meets the actuarial rate of return assumption. Net investment income of $1.0 billion in FY 2020 declined from a net investment income of $3.6 billion in FY 2019, as the FY 2020 return of 1.11% was substantially below the FY 2019 return of 6.68%. Both FY 2020 and FY 2019 investment returns trailed PSERS 7.25% long term actuarial return assumption.

The time-weighted annualized rate of return over the past three- and five-year periods ended June 30, 2020 was 5.62% and 5.64%, respectively. The time-weighted return for the three-year period and five-year period trailed the total fund Policy Index return by 64 basis points and 44 basis points respectively. The annualized time-weighted rate of return for the ten- and twenty five-year periods ended June 30, 2020 was 7.70% and 7.48%, respectively.

Management's Discussion and Analysis (continued)

Figure 2 - Asset Distribution
June 30, 2020



The asset distribution of PSERS' investment portfolio at June 30, 2020, 2019, and 2018, at fair value, including defined contribution and postemployment healthcare assets, is presented in Figure 2 and Table 1.

FY 2020

- ***Short-term investments*** (cash and cash equivalents) increased from $6.0 billion at June 30, 2019 to $6.2 billion June 30, 2020 mainly due to a reclassification of assets.
- ***Fixed income investments*** increased by $1 billion from $8.7 billion at June 30, 2019 to $9.7 billion at June 30, 2020. Due to a reallocation of exposure from other asset classes, PSERS significantly increased fixed income investments during FY 2020.
- ***Common and preferred stock investments*** remained consistent at $9.8 billion at June 30, 2019 and June 30, 2020.
- ***Collective trust funds*** decreased by $1.1 billion from $14.3 billion at June 30, 2019 to $13.2 billion at June 30, 2020. Due to a reallocation of exposure from other asset classes, PSERS significantly decreased collective trust fund investments during FY 2020.
- ***Real estate investments*** remained consistent at $5.5 billion at June 30, 2019 and June 30, 2020.
- ***Alternative investments*** remained consistent at $13.4 billion at June 30, 2019 and June 30, 2020.

FY 2019

- ***Short-term investments*** (cash and cash equivalents) decreased from $6.2 billion at June 30, 2018 to $6.0 billion at June 30, 2019 mainly due to a reclassification of assets.
- ***Fixed income investments*** increased by $3.5 billion from $5.2 billion at June 30, 2018 to $8.7 billion at June 30, 2019. Due to a reallocation of exposure from other asset classes, PSERS significantly increased its fixed income investments during FY 2019.
- ***Common and preferred stock investments*** decreased by $3.0 billion from $12.8 billion at June 30, 2018 to $9.8 billion at June 30, 2019. Due to a reallocation of exposure from other asset classes, PSERS decreased its common and preferred stock investments during FY 2019.
- ***Collective trust funds*** increased by $0.3 billion from $14.0 billion at June 30, 2018 to $14.3 billion at June 30, 2019 mostly due to positive investment performance.
- ***Real estate investments*** increased by $0.5 billion from $5.0 billion at June 30, 2018 to $5.5 billion at June 30, 2019 due to significant contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant partnership distributions.
- ***Alternative investments*** increased by $0.8 billion from $12.6 billion at June 30, 2018 to $13.4 billion at June 30, 2019 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant distributions.

Securities Lending

The System's net income from securities lending activities increased from $14.3 million in FY 2019 to $15.3 million in FY 2020. Lending income and expense both decreased

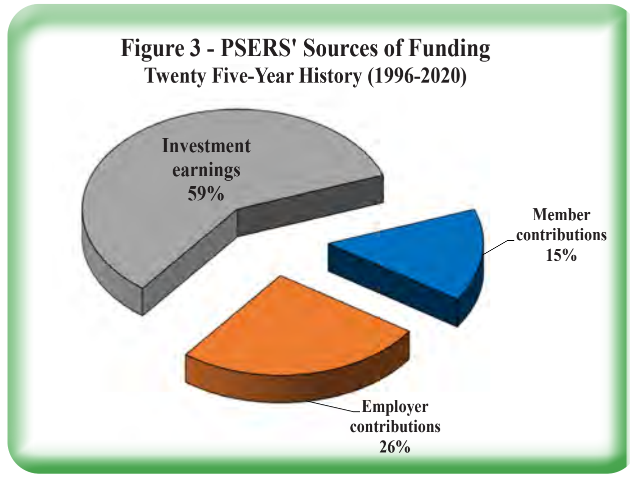
Table 1 - Investment Balances by Asset Class

(Dollar Amount in Thousands)

Asset Class	2020	%	2019	%	2018	%
Short-term	**$ 6,239,539**	**10.8**	$ 6,027,740	10.4	$ 6,173,655	11.0
Fixed income	**9,675,197**	**16.7**	8,652,870	15.0	5,235,603	9.4
Common and preferred stock	**9,756,769**	**16.9**	9,813,146	17.0	12,832,667	23.0
Collective trust funds	**13,175,523**	**22.8**	14,305,045	24.8	14,011,193	25.1
Real estate	**5,478,122**	**9.5**	5,484,621	9.5	5,039,237	9.0
Alternative investments	**13,448,551**	**23.3**	13,445,135	23.3	12,609,975	22.5
Total	**$ 57,773,701**	**100.0**	$ 57,728,557	100.0	$ 55,902,330	100.0

Management's Discussion and Analysis (continued)

significantly as the economy in general moved from a moderate to a lower interest rate environment. The spread increased from FY 2019 to FY 2020 as gross earnings on the borrowers' collateral outpaced the amounts rebated to the borrowers.



Contributions

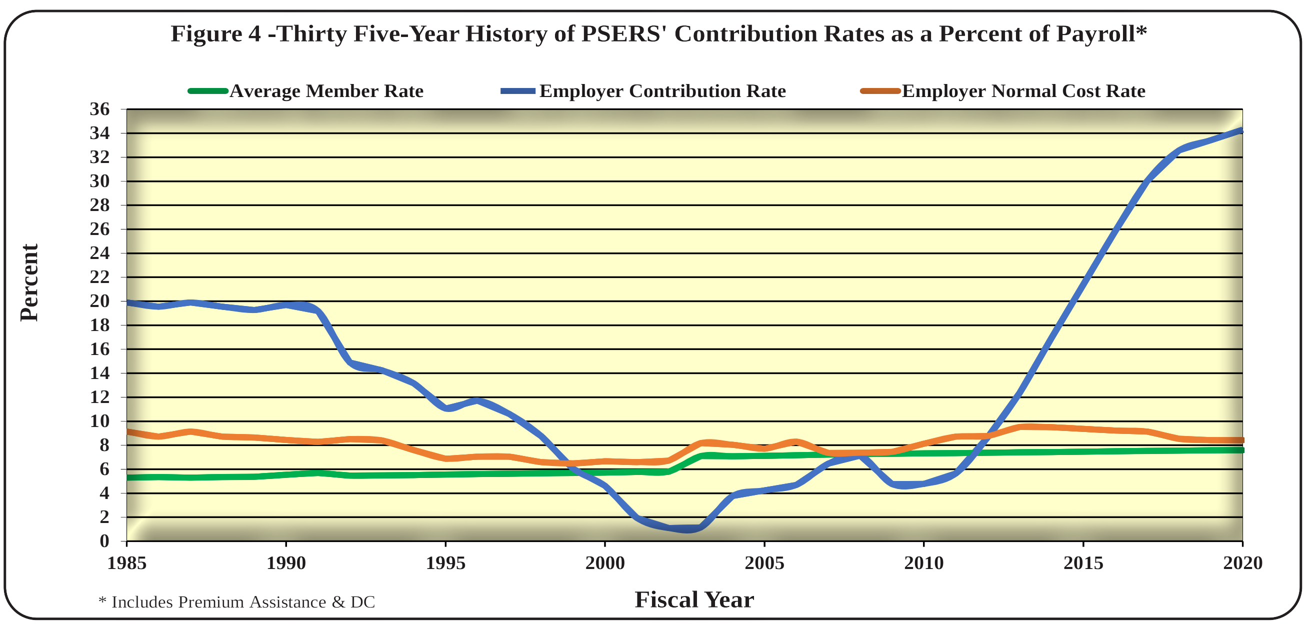
Employer contributions increased from $4.6 billion in FY 2019 to $4.8 billion in FY 2020 due to the increase in the total employer contribution rate from 33.43% in FY 2019 to 34.29% in FY 2020 and growth in employer payroll. Total employer contributions increased from $4.4 billion in FY 2018 to $4.6 billion in FY 2019. This increase was primarily attributable to an increase in the total employer contribution rate from 32.57% in FY 2018 to 33.43% in FY 2019.

Total member contributions slightly increased from $1.06 billion in FY 2019 to $1.08 billion in FY 2020 and increased from $1.03 billion in FY 2018 to $1.06 billion in FY 2019. The increase in both years was mainly due to an increase in member contributions from active member payroll.

As a result of an increase in member purchase of service contributions and active member payroll, member contribution receivables increased from $352.4 million at June 30, 2019 to $356.4 million at June 30, 2020. As a result of an increase in member purchase of service contributions, member contribution receivables increased from $350.4 million at June 30, 2018 to $352.4 million at June 30, 2019. The increase in the employer contribution rate from FY 2019 to FY 2020, and growth in the employer payroll resulted in the employer contribution receivables rising from $1.3 billion at June 30, 2019 to $1.4 billion at June 30, 2020. See Figure 4 for a thirty five-year history of PSERS' contribution rates.

Commonwealth Share of Employer Contributions

The Commonwealth reimburses all school entity employers (school districts, intermediate units and vocational technical schools) a portion of all employer contributions paid to the System. The Commonwealth reimburses at least 50% of school entities' contributions. The Commonwealth reimbursement rate, however, could be larger based on its Market Value / Personal Income Aid Ratio, which is a Commonwealth of Pennsylvania Department of Education calculation of local tax rates and socioeconomic factors. This reimbursement that school entities receive from the Commonwealth is referred to as the Commonwealth Share of employer contributions. The Commonwealth Share of contributions is paid to the school entities approximately 75 days after the end of each quarter. School entities have



Management's Discussion and Analysis (continued)

five days after receiving the Commonwealth Share to pay the total employer contributions to PSERS. Total employer contributions are comprised of the Commonwealth Share and remaining contributions which are referred to as the school and non-school entity share.

For non-school entity employers (state college/universities, community colleges, and state agencies) the Commonwealth remits directly to the System 50% of total employer contributions due, and the non-school entity employer remits 50% of the total employer contributions due directly to the System.

The Commonwealth Share of total employer contributions for FY 2020 was $2.6 billion and for FY 2019 was $2.5 billion. The school and non-school entity share of total employer contributions for FY 2020 was $2.2 billion and for FY 2019 was $2.1 billion. For FY 2020 total employer contributions were $4.8 billion and for FY 2019 were $4.6 billion.

Investment Income

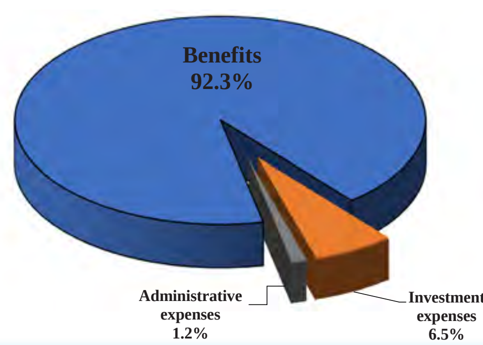
Net investment income decreased from $3.6 billion in FY 2019 to $1.0 billion in FY 2020, which is consistent with the decrease in the time-weighted investment rate of return from 6.68% for FY 2019 to 1.11% for FY 2020. Net investment income slightly decreased from $4.7 billion in FY 2018 to $3.6 billion in FY 2019, which is consistent with the decrease in the time-weighted investment rate of return from 9.27% for FY 2018 to 6.68% for FY 2019. As depicted in Figure 3, investment earnings provided 59% of PSERS' funding over the past 25 years. Net investment income also includes investment expenses as a deduction. The "Total PSERS' Benefits and Expenses" section that follows includes an analysis of investment expenses.

Total PSERS' Benefits and Expenses

The primary source of expense during FY 2020 was for the payment of pension and healthcare benefits approximating $7.4 billion. The breakdown consisted of $6.9 billion for Pension, $113.3 million for Premium Assistance, and $375.4 million for HOP benefits. Figure 5 illustrates the significant portion of expenses attributable to benefit payments.

Total PSERS' benefit expense slightly increased from $7.2 billion in FY 2019 to $7.4 billion in FY 2020. The increase is attributable to an ongoing increase to the average monthly benefit and an increase in the number of members receiving benefits. Pension benefits payable increased from $585.0 million at June 30, 2019 to $590.8 million at June 30, 2020. This increase was mainly attributable to an increase in pension and death payments payable. Total PSERS' benefit expense slightly increased from $7.1 billion in FY

Figure 5 - Total PSERS' Benefits and Expenses
Fiscal Year Ended June 30, 2020



2018 to $7.2 billion in FY 2019. The increase is attributable to an ongoing increase to the average monthly benefit and an increase in the number of members receiving benefits. This increase was partially offset by a decrease in lump sum payments in FY 2019 due to a small decrease in the number of retirees electing to receive lump sums. Pension benefits payable increased from $582.4 million at June 30, 2018 compared to $585.0 million at June 30, 2019. The increase is attributable to an ongoing increase to the average monthly benefit and an increase in the number of members receiving benefits. This increase was partially offset by a decrease in lump sum payments in FY 2019 due to a small decrease in the number of retirees electing to receive lump sums.

Investment expenses increased by $65.5 million from $449.8 million in FY 2019 to $515.3 million in FY 2020 mainly due to an increase in management fees in collective trust and international equity of $58 million. The increase in collective trust and international equity is mainly attributable to higher performance fees earned in FY 2020. As a percentage of total benefits and expenses, investment expense increased from 5.8% in FY 2019 to 6.5% in FY 2020.

As a percentage of total benefits and expenses, investment expense has decreased from a high of 8.2% in FY 2013 to 6.5% in FY 2020 as investment expenses have declined from $557.6 million in FY 2013 to $515.3 million in FY 2020. During this same period net assets increased $10.3 billion from $48.7 billion at June 30, 2012 to $59.0 billion at June 30, 2020.

PSERS continues to be one of the most transparent among large public pension funds in the nation for the disclosure of management fees. For example, certain pension funds report no or very little management fees for alternative investments because they are considered part of the cost of the investment and are netted against performance rather than shown separately. PSERS, however, gathers management fee information from each of its limited

Management's Discussion and Analysis (continued)

partnerships and collective trust fund investments, even if it is not specifically disclosed in the fund's standard reports or identified in capital call requests. Such management fee information includes both base and performance fees obtained from either the fund's administrator statement, capital account statement or financial statements. This information is then utilized to report all relevant management fees in the System's financial statements. While the national debate over what constitutes a "fee" continues, PSERS will endeavor to remain transparent and report fees in accordance with current GASB standards and prevailing public pension industry practices to keep PSERS' financial statements both meaningful and comparative to its peers. In addition, PSERS reports all other investment expenses, including staff compensation and overhead, consultant, legal, and bank expenses incurred.

Administrative expenses decreased by $3.3 million from $99.6 million during FY 2019 to $96.3 million during FY 2020. This decrease was mainly attributable to the decline in OPEB Expenses due to a favorable experience gain for Commonwealth of Pennsylvania Retired Employees Health Program (REHP) from the rebidding of the insurance plans and drug plans, and moving Medicare participants into an MA-PPO plan. As depicted in Figure 5, administrative expenses represent only 1.2% of total benefits and expenses.

Management's Discussion and Analysis (continued)

Defined Contribution Plan (DC)

PSERS administers a defined contribution plan. The following paragraphs and summary financial data provide supplementary information to the financial statements which contain the financial position and activities for the defined contribution plan.

Financial Highlights

- Total net position increased by $12.4 million in FY 2020 mainly due to the start of the plan receiving member and employer contributions on July 1, 2019. Total net position increased by $2.2 million from June 30, 2018 to June 30, 2019 mainly due to the receipt of additional Commonwealth funding to help fund start-up costs of the defined contribution plan.

- Investments increased from $10.5 million at June 30, 2019 to $21.6 million at June 30, 2020 as the defined contribution plan started operations on July 1, 2019.

Contributions

Total member contributions increased by $8.3 million and employer contributions increased by $6.6 million due to the defined contribution plan starting operations on July 1, 2019.

Investment Income

Total investment income for the defined contribution plan increased from $273 thousand in FY 2019 to $655 thousand in FY 2020 due to the defined contribution plan starting operations on July 1, 2019.

Benefits and Expenses

Overall deductions for the defined contribution plan decreased from $3.3 million in FY 2019 to $3.2 million in FY 2020. The decrease is due to a decline in start-up costs as the defined contribution plan began operations on July 1, 2019.

Management's Discussion and Analysis (continued)

Defined Contribution Plan

Summary of Fiduciary Net Position (Dollar Amounts in Thousands)

Assets:	**FY 2020**	Increase (Decrease)	FY 2019	Increase (Decrease)	FY 2018
Receivables	**$ 461**	$ 442	$ 19	$ (34)	$ 53
Investments	**21,565**	11,089	10,476	3,741	6,735
Total Assets	**22,026**	11,531	10,495	3,707	6,788
Liabilities:					
Payables and other liabilities	**665**	(874)	1,539	1,510	29
Total Liabilities	**665**	(874)	1,539	1,510	29
Net Position	**$ 21,361**	$ 12,405	$ 8,956	$ 2,197	$ 6,759

Summary of Changes in Fiduciary Net Position (Dollar Amounts in Thousands)

Additions:	**FY 2020**	Increase (Decrease)	FY 2019	Increase (Decrease)	FY 2018
Contributions	**$ 14,929**	$ 14,929	$ -	$ -	$ -
Commonwealth of Pennsylvania	**-**	(5,200)	5,200	(1,601)	6,801
Net investment income	**655**	382	273	220	53
Total Additions	**15,584**	10,111	5,473	(1,381)	6,854
Deductions:					
Benefit expenses	**12**	12	-	-	-
Administrative expenses	**3,167**	(109)	3,276	3,181	95
Total Deductions	**3,179**	(97)	3,276	3,181	95
Changes in Net Position	**$ 12,405**	$ 10,208	$ 2,197	$ (4,562)	$ 6,759

Management's Discussion and Analysis (continued)

Postemployment Healthcare

PSERS administers two postemployment healthcare programs, the Health Insurance Premium Assistance Program (Premium Assistance) and the Health Options Program (HOP), for its annuitants. The following paragraphs and summary financial data provide supplementary information to the financial statements which contain the financial position and activities for the two postemployment healthcare programs.

Health Insurance Premium Assistance Program (Premium Assistance)

Financial Highlights

- Total net position increased by $5.2 million in FY 2020 mainly due to net investment income and employer contributions exceeding benefit expense deductions and from a net decrease in administrative expenses. The total net position continues to be sufficient to fund one full year of benefits. The change from June 30, 2018 to June 30, 2019 was an increase of $2.5 million mainly due to net investment income and employer contributions exceeding benefit expense deductions and from a net decrease in administrative expenses. The contribution rate for FY 2019 was 0.83%. The contribution for FY 2020 was 0.84%.
- Investments remained stable at $93.6 million at June 30, 2020 and June 30, 2019.

Contributions

Total employer contributions for Premium Assistance increased from $114.8 million in FY 2019 to $117.9 million in FY 2020 due to a slight increase in the contribution rate and growth in employer payroll.

Investment Income

Total investment income for Premium Assistance decreased from $2.3 million for FY 2019 to $1.8 million for FY 2020 due to lower short-term interest rates.

Benefits and Expenses

Overall deductions for Premium Assistance slightly decreased from $114.7 million in FY 2019 to $114.4 million in FY 2020. The decrease is due to a decline in administrative expenses that was partially offset by a slight increase in premium assistance benefits due to an increase in the number of members receiving premium assistance.

Health Options Program (HOP)

Financial Highlights

- Total net position increased by $54.0 million in FY 2020 primarily due to the increase in participant premiums and CMS payments exceeding benefits and administrative expenses. The change from June 30, 2018 to June 30, 2019 is primarily due to the rise in premiums and investment income that outpaced the rise in expenses in both benefit payments and administrative expenses.
- Total receivables increased from $54.5 million at June 30, 2019 to $76.9 million at June 30, 2020. The increase is due to an increase in CMS reinsurance and prescription drug rebates.
- Investments increased from $286.1 million at June 30, 2019 to $317.8 million at June 30, 2020 as HOP income exceeded expenses, which produced more funds for investment.
- Total liabilities increased 0.84% from $73.4 million at June 30, 2019 to $74.1 million at June 30, 2020. The increase is mainly due to increased participation in the program and claim costs causing an increase in prescription drug claims payable and premium advance payable.

Participant and CMS Premiums

Total Participant and CMS premiums for HOP increased from $436.8 million for FY 2019 to $472.1 million for FY 2020 due to an increase in plan participation and CMS payments.

Investment Income

Investment income for HOP decreased from $3.7 million for FY 2019 to $2.5 million for FY 2020 due to lower short-term interest rates.

Benefits and Expenses

Overall deductions for HOP increased from $408.8 million in FY 2019 to $420.6 million in FY 2020. This increase is primarily due to an increase in plan participation and prescription drug claims expense partially offset by prescription drug rebates, medical claims expense and carrier premiums.

Management's Discussion and Analysis (continued)

Premium Assistance

Summary of Fiduciary Net Position

(Dollar Amounts in Thousands)

Assets:	FY 2020	Increase (Decrease)	FY 2019	Increase (Decrease)	FY 2018
Receivables	**$ 36,939**	$ 1,125	$ 35,814	$ 606	$ 35,208
Investments	**93,616**	(9)	93,625	1,920	91,705
Miscellaneous	**302**	(5)	307	60	247
Total Assets	**130,857**	1,111	129,746	2,586	127,160
Liabilities:					
Payables and other liabilities	**440**	(4,121)	4,561	135	4,426
Total Liabilities	**440**	(4,121)	4,561	135	4,426
Net Position	**$ 130,417**	$ 5,232	$ 125,185	$ 2,451	$ 122,734

Summary of Changes in Fiduciary Net Position

(Dollar Amounts in Thousands)

Additions:	FY 2020	Increase (Decrease)	FY 2019	Increase (Decrease)	FY 2018
Contributions	**$ 117,907**	$ 3,078	$ 114,829	$ 2,843	$ 111,986
Net investment income	**1,752**	(561)	2,313	858	1,455
Total Additions	**119,659**	2,517	117,142	3,701	113,441
Deductions:					
Benefit expenses	**113,279**	502	112,777	930	111,847
Administrative expenses	**1,148**	(766)	1,914	(689)	2,603
Total Deductions	**114,427**	(264)	114,691	241	114,450
Changes in Net Position	**$ 5,232**	$ 2,781	$ 2,451	$ 3,460	$ (1,009)

Health Options Program

Summary of Fiduciary Net Position

(Dollar Amounts in Thousands)

Assets:	FY 2020	Increase (Decrease)	FY 2019	Increase (Decrease)	FY 2018
Receivables	**$ 76,946**	$ 22,434	$ 54,512	$ (4,065)	$ 58,577
Investments	**317,826**	31,749	286,077	48,579	237,498
Miscellaneous	**514**	466	48	(2,669)	2,717
Total Assets	**395,286**	54,649	340,637	41,845	298,792
Liabilities:					
Payables and other liabilities	**74,064**	619	73,445	10,173	63,272
Total Liabilities	**74,064**	619	73,445	10,173	63,272
Net Position	**$ 321,222**	$ 54,030	$ 267,192	$ 31,672	$ 235,520

Summary of Changes in Fiduciary Net Position

(Dollar Amounts in Thousands)

Additions:	FY 2020	Increase (Decrease)	FY 2019	Increase (Decrease)	FY 2018
Participant and CMS premiums	**$ 472,131**	$ 35,303	$ 436,828	$ 12,934	$ 423,894
Net investment income	**2,464**	(1,190)	3,654	1,694	1,960
Total Additions	**474,595**	34,113	440,482	14,628	425,854
Deductions:					
Benefit expenses	**375,392**	12,097	363,295	(13,053)	376,348
Administrative expenses	**45,173**	(342)	45,515	3,662	41,853
Total Deductions	**420,565**	11,755	408,810	(9,391)	418,201
Changes in Net Position	**$ 54,030**	$ 22,358	$ 31,672	$ 24,019	$ 7,653

Statements of Fiduciary Net Position
June 30, 2020 and 2019
(Dollar Amounts in Thousands)

	2020				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Assets:					
Receivables:					
Members	$ 353,859	$ 254	$ 2,159	$ 92	$ 356,364
Employers	1,351,731	204	34,030	-	1,385,965
Investment income	479,075	3	59	47	479,184
Investment proceeds	295,153	-	-	-	295,153
CMS Part D and prescriptions	-	-	-	76,807	76,807
Interfund receivable	382	-	691	-	1,073
Total Receivables	2,480,200	461	36,939	76,946	2,594,546
Investments, at fair value:					
Short-term	5,821,164	6,933	93,616	317,826	6,239,539
Fixed income	9,675,197	-	-	-	9,675,197
Common and preferred stock	9,756,769	-	-	-	9,756,769
Collective trust funds	13,160,891	14,632	-	-	13,175,523
Real estate	5,478,122	-	-	-	5,478,122
Alternative investments	13,448,551	-	-	-	13,448,551
Total Investments	57,340,694	21,565	93,616	317,826	57,773,701
Securities lending collateral pool	4,491,237	-	-	-	4,491,237
Capital assets (net of accumulated depreciation $37,264)	19,183	-	-	-	19,183
Miscellaneous	22,180	-	302	514	22,996
Total Assets	64,353,494	22,026	130,857	395,286	64,901,663
Liabilities:					
Accounts payable and accrued expenses	118,133	124	389	2,781	121,427
Benefits payable	590,838	-	51	38,334	629,223
HOP participant premium advances	-	-	-	32,913	32,913
Investment purchases and other payables	440,563	195	-	-	440,758
Obligations under securities lending	4,491,237	-	-	-	4,491,237
Interfund payable	691	346	-	36	1,073
Other liabilities	155,246	-	-	-	155,246
Total Liabilities	5,796,708	665	440	74,064	5,871,877
Net position restricted for pension, DC and postemployment healthcare benefits	$ 58,556,786	$ 21,361	$ 130,417	$ 321,222	$ 59,029,786

The accompanying notes are an integral part of the financial statements.

Statements of Fiduciary Net Position
June 30, 2020 and 2019
(Dollar Amounts in Thousands)

	2019				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Assets:					
Receivables:					
Members	$ 349,892	$ -	$ 2,475	$ 82	$ 352,449
Employers	1,284,751	-	33,241	-	1,317,992
Investment income	514,815	19	98	173	515,105
Investment proceeds	330,059	-	-	-	330,059
CMS Part D and prescriptions	-	-	-	54,257	54,257
Interfund receivable	1,876	-	-	-	1,876
Total Receivables	2,481,393	19	35,814	54,512	2,571,738
Investments, at fair value:					
Short-term	5,637,562	10,476	93,625	286,077	6,027,740
Fixed income	8,652,870	-	-	-	8,652,870
Common and preferred stock	9,813,146	-	-	-	9,813,146
Collective trust funds	14,305,045	-	-	-	14,305,045
Real estate	5,484,621	-	-	-	5,484,621
Alternative investments	13,445,135	-	-	-	13,445,135
Total Investments	57,338,379	10,476	93,625	286,077	57,728,557
Securities lending collateral pool	4,518,372	-	-	-	4,518,372
Capital assets (net of accumulated depreciation $34,515)	21,345	-	-	-	21,345
Miscellaneous	25,023	-	307	48	25,378
Total Assets	64,384,512	10,495	129,746	340,637	64,865,390
Liabilities:					
Accounts payable and accrued expenses	97,129	1,386	295	3,377	102,187
Benefits payable	584,960	-	81	38,098	623,139
HOP participant premium advances	-	-	-	31,970	31,970
Investment purchases and other payables	289,484	-	2,462	-	291,946
Obligations under securities lending	4,518,372	-	-	-	4,518,372
Interfund payable	-	153	1,723	-	1,876
Other liabilities	160,683	-	-	-	160,683
Total Liabilities	5,650,628	1,539	4,561	73,445	5,730,173
Net position restricted for pension, DC and postemployment healthcare benefits	$ 58,733,884	$ 8,956	$ 125,185	$ 267,192	$ 59,135,217

The accompanying notes are an integral part of the financial statements.

Statements of Changes in Fiduciary Net Position
Years Ended June 30, 2020 and 2019
(Dollar Amounts in Thousands)

	2020				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Additions:					
Contributions:					
Members	$ 1,067,957	$ 8,343	$ -	$ -	$ 1,076,300
Employers	4,676,413	6,586	117,907	-	4,800,906
Total contributions	5,744,370	14,929	117,907	-	5,877,206
HOP Participant premiums	-	-	-	390,883	390,883
Centers for Medicare & Medicaid Services premiums	-	-	-	81,248	81,248
Investment income:					
From investing activities:					
Net appreciation in fair value of investments	261,316	541	7	-	261,864
Short-term	97,919	144	1,781	2,500	102,344
Fixed income	268,787	-	-	-	268,787
Common and preferred stock	277,635	-	-	-	277,635
Collective trust funds	4,633	-	-	-	4,633
Real estate	219,762	-	-	-	219,762
Alternative investments	371,652	-	-	-	371,652
Total investment activity income	1,501,704	685	1,788	2,500	1,506,677
Investment expenses	(515,160)	(30)	(36)	(36)	(515,262)
Net income from investing activities	986,544	655	1,752	2,464	991,415
From securities lending activities:					
Securities lending income	83,746	-	-	-	83,746
Securities lending expense	(68,444)	-	-	-	(68,444)
Net income from securities lending activities	15,302	-	-	-	15,302
Total net investment income	1,001,846	655	1,752	2,464	1,006,717
Total Additions	6,746,216	15,584	119,659	474,595	7,356,054
Deductions:					
Benefits	6,849,052	-	113,279	375,392	7,337,723
Refunds of contributions	27,463	12	-	-	27,475
Administrative expenses	46,799	3,167	1,148	45,173	96,287
Total Deductions	6,923,314	3,179	114,427	420,565	7,461,485
Net increase (decrease)	(177,098)	12,405	5,232	54,030	(105,431)
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	58,733,884	8,956	125,185	267,192	59,135,217
Balance, end of year	$ 58,556,786	$ 21,361	$ 130,417	$ 321,222	$ 59,029,786

The accompanying notes are an integral part of the financial statements.

Statements of Changes in Fiduciary Net Position
Years Ended June 30, 2020 and 2019
(Dollar Amounts in Thousands)

	2019				
			Postemployment Healthcare		
	Pension	Defined Contribution (DC)	Premium Assistance	Health Options Program	Totals
Additions:					
Contributions:					
Members	$ 1,064,043	$ -	$ -	$ -	$ 1,064,043
Employers	4,487,520	-	114,829	-	4,602,349
Total contributions	5,551,563	-	114,829	-	5,666,392
HOP Participant premiums	-	-	-	376,449	376,449
Centers for Medicare & Medicaid Services premiums	-	-	-	60,379	60,379
Commonwealth of Pennsylvania	-	5,200	-	-	5,200
Investment income:					
From investing activities:					
Net appreciation in fair value of investments	2,829,899	-	434	-	2,830,333
Short-term	124,184	273	1,907	3,682	130,046
Fixed income	256,597	-	-	-	256,597
Common and preferred stock	322,865	-	-	-	322,865
Collective trust funds	6,373	-	-	-	6,373
Real estate	226,303	-	-	-	226,303
Alternative investments	298,004	-	-	-	298,004
Total investment activity income	4,064,225	273	2,341	3,682	4,070,521
Investment expenses	(449,768)	-	(28)	(28)	(449,824)
Net income from investing activities	3,614,457	273	2,313	3,654	3,620,697
From securities lending activities:					
Securities lending income	116,564	-			116,564
Securities lending expense	(102,311)	-			(102,311)
Net income from securities lending activities	14,253	-			14,253
Total net investment income	3,628,710	273	2,313	3,654	3,634,950
Total Additions	9,180,273	5,473	117,142	440,482	9,743,370
Deductions:					
Benefits	6,734,145	-	112,777	363,295	7,210,217
Refunds of contributions	27,027	-	-	-	27,027
Administrative expenses	48,931	3,276	1,914	45,515	99,636
Total Deductions	6,810,103	3,276	114,691	408,810	7,336,880
Net increase (decrease)	2,370,170	2,197	2,451	31,672	2,406,490
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	56,363,714	6,759	122,734	235,520	56,728,727
Balance, end of year	$ 58,733,884	$ 8,956	$ 125,185	$ 267,192	$ 59,135,217

The accompanying notes are an integral part of the financial statements.

Notes to Financial Statements
Years Ended June 30, 2020 and 2019

1. Organization and Description of the System

(A) Organization

The System was established on July 18, 1917, under the provisions of Pamphlet Law 1043, No. 343 as a governmental cost-sharing multiple-employer plan that provides retirement allowances and other benefits to its members. Membership in the System is mandatory for nearly all qualifying public school employees in the Commonwealth of Pennsylvania (Commonwealth). At June 30, 2020, there were 770 participating employers, generally school districts. Membership at June 30, 2019, the most recent year for which actual amounts are available, is presented in Table 2.

The Public School Employees' Retirement Board (Board) is established by state law as an independent administrative board of the Commonwealth. The Board exercises control and management of the System, including the investment of its assets. The Board has fifteen members including the Commonwealth's Secretary of Education, the Commonwealth's Secretary of Banking and Securities, the State Treasurer, the Executive Director of the Pennsylvania School Boards Association, one member appointed by the Governor, six elected members (three from among the System's certified members, one from among the System's noncertified members, one from among the System's annuitants, and one from among school board members in Pennsylvania), two members from the Senate, and two members from the House of Representatives.

The State Treasurer is the custodian of the System's Fund. The retirement plan of the System is a contributory defined benefit plan for which the benefit payments to members and contribution provisions by employers and employees are specified in the Pennsylvania Public School Employees' Retirement Code (Code). Changes in benefit and contribution provisions for the retirement plan must be made by legislation. Pursuant to state law, all legislative bills and amendments proposing to change the System's retirement plan are to be accompanied with an actuarial note prepared by an enrolled pension actuary from the Independent Fiscal Office (IFO) providing an estimate of the cost and actuarial effect of the proposed change.

Table 2 - Membership as of June 30, 2020

Active members:	
Vested	158,644
Nonvested	97,602
Total active members	**256,246**
Inactive members:	
Retirees and beneficiaries currently receiving benefits	240,758
Inactive members and vestees entitled to but not receiving benefits	25,903
Total retirees and other members	**266,661**
Total number of members	**522,907**

Based upon criterion of financial accountability as defined by governmental accounting standards, the System is considered a component unit of the Commonwealth of Pennsylvania financial reporting entity and is included in the Comprehensive Annual Financial Report of the Commonwealth of Pennsylvania.

(B) Pension Plan

i. Pension Benefits

(a) Traditional Defined Benefit (DB) Plan

Under the provisions of the 1975 revision of the Code by the Pennsylvania General Assembly, members are eligible for monthly retirement benefits upon reaching (a) age 62 with at least 1 year of credited service; (b) age 60 with 30 or more years of credited service; or (c) 35 or more years of service regardless of age. Act 120 of 2010 (Act 120) preserves the benefits of existing members and introduced benefit reductions for individuals who become new members on or after July 1, 2011 through June 30, 2019. Act 120 created two new membership classes, Membership Class T-E (Class T-E) and Membership Class T-F (Class T-F). To qualify for normal retirement, Class T-E and Class T-F members must work until age 65 with a minimum of 3 years of service or attain a total combination of age and service that is equal to or greater than 92 with a minimum of 35 years of service. The Internal Revenue Code (IRC) limitation on the annual benefits for a defined benefit plan was $230,000 for 2020 and $225,000 for 2019.

(b) Hybrid DB/DC Benefit

Act 5 of 2017 (Act 5) introduced a hybrid benefit with two membership classes and a separate defined contribution plan for individuals who become new members on or after July 1, 2019. Act 5 created two new hybrid membership classes, Membership Class T-G (Class T-G) and Membership Class T-H (Class T-H) and the separate defined contribution membership class, Membership Class DC (Class DC). To qualify for normal retirement, Class T-G and Class T-H members must work until age 67 with a minimum of 3 years of credited service. Class T-G may also qualify for normal retirement by attaining a total combination of age and service that is equal to or greater than 97 with a minimum of 35 years of credited service.

Notes to Financial Statements (continued)

The normal retirement age, vesting period and final average salary for virtually all members are presented below:

Membership Class	Normal Retirement Age	Pension multiplier	Vesting	Final Average Salary
T-C	Age 62, or Age 60 with 30 years of service, or 35 years of service regardless of age.	2.00%	5 Years	For any 3 years of service
T-D		2.50%	5 Years	For any 3 years of service
T-E	Age 65 with a minimum of three years of service credit, or Any combination of age and service that totals 92 with at least 35 years of credited service .	2.00%	10 Years	For any 3 years of service
T-F		2.50%	10 Years	For any 3 years of service
T-G	Age 67 with a minimum of three years of service credit, or Any combination of age and service that totals 97 with at least 35 years of credited service.	1.25%	10 Years	For any 5 years of service
T-H	Age 67 with a minimum of three years of credited service.	1.00%	10 Years	For any 5 years of service

(c) Benefits Attributable to both the Traditional DB & Hybrid DB/DC

As summarized in the table above, benefits are generally between 1% to 2.5%, depending upon membership class, of the member's final average salary (as defined in the Code) multiplied by the number of years of credited service. A members' right to a defined benefit is vested in 5 to 10 years depending on membership class as summarized in the table above. Active members may purchase credit for various types of school and non-school service on a lump-sum, installment purchase basis, or through an actuarially calculated benefit reduction. Class T-E, Class T-F, Class T-G and Class T-H members must purchase Non-Qualifying Part Time service and most other types of non-school or non-state service credit at full actuarial cost. Class T-E, Class T-F, Class T-G and Class T-H members must purchase credit for Non-Qualifying Part Time service within 365 days of enrollment in the System.

In addition to regular retirement benefits, the System also provides for disability retirement benefits and death benefits. Participants are eligible for disability retirement benefits after completion of five years of credited service. Such benefits are generally between 2% to 2.5%, depending upon membership class, of the member's final average salary (as defined in the Code) multiplied by the number of years of credited service. Depending on membership class, certain minimum disability requirements apply. Members over normal retirement age may apply for disability benefits.

Death benefits are payable upon the death of an active member who has reached age 62 with at least one year of credited service (age 65 with at least three years of credited service for Class T-E and Class T-F members; age 67 with at least three years of credited services for Class T-G and Class T-H members) or who has at least five years of credited service (ten years for Class T-E, Class T-F, Class T-G, and Class T-H members). Such benefits are actuarially equivalent to the benefit that would have been effective if the member had retired on the day before death.

Members with credited service in the Commonwealth of Pennsylvania State Employees' Retirement System (SERS) may elect to have that service combined with service in the Public School Employees' Retirement System upon commencement of employment in the public school system. Similarly, a member with credited service in the

The contribution rates based on qualified member compensation for virtually all members are presented below:

Member Contribution Rates				
Membership Class	**Continuous Employment Since**	**Defined Benefit (DB) Contribution Rate**	**DC Contribution Rate**	**Total Contribution Rate**
T-C	Prior to July 22, 1983	5.25%	N/A	5.25% 6.25%
T-C	On or after July 22, 1983	6.25%	N/A	6.25%
T-D	Prior to July 22, 1983	6.50%	N/A	6.50%
T-D	On or after July 22, 1983	7.50%	N/A	7.50%
T-E	On or after July 1, 2011	7.50% base rate with shared risk provision	N/A	7.50%
T-F	On or after July 1, 2011	10.30% base rate with shared risk provision	N/A	10.30%
T-G	On or after July 1, 2019	5.50% base rate with shared risk provision	2.75%	8.25%
T-H	On or after July 1, 2019	4.50% base rate with shared risk provision	3.00%	7.50%
DC	On or after July 1, 2019	N/A	7.50%	7.50%

Notes to Financial Statements (continued)

System may elect to combine such service with SERS upon becoming a member of that system.

All members are fully vested in their individual balance in the Members' Savings Account which is described in Note 3. All non-vested members may receive a refund of their individual balance of member contributions and interest from the Members' Savings Account upon termination of public school employment. Vested members may elect to receive a return of their accumulated contributions and interest from the Members' Savings Account upon their retirement which results in a reduced monthly annuity.

ii. Contributions

The contribution policy is set by the Code and requires contributions by active members, employers, and the Commonwealth. The System's funding policy provides for periodic employer and Commonwealth contributions at actuarially determined rates, expressed as a percentage of annual covered payroll, such that they, along with employee contributions and an actuarially determined rate of investment return, are adequate to accumulate assets to pay retirement benefits when due. Level percentage of payroll employer contribution rates are determined using the entry age normal actuarial funding method. This method determines the amount of contributions necessary to (1) fully fund all current costs, (also known as normal cost), which represents the estimated amount necessary to pay for the benefits earned by the employees during the current service year; and (2) liquidate the prior service cost for service earned prior to the current service year and subsequent benefit increases, which represents the amount necessary to fund accrued liabilities over the appropriate amortization periods.

Contribution rates for active members are set by law (redefined with the provisions of Act 9 of 2001, Act 120 and Act 5) and are dependent upon membership class. The IRC limitation on the annual compensation for a defined benefit plan was $285,000 for 2020 and $280,000 for 2019.

Active members who enrolled between July 1, 2001, the effective date of Act 9, and June 30, 2011 are Membership Class T-D (Class T-D). The contribution rates for all members in Class T-D were effective January 1, 2002. For Act 120 members, all new members automatically become Class T-E members. New members, however, have a one-time opportunity to elect Class T-F within 45 days of receiving written notification from PSERS. Failure to elect Class T-F at time of original eligibility will make the member ineligible for Class T-F forever. For Act 5 members, all new members automatically become Class T-G members. New members, however, have a one-time opportunity to elect Class T-H or Class DC within 90 days of receiving written notification from PSERS. Failure to elect Class T-H or Class DC at time of original eligibility will make the member ineligible for Class T-H or Class DC forever. Act 120 introduced a shared risk program that could affect Class T-E and Class T-F members' contribution rates in future fiscal years.

Act 5 enhanced the shared risk program for T-E and T-F members and added T-G and T-H members to the program. Under the shared risk program eligible members benefit when investments of the Fund are doing well and share some of the risk when investments underperform.

The member contribution rate will stay within the ranges specified in the Shared Risk Program Summary table but can fluctuate by the shared risk increment every three years depending on the investment performance of PSERS.

The next member risk share measurement is for the nine-year period ended June 30, 2020 and may affect the Class T-E, Class T-F, Class T-G and Class T-H member contributions starting on July 1, 2021. The investment performance calculations utilized for the member risk share assessment are performed by the System's Investment Evaluator and, consistent with current investment policy, use quarter lagged values for private market investments. For example, for the nine-year measurement period ended June 30, 2020, the investment performance is determined using June 30th valuations for the System's publicly traded investments and March 31st valuations, on a quarter-lag basis, for its

Shared Risk Program Summary

Membership Class	Defined Benefit (DB) Base Rate	Shared Risk Increment	Minimum	Maximum
T-E	7.50%	+/- 0.50%	5.50%	9.50%
T-F	10.30%	+/-0.50%	8.30%	12.30%
T-G	5.50%	+/-0.75%	2.50%	8.50%
T-H	4.50%	+/-0.75%	1.50%	7.50%

Notes to Financial Statements (continued)

private market investments. In the Statements of Fiduciary Net Position, however, all the System's investments are presented at June 30th valuations. The member risk share results for the nine-year measurement period ended June 30, 2020 will be presented by the System's external actuary and approved at the December 2020 Board of Trustees meeting.

The total contribution rate for the employers and the Commonwealth was 34.29% and 33.43% (33.36% and 32.60% for pension component) of qualified compensation for the years ended June 30, 2020 and 2019, respectively.

Act 120 suppressed the employer contribution rate by using rate caps in future years to keep the rate from rising too high, too fast for budgetary purposes.

The rate caps limit the amount the pension component of the employer contribution rate can increase over the prior year's rate. For FY 2014 and thereafter, the rate can increase no more than 4.5% plus the premium assistance contribution rate.

The rate cap remained at 4.5% until FY 2017 when the actuarially calculated contribution rate exceeded the prior year's rate by less than 4.5%. As a result, the rate caps are no longer in effect. Since the rate caps no longer apply, the employer normal cost is the contribution rate floor.

According to requirements established in Act 29 of 1994, the Commonwealth reimburses school entity employers a portion of the employer contributions paid to the System. All school entity employers are reimbursed by the Commonwealth at least 50% of the total employer contributions based on the total contribution rate. The Commonwealth reimburses certain school entity employers at a rate greater than 50% based on the Commonwealth of Pennsylvania Department of Education's Market Value/ Personal Income Aid Ratio and other factors. School entities remit 100% of total employer contributions directly to the System. The Commonwealth remits 50% of the total employer contributions for employers other than school entities directly to the System. All contributions from employers and the Commonwealth are shown as employer contributions on the Statements of Changes in Fiduciary Net Position.

The Commonwealth Share of total employer contributions for FY 2020 was $2.6 billion and for FY 2019 was $2.5 billion. The school and non-school entity share of total employer contributions for FY 2020 was $2.2 billion and for FY 2019 was $2.1 billion. For FY 2020 total employer contributions were $4.8 billion and for FY 2019 were $4.6 billion.

(C) Postemployment Healthcare Plans

i. Health Insurance Premium Assistance Program

(a) Premium Assistance Benefits

The System provides a Health Insurance Premium Assistance Program (Premium Assistance) for all eligible annuitants who qualify and elect to participate. Under this program, employer contribution rates for Premium Assistance are established to provide reserves in the Health Insurance Account that are sufficient for the payment of Premium Assistance benefits for each succeeding year. Effective January 1, 2002, under the provisions of Act 9 of 2001, participating eligible annuitants are entitled to receive premium assistance payments equal to the lesser of $100 per month or their out-of-pocket monthly health insurance premium. To receive premium assistance, eligible annuitants must have an out-of-pocket premium expense from an approved plan. Plans approved for Premium Assistance are health insurance plans maintained by a Commonwealth School Employer or the PSERS sponsored Health Options Program. As of June 30, 2020 there were no assumed future benefit increases to participating eligible annuitants in the Premium Assistance program. Membership at June 30, 2019, the most recent year for which actual amounts are available, is presented in Table 3.

(b) Contributions

A portion of each employer contribution to the System is set aside for the funding of Premium Assistance. The Premium Assistance contribution rate is set at a level necessary to establish reserves sufficient to provide Premium Assistance payments for all participating eligible members for the subsequent fiscal year. The portion of the total contribution rate for employers used to fund Premium Assistance was 0.84% for the year ended June 30, 2020 and 0.83% for the year ended June 30, 2019. Members do not contribute to Premium Assistance.

Table 3 - Premium Assistance Membership at June 30, 2020

Retirees and beneficiaries currently receiving benefits	94,381
Inactive members and vestees entitled to but not receiving benefits	472
Total retirees and other inactive members	**94,853**
Total active members	256,246
Total number of members	**351,099**

Notes to Financial Statements (continued)

ii. Health Options Program

The Health Options Program (HOP) is a PSERS-sponsored voluntary health insurance program for the sole benefit of annuitants of PSERS, spouses of annuitants, survivor annuitants and their dependents who participate in HOP. The HOP is funded exclusively by the premiums paid by its participants for the benefit coverage they elect. The PSERS pension fund assets are not available to fund or satisfy obligations of the HOP.

HOP offers several health plans. Participants may select among two self-funded Medicare supplement plans, three Medicare Rx plans, and multiple Medicare Advantage plans for those eligible for Medicare. Participants not eligible for Medicare have a choice between a self-funded high deductible indemnity plan and multiple managed care plans. Medicare Advantage and managed care plans are available to retirees residing in the plan's service area. The Medicare supplements and pre-65 high deductible plan are self-funded and claims are adjudicated by a third party administrator. The Medicare Rx Options and the prescription drug benefit of the pre-65 high deductible plan are also self-funded and claims are adjudicated by a pharmacy benefits manager. The Medicare Advantage and managed care plans are provided by private insurance companies or managed care organizations and benefits are fully insured. HOP also offers dental benefits through a fully insured carrier.

Effective January 1, 2006, PSERS entered into an Employer/Union Entity contract with the Centers for Medicare and Medicaid Services (CMS) to operate a voluntary Medicare Prescription Drug Plan (PDP). The PDP covers over 94,000 participants. CMS provides partial funding of the PDP in the form of monthly per capita payments and reinsurance. An independent actuarial consulting firm sets the rates for the self-funded benefits. The HOP maintains reserves for claims that are Incurred But Not Reported (IBNR) and for claim fluctuation for the self-funded benefit plans. At June 30, 2020 and 2019 PSERS recorded $18,447,000 and $19,125,000, respectively, in IBNR. The IBNR is included in benefits payable.

(D) Defined Contribution Plan

On June 12, 2017, Commonwealth of Pennsylvania Act 5 of 2017 was signed into law. This legislation establishes a new hybrid defined benefit/defined contribution (DC) retirement benefit applicable to all school employees who become new members of PSERS on July 1, 2019 and thereafter. The three new plan design options under Act 5 include two hybrid benefits consisting of defined benefit and defined contribution components and a stand-alone defined contribution plan. A stand-alone defined benefit plan is no longer available to new members after June 30, 2019. The financial statements for FY 2020 reflect the defined contribution plan activities for the first year of operations. All new members starting on July 1, 2019 and thereafter participate in the DC plan. The financial statements for FY 2019 reflect start-up funding and expenses for the DC plan.

Defined Contribution Plan Membership at June 30, 2020

Active members	16,117
Inactive members entitled to but not receiving benefits	835
Total number of members	**16,952**

PSERS DC Plan is a defined contribution plan for which the benefit payments to members and contribution provisions by employers and employees are specified in the Pennsylvania Public School Employees' Retirement Code (Code).

i. DC Benefits

Under PSERS DC Plan the retirement benefit is based on the amount of contributions in the account and any investment performance less expenses. DC member contributions and employer contributions, and any investment earnings are available for members to withdraw when a member terminates employment or retires. DC account balances can grow based on investment earnings, however DC account balances are not guaranteed against loss in declining investment markets.

Death benefits are payable upon death of an active member. Members who have at least three eligibility points in the DC plan receive participant and employer contributions with any investment gains, while participants with less than three eligibility points in the DC plan receive member contributions and any investment gains. There is no disability benefit with PSERS DC Plan. Each eligibility point is earned the first day a contribution is made to the plan on behalf of a participant in a school year (July 1 – June 30). Only one eligibility point may be credited in a school year.

Members are always 100% vested in their own mandatory before-tax, after-tax, and rollover contributions in the DC plan. Members who have at least three eligibility points become vested and eligible for employer DC contributions made on their behalf. Participants with fewer than three eligibility points are not eligible for the employer contributions.

Notes to Financial Statements (continued)

ii. DC Contributions

Members hired after July 1, 2019 have a portion of each member and employer contribution to the system set aside for the DC plan. Member and employer rates are set by statute. A member may elect to make additional voluntary post-tax member contributions.

2. Summary of Significant Accounting Policies

(A) Basis of Accounting

The financial statements of the System are prepared on the accrual basis of accounting under which expenses are recorded when the liability is incurred, revenues are recorded in the accounting period in which they are earned and become measurable, and investment purchases and sales are recorded as of their trade date. Member and employer contributions are recognized in the period for which employees' salaries are reported. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

The accounting and reporting policies of the System conform to accounting principles generally accepted in the United States of America (GAAP). The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of additions and deductions in fiduciary net position during the reporting period. Actual results could differ from those estimates.

(B) Investments

The System's investments are reported at fair value. Fair value is the amount that the System can reasonably expect to receive for an investment in a current sale between a willing buyer and a willing seller, that is, other than in a forced or liquidation sale. See Note 4(B) for the description of the Fair Value of Investments.

Net appreciation (depreciation) is determined by calculating the change in fair value of investments between the beginning of the year and end of the year, less purchases of investments at cost, plus sales of investments at fair value.

Investment purchases and sales are recorded as of the trade date. Interest income is comprised of dividend, interest, and other investment income. Dividend income is recognized on the ex-dividend date. Interest and other investment income is recognized when earned.

Investment expenses consist of investment manager fees and those administrative expenses directly related to the System's investment operations. Investment proceeds receivable generally includes unsettled investment sales. Unsettled investment purchases are included in investment purchases and other payables.

(C) Capital Assets

Capital assets consist primarily of data processing equipment, software, and internally developed computer software recognized as intangible assets. Capital assets are depreciated using the straight-line method over an estimated useful life of five years. Intangible assets are amortized using the straight-line method over an estimated useful life of twenty years for assets purchased prior to July 1, 2012 and up to 10 years for assets purchased after June 30, 2012.

(D) Benefits Payable

Benefits payable identifies the obligations of the System, on an accrual basis, at the end of the fiscal year. It includes the estimated retirement and death benefits payable, federal taxes withheld but not yet due to the IRS, premium assistance benefits payable, and the HOP IBNR claims for its participants.

(E) Pensions for Employees of the System

For purposes of measuring the net pension liability, deferred outflows of resources, deferred inflows of resources, and pension expense, information about the fiduciary net position of the Pennsylvania State Employees' Retirement System (SERS) and additions to/deductions from SERS' fiduciary net position have been determined on the same basis as they are reported by SERS. Please refer to Note 8 for additional information regarding SERS. PSERS' net pension liability for its employees to SERS is reported in Other liabilities. Deferred inflows of resources are reported in Other liabilities. Deferred outflows of resources are reported in Miscellaneous assets. Pension expense is reported in administrative expenses and is detailed on the Schedule of Administrative and Investment Expenses Supplementary Schedule.

(F) Postemployment Healthcare Plan for Employees of the System

For purposes of measuring the net OPEB liability, deferred outflows of resources, deferred inflows of resources and OPEB expense, information about the fiduciary net position of the Commonwealth of Pennsylvania Retired Employees Health Program (REHP) and additions to/deductions from REHP fiduciary net position have been determined on the same basis as they are reported by the REHP. Please

Notes to Financial Statements (continued)

refer to Note 9 for additional information regarding the REHP. PSERS' net OPEB liability for its employees to the REHP is reported in Other liabilities. Deferred inflows of resources are reported in Other liabilities. Deferred outflows of resources are reported in Miscellaneous assets. OPEB expense is reported in administrative expenses and is detailed on the Schedule of Administrative and Investment Expenses Supplementary Schedule.

(G) Compensated Absences

The System uses the accrual basis of accounting for measuring vacation leave, sick leave, and other compensated absences liabilities. Employees of the System are paid for accumulated vacation leave upon termination or retirement. Retiring employees of the System that meet service, age, or disability requirements are paid between 30% and 100% of sick days available at retirement, up to 161 maximum days paid. At June 30, 2020 and 2019, $5,570,000 and $5,044,000 respectively, were accrued for unused vacation and sick leave for the System's employees and are included in Accounts payable and accrued expenses on the Statements of Fiduciary Net Position.

(H) Participant Premium Advances

Premium advances at June 30, 2020 and 2019 are for HOP premiums related to health care coverage to be provided in July of 2020 and 2019, respectively.

(I) Federal Income Taxes

The Internal Revenue Service (IRS) issued a determination letter dated March 16, 2017 which stated that the plan and its underlying trust qualify under the provisions of Section 501(a) of the IRC and therefore are exempt from federal income taxes.

(J) Risk Management

The System is exposed to various liabilities and risks of loss, including, without limitation, the ordinary risks of investment losses, risks related to theft or destruction of assets, liabilities resulting from injuries to employees, and liabilities resulting from court challenges to fiduciary decisions. As an administrative agency of the Commonwealth of Pennsylvania, the System is accorded sovereign immunity. For claims not shielded by sovereign immunity, the System participates in certain Commonwealth pooled insurance programs and requires asset managers to carry certain insurance coverage for the protection of the System. The System has implemented a self-insurance program for fiduciary and director and officer liability coverage. During the past three fiscal years, insurance settlements did not exceed insurance coverage. In addition the DC plan has its own fiduciary insurance through a third party.

(K) Reclassifications

Certain 2019 amounts have been reclassified in conformity with the 2020 presentation. These reclassifications had no effect on net position restricted for pension benefits or the change in fiduciary net position.

(L) Members Receivables

Members receivables include an amount for members' obligations to the System for the purchase of service credit. Members have a variety of options to remit purchase of service payments:

- Remit a lump sum payment.
- Request an installment plan from one to seven years where the member's employer establishes a payroll deduction process. The member's employer then forwards monthly payments of the withheld amounts to PSERS.
- Accept an actuarial reduction debt through which the amount of the purchase plus accumulated interest will reduce the member's retirement or death benefit.
- Rollover funds from an eligible distribution.

The following is a summary of members receivables at June 30, 2020 and 2019:

(Dollar Amounts in Thousands)

	2020	2019
Pension:		
Member Contributions	**$ 75,827**	$ 74,846
Purchase of Service	**272,643**	270,529
Other	**5,389**	4,517
Total Member Receivables	**$ 353,859**	$ 349,892

(M) Interfund Transactions and Balances

Interfund transfers of assets take place on a regular recurring basis between Pension, Premium Assistance, HOP and Defined Contribution. The transfers occur upon receipt of employer contributions and payment of benefits or expenses. The interfund receivables and payables related to interfund activity are classified under receivables and liabilities on the financial statements.

(N) Adoption of New Accounting Standards

PSERS reviews the requirements of all new GASB pronouncements and assesses the potential impact to the System. There were no new GASB standards that materially impacted PSERS' financial statements for the fiscal year ended June 30, 2020.

Notes to Financial Statements (continued)

3. Description of Accounts

The Code requires the System to maintain the following accounts which represent reserves held for future and current benefit payments as follows and as illustrated in Table 4.

(A) State Accumulation Account

The State Accumulation Account is credited with contributions from the Commonwealth and the employers. Additionally, interest earnings of the System (after crediting the Members' Savings Account with 4% interest and the reserve for retirement with 5.50% statutory interest) are credited to this account. Each year, the necessary amounts, as determined by the actuary for the payment of retirement, disabilities, and death benefits, are transferred from the State Accumulation Account to the Annuity Reserve Account increasing the reserve credit to the 7.25% valuation assumption rate determined by the actuary. All administrative expenses necessary for the operation of the System, except for Premium Assistance, HOP, and Defined Contribution Plan expenses, are paid from the State Accumulation Account.

(B) Members' Savings Account

The Members' Savings Account is credited with all contributions made by active members of the System. Interest is added to the member's individual account at an annual rate of 4%. Upon death or retirement of a member, the accumulated contributions plus interest are transferred to the Annuity Reserve Account for subsequent payment of benefits.

(C) Annuity Reserve Account

The Annuity Reserve Account represents the amounts transferred from the Members' Savings and State Accumulation Accounts, plus additional contributions made by the Commonwealth and employers for the payment of supplemental annuities and cost-of-living increases. All death, disability, and retirement benefits are paid from this account. Annual interest of 5.50% is credited to the Annuity Reserve Account.

(D) School Employees' Defined Contribution Trust (Defined Contribution Plan)

The School Employees' Defined Contribution Trust accumulates DC member and employer contributions, investment earnings and DC plan expenses of the School Employees' Defined Contribution Plan. The trust is comprised of individual investment accounts, all assets in those accounts and any assets held that are not allocated to the individual investment accounts. The assets of the plan are held in trust for the exclusive benefit of the participants and their beneficiaries and may be used for payment of fees, costs and expenses related to the administration and investment of the plan and the trust.

Table 4 - Account Balance

	(Dollar Amounts in Thousands) 2020	2019
Pension:		
State Accumulation Account	**$ (16,908,097)**	$ (15,401,248)
Members' Savings Account	**17,558,412**	16,839,956
Annuity Reserve Account	**57,906,471**	57,295,176
	$ 58,556,786	$ 58,733,884
Defined Contribution Plan	**$ 21,361**	$ 8,956
Postemployment Healthcare:		
Health Insurance Account	**$ 130,417**	$ 125,185
Health Insurance Program Account	**$ 321,222**	$ 267,192

(E) Health Insurance Account

The Health Insurance Account is credited with contributions from the employers for Premium Assistance. Effective January 1, 2002, under the provisions of Act 9 of 2001, participating eligible annuitants are entitled to receive premium assistance payments equal to the lesser of $100 per month or their out-of-pocket monthly health insurance premium. The Health Insurance Account pays all administrative expenses necessary to operate the Premium Assistance.

(F) Health Insurance Program Account

The Health Insurance Program Account is credited with premiums from members of the HOP and from CMS. All benefits related to the HOP (premium payments to the insurance companies and self-funded benefits) are paid from this account. The Health Insurance Program Account pays all administrative expenses necessary to operate the HOP.

4. Investments

(A) Summary of Investments

The Board has the responsibility to invest and reinvest available funds of the System in accordance with the guidelines and limitations set forth in the Code and other applicable state law. The Board accomplishes the daily management of the System's investments through investment advisors who act as agents for the System and through internal investment managers.

The Board invests the funds of the System using the Prudent Investor Standard, as articulated in the Code, which means "the exercise of that degree of judgment, skill and care under the circumstances then prevailing which persons of prudence, discretion, and intelligence who are familiar with such matters exercise in the management of their own affairs not in regard to speculation, but in regard to the permanent disposition of the fund, considering the probable income to be derived therefrom as well as the probable safety of their capital." The Board has adopted its investment policy to formally document investment objectives and responsibilities. This policy, as well as applicable state law, establishes guidelines for permissible investments of the System.

(B) Fair Value of Investments

i. Fair Value Levels

PSERS measures and records its investments using fair value measurement guidelines established by generally accepted accounting principles. These guidelines recognize a three-tiered fair value hierarchy as follows:

- **Level 1 inputs:** Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets. A quoted price for an identical asset or liability in an active market (e.g., an equity security traded on a major exchange) provides the most reliable fair value measurement and, if available, should be used to measure fair value in that particular market.

- **Level 2 inputs:** Level 2 inputs are prices that are observable either directly or indirectly. Level 2 inputs may include quoted prices for similar instruments 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 such as interest rates, yield curves, implied volatilities, credit spreads or market-corroborated inputs.

- **Level 3 inputs:** Reporting entities may use unobservable inputs to measure fair value if relevant observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date. These unobservable inputs are considered Level 3.

Debt, equity, and derivative instrument securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities. Debt securities classified in Level 2 of the fair value hierarchy are valued using a matrix pricing technique. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices and recently published security specific trading levels. Short-term securities are carried at cost, which approximates fair value, unless they have published market prices or quotations from national securities exchanges or securities pricing services, in which case they are valued at the published market price. Fixed income securities and common and preferred stocks are generally valued based on published market prices and quotations from national securities exchanges or securities pricing services. Securities which are not traded on a national securities exchange are valued by the respective fund manager or other third parties based on similar sales.

For Collective trust fund investments (CTF), management in consultation with investment advisors has determined the fair value based upon the reported share value of the respective fund. The reported share value of the fund is based upon each respective fund's administrator statement.

For alternative investments, which include private equity, special situation, venture capital and equity real estate investments where no readily ascertainable market value exists, management, in consultation with the general partner and investment advisors, has determined the fair values for the individual investments based upon the partnership's most recent available financial information.

Directly-owned real estate investments are primarily valued based on appraisals performed by independent appraisers and, for properties not appraised, the present value of the projected future net income stream is used. Directly-owned real estate investments are reported net of related debt borrowed against the market value of the property. At both June 30, 2020 and 2019, $132,000,000 in open-ended repurchase agreements were netted against the related property valuation and classified as Level 1. The agreements are payable at an interest rate equivalent to 1 month LIBOR plus 40 basis points and are collateralized by certain fixed income investments of the System.

Derivative instruments classified in Level 1 of the fair value hierarchy are valued using observable exchange, dealer, or broker market pricing.

ii. Investments at Net Asset Value (NAV)

(a) Collective trust fund investments (CTF) consist primarily of domestic and international institutional funds. The fair value of CTF is based on the reported share value of the respective fund. CTF are managed by state chartered banks for which various state banking departments have regulatory oversight and investment advisors for which regulatory agencies such as the Securities and Exchange Commission have regulatory oversight. Investments that are not subject to this oversight are subject to annual independent

Notes to Financial Statements (continued)

audits. Redemption frequency for these assets range from monthly, to quarterly, to annual.

(b) Equity real estate includes real estate funds that invest primarily in U.S., Latin American, European and Asian commercial real estate. Fund investments can be made across the capital structure of each property venture. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. Distributions from each fund may be received as: 1) cash flows from operations or 2) return of capital from dispositions. It is expected that the underlying assets of the funds will be liquidated over the next 7 to 12 years.

(c) Private equity includes U.S. buyout funds and international buyout funds that invest mostly in private companies across a variety of industries (although they may invest in public companies from time to time). The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. The nature of private equity investments is that distributions are received through the liquidation of the underlying assets of the fund. The expected holding period of a private equity portfolio company is 3 to 7 years.

(d) Special situations includes private investment funds that invest across the fixed income capital structure primarily in North America and Western Europe. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. Instead, the nature of the investments in this type is that distributions are received through the orderly liquidation of the underlying assets of the fund throughout the stated term of the fund. It is expected that the underlying assets of the funds will be liquidated over the next 3 to 7 years.

(e) Venture capital includes U.S. based private funds, that finance young, relatively small, rapidly growing companies, typically in either the health care or information technology sectors. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. The nature of venture capital investments is that distributions are received through the liquidation of the underlying assets of the fund. It is expected that the underlying assets of the funds will be liquidated over the next 5 to 10 years.

(f) DC Collective trust fund investments (DC-CTF) consist primarily of domestic and international institutional funds. The fair value of DC-CTF is based on the reported share value of the respective fund. DC-CTF are managed by state chartered banks for which various state banking departments have regulatory oversight and investment advisors for which regulatory agencies such as the Securities and Exchange Commission have regulatory oversight. Investments that are not subject to this oversight are subject to annual independent audits. Redemption frequency for these assets range from monthly, to quarterly, to annual.

(C) Deposit and Investment Risk Disclosures

i. Deposits

Custodial credit risk for deposits is the risk that, in the event of a financial institution failure, the System would not be able to recover the value of the deposits. The Commonwealth's Treasury Department is the custodian of the System's funds. Commonwealth Treasury Department deposits must be held in insured depositories approved by the Commonwealth's Board of Finance and Revenue and must be fully collateralized.

The System, through its third party administrator, maintains certain bank deposits for the operation of its voluntary HOP. These deposits are not required to be collateralized by statute or policy. These deposits totaled $222,761,000 and $192,714,000 at June 30, 2020 and 2019, respectively, and are under the custody of M&T Bank which has an A rating by Standard and Poor's (S&P) and an Aa3 rating by Moody's Investor Services (Moody's).

ii. Investment Risks

The System's investments, including derivatives and other similar investments, may be subject to various risks. Among these risks are concentration of credit risk, custodial credit risk, credit risk, interest rate risk, and foreign currency risk. The policies addressing each one of these risks, discussed in more detail below, are contained within the Investment Policy Statement, Objectives, and Guidelines reviewed and approved by the Board. Due to the level of risk associated with certain investments, it is possible that changes in the values of investments may occur in the near term and that such changes could materially affect the amounts reported in the Statements of Fiduciary Net Position.

Notes to Financial Statements (continued)

At June 30, 2020, the System had the following recurring fair value measurements in the Pension Plan.

Pension Investments

Investments and Derivative Instruments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2020	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ **5,713,063**	$ 4,053,978	$ 1,659,085	$ -
Other domestic short-term	**96,239**	58,851	37,388	-
International short-term	**11,862**	7,151	4,711	-
	5,821,164	4,119,980	1,701,184	-
Fixed income:				
Domestic asset-backed and mortgage-backed securities	**1,460,459**	-	1,460,459	-
U.S. government and agency obligations	**3,128,446**	1,819,633	1,308,813	-
Domestic corporate and taxable municipal bonds	**4,851,309**	3,668,826	1,182,483	-
International fixed income	**234,983**	-	234,983	-
	9,675,197	5,488,459	4,186,738	-
Common and preferred stock:				
Domestic common and preferred stock	**4,782,678**	4,761,657	21,021	-
International common and preferred stock	**4,974,091**	4,974,091	-	-
	9,756,769	9,735,748	21,021	-
Directly-owned real estate	**1,110,985**	(132,000)	-	1,242,985
Total investments by fair value level	**26,364,115**	$ 19,212,187	$ 5,908,943	$ 1,242,985
Investments measured at the net asset value (NAV)				
Collective trust funds	**13,160,891**			
Equity real estate	**4,367,137**			
Alternative investments:				
Private equity	**6,157,753**			
Special situations	**6,152,060**			
Venture capital	**1,138,738**			
	13,448,551			
Total investments measured at the NAV	**30,976,579**			
Total investments measured at fair value	$ **57,340,694**			
Investment derivative instruments				
Futures	$ **59,544**	$ 59,544	$ -	$ -
Total return type swaps	**254,293**	254,293	-	-
Foreign exchange contracts	**(14,708)**	(14,708)	-	-
Total investment derivative instruments	$ **299,129**	$ 299,129	$ -	$ -

Notes to Financial Statements (continued)

At June 30, 2019, the System had the following recurring fair value measurements in the Pension Plan.

Pension Investments

Investments and Derivative Instruments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2019	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 5,521,295	$ 2,732,041	$ 2,789,254	$ -
Other domestic short-term	98,669	79,699	18,970	-
International short-term	17,598	13,193	4,405	-
	5,637,562	2,824,933	2,812,629	-
Fixed income:				
Domestic asset-backed and mortgage-backed securities	493,011	-	493,011	-
U.S. government and agency obligations	5,605,208	5,027,359	577,849	-
Domestic corporate and taxable municipal bonds	2,286,060	237,039	2,045,364	3,657
International fixed income	268,591	-	268,591	-
	8,652,870	5,264,398	3,384,815	3,657
Common and preferred stock:				
Domestic common and preferred stock	5,374,971	5,371,911	3,060	-
International common and preferred stock	4,438,175	4,438,175	-	-
	9,813,146	9,810,086	3,060	-
Directly-owned real estate	654,253	(132,000)	-	786,253
Total investments by fair value level	24,757,831	$ 17,767,417	$ 6,200,504	$ 789,910
Investments measured at the net asset value (NAV)				
Collective trust funds	14,305,045			
Equity real estate	4,830,368			
Alternative investments:				
Private equity	6,379,347			
Special situations	6,004,654			
Venture capital	1,061,134			
	13,445,135			
Total investments measured at the NAV	32,580,548			
Total investments measured at fair value	$ 57,338,379			
Investment derivative instruments				
Futures	$ 31,039	$ 31,039	$ -	$ -
Total return type swaps	330,229	330,229	-	-
Foreign exchange contracts	(39,666)	(39,666)	-	-
Total investment derivative instruments	$ 321,602	$ 321,602	$ -	$ -

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) at June 30, 2020 and 2019 are presented in the following tables.

Pension Investments

Fair Value of Investments

Investments measured at the NAV
(Dollar Amounts in Thousands)

	2020			
	Fair Value	**Unfunded Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds (a)	$ **13,160,891**	$ -	see note (a)	0-90 days
Equity real estate (b)	**4,367,137**	2,804,301	see note (b)	see note (b)
Alternative investments:				
Private equity (c)	**6,157,753**	4,456,755	see note (c)	see note (c)
Special situations (d)	**6,152,060**	4,574,522	see note (d)	see note (d)
Venture capital (e)	**1,138,738**	300,959	see note (e)	see note (e)
	13,448,551			
Total investments measured at the NAV	$ **30,976,579**			

Pension Investments

Fair Value of Investments

Investments measured at the NAV
(Dollar Amounts in Thousands)

	2019			
	Fair Value	**Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds (a)	$ 14,305,045	$ -	see note (a)	0-90 days
Equity real estate (b)	4,830,368	2,945,064	see note (b)	see note (b)
Alternative investments:				
Private equity (c)	6,379,347	3,105,373	see note (c)	see note (c)
Special situations (d)	6,004,654	3,639,565	see note (d)	see note (d)
Venture capital (e)	1,061,134	591,118	see note (e)	see note (e)
	13,445,135			
Total investments measured at the NAV	$ 32,580,548			

At June 30, 2020, the System had the following recurring fair value measurements in the Premium Assistance Program.

Premium Assistance Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2020	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 46,133**	$ 32,736	$ 13,397	$ -
Other domestic short-term	**47,483**	-	47,483	-
Total investments measured at fair value	**$ 93,616**	$ 32,736	$ 60,880	$ -

At June 30, 2019, the System had the following recurring fair value measurements in the Premium Assistance Program.

Premium Assistance Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2019	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 10,860	$ 5,374	$ 5,486	$ -
Other domestic short-term	82,765	-	82,765	-
Total investments measured at fair value	$ 93,625	$ 5,374	$ 88,251	$ -

At June 30, 2020, the System had the following recurring fair value measurements in the Health Options Program.

Health Options Program Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2020	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 95,065**	$ 67,458	$ 27,607	$ -
Other domestic short-term	**222,761**	222,761	-	-
Total investments measured at fair value	**$ 317,826**	$ 290,219	$ 27,607	$ -

At June 30, 2019, the System had the following recurring fair value measurements in the Health Options Program.

Health Options Program Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2019	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 93,363	$ 46,198	$ 47,165	$ -
Other domestic short-term	192,714	192,714	-	-
Total investments measured at fair value	$ 286,077	$ 238,912	$ 47,165	$ -

Notes to Financial Statements (continued)

At June 30, 2020, the System had the following recurring fair value measurements in the DC Plan.

Defined Contribution Plan Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2020	**Level 1**	**Level 2**	**Level 3**
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	**$ 6,716**	$ 4,766	$ 1,950	$ -
Other domestic short-term	**217**	217	-	-
Total investments by fair value level	**6,933**	$ 4,983	$ 1,950	$ -
Investments measured at the net asset value (NAV)				
Collective trust funds	**14,632**			
Total investments measured at the NAV	**14,632**			
Total investments measured at fair value	**$ 21,565**			

At June 30, 2019, the System had the following recurring fair value measurements in the DC Plan.

Defined Contribution Plan Investments

Investments Measured at Fair Value
(Dollar Amounts in Thousands)

		Fair Value Measurements Using		
	2019	Level 1	Level 2	Level 3
Investments by fair value level				
Short-term:				
PSERS Short-Term Investment Fund	$ 10,476	$ 5,184	$ 5,292	$ -
Total investments measured at fair value	$ 10,476	$ 5,184	$ 5,292	$ -

Notes to Financial Statements (continued)

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) at June 30, 2020 is presented in the following table.

Defined Contribution Plan Investments

Fair Value of Investments

Defined Contribution Plan investments measured at the NAV
(Dollar Amounts in Thousands)

	2020			
	Fair Value	**Commitments**	**Redemption Frequency**	**Redemption Notice Period**
Collective trust funds (f)	$ 14,632	$ -	see note (f)	0-90 days
Total investments measured at the NAV	$ 14,632			

The following table discloses aggregate market value by credit quality rating category. Many securities have ratings from more than one NRSRO and sometimes those ratings differ from one NRSRO to another. The data listed below uses the rating (expressed as S&P equivalent) available from Fitch, Moody's and/or S&P that indicates the lowest credit quality at June 30, 2020 and 2019.

	(Dollar Amounts in Thousands)	
	2020	2019
Quality Rating	**Fair Value**	Fair Value
AAA	**$ 3,157,130**	$ 3,485,216
AA	**2,033,336**	1,540,932
A	**694,795**	751,820
BBB	**737,629**	1,413,528
BB and Below	**494,959**	472,903
NR*	**4,083,635**	3,485,796
Total Exposed to Credit Risk	**11,201,484**	11,150,195
US Government Guaranteed**	**6,507,224**	5,593,605
Total Fixed Income and Short-Term Investments	**$ 17,708,708**	$ 16,743,800

*Not Rated securities include $1,793,972 and $2,063,190 in collective trust funds and $1,102,725 and $461,142 in PSERS Short-Term Investment Fund assets at June 30, 2020 and 2019 respectively.

**Comprised of U.S government and agency obligations explicitly guaranteed by the U.S. government and not considered to have credit risk.

Notes to Financial Statements (continued)

(a) Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. As of June 30, 2020 and 2019, the System had no single issuer that exceeded 5% of total investments. Investments issued or explicitly guaranteed by the U.S. government and investments in mutual funds, external investment pools, and other pooled investments were excluded.

(b) Custodial Credit Risk

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, the System would not be able to recover the value of investment or collateral securities that are in the possession of an outside party. In accordance with a contractual relationship between the Commonwealth's Treasury Department and its custodial agent, substantially all investments, where securities are used as evidence of the investment, are held by the custodian in book-entry form in the System's name. Those investments are defined as insured or registered investments for which the securities are held by the System or its agent and, therefore, have a very minimal level of custodial credit risk. The remaining investments, which do not have securities that are used as evidence of the investment, are primarily in collective trust funds and limited partnerships, which include real estate and alternative investments.

(c) Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The credit risk of a debt instrument is measured by nationally recognized statistical rating organizations (NRSRO) such as Fitch Investor Services (Fitch), Moody's, and S&P. Annually, the Board establishes an asset allocation plan. This plan manages the overall credit risk of the fixed income asset class through a clearly defined long-term asset allocation policy. This policy establishes a long-term target allocation of the fixed income asset class at 36.0% of the investment portfolio. The fixed income target allocation consists of:

- An allocation of 10.0% of the portfolio has been made to the investment grade segment of the fixed income asset class benchmarked to the Bloomberg Barclays Capital U.S. Aggregate Long Treasury Index and the Bloomberg Barclays Capital U.S. Aggregate Index. Within this segment, the U.S. long treasury allocation (6.0%) is composed of primarily long duration U.S. Treasury securities issued by the U.S. government. The U.S. core fixed allocation (4.0%) is composed of primarily investment grade, relatively liquid, public domestic and government-related bonds with an overall weighted-average NRSRO credit rating of A or better.

- An allocation of 10.0% of the portfolio has been made to the private fixed income segment of the fixed income asset class benchmarked to the S&P LSTA Leveraged Loan Index plus 200 basis points. The private fixed income allocation is composed of primarily investments in limited partnerships focusing on direct lending, mezzanine, distressed and special situations, specialty finance and structured credit strategies.

- An allocation of 15.0% of the portfolio has been made to the inflation protected securities segment of the fixed income asset class benchmarked to the Bloomberg Barclays US Government Inflation-Linked Bond All Maturities Index and the Bloomberg Barclays World Government ex US Inflation-Linked Bond All Maturities Index (Hedged to USD). Within this segment, the US inflation protected allocation (7.5%) is composed of primarily government issued Treasury Inflation Protected Securities (TIPS) with an overall weighted-average NRSRO credit rating of AA or better. The portfolio manager is permitted to leverage the portfolio using TIPS total return swaps up to 3:1. The Non-US inflation protected allocation (7.5%) is composed primarily of non-US government related securities tied to inflationary measures.

- An allocation of 1.0% of the portfolio has been made to the credit related fixed income asset class benchmarked to the JP Morgan GBI-EM Broad Diversified Index (34.0%), JP Morgan EMBI Global Diversified Index (33.0%) and the Intercontinental Exchange (ICE) Bank of America/Merrill Lynch EM Corporate Plus Index (Hedged to USD) (33.0%). The allocation is composed of primarily investment grade and non-investment grade credit and government securities of emerging market countries issued either in US dollar or local currencies with an overall weighted-average NRSRO credit rating of BB- or better.

For derivatives exposed to credit risk, the table below presents aggregate market value by the least favorable credit rating provided by NRSROs at June 30, 2020 and 2019.

	(Dollar Amounts in Thousands)	
Quality Rating	**2020 Fair Value**	2019 Fair Value
A	**$ 187,359**	$ 270,551
BBB	**66,934**	59,678
Total Swaps - Total Return	**$ 254,293**	$ 330,229

Notes to Financial Statements (continued)

PSERS applies leverage opportunistically in implementing its asset allocation policy, providing an additional mechanism to increase expected volatility in order to target higher expected return when warranted. Total Leverage is allocated at (14.0%); Leverage is netted against the System's Cash allocation of 6% for a Net Leverage Allocation of (8%).

- An allocation of 6.0% of the portfolio has been made to cash benchmarked to the ICE Bank of America/Merrill Lynch U.S. Treasury Bill 0-3 Months Index composed of primarily investment grade, relatively liquid U.S. and non-U.S. public bonds with an overall weighted-average NRSRO credit rating of AA or better.

(d) Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of a fixed income investment. The System manages its interest rate risk by diversifying the fixed income portfolio and maintaining the fixed income portfolio at a Board-approved effective duration range of the benchmark index.

Duration is a measure of the approximate sensitivity of a bond's value to interest rate changes. The higher the duration, the greater the changes in fair value when interest rates change. For example, a duration of 4.0 would mean that, given a 100-basis point change up/down in rates, a bond's price would move down/up approximately 4.0%. PSERS measures interest rate risk using option-adjusted duration, which recognizes the fact that yield changes may change the expected cash flows due to embedded options.

(e) Foreign Currency Risk

Foreign currency risk is the risk that fluctuations in exchange rates will adversely affect the fair value of an investment. As part of the System's program to manage risk and enhance returns, the System invests in non-U.S. markets. Investment managers in non-U.S. equity and global fixed income may hedge their non-U.S. foreign currency exposure back to U.S. dollars. In addition, the System partially hedges non-U.S. developed market currency exposure not hedged by the investment managers back to U.S. dollars.

(D) Securities Lending

The System participates in a securities lending program with a third party agent. Under this program, the lending agent loans securities (equities, fixed income, and money market instruments) to independent brokers and dealers in exchange for U.S. dollar cash collateral in an amount not less than 102% of the fair value of any securities loaned. Collateral is marked-to-market daily. If the fair value of the collateral held falls below the minimum guidelines for securities loaned, additional collateral is obtained. The lending agent invests the cash collateral in accordance with reinvestment guidelines approved by the System.

As of June 30, 2020 and 2019, the System had no credit risk exposure to borrowers because the amounts the System owed the borrowers exceeded the amounts the borrowers owed the System. Under the securities lending program, the lending agent provides indemnification to the System if a borrower fails to return borrowed securities (and the collateral is inadequate to replace the loaned securities) or fails to pay income distributions on them. The lending agent also provides indemnification to the System if investment of cash collateral results in investment loss. There were no losses during the fiscal years ended June 30, 2020 and 2019 resulting from a default of the borrowers or the lending agent.

All securities loans can be terminated on demand by either the System or the borrower, although the average term of

At June 30, 2020 and 2019, the System's fixed income portfolio had the following option-adjusted durations by fixed income sector:

(Dollar Amounts in Thousands)

	2020		2019	
Investment Type	**Option-Adjusted Duration**	**Fair Value**	Option-Adjusted Duration	Fair Value
Domestic asset-backed and mortgage-backed securities	**1.0**	**$ 1,460,459**	0.2	$ 493,011
U.S. government and agency obligations	**6.7**	**3,128,446**	12.1	5,605,208
Domestic corporate and taxable municipal bonds	**13.2**	**4,851,308**	1.3	2,286,060
International fixed income	**2.2**	**234,983**	0.4	268,591
Collective trust funds*	**3.1**	**1,793,972**	5.7	2,063,190
PSERS Short-Term Investment Fund	**0.1**	**5,860,977**	0.1	5,635,993
Other Short-Term Assets	**0.1**	**378,563**	0.1	391,747
Total	**5.2 ****	**$ 17,708,708**	5.1 *	$ 16,743,800

* Represents funds holding fixed income assets.

** Fixed income investment managers enter into futures contracts to adjust the durations of their portfolios as a whole rather than any particular investment type within the portfolio. In total, the futures contracts have adjusted PSERS' total portfolio duration upward by 0.1 at June 30, 2020 and 2019. The total portfolio option-adjusted duration is calculated by weighting each investment type by fair value.

Notes to Financial Statements (continued)

Non-U.S. currency exposures at June 30, 2020 and 2019:

2020

(Dollar Amounts in Thousands)

Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Euro	**$ 906,217**	**$ 2,736**	**$ 1,271,920**	**$ 10,176**	**$ (1,133,942)**	**$ 1,057,107**
British pound sterling	**579,707**	**-**	**370,813**	**1,722**	**(482,623)**	**469,619**
Taiwan new dollar	**178,654**	**-**	**-**	**54**	**-**	**178,708**
Hong Kong dollar	**284,314**	**-**	**-**	**1,552**	**(145,464)**	**140,402**
South Korean won	**110,125**	**-**	**-**	**180**	**143**	**110,448**
Indian rupee	**109,836**	**-**	**-**	**178**	**-**	**110,014**
Canadian dollar	**472,314**	**-**	**-**	**2,431**	**(372,535)**	**102,210**
Japanese yen	**897,488**	**10,070**	**-**	**10,648**	**(816,316)**	**101,890**
Danish krone	**128,474**	**-**	**-**	**3,801**	**(56,188)**	**76,087**
Other non-U.S. currencies	**968,703**	**103,812**	**6,627**	**10,534**	**(814,011)**	**275,665**
Total	**$ 4,635,832**	**$ 116,618**	**$ 1,649,360**	**$ 41,276**	**$ (3,820,936)**	**$ 2,622,150**

2019

(Dollar Amounts in Thousands)

Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Euro	$ 845,070	$ 1,960	$ 1,520,488	$ 8,750	$ (1,598,636)	$ 777,632
British pound sterling	653,411	-	253,652	2,784	(545,783)	364,064
Taiwan new dollar	127,402	-	-	109	-	127,511
South Korean won	121,498	-	-	(1,667)	(95)	119,736
Indian rupee	99,225	-	-	19	-	99,244
South African rand	64,782	13,099	-	234	(55)	78,060
Brazil real	74,116	-	-	91	-	74,207
Hong Kong dollar	219,613	-	-	332	(164,167)	55,778
Mexican peso	42,800	12,769	-	172	-	55,741
Other non-U.S. currencies	1,818,553	93,454	7,034	32,723	(1,984,698)	(32,934)
Total	$ 4,066,470	$ 121,282	$ 1,781,174	$ 43,547	$ (4,293,434)	$ 1,719,039

* Includes investment receivables and payables

At June 30, 2020 and 2019, the System had the following foreign currency exposures for its derivatives (except for foreign exchange contracts which are included in Note 5):

(Dollar Amounts in Thousands)

Currency	**2020** Notional Value	2019 Notional Value
Euro	**$ 132,887**	$ 167,692
Japanese yen	**98,521**	51,681
British pound sterling	**58,260**	61,898
Canadian dollar	**42,676**	39,205
Australian dollar	**32,453**	64,094
Hong Kong dollar	**-**	7,115
Total Futures Contracts	**$ 364,797**	$ 391,685

Notes to Financial Statements (continued)

The following table summarizes the System's foreign exchange contracts by currency at June 30, 2020 and 2019:

2020

(Dollar Amounts in Thousands)

Currency	Buys	Unrealized Gain/(Loss)	Sells	Unrealized Gain/ (Loss)
Euro	**$ 1,708**	**$ -**	**$ 1,135,651**	**$ (8,823)**
Japanese yen	**36**	**-**	**816,351**	**6,854**
Swiss franc	**293**	**1**	**258,315**	**(863)**
Australian dollar	**446**	**2**	**326,408**	**(6,911)**
Swedish krona	**-**	**-**	**98,550**	**(1,362)**
Canadian dollar	**1,125**	**(3)**	**373,660**	**(1,941)**
Singapore dollar	**13**	**-**	**52,093**	**(247)**
Mexican peso	**38**	**-**	**32**	**-**
British pound sterling	**-**	**-**	**482,940**	**82**
New Zealand dollar	**-**	**-**	**37,291**	**(1,282)**
Other non-U.S. currencies	**785**	**(3)**	**244,090**	**(212)**
Total	**$ 4,444**	**$ (3)**	**$ 3,825,381**	**$ (14,705)**

2019

(Dollar Amounts in Thousands)

Currency	Buys	Unrealized Gain/(Loss)	Sells	Unrealized Gain/ (Loss)
Euro	$ 17,802	$ 101	$ 1,616,438	$ (20,244)
Japanese yen	4,273	11	773,874	(1,621)
Swiss franc	55	-	245,004	(3,248)
Australian dollar	86	-	320,883	(5,052)
Swedish krona	660	1	87,129	(1,431)
Canadian dollar	109	-	388,673	(5,924)
Singapore dollar	387	4	48,058	(351)
British pound sterling	-	-	547,848	(55)
New Zealand dollar	-	-	29,318	(775)
Other non-U.S. currencies	4,343	18	263,924	(1,100)
Total	$ 27,715	$ 135	$ 4,321,149	$ (39,801)

Notes to Financial Statements (continued)

the loan is one day. There were no term loans at June 30, 2020 and 2019.

Cash collateral is invested in a short-term collateral investment pool that is managed by the lending agent, is segregated from all other clients of the lending agent, and is not subject to custodial credit risk. The System's income from securities lending represents its pro-rata share from participating in the program. The weighted-average maturity of the investments in the pool was one day at June 30, 2020 and 2019. During the fiscal years ended June 30, 2020 and 2019 the mismatch between the maturities of the investments made with cash collateral and the maturities of the securities loans may have posed some interest rate risk to the System. In the event of a default, the lending agent may use the collateral to replace the loaned securities.

As of June 30, 2020, the fair value of loaned securities was $4,406,850,000. The fair value of the associated collateral was $4,491,237,000, all of which was cash. As of June 30, 2019, the fair value of loaned securities was $4,430,554,000. The fair value of the associated collateral was $4,518,372,000, all of which was cash.

5. Derivative and Other Similar Investments

The System enters into a variety of financial contracts, which include options and futures. The System also enters into foreign exchange positions, such as forward and spot contracts to obtain or hedge foreign currency exposure; swap agreements to gain exposure to certain sectors of the equity and fixed income markets; collateralized mortgage obligations (CMOs); other forward contracts; and U.S. Treasury STRIPS. The System is not a dealer, but an end user of these instruments. The contracts are used primarily to enhance performance and/or reduce the volatility of the portfolio. The System is exposed to credit risk in the event of non-performance by counterparties to financial instruments. The System generally enters into transactions only with high quality institutions. Legal risk is mitigated through selection of executing brokers and review of all documentation. The System is exposed to market risk, the risk that future changes in market conditions may make an instrument less valuable. Exposure to market risk is managed in accordance with risk limits set by senior management, through buying or selling instruments or entering into offsetting positions.

The notional or contractual amounts of derivatives indicate the extent of the System's involvement in the various types and uses of derivative financial instruments and do not measure the System's exposure to credit or market risks and do not necessarily represent amounts exchanged by the parties. The amounts exchanged are determined by reference to the notional amounts and the other terms of the derivatives.

Futures contracts are contracts in which the buyer agrees to purchase and the seller agrees to make delivery of a specific financial instrument at a predetermined date and price. Gains and losses on futures contracts are settled daily based on a notional (underlying) principal value and do not involve an actual transfer of the specific instrument. Futures contracts are standardized and are traded on exchanges. The exchange assumes the risk that a counterparty will not pay and generally requires margin payments to minimize such risk. In addition, the System enters into short sales, sales of securities it does not presently own, to neutralize the market risk of certain equity positions. Initial margin requirements on futures contracts and collateral for short sales are provided by investment securities pledged as collateral and by cash held by various brokers. Although the System has the right to access individual pledged securities, it must maintain the amount pledged by substituting other securities for those accessed. The value of securities pledged and the amount of cash held at June 30, 2020 and 2019 represent a restriction on the amount of assets available at year-end for other purposes.

Option contracts provide the option purchaser with the right, but not the obligation, to buy or sell the underlying security at a set price during a period or at a specified date. The option writer is obligated to buy or sell the underlying security if the option purchaser chooses to exercise the option. The System generally uses exchange listed currency, index, stock, and futures options. The System held no option positions at June 30, 2020 and 2019.

Foreign exchange contracts involve an agreement to exchange the currency of one country for the currency of another country at an agreed-upon price and settlement date. To reduce the risk of counterparty non-performance, the investment managers generally enter into these contracts with institutions regarded as meeting high standards of credit worthiness. The contracts reported in Table 5 primarily include forwards. The $3,829,825,000 of foreign currency contracts outstanding at June 30, 2020 consist of "buy" contracts, which represent the U.S. dollar equivalents of commitments to purchase foreign currencies of $4,444,000 and "sell" contracts, which represent U.S. dollar equivalents of commitments to sell foreign currencies of $3,825,381,000. The $4,348,864,000 of foreign currency contracts outstanding at June 30, 2019 consist of "buy" contracts of $27,715,000 and "sell" contracts of $4,321,149,000. The unrealized loss on contracts of $(14,708,000) and $(39,666,000) at June 30, 2020 and 2019, respectively, is included in the Statements of Fiduciary Net Position and represents the fair value of the contracts.

Swap agreements provide for periodic payments at predetermined future dates between parties based on the

Table 5 - Notional Amounts of Derivatives

The table presented below summarizes the aggregate notional or contractual amounts for the System's derivative financial instruments at June 30, 2020 and 2019.

(Dollar Amounts in Thousands)	**2020**	2019
Futures contracts - long:		
Treasury futures	**$ 665,985**	$ 1,129,615
U.S. equity futures	**431,701**	419,990
Non-U.S. equity futures	**364,797**	391,684
Commodity futures	**271,210**	327,723
Non-U.S. bond futures	**-**	132,762
Futures contracts - short:		
Treasury futures	**88,272**	25,594
U.S. equity futures	**43,417**	-
Non- U.S. equity futures	**32,989**	-
Foreign exchange forward and spot contracts, gross	**3,829,825**	4,348,864
Swaps - total return type	**10,631,655**	9,447,923

The fair values of derivative instruments outstanding at June 30, 2020 and 2019 are classified by type and by the changes in fair value of the derivative instrument in the table below.

(Dollar Amounts in Thousands)

	Change in Fair Value Gain/(Loss) FY 2020		**Fair Value at June 30, 2020**	
Investment Derivative Type	**Classification**	**Amount**	**Classification**	**Amount**
Futures	Investment income	**$ 59,544**	Receivable/(Payable)	**$ 59,544**
Total return type swaps	Investment income	**254,293**	Receivable/(Payable)	**254,293**
Foreign exchange contracts	Investment income	**(14,708)**	Receivable/(Payable)	**(14,708)**
Total		**$ 299,129**		**$ 299,129**

	Change in Fair Value Gain/(Loss) FY 2019		Fair Value at June 30, 2019	
Investment Derivative Type	Classification	Amount	Classification	Amount
Futures	Investment income	$ 31,039	Receivable/(Payable)	$ 31,039
Total return type swaps	Investment income	330,229	Receivable/(Payable)	330,229
Foreign exchange contracts	Investment income	(39,666)	Receivable/(Payable)	(39,666)
Options	Investment income	(63,128)	Investment	-
Total		$ 258,474		$ 321,602

Notes to Financial Statements (continued)

change in value of underlying securities, indexes, or interest rates. During the year ended June 30, 2020 and 2019, the System entered into total return type swaps. Under the total return type swap arrangements, the System receives the net return of certain equity securities or indexes in exchange for a short-term rate minus a spread or a predetermined fixed charge. The receivable on the total return type swap contracts of $254,293,000 and $330,229,000 at June 30, 2020 and 2019, respectively, is included in the Statements of Fiduciary Net Position and represents the fair value of the contracts. The contracts have varying maturity dates ranging from August 31, 2020 to August 31, 2021.

The System also invests in mortgage-backed securities (MBS) such as CMOs and MBS forwards to maximize yields. These securities are sensitive to prepayments of mortgages, which may result from a drop in interest rates. The MBS forwards are subject to credit risk in the event of nonperformance by counterparties. The fair value of CMOs at June 30, 2020 and 2019 is $519,436,000 and $456,934,000, respectively.

The System invests in U.S. Treasury STRIPS which essentially act as zero coupon bonds and are subject to market volatility from a rise or drop in interest rates.

Through certain collective trust funds, the System also indirectly holds various derivative financial instruments. The collective trust funds invest in futures and options thereon; forward foreign currency contracts; options; interest rate, currency, equity, index, and total return swaps; interest-only STRIPS; and CMOs, to enhance the performance and/or reduce the volatility of their portfolios.

6. Net Pension Liability of Participating Employers

The components of the net pension liability of the participating employers at June 30, 2020 were as follows:

(Dollar amounts in thousands)

Total pension liability	$ 107,795,802
Less: Plan fiduciary net position	58,556,786
Employer net pension liability	$ 49,239,016
Plan fiduciary net position as a percentage of the total pension liability	54.32%

Actuarial Assumptions

The total pension liability at June 30, 2020 was determined by rolling forward the System's total pension liability at June 30, 2019 to June 30, 2020 using the following actuarial assumptions, applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 7.25%, includes inflation at 2.75%.
- Salary growth - Effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

Investments

The long-term expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

The pension plan's policy in regard to the allocation of invested plan assets is established and may be amended by the Board. Plan assets are managed with a long-term objective of achieving and maintaining a fully funded status for the benefits provided through the pension.

For the year ended June 30, 2020, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 1.12%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested. Table 6 shows the Board's adopted asset allocation policy and best estimates of geometric real rates of return for each major asset class at June 30, 2020.

Discount Rate

The discount rate used to measure the total pension liability was 7.25%. The projection of cash flows used to determine the discount rate assumed that contributions from plan members will be made at the current contribution rate and that contributions from employers will be made at contractually required rates, actuarially determined. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all the projected future benefit payments of current plan members to determine the total pension liability. Therefore, the long-term expected rate of return on pension plan

Notes to Financial Statements (continued)

investments was applied to all periods of projected benefit payments to determine the total pension liability.

Table 6 - Pension Asset Allocation

Pension -Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Global public equity	15.0%	5.2%
Private equity	15.0%	7.2%
Fixed income	36.0%	1.1%
Commodities	8.0%	1.8%
Absolute return	10.0%	2.5%
Infrastructure/MLPs	6.0%	5.7%
Real estate	10.0%	5.5%
Risk Parity	8.0%	3.3%
Cash	6.0%	(1.0%)
Financing (LIBOR)	(14.0%)	(0.7%)
	100.0%	

Sensitivity of the Net Pension Liability

Table 7 presents the net pension liability, calculated using the discount rate of 7.25%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower (6.25%) or 1-percentage point higher (8.25%) than the current rate:

Table 7 - Sensitivity of the Net Pension Liability
(Dollar amounts in thousands)

	1% Decrease 6.25%	Current Discount Rate 7.25%	1% Increase 8.25%
Net pension liability	$ 60,919,067	$ 49,239,016	$ 39,344,381

For additional information on the total pension liability, net pension liability, plan fiduciary net position as a percentage of the total pension liability, actuarial assumptions, and money weighted returns please refer to the multiple year Required Supplementary Information Schedule 1, Schedule 2, Schedule 3, Schedule 7 and Notes to Required Supplementary Information.

7. Net Other Postemployment Benefits (OPEB) Liability of Participating Employers

The components of the net OPEB liability of the participating employers at June 30, 2020 were as follows:

(Dollar amounts in thousands)

Total OPEB liability	$ 2,291,114
Less: Plan fiduciary net position	130,417
Employer net OPEB liability	$ 2,160,697
Plan fiduciary net position as a percentage of the total OPEB liability	5.69%

Postemployment Healthcare Plans

PSERS provides a Health Insurance Premium Assistance program funded by employer contributions which makes up the OPEB liability.

HOP is a PSERS sponsored voluntary health insurance program funded exclusively by the premiums paid by its participants for benefit coverage they elect. The HOP is not part of the OPEB liability.

Change in Actuarial Assumptions

The following change in assumption was used in the measurement of the Total OPEB Liability beginning June 30, 2020. The Investment Rate of Return was adjusted from 2.79% to 2.66% which represents the S&P 20 Year Municipal Bond Rate.

Actuarial Assumptions

The total OPEB liability at June 30, 2020 was determined by rolling forward the System's total OPEB liability at June 30, 2019 to June 30, 2020 using the following actuarial assumptions, applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 2.66% - S&P 20 Year Municipal Bond Rate.
- Salary growth - Effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.
- Premium Assistance reimbursement is capped at $1,200 per year.
- Assumed Healthcare cost trends were applied to retirees with less than $1,200 in premium assistance per year.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

Investments

The Board has the responsibility to invest and reinvest available funds of the System in accordance with the guidelines and limitations set forth in the Code and other applicable state law. The Board accomplishes the daily management of the System's investments through investment advisors who act as agents for the System and through internal investment managers. Investments consist primarily of short-term assets designed to protect the principal of plan assets. Table 8 reflects the Fund's OPEB asset allocation policy and best estimates of geometric real rates of return for each asset class at June 30, 2020.

Notes to Financial Statements (continued)

Under the program, employer contribution rates for Premium Assistance are established to provide reserves in the Health Insurance Account that are sufficient for the payment of Premium Assistance benefits for each succeeding year.

For the year ended June 30, 2020, the annual money-weighted rate of return on OPEB plan investments, net of OPEB plan investment expense, was 1.97%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Discount Rate

The discount rate used to measure the total OPEB liability was 2.66%. The Health Insurance Premium Assistance Program is funded by employer contributions. Under the plan's funding method, the OPEB plan's fiduciary net position was not projected to be sufficient to meet projected future benefit payments. Therefore, the plan is considered a "pay-as-you go" plan and a discount rate of 2.66%, which represents the S&P 20 year Municipal Bond Rate at June 30, 2020 was applied to all projected benefit payments to measure the total OPEB liability.

Table 8 - OPEB Asset Allocation

OPEB - Asset Class	Target Allocation	Long Term Expected Real Rate of Return
Cash	50.3%	(1.0%)
US Core Fixed Income	46.5%	(0.1%)
Non-U.S. Developed Fixed	3.2%	(0.1%)
	100.0%	

Sensitivity of the Net OPEB Liability

Table 9 presents the net OPEB liability, calculated using the discount rate of 2.66%, as well as what the net OPEB liability would be if it were calculated using a discount rate that is 1-percentage point lower (1.66%) or 1-percentage point higher (3.66%) than the current rate:

Table 9 - Sensitivity of the Net OPEB Liability
(Dollar amounts in thousands)

	1% Decrease 1.66%	Current Discount Rate 2.66%	1% Increase 3.66%
Net OPEB liability	$ 2,463,528	$ 2,160,697	$ 1,909,927

Healthcare Cost Trend Rates

Healthcare cost trends were applied to retirees with less than $1,200 in Premium Assistance per year. Premium Assistance is capped at a maximum of $1,200 per year. At June 30, 2020, there were 93,693 members receiving the maximum amount allowed of $1,200 in Premium Assistance per year and their Premium Assistance benefits are not subject to future healthcare cost increases. At June 30, 2020, there were 688 members receiving less than the maximum amount allowed of $1,200 per year. The actual number of retirees receiving less than the $1,200 per year cap is a small percentage of the total population and has a minimal impact from Healthcare Cost Trends, as depicted in Table 10, which discloses the effect of a 1% increase or decrease in the rate.

Table 10 - Sensitivity of the Net OPEB Liability to Change in Healthcare Cost Trend Rates
(Dollar amounts in thousands)

	1% Decrease	Current Trend Rate	1% Increase
Net OPEB liability	$ 2,160,420	$ 2,160,697	$ 2,160,918

For additional information on the total OPEB liability, net OPEB liability, plan fiduciary net position as a percentage of the total OPEB liability, actuarial assumptions, and money weighted returns please refer to the multiple year Required Supplementary Information Schedule 4, Schedule 5, Schedule 6, Schedule 7 and Notes to Required Supplementary Information.

8. Pension Plan for Employees of the System

(A) SERS' Plan Description

As an employer, the System contributes to SERS, a cost-sharing multiple-employer defined benefit pension plan established by the Commonwealth to provide pension benefits for employees of state government and certain independent agencies. SERS is a component unit of the Commonwealth and is included in the Commonwealth's financial report as a pension trust fund.

Membership in SERS is mandatory for most state employees. SERS provides retirement, death, and disability benefits. Article II of the Commonwealth's Constitution assigns the authority to establish and amend the benefit provision of the plan to the General Assembly.

Notes to Financial Statements (continued)

(B) SERS' Benefits Provided to Employees of the System

SERS member retirement benefits are generally determined by taking years of credited service times final average salary times 1.0%, 1.25%, 2% or 2.5%, depending on date of hire. The normal retirement age ranges from 50 - 65, depending on the membership class. According to the State Employees' Retirement Code (SERC), all obligations of SERS will be assumed by the Commonwealth should SERS terminate.

(C) Contributions to SERS

The contribution requirements of SERS plan members is mandated by Commonwealth statute. The member contribution rate for the majority of SERS' members is 6.25%. At December 31, 2019 and 2018 the blended employer contribution rates were 32.40% and 33.43%, respectively. Contributions to SERS from PSERS were $8.4 million for the year ended June 30, 2020.

(D) Proportionate Share of Pension Liabilities, Pension Expense, and Deferred Inflows of Resources and Deferred Outflows of Resources

At June 30, 2020, PSERS reported a liability of $70.2 million and $78.2 million at June 30, 2019, for its proportionate share of the net pension liability for the SERS plan in Other liabilities on the Statement of Fiduciary Net Position. The net pension liability was measured at December 31, 2019 and 2018, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation at December 31, 2019 and 2018. PSERS' proportion of the net pension liability was calculated utilizing a projected-contribution method. At December 31, 2019, PSERS' proportion was 0.38625897 percent and 0.37527829 percent at December 31, 2018.

PSERS recognized total pension expense of $12.2 million in FY 2020 on the Statement of Changes in Fiduciary Net Position. Of the $12.2 million of pension expense, $7.1 million was reflected in administrative expenses, $0.5 million in Postemployment Healthcare, $0.2 million in defined contributions and $4.4 million was reflected in investment expenses. Deferred inflows of resources of $5.6 million and $1.3 million at June 30, 2020, and June 30, 2019, respectively, are reported in Other liabilities on the Statement of Fiduciary Net Position. Deferred outflows of resources of $14.6 million and $22.2 million at June 30, 2020, and June 30, 2019, respectively, are reported in Miscellaneous assets. Of the $14.6 million of deferred outflows of resources at June 30, 2020, PSERS recorded $4.6 million for contributions subsequent to the measurement date which will be recognized as a reduction of the net pension liability in the year ending June 30, 2020. Other amounts reported as deferred outflows of resources and deferred inflows of resources will be recognized in pension expense as follows:

Year Ending June 30:	(Dollar amounts in thousands)
2021	4,283
2022	2,315
2023	1,126
2024	2,137
Thereafter	(1,147)

(E) SERS' Pension Plan Fiduciary Net Position

Detailed information about SERS' fiduciary net position is available in SERS' Comprehensive Annual Financial Report which can be found on SERS' website at www.SERS.pa.gov.

9. Postemployment Healthcare Plan for Employees of the System

(A) REHP Plan Description

As an employer, the System participates in the Commonwealth's REHP. The REHP is a single employer plan and provides certain healthcare benefits to qualifying individuals meeting specified age and/or service requirements. The Commonwealth's Office of Administration (OA), in its sole discretion, determines available REHP benefits on an ongoing basis. The Pennsylvania Employees Benefit Trust Fund (PEBTF) is a third party administrator for the REHP under the provisions of an Administration Agreement between OA and PEBTF.

(B) OPEB Benefits Provided to Employees of the System

The Commonwealth sponsors the REHP for eligible retirees and their dependents to receive subsidized health coverage for the retiree's lifetime. The REHP is provided as part of collective bargaining agreements with most Commonwealth labor unions. All policy decisions, types and levels of benefits for the REHP fall under the purview of the Commonwealth's Executive Board and the Secretary of Administration.

Notes to Financial Statements (continued)

(C) Contributions to the REHP

Employer costs for retiree healthcare benefits are charged as a component of payroll expenditures, on a 'pay as you go' basis. All employing agencies contributed $300 per biweekly pay period, for each current REHP eligible active employee during fiscal year ended June 30, 2020 to the REHP Trust. PSERS' contributions to the REHP for FY 2020 were $1.9 million. Plan members who retired after June 30, 2005 contribute to the plan based on a percentage of their final annual gross base salary at the time of retirement. Plan member contribution rates vary based on their REHP enrollment date.

(D) Proportionate Share of OPEB Liabilities, OPEB Expense and Deferred Inflows of Resources and Deferred Outflows of Resources

At June 30, 2020, PSERS reported a liability of $42.1 million and $56.4 million at June 30, 2019 for its proportionate share of net OPEB liability for the REHP plan in Other Liabilities on the Statement of Fiduciary Net Position. The current liability portion of the net OPEB liability is $1.9 million. The net OPEB liability was measured at June 30, 2019, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation at June 30, 2019. Since the REHP has insufficient assets to meet next year's projected benefit payments, the discount rate used to measure the total OPEB liability is based on the 20 year tax-exempt general obligation municipal bond index rate which was 3.50% on June 30, 2020. PSERS' proportion of the net OPEB liability was calculated utilizing a contribution method. At June 30, 2019, PSERS' proportion was 0.404694 percent and at June 30, 2018 PSERS' proportion was 0.383876 percent.

REHP had a decrease in Total OPEB Liability of approximately $4.2 billion. The primary cause was due to actual experience over the past year that was significantly different than expected. This experience gain was caused primarily by decreases by rebidding the medical plans for Medicare participants, including moving all into an MA-PPO plan, and rebidding the prescription drug plans for both Medicare and non-Medicare participants. This positive experience change was the primary cause for the decrease to OPEB expense.

PSERS recognized total OPEB expense of $(4.3) million in FY 2020 on the Statement of Changes in Fiduciary Net Position. Of the $(4.3) million of OPEB expense, $(3.4) million was reflected in administrative expenses, $(0.2) million in Postemployment Healthcare, $0.1 million in defined contributions and $(0.8) million was reflected in investment expenses. Deferred outflows of resources of $4.8 million and $2.8 million at June 30, 2020 and June 30, 2019, respectively are reported in Miscellaneous assets. Of the $4.8 million of deferred outflows at June 30, 2020, PSERS recorded $1.9 million for contributions subsequent to the measurement date which will be recognized as a reduction of the net OPEB liability in the year ending June 30, 2021. Deferred inflows of resources of $37.2 million and $24.0 million at June 30, 2020 and June 30, 2019, respectively are reported in Other liabilities on the Statement of Fiduciary Net Position and will be recognized in OPEB expense as follows:

Year Ending June 30:	(Dollar amounts in thousands)
2021	(8,225)
2022	(8,225)
2023	(7,760)
2024	(5,593)
Thereafter	(1,914)

(E) REHP Plan Fiduciary Net Position

Detailed information about the REHP fiduciary net position is available in the Commonwealth's Comprehensive Annual Financial Report which can be found at www.budget.pa.gov.

10. Litigation and Contingencies

The System is subject to various threatened and pending lawsuits. These lawsuits include issues related to benefit calculations and eligibility. It is the opinion of management that the ultimate liability arising from such threatened and pending litigation will not have a material effect on the financial position of the System. The System is exposed to various other liabilities and risks related to fiduciary responsibilities of directors and officers.

11. Commitments

At June 30, 2020, PSERS had commitments for the future purchase of investments in alternative investments of $9.3 billion and real estate of $2.8 billion.

Required Supplementary Information

Schedule 1
Schedule of Changes in the Employer Net Pension Liability
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	2020	2019	2018	2017	2016	2015	2014
Total pension liability							
Service cost	$ **1,949,427**	$ 1,921,417	$ 1,890,906	$ 1,873,844	$ 1,932,401	$ 1,926,539	$ 2,139,037
Interest	**7,546,367**	7,465,228	7,334,484	7,110,987	7,028,292	6,857,497	6,523,484
Changes of benefit terms	**-**	-	-	(449)	-	-	-
Differences between expected and actual experience	**(339,969)**	(1,477,660)	(745,306)	644,051	(348,429)	(223,437)	-
Changes of assumptions	**-**	-	-	-	2,236,118	-	-
Benefit payments	**(6,876,515)**	(6,761,172)	(6,655,146)	(6,473,579)	(6,360,325)	(6,220,601)	(6,053,505)
Net change in total pension liability	**2,279,310**	1,147,813	1,824,938	3,154,854	4,488,057	2,339,998	2,609,016
Total pension liability - beginning	**105,516,492**	104,368,679	102,543,741	99,388,887	94,900,830	92,560,832	89,951,816
Total pension liability - ending (a)	$ **107,795,802**	$ 105,516,492	$ 104,368,679	$ 102,543,741	$ 99,388,887	$ 94,900,830	$ 92,560,832
Plan fiduciary net position							
Contributions - employer	**4,676,413**	4,487,520	4,249,611	3,832,773	3,189,510	2,596,731	1,992,084
Contributions - member	**1,067,957**	1,064,043	1,026,375	1,013,847	989,266	984,634	966,926
Net investment income	**1,001,846**	3,628,710	4,714,158	4,995,362	473,206	1,328,516	7,097,761
Benefit payments	**(6,876,515)**	(6,761,172)	(6,655,146)	(6,473,579)	(6,360,325)	(6,220,601)	(6,053,505)
Administrative expense	**(46,799)**	(48,931)	(46,544)	(45,127)	(45,118)	(42,331)	(38,712)
Net Change in plan fiduciary net position	**(177,098)**	2,370,170	3,288,454	3,323,276	(1,753,461)	(1,353,051)	3,964,554
Plan fiduciary net position - beginning	**58,733,884**	56,363,714	53,155,336	49,832,060	51,585,521	52,980,115	49,015,561
Effect of change in accounting principle	**-**	-	(80,076)	-	-	(41,543)	-
Plan fiduciary net position - beginning restated	**58,733,884**	56,363,714	53,075,260	49,832,060	51,585,521	52,938,572	49,015,561
Plan fiduciary net position - ending (b)	$ **58,556,786**	$ 58,733,884	$ 56,363,714	$ 53,155,336	$ 49,832,060	$ 51,585,521.0	52,980,115
Employer net pension liability -ending (a)-(b)	$ **49,239,016**	$ 46,782,608	$ 48,004,965	$ 49,388,405	$ 49,556,827	$ 43,315,309	$ 39,580,717

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Required Supplementary Information

Schedule 2
Schedule of Employer Net Pension Liability
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	2020	2019	2018	2017	2016	2015	2014
Total Pension Liability	**$ 107,795,802**	$ 105,516,492	$ 104,368,679	$ 102,543,741	$ 99,388,887	$ 94,900,830	$ 92,560,832
Less: Plan fiduciary net position	**58,556,786**	58,733,884	56,363,714	53,155,336	49,832,060	51,585,521	52,980,115
Employer Net Pension liability	**$ 49,239,016**	$ 46,782,608	$ 48,004,965	$ 49,388,405	$ 49,556,827	$ 43,315,309	$ 39,580,717
Plan fiduciary net position as a percentage of the total pension liability	**54.32%**	55.66%	54.00%	51.84%	50.14%	54.36%	57.24%
Covered Payroll	**$ 14,036,006**	$ 13,791,197	$ 13,466,526	$ 13,313,900	$ 12,951,077	$ 12,866,473	$ 12,760,785
Employer net pension liability as a percentage of covered payroll	**350.81%**	339.22%	356.48%	370.95%	382.65%	336.65%	310.17%

Schedule 3
Schedule of Employer Pension Contributions
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

	2020	2019	2018	2017	2016	2015	2014
Actuarially determined contribution	**$ 4,671,931**	$ 4,478,236	$ 4,243,328	$ 3,824,908	$ 3,540,304	$ 3,289,615	$ 2,965,715
Contributions in relation to the actuarially determined contribution(1) (2)	**4,671,931**	4,478,236	4,243,328	3,824,908	3,181,438	2,582,114	1,992,084
Contribution deficiency	$ -	$ -	$ -	$ -	$ 358,866	$ 707,501	$ 973,631
Covered payroll	**$ 14,036,006**	$ 13,791,197	$ 13,466,526	$ 13,313,900	$ 12,951,077	$ 12,866,473	$ 12,760,785
Contributions as a percentage of covered payroll	**33.29%**	32.47%	31.51%	28.73%	24.57%	20.07%	15.61%

(1) Amounts for 2015-2020 exclude purchase of service contributions.

(2) Same as contractually required contributions.

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Required Supplementary Information

Schedule 4
Schedule of Changes in the Employer Net OPEB (Premium Assistance) Liability
(Unaudited – See Accompanying Auditor's Report)
(Dollar Amounts in Thousands)

Total OPEB liability	**2020**	2019	2018	2017
Service cost	**$ 42,643**	$ 40,201	$ 37,809	$ 42,038
Interest	**62,452**	65,319	67,091	61,404
Differences between expected and actual experience	**11,987**	1,435	15,019	-
Changes of assumptions	**35,284**	50,166	38,456	(110,610)
Benefit payments	**(113,279)**	(112,777)	(111,847)	(110,229)
Net change in total OPEB liability	**39,087**	44,344	46,528	(117,397)
Total OPEB liability - beginning	**2,252,027**	2,207,683	2,161,155	2,278,552
Total OPEB liability - ending (a)	**$ 2,291,114**	$ 2,252,027	$ 2,207,683	$ 2,161,155
Plan fiduciary net position				
Contributions - employer	**$ 117,907**	$ 114,829	$ 111,986	$ 110,985
Net investment income	**1,752**	2,313	1,455	663
Benefit payments	**(113,279)**	(112,777)	(111,847)	(110,229)
Administrative expense	**(1,148)**	(1,914)	(2,602)	(2,239)
Net Change in plan fiduciary net position	**5,232**	2,451	(1,008)	(820)
Plan fiduciary net position - beginning	**125,185**	122,734	123,743	124,563
Plan fiduciary net position - ending (b)	**$ 130,417**	$ 125,185	$ 122,735	$ 123,743
Employer net OPEB liability - ending (a) - (b)	**$ 2,160,697**	$ 2,126,842	$ 2,084,948	$ 2,037,412

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Required Supplementary Information

Schedule 5
Schedule of Employer Net OPEB (Premium Assistance) Liability
(Unaudited – See Accompanying Auditor’s Report)
(Dollar Amounts in Thousands)

	2020	2019	2018	2017	2016
Total OPEB Liability	**$ 2,291,114**	$ 2,252,027	$ 2,207,683	$ 2,161,155	$ 2,278,552
Less: Plan fiduciary net position	**130,417**	125,185	122,734	123,743	124,563
Employer Net OPEB Liability	**$ 2,160,697**	$ 2,126,842	$ 2,084,949	$ 2,037,412	$ 2,153,989
Plan fiduciary net position as a percentage of the total OPEB liability	**5.69%**	5.56%	5.56%	5.73%	5.47%
Covered Payroll	**$ 14,036,006**	$ 13,791,197	$ 13,466,526	$ 13,313,900	$ 12,951,077
Employer net OPEB liability as a percentage of covered payroll	**15.39%**	15.42%	15.48%	15.30%	16.63%

Schedule 6
Schedule of Employer OPEB (Premium Assistance) Contributions
(Unaudited – See Accompanying Auditor’s Report)
(Dollar Amounts in Thousands)

	2020	2019	2018	2017	2016
Actuarially determined contribution	**$ 138,776**	$ 139,484	$ 134,607	$ 125,694	$ 129,494
Contributions in relation to the actuarially determined contribution(1)(2)	**117,723**	114,571	11,724	110,558	112,557
Contribution deficiency	**$ 21,053**	$ 24,913	$ 122,883	$ 15,136	$ 16,937
Covered payroll	**$ 14,036,006**	$ 13,791,197	$ 13,466,526	$ 13,313,900	$ 12,951,077
Contributions as a percentage of covered payroll	**0.84%**	0.83%	0.83%	0.83%	0.87%

(1) Amounts exclude purchase of service contributions.
(2) Same as contractually required contributions.

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor’s report and notes to the required supplementary information.

Required Supplementary Information

Schedule 7
Schedule of Investment Returns - Pension and OPEB
(Unaudited – See Accompanying Auditor's Report)

	2020	2019	2018	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense- Pension	**1.12%**	6.58%	9.30%	10.15%	1.11%	3.08%	14.98%
Annual money-weighted rate of return, net of investment expense- OPEB	**1.97%**	2.68%	1.63%	0.90%	0.65%	0.30%	-

Required Supplementary Schedules are intended to show information for 10 years. Additional years will be displayed as they become available.

See accompanying independent auditor's report and notes to the required supplementary information.

Notes to Required Supplementary Information for the Years Ended June 30, 2014 thru June 30, 2020

Pension

Changes in benefit terms

With the passage of Act 5 on June 12, 2017, class T-E & T-F members are now permitted to elect a lump sum payment of member contributions upon retirement.

Changes in assumptions used in measurement of the Total Pension Liability beginning June 30, 2017, beginning June 30, 2018, beginning June 30, 2019 & beginning June 30, 2020

None.

Changes in assumptions used in measurement of the Total Pension Liability beginning June 30, 2016

The Investment Rate of Return was adjusted from 7.50% to 7.25%. The inflation assumption was decreased from 3.00% to 2.75%.

Salary growth changed from an effective average of 5.50%, which was comprised of inflation of 3.00%, real wage growth and for merit or seniority increases of 2.50%, to an effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.

Mortality rates were modified from the RP-2000 Combined Healthy Annuitant Tables (male and female) with age set back 3 years for both males and females to the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale. For disabled annuitants the RP-2000 Combined Disabled Tables (male and female) with age set back 7 years for males and 3 years for females to the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

Method and assumptions used in calculations of actuarially determined contributions

The actuarially determined contributions are calculated as of the June 30 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the June 30, 2019 actuarial valuation will be made during the fiscal year ending June 30, 2021. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

- Investment return - 7.25%, includes inflation at 2.66% and the real rate of return 4.50%.
- Salary growth - Effective average of 5.00%, which reflects an allowance for inflation of 2.75%, real wage growth and merit or seniority of 2.25%.
- Benefit payments - no postretirement benefit increases assumed in the future.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

10-year reporting requirements

Required Supplementary Schedules 1-3 and 7, as related to pensions, are intended to show information for 10 years. Additional years will be displayed as they become available.

The Accounting Valuation

The GASB 67 accounting valuation can be found on PSERS' website at www.psers.pa.gov.

Notes to Required Supplementary Information for the Years Ended June 30, 2014 thru June 30, 2020

OPEB

Changes in benefit terms
None.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2020
The Discount Rate decreased from 2.79% to 2.66%.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2019
The Discount Rate decreased from 2.98% to 2.79%.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2018
The Discount Rate decreased from 3.13% to 2.98%.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2017
The Discount Rate increased from 2.71% to 3.13%.

Changes in assumptions used in measurement of the Total OPEB Liability beginning June 30, 2016
Salary growth changed from an effective average of 5.50%, which was comprised of inflation of 3.00%, real wage growth and for merit or seniority increases of 2.50%, to an effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.

Mortality rates were modified from the RP-2000 Combined Healthy Annuitant Tables (male and female) with age set back 3 years for both males and females to the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale. For disabled annuitants the RP-2000 Combined Disabled Tables (male and female) with age set back 7 years for males and 3 years for females to the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.

Method and assumptions used in calculations of actuarially determined contributions
The actuarially determined contributions are calculated as of the June 30 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the June 30, 2019 actuarial valuation will be made during the fiscal year ending June 30, 2021. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

- Investment return - 2.66% - 20 year S&P Municipal Bond Rate.
- Salary growth - Effective average of 5.00%, which reflects an allowance for inflation of 2.75%, real wage growth and merit or seniority of 2.25%.
- Benefit payments - no postretirement benefit increases assumed in the future.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS' experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.
- Assumed Healthcare cost trends were applied to retirees with less than $1,200 in premium assistance per year.

10-year reporting requirements
Required Supplementary Schedules 4-7, as related to OPEB, are intended to show information for 10 years. Additional years will be displayed as they become available.

The Accounting Valuation
The GASB 74 accounting valuation can be found on PSERS' website at www.psers.pa.gov.

Supplementary Schedule 1
Schedule of Administrative and Investment Expenses
Year Ended June 30, 2020
(Dollar Amounts in Thousands)

	Administrative Expenses				
	Pension	Defined Contributions	Postemployment Healthcare (1)	Investment Expenses (2)	Total
Personnel costs:					
Salaries and wages	$ 16,963	$ 579	$ 1,027	$ 8,642	**$ 27,211**
Employee benefits	10,849	337	714	4,578	**16,478**
Total personnel costs	27,812	916	1,741	13,220	**43,689**
Operating costs:					
Investment managers' fees	-	-	-	487,241	**487,241**
Custodian fees	-	-	-	2,481	**2,481**
Specialized services	367	-	991	6,358	**7,716**
Third party administrator	-	1,854	32,611	-	**34,465**
Fitness program administrator	-	-	6,974	-	**6,974**
Healthcare project management	-	-	3,472	-	**3,472**
Real estate rental, electricity	2,003	-	105	235	**2,343**
Consultant and legal fees	1,912	200	600	2,649	**5,361**
Treasury and other Commonwealth services	1,746	-	-	106	**1,852**
Postage	722	-	-	-	**722**
Contracted maintenance and repair services	4,052	-	-	3	**4,055**
Printing and office supplies	261	-	-	4	**265**
Equipment and software rental	5,172	-	-	-	**5,172**
Travel and training	225	2	6	51	**284**
Telecommunications	504	-	2	39	**545**
Equipment (non-capital assets)	1,052	2	-	6	**1,060**
Subscriptions	357	-	8	2,468	**2,833**
Miscellaneous	900	-	-	60	**960**
Total operating costs	19,273	2,058	44,769	501,701	567,801
Other charges:					
Depreciation	2,748	-	-	-	**2,748**
Total Administrative and Investment Expenses Before Pension & OPEB Expense	49,833	2,974	46,510	514,921	**614,238**
Pension expense (3)	2,275	78	150	1,390	**3,893**
OPEB expense (4)	(5,309)	115	(339)	(1,049)	**(6,582)**
Total Administrative and Investment Expenses	$ 46,799	$ 3,167	$ 46,321	$ 515,262	**$ 611,549**

(1) Administrative expenses for Postemployment Healthcare includes $1,148 related to Premium Assistance and $45,173 related to Health Options Program for the fiscal year ended June 30, 2020.

(2) Includes investment expenses of $36 related to Postemployment Healthcare Premium Assistance, $36 related to Health Options Program and $30 for DC for the fiscal year ended June 30, 2020 and does not include $5,114 in capitalized broker commissions for the fiscal year ended June 30, 2020.

(3) Total GASB 68 pension expense is $12.2 million and is reflected under Employee benefits and Pension expense. Employer contributions of $8.3 million are included as Employee benefits under Personnel costs and $3.9 million is reflected as Pension expense.

(4) Total GASB 75 OPEB expense is $(4.3) million and is reflected under Employee benefits and OPEB expense. Employer contributions of $1.4 million are included as Employee benefits under Personnel costs and $(6.6) million is reflected as OPEB expense.

Supplementary Schedule 2
Summary of Investment Expenses*
Year Ended June 30, 2020
(Dollar Amounts in Thousands)

	Investment Management			
	Base	Performance	Other Expenses	Total
External management:				
Domestic equity	$ 1,600	$ 277	$ -	**$ 1,877**
International equity	20,560	50,633	-	**71,193**
Fixed income	92,502	1,471	-	**93,973**
Real estate	49,762	-	-	**49,762**
Alternative investments	99,589	-	-	**99,589**
Absolute return	85,022	52,219	-	**137,241**
Commodities	9,781	-	-	**9,781**
Infrastructure	3,812	-	-	**3,812**
Master limited partnership	4,016	-	-	**4,016**
Risk parity	14,783	1,184	-	**15,967**
Defined Contribution	30	-	-	**30**
Total external management	381,457	105,784	-	**487,241**
Total internal management	-	-	22,891	**22,891**
Total investment management	381,457	105,784	22,891	**510,132**
Custodian fees	-	-	2,481	**2,481**
Consultant and legal fees	-	-	2,649	**2,649**
Total investment expenses	$ 381,457	$ 105,784	$ 28,021	**$ 515,262**

*External investment management fees classified on an asset allocation basis.

Supplementary Schedule 3
Schedule of Payments to Non-Investment Consultants
Year Ended June 30, 2020
(Dollar Amounts Greater than $100,000)

Non-Investment Consultants	Fees	Services Provided
Trustmark Health Benefits	$ 33,167,940	Postemployment healthcare benefits administration and claims adjudication
Optum RX, Inc.	5,753,946	Administration of postemployment healthcare benefits and prescription drug plan
Vitech Systems Group, Inc.	5,646,500	Pension administration system services
The Segal Company, Inc.	3,608,231	Actuarial services and consulting for HOP and prescription drug plan
Voya Holdings, Inc.	1,854,000	Defined Contribution Plan investment services and benefit administration
Blue Peak/Gallagher Benefit Services, Inc.	1,286,997	Pharmacy benefit consulting services
Tivity Health	829,356	Administration of the SilverSneakers Fitness Program
OST, Inc.	713,619	Information technology, training, testing and consulting services
Buck Global LLC	389,505	Pension benefit actuarial services

Ohiopyle State Park
Ohiopyle, PA

Photo Courtesy of Pennsylvania Department of Conservation and Natural Resources

Investment Section

Benjamin Franklin Bridge
Philadelphia, PA

COMMONWEALTH OF PENNSYLVANIA
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

James H. Grossman Jr., CPA, CFA
Chief Investment Officer

November 6, 2020

Dear PSERS Board of Trustees:

It is a privilege to present to you the Investment Section of the Comprehensive Annual Financial Report for the fiscal year ended June 30, 2020.

Authority and Fiduciary Standard

The Board has the responsibility to invest funds of the System in accordance with guidelines and limitations set forth in the Code and other applicable state law. Pursuant to the Board's enabling legislation, the members of the Board, employees of the Board, and their agents are fiduciaries to the System's members and beneficiaries and must invest and manage the fund for exclusive benefit of the System's members and beneficiaries (24 Pa. C. S. §8521(e)). As such, they must act consistent with the duty of prudence as well as the duty of loyalty.

In performance of their duties, the trustees shall exercise "that degree of judgment, skill and care under the circumstances then prevailing which persons of prudence, discretion and intelligence who are familiar with such matters exercise in the management of their own affairs not in regard to speculation, but in regard to the permanent disposition of the fund, considering the probable income to be derived therefrom as well as the probable safety of their capital." (24 Pa. C.S. §8521(a)).

The System shall at all times be managed in accordance with all applicable state and federal laws, rules, and regulations, as well as this Investment Policy Statement and other applicable policies of the Board.

Policies and Objectives and Investment Philosophy

The Board is responsible for the formulation of investment policies for the System. Professional Staff is responsible for the implementation of those investment policies. The overall investment objectives of the System are as follows:

- to generate returns to support the System's actuarial soundness so it may provide its members with benefits as required by law;
- to earn a long-term total return, net of fees, investment and administrative expenses, that equals or exceeds the actuarial assumed rate approved by the Board (currently 7.25%);
- to earn a long-term total return, net of fees, investment and administrative expenses, that equals or exceeds the Policy Index approved by the Board; and
- to prudently manage investment risks that are related to the achievement of investment goals.

The Board believes the System's assets should be managed in accordance with the System's unique liability stream, funding sources, cash flows, and portfolio size, focusing on the prudent accumulation of wealth over the long term to meet the retirement benefit obligations established by the plan sponsor to its members. The System's assets should be managed based on the following beliefs:

1. Uncertainty - The future is difficult to forecast with any accuracy or certainty, particularly changes in the economic and market environment.
2. Asset Allocation - The strategic asset allocation mix, more than implementation or any other factor or decision, largely determines the portfolio's overall risk and return.
3. Diversification - Diversification is the best approach to addressing future uncertainty and therefore meeting PSERS' long-term investment objectives. Diversification should be across multiple dimensions (asset classes, geography, strategy, etc.). Over any given period, any number of asset classes, geographies, strategies, etc. will underperform others; that is to be expected and accepted.

4. Risk - For an underfunded plan or for a plan with negative external cash flow (benefits paid exceed contributions received), the path of compounding of investment returns – from month to month, quarter to quarter, and year to year -- matters more than for a plan that is fully funded or has positive external cash flow; for the former type of plan, peak-to-trough declines transform unrealized losses into permanent ones. Drawdown risk should be mitigated, especially since the environment in which drawdowns occur is likely to take place when the plan sponsor's willingness and ability to make contributions to the plan are reduced. Liquidity should be managed to reasonably ensure that the fund can meet its obligations during periods of market dislocations.
5. Leverage - Leverage at the total fund level can be an effective tool to enhance diversification, since asset classes, over the long-term, have similar risk-adjusted returns, different correlations to each other, and different responses to changes in the economic and market environment. Leverage can be a vital tool to increase or decrease total fund risk in a diversified manner.
6. Rebalancing - Disciplined rebalancing enhances long term returns as it is an inherently contrarian process. Rebalancing restores strategic asset allocation as the primary driver of return and risk.
7. Portfolio Size - Managing a large pool of assets provides investors unique access to investment opportunities not available to smaller institutional investors or individual investors. PSERS should use its size to its advantage to enhance its net-of-fees return and diversification opportunities.
8. Private Investments - Allocations to Private Equity, Private Credit, Private Real Estate, Private Infrastructure, and other illiquid asset classes may be justified by the illiquidity risk premium available to investors. Allocations to these asset classes may also be justified by the diversification benefit they provide, through exposure to sectors, businesses, and mode of corporate governance not obtainable through public markets.
9. Active Management - Passive investing, rather than active management, is the default choice to be used for any asset class that is highly efficient or where skilled active managers are less likely to be identified. Certain asset classes continue to exhibit information inefficiency, where skilled active management and well-resourced investors such as PSERS can potentially persistently outperform peers and the benchmark for that asset class. There will be short-term periods when a skilled active manager may underperform peers and the benchmark; that is to be expected and accepted; therefore a long-term perspective will be employed.
10. Internal Management - PSERS has developed skilled internal investment managers; as such internal investment management is preferred over external investment management in cases where internal management most likely can match or exceed the long term, net of fees, risk-adjusted returns provided by external managers, provided the internal investment and operational resources are available to do so.
11. Investment Fees - Investment management fees for external management are one of the few aspects of investment management that are certain and over which the investor has control. Investment management and performance fees should be managed to (i) maximize long term, net of fees, risk-adjusted returns, (ii) split the value added fairly between the investment manager and PSERS, and (iii) align the interests of the investment manager with PSERS.

To achieve the System's objectives, the Board meets during the second half of the calendar year to review the overall asset allocation plan and investment policies for the System. Implementation of investment policy decisions necessitates asset management. Implementation is accomplished through the use of external investment management firms who act as agents for the System as well as through the use of internal investment managers. The Board also retains various investment consultants to assist with the formulation and implementation of investment policies.

Operations

The Board, via its Investment Committee, provides oversight of investment activities. The Investment Committee generally conducts six meetings per year and may meet more frequently as needed. Investment Office professionals, as well as external investment advisors, Investment Accounting professionals, and Internal Audit professionals, assist the Board in achieving investment objectives and monitoring compliance with investment policies. For the fiscal year ended June 30, 2020, Aon Hewitt Investment Consulting, Inc. (Aon Hewitt) served as the general investment consultant to assist the Board and Professional Staff in formalizing investment objectives, establishing an asset allocation plan, conducting investment advisor searches, reviewing performance, and commenting on compliance with investment policies. In addition, the Board retained Aksia, LLC as an absolute return and private credit consultant and Hamilton Lane Advisors, L.L.C. as an alternative, private credit, private infrastructure, and private real estate investment consultant. Alternative investments generally consist of investments in private debt, private equity, and venture capital limited partnerships. Investment Office professionals implement investment decisions within the guidelines established in the Investment Policy Statement (IPS) regarding asset allocation, manager selection, and other objectives directed by the Board.

The Board employs both external investment management firms and internal investment managers to manage the investment portfolio of the System. At fiscal year-end, 27 external public market investment management firms were managing $7.9 billion in assets of the System, $25.0 billion in assets were managed by the System's internal investment managers, and the remaining $24.9 billion in assets were managed by numerous absolute return, alternative investment, private credit, private infrastructure, and private real estate investment managers. Each asset class shall be measured relative to its designated benchmark index. It is expected that the active management of individual asset classes, if any, will provide an investment return in excess of the index, net of expenses, over the long-term.

Asset Allocation

The asset allocation establishes a framework for PSERS that has a reasonable likelihood, in the judgment of the Board, of realizing PSERS' long-term investment objectives. In establishing the asset allocation for the System, the Board considers capital market expectations for expected return, volatility, and asset class correlations as discussed in the IPS. The Board also establishes Asset Allocation Targets and Ranges and reviews them annually. The Board undertakes a comprehensive strategic asset/liability review designed to assess the continuing appropriateness of the IPS at least every three years or when material changes to the liabilities take place (e.g., plan design changes, material changes in underlying assumptions, etc.). Such review will consider an asset-liability study of future benefit payments, liabilities, required funding, the actuarial assumed rate and the prospective funded status of liabilities. It may also include a study of portfolio design for optimal diversification and comparisons with peer practices.

The current target allocation as of June 30, 2020, included an equity target allocation of 30.0% consisting of publicly traded stocks (15.0%) and private markets (15.0%). Specific publicly traded stock targets have been established for U.S. equity (4.8%) and non-U.S. equity (10.2%). Within the U.S. equity target, the portfolios are diversified between large and small capitalization investment mandates. The non-U.S. equity exposure includes both developed and emerging markets portfolios as well as large and small capitalization investment mandates. The non-U.S. developed markets equity exposure is 75% currency-hedged back to the U.S. Dollar. The primary vehicle used to invest funds in private markets is the limited partnership. The partnerships are established by individual management groups that have been selected by the System for the purpose of investing in and managing private equity, venture capital, and debt positions on behalf of PSERS and other limited partners.

The fixed income target allocation of 42.0% consisted of investment grade exposure (10.0%), public credit-related exposure (1.0%), private credit exposure (10.0%), inflation-protected exposure (15.0%) and cash (6.0%). Investment grade exposure consisted of U.S. core fixed income (4.0%) and U.S. Long-term Treasuries (6.0%). Inflation protected exposure consisted of U.S. and Non-U.S. inflation-linked bonds. Within these categories, all sectors of the fixed income market are represented. The cash allocation consisted of short-duration, high quality government and investment grade securities. The Board, Investment Office professionals, and Aon Hewitt deemed it prudent to have an allocation to cash given the known and potential cash flow requirements of the System.

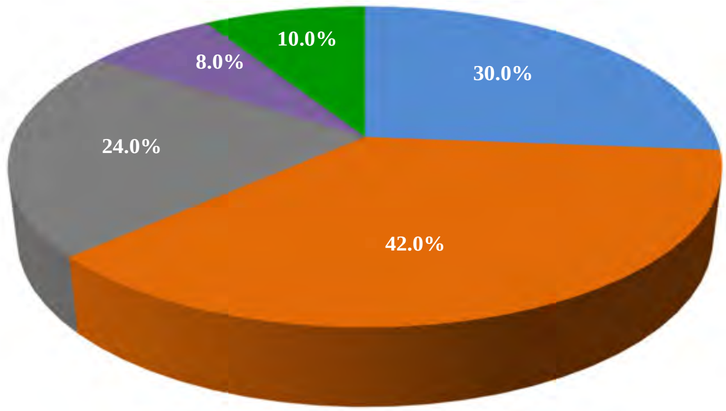
The real asset exposure of 24.0% consisted of public and private real estate (10.0%), public and private infrastructure (6.0%) and commodities (8.0%, including 3% to gold). The real estate allocation consisted of limited partnerships and publicly-traded real estate securities. The types of partnerships the System invests in include core, value-added, and opportunistic real estate limited partnerships. The commodities allocation consisted primarily of commodity futures, commodity swaps, and commodity-related publicly traded stocks. Commodities are included in the allocation for inflation protection and to diversify the System's total portfolio risk. The Infrastructure allocation targets stable, defensive investments primarily within the energy, power, water, and transportation sectors. Infrastructure plays a strategic role within the System by providing steady returns and cash yields, defensive growth, inflation protection, capital preservation, and diversification benefits. The infrastructure allocation consists primarily of publicly-traded companies.

The absolute return target allocation of 10.0% consisted primarily of investment managers which provide idiosyncratic returns and portfolios that exhibit low correlation to equities, fixed income, commodities, and other sources of low cost beta over a full market cycle. Strategies implemented to achieve this target include, but are not limited to, global macro, event-driven, and relative value strategies such as insurance-linked securities and long/short credit. The absolute return program is included in the allocation to generate positive, absolute returns with low volatility and low correlation to the public financial markets to diversify the System's total portfolio risk.

The risk parity allocation of 8.0% consisted primarily of global equities, global nominal bonds, global inflation-linked securities, and commodities in an allocation that balances risk across these asset classes with structurally offsetting biases to the primary drivers of asset class returns - growth and inflation. Risk parity provides diversification and liquidity to the System.

Leverage was utilized at the asset allocation level to manage total fund risk in a diversified manner. The System utilized 14.0% leverage through use of derivative instruments that allow the System to gain incremental asset class exposure with minimal margin requirements. Leverage is utilized in the fixed income, real asset, and risk parity allocations.

Target Asset Allocation as of June 30, 2020*



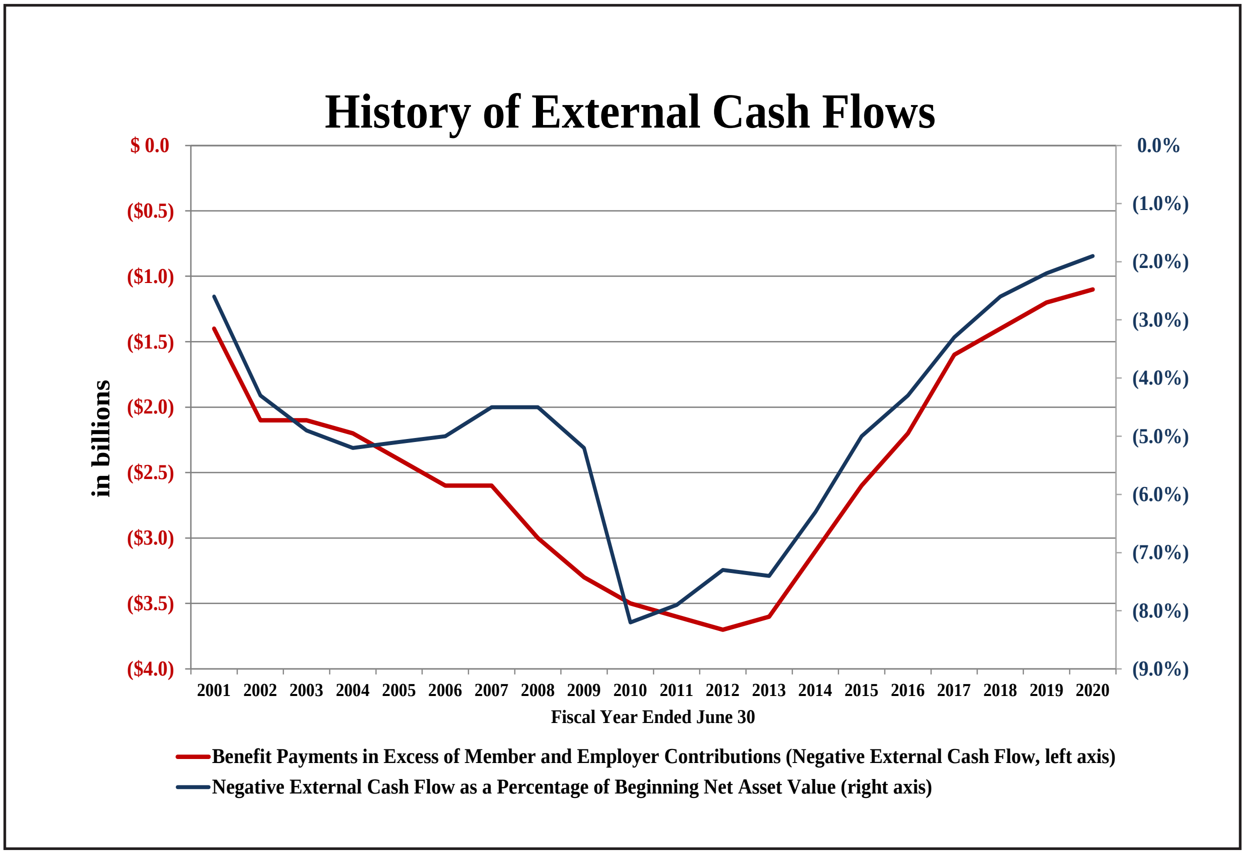
*Financing represents a negative 14% allocation and is not reflected in the pie chart.

The System also participates in a securities lending program administered by Deutsche Bank AG. This program is designed to provide incremental income to the System by lending publicly-traded securities in the System's portfolio held by the System's custodial bank, The Bank of New York Mellon, to securities dealers in exchange for cash collateral, which can be reinvested to generate income. This program generated $15.3 million in net income during the year.

Liquidity and Asset Allocation

The System's risk profile is, in part, driven by its liquidity needs. Liquidity should be managed to reasonably ensure that the System can meet its obligations during periods of market dislocations. For an underfunded plan or for a plan with negative external cash flow (benefits paid in excess of contributions received) such as PSERS, the path of compounding of investment returns matters more than for a plan that is fully funded or has positive external cash flow; for the former type of plan, peak-to-trough declines transform unrealized losses into permanent ones. Over the past twenty fiscal years, the System has paid out $49.4 billion more in benefits than it has received in member and employer contributions (i.e., the System has experienced negative external cash flow). The average negative external cash flow was approximately $2.5 billion per year during this period. This annual funding deficiency has amounted to 1.9% or more of beginning net assets each year and represents the amount of investment return needed each year to make up the shortfall (i.e., if the System earned 3.0% in a given year with a 3.0% external cash flow shortfall, then the net assets of the System will be unchanged). The negative annual external cash flow has improved significantly since fiscal year 2012 due to the implementation of Act 120 in 2010 (see chart below). Act 120 provided for increased employer contributions to the actuarial required contribution levels. The annual external cash flow shortfall, while much improved, will continue over the next few years and necessitates a larger liquidity position and lower risk profile than a retirement system that has smaller liquidity requirements.

Given the significant net cash outflows, the Board has prudently reduced the risk profile of the System since the financial crisis in 2008. It has done so by decreasing its return dependence on the equity markets and increasing its risk exposures to asset classes that are less correlated to equity markets such as inflation-linked bonds, commodities, and absolute return. The goal of such an allocation is to generate the desired return profile with less volatility. While such an allocation will not provide for a large upside in returns, it is expected to minimize downside risks to the System's assets in the event of a large equity market drawdown as experienced during the financial crisis in 2008.



The Economy During The Past Fiscal Year

The Year in Review

The first half of the fiscal year was highlighted by strong equity markets globally. The strength in these markets was derived from the U.S. Federal Reserve and the European Central Bank easing monetary policy and the "phase one" trade deal between the U.S. and China. However, things quickly changed in the first quarter of 2020 when a highly contagious virus, emanating from Wuhan, China, spread across the globe. The coronavirus, called COVID-19, resulted in a global pandemic with many economies in the world completely shutting down and forcing those who could work from home to do so while others were laid off. Airline travel had essentially ground to a halt as did other leisure activities such as going out to a restaurant or to a movie. Economies were shut down in an attempt to slow the progression of the virus, or flatten the curve. Global economies began to re-open at various paces starting in the second quarter of 2020. The following paragraphs will provide more detailed analysis of the U.S. and select Non-U.S. economies.

The U.S. Economy

As noted above, the U.S. economy was severely impacted by the COVID-19 pandemic. Given the severe impact the pandemic had on the economy, fiscal and monetary actions in the U.S. were swift and aggressive, unlike anything ever seen in magnitude. The Federal Reserve dropped the Federal Funds target rate range by 2.25% during the fiscal year to a range of 0.00% to 0.25%. In addition, the Federal Reserve implemented numerous liquidity programs, such as the Primary Dealer Credit Facility, to support the smooth functioning of fixed income markets. In addition, the Federal Reserve for the first time in their history established programs to support the corporate credit market to ensure that bond issuers have continued access to credit and to promote an orderly functioning of the corporate bond market. The Federal Government approved over $3 trillion of fiscal spending in the form of tax rebates, a Payroll Protection Program, unemployment insurance benefits, and other forms of fiscal relief, primarily through the Coronavirus Aid, Relief, and Economic Security (CARES) Act signed into law on March 27, 2020. While these measures may have helped the economy from falling into a depression, they did not prevent a severe contraction in the U.S. economy which went into a recession. The U.S. real Gross Domestic Product (GDP) increased in the third quarter of 2019 by 2.6% and fourth quarter of 2019 by 2.4%. The GDP subsequently fell by 5.0% in the first quarter of 2020, and fell by an unprecedented 34.5% in the second quarter of 2020.

Given the mass shutdown of the economy, the official unemployment rate (otherwise known as the U3 unemployment rate) rose during the fiscal year from 3.7% in June 2019 to 11.1% as of June 2020. The more encompassing U6 unemployment rate, which measures not only people without work seeking full-time employment (U3 unemployment rate) but also counts “marginally attached workers and those working part-time for economic reasons”, skyrocketed to 18.0% as of fiscal year end, up from 7.2% at the end of the last fiscal year.

The U.S. economy was languishing in contraction territory for most of the fiscal year as measured by the manufacturing Institute of Supply Management (ISM) Purchasing Managers Index (PMI), an indicator of activity in the sector. During the fiscal year, the ISM PMI fell from 51.6 at June 30, 2019 to a low of 41.5 on April 30, 2020 before recovering to 52.6 on June 30, 2020. While finishing the year in expansionary territory (a contraction/expansion is indicated whenever the index is below 50/above 50), that represented a bounce back from the economy which essentially shut down for the months of April and May. Concurrently, U.S. consumer confidence, as measured by the Conference Board’s Consumer Confidence Index, decreased from 124.3 at June 2019 to 98.1 at June 2020.

With the economy shut down a portion of the year, inflation collapsed below the Fed’s target inflation rate of 2.0%. The past fiscal year saw inflation significantly fall, with the U.S. Core Consumer Price Index (CPI) decreasing to 1.2% year-over-year as of June 2020 from 2.1% one year ago.

Select Non-U.S. Economies

The Euro Area’s response to the COVID-19 pandemic was more modest than the U.S. response. The European Central Bank increased its original asset purchase program by $135 billion and adopted a $842 billion Pandemic Emergency Purchase Program and the European Union adopted a $607 billion program. The Euro Area economy was struggling prior to the pandemic and it only worsened since that time. As of the second quarter 2020, the Euro Area was contracting at a 14.5% annual pace, meaningfully down from the 1.3% growth one year earlier. The unemployment rate remained relatively stable at 7.7% as of June 2020 from 7.5% a year earlier. It is important to note that fiscal stimulus in Eurozone countries is focused on getting money to companies who are encouraged to keep people on payroll while in the U.S. fiscal stimulus is focused on individuals, not companies, so there is an increase in unemployment. Eurozone inflation trends weakened during the past fiscal year, with Eurozone Core Inflation falling from 1.1% on an annualized basis in June 2019 to 0.8% in June 2020, well below the European Central Bank (ECB) target of 2.0%. The Euro Area economy remained in contraction territory this past fiscal year as evidenced by the Markit Eurozone Manufacturing PMI measurement of 47.4 in June 2020 from 47.6 last June (a contraction/expansion is indicated whenever the index is below 50/above 50), falling as low as 33.4 during the depth of the pandemic. Aggressive actions by the ECB have generated improvements in employment but have failed to sustain economic growth and inflation. The ECB continued its policy of very accommodative overnight interest rates (negative 0.5%, down from negative 0.4% at June 30, 2019).

Japan’s economy was not spared difficulties from the COVID-19 pandemic, although from a health perspective Japan had little in the way of COVID-19 cases relative to the U.S. and Europe. For the second quarter 2020, Japan’s real GDP fell by a year-over-year rate of 9.9% versus a 0.9% year-over-year rate for the year-over-year period ended June 2019. Japan’s demographics are poor as the population ages which generally means that robust growth will be difficult to sustain over the long term. However, since the size of the working age population is decreasing, unemployment has been very low compared to the U.S. and Europe and was 2.8% in June 2020, up from 2.3% last fiscal year. The inflation rate in Japan was positive 0.1% over the past year, down from 0.7% one year earlier. Japanese policy makers continue to aggressively attempt to stimulate their economy through a combination of low interest rates (the Bank of Japan policy rate is negative 0.1%), the purchase of higher risk assets by the Bank of Japan, coordinated diversification into higher risk assets by large public investors, and fiscal spending policies to encourage liquidity to move into riskier assets. Economic conditions deteriorated and the Japanese manufacturing sector followed Europe into contraction territory as evidenced by the Jibun Bank Japan Manufacturing PMI falling 6.9 points from 50.8 at June 2019 to 43.9 at June 2020 (a contraction/expansion is indicated whenever the index is below 50/above 50), falling as low as 25.8 in April 2020. Japanese fiscal and monetary authorities continue to have a difficult time finding the appropriate economic and structural reforms to put in place to enable a sustained period of economic prosperity.

China had robust growth compared to the other developed regions of the world and their aggressive actions fighting the COVID-19 virus allowed them to recover more quickly economically. China’s real GDP increased by 3.2% over the past year, significantly slower than the 6.2% pace for the year ended June 2019 due to the weak 2020 first quarter when the economy was shut down due to the pandemic. Inflation in China remained relatively stable over the past year at 2.5%

compared to 2.7% last year. Economic conditions modestly strengthened as evidenced by the China Manufacturing PMI increasing 1.5 from 49.4 at June 2019 to 50.9 at June 2020 (a contraction/expansion is indicated whenever the index is below 50/above 50), but hit a low of 35.7 in February 2020 due to the pandemic. As noted in previous years, China continued its struggle to rebalance its economy from an investment-oriented economy to a consumer-oriented economy, while maintaining political stability. However, a "phase one" trade deal with the United States entered into in late 2019 alleviated some economic pressure that was on China from the trade war.

Investment Results

Aon Hewitt calculates the total investment return of the System as well as the performance of each external investment management firm and each internal investment manager retained by the Board to invest the System's assets. Performance is calculated using a time-weighted return methodology.

For the one-year period ended June 30, 2020, the System generated a total net of fee return of 1.11%. This return fell short of the total fund Policy Index return of 2.74% by 161 basis points. Annualized total net of fee returns for the three-, five- and ten-year periods ended June 30, 2020 were 5.62%, 5.64% and 7.70%, respectively. The three-, five- and ten-year returns ended June 30, 2020 exceeded (underperformed) the total fund Policy Index returns by (64), (44) and 20 basis points, respectively.

PSERS' asset classes that were significant positive contributors to performance this past fiscal year included:
- Gold was up 25.7% due to investors looking for safe haven investments;
- U.S. Long Treasuries were up 25.1%, driven by a decrease in long term interest rates during the fiscal year;
- Emerging Markets Equities were up 8.8% due to strong performance from active managers; and
- U.S. Core Fixed Income was up 8.8% due to falling interest rates.

PSERS' asset classes that were significant detractors from performance this past fiscal year included:
- Diversified commodities which were down over 7.0%; due primarily to weakness in oil prices which fell roughly 9% during the fiscal year;
- MLPs which were down 35.4% due to falling oil prices;
- Public Real Estate was down 18.4% due to price depreciation from sectors negatively impacted by the global pandemic such as hotels and office;
- Private Credit was down 4.3%; and
- Private Equity was down 4.2% as a result of performance being reported on a quarter-lag.

The fiscal year was really the tale of two halves. The first half of the fiscal year was highlighted by strong equity markets globally. The strength in these markets was derived from the U.S. Federal Reserve and the European Central Bank easing monetary policy and the "phase one" trade deal between the U.S. and China. However, things quickly changed in the first quarter of 2020 when, due to COVID-19, economies in the world completely shut down, forcing those who could work from home to do so while others were laid off. Equity, credit, and energy markets were very negatively impacted during the first quarter of 2020. However, towards the end of the first quarter, central banks and fiscal authorities provided copious amounts of stimulus to the economy and markets causing a strong rally off the bottom, recovering a significant portion of the market losses from the first quarter in the second quarter of 2020.

Diversification is Undeniably Effective

Diversification into asset classes such as diversified commodities, absolute return, and non-U.S. equities were a drag on overall performance this past fiscal year. As noted by Ben Hunt in his newsletter Epsilon Theory, "Diversification isn't a pretty bird. Diversification doesn't make my heart skip a beat like a flock of goldfinches in July. Diversification, by design, is going to have winners and losers simultaneously. Diversification, by design, is never going to look pretty doing its job, because if your portfolio is all working in unison, swooping through the market in a beautiful glint of gold...well, you may be making money, but you sure aren't diversified. Diversification is undeniably effective..." Many investment professionals discuss diversification using terms such as standard deviation, correlation, and co-variance. However, at its most basic level, diversification is insurance against bad future outcomes. The System diversifies simply because it doesn't know how actual events in the future will transpire relative to what is priced into the market. Diversification is a very humble approach to investing. If an investor knew with certainty which asset class would perform best the next month, quarter, or year, the investor would simply invest in that one asset class. However, without such perfect foresight, the downside risk of such a strategy could be devastating. As Peter Bernstein, the late American financial historian, economist, and educator once wrote, “Diversification is the only rational deployment of our ignorance.”

Investment Book of Record

The Investment Operations group began implementation of an Investment Book of Record (“IBOR”) this year, following a robust 18 month needs assessment, future state identification, and competitive selection process where Ernst & Young served as the Board’s consultant. The IBOR will become the Fund’s investment technology “engine”, designed to deliver the best available view of investment data suitable for investment decision-making, incorporating the current status and forward projections of portfolio investment holdings and cash positions, as well as reference data and derived analytics supporting the investment decision-making process. Implementation of the IBOR will modernize PSERS’ Investment Operations, facilitating more complete straight through processing, stronger data quality control, and enhanced analytics tools supporting the allocation, performance, risk, compliance, and deep reporting needs of PSERS’ stakeholders.

Accomplishments

The Investment Office successfully transitioned to working remotely during the first quarter of 2020 as the COVID-19 pandemic forced PSERS to close its offices. The investment team was prepared as all of the professionals had the necessary equipment to make this transition seamless. The team has access to all service providers and tools necessary to manage the portfolio as well as communicate with our external service providers and each other through tools such as Skype and Microsoft Teams.

The Investment Professionals and the Board completed a very large project to re-write the entire Investment Policy Statement during the fiscal year. The objective of this process was to improve the clarity of the investment policies. The results were the adoption of a modernized Investment Policy Statement and 23 stand-alone policies in March 2020 after hundreds of hours of Board and Investment Professionals’ time.

PSERS, in conjunction with the Commonwealth of Pennsylvania Office of the State Treasury, was able to successfully negotiate a Service Level Agreement with PSERS’ custodial bank, BNY Mellon. The agreement documents PSERS’ operational and service expectations for the quality, responsibilities, and service levels provided by BNY Mellon, including various performance metrics.

Summary

This past fiscal year was volatile and challenging with a net of fee return of 1.11%. However, pension plans like PSERS are built to generate long-term returns, so one good or bad year is not going to make or break the Fund. The System focuses on long-term returns. For the past 10 years, the Fund’s annualized net of fee return has been 7.70%, comfortably above the actuarial assumed rate of return of 7.25%. Looking forward, with cash rates of around 0.00%, the System still needs to take prudent risks to achieve its long-term goal of 7.25%. The System has built a diversified allocation to allow it to collect risk premiums over the long-term. In the short-term, no one knows what will happen and the System should expect to go through years where returns are below 7.25%, perhaps significantly below. The System continues to believe the best way to achieve its long-term objectives is to maintain a very diversified portfolio which includes all asset classes available to the Fund, such as public and private equities, fixed income, real assets, and absolute return and all portfolio tools available, such as derivatives and leverage. In any given year, the System expects some assets to perform well, such as U.S. long Treasuries and gold did this past fiscal year, and some to not do as well, such as MLPs and public real estate this past fiscal year. However, over the long run, the System expects each of its asset classes to generate a positive return commensurate with the risks taken. The future is uncertain, but we believe the Fund is well positioned to accomplish its objectives.

James H. Grossman Jr., CPA, CFA
Chief Investment Officer

Annualized Time-Weighted Returns (%) Net of Fees

Periods Ended June 30, 2020

	1 Year	3 Years	5 Years	10 Years
PSERS Total Portfolio	1.11	5.62	5.64	7.70
Total Fund Policy Index	2.74	6.26	6.08	7.50
Median Public Defined Benefit Plan (DBP) Fund Universe (Aon Hewitt Database)	1.91	5.40	5.78	8.10
PSERS U.S. Equity Portfolios	3.23	8.27	9.47	13.37
U.S. Equity Policy Index (1)	3.25	8.94	9.38	13.35
PSERS Non-U.S. Equity Portfolios	1.77	4.94	5.45	8.92
Non-U.S. Equity Policy Index (2)	-2.53	2.60	3.67	6.89
PSERS Fixed Income Portfolios (10)	7.10	7.16	6.65	6.93
Fixed Income Policy Index (3)	8.70	6.38	5.70	5.15
PSERS Commodity Portfolios (10)	2.13	6.17	2.65	0.76
Commodity Policy Index (4)	-2.68	0.67	-1.84	-2.37
PSERS Absolute Return Portfolios	-0.49	2.23	2.38	3.92
Absolute Return Policy Index (5)	1.74	4.39	4.34	5.59
PSERS Risk Parity Portfolios (11)	0.14	4.96	4.39	N/A
Risk Parity Policy Index (6)	10.51	8.66	7.37	8.78
PSERS Master Limited Partnership (MLP) Portfolios	-35.43	-13.04	-11.06	3.54
Standard & Poor's MLP Index	-30.96	-11.20	-10.14	0.91
PSERS Real Estate (7) (10)	2.43	7.78	8.12	10.68
Blended Real Estate Index (8)	-0.73	6.17	7.10	9.93
PSERS Alternative Investments (7)	-4.18	7.40	7.97	9.44
Burgiss Median, Vintage Year Weighted Index (9)	1.79	9.79	9.76	11.46

1. Returns presented are a blend of the S&P 500 Total Return Index (75%), S&P 400 Total Return Index (12.5%), and the S&P Small Cap 600 Total Return Index (12.5%) effective October 1, 2019.
2. Returns presented are a blend of the MSCI ACWI ex. USA IMI with DM 75% Hedged to USD Total Return Index (85%) and the MSCI Emerging Markets IMI Net Total Return Index (15%) effective October 1, 2019 with the weights to these indexes varying since April 1, 2016.
3. Returns presented are a blend of the Bloomberg Barclays U.S. Aggregate Bond Total Return Index (11.1%), the Bloomberg Barclays U.S. Long Treasury Total Return Index (16.7%), the J.P. Morgan GBI-EM Broad Diversified Index (0.9%), the J.P. Morgan EMBI Global Diversified Index (0.9%), the ICE BofAML EM Corporate Plus Index (Hedged to USD) (0.9%), the S&P LSTA Leveraged Loan Total Return Index + 200 bps (27.8%), the Bloomberg Barclays U.S. Government Inflation-Linked Bond All Maturities Total Return Index (20.9%), and the Bloomberg Barclays World Government ex. U.S. Inflation-Linked Bond All Maturities Total Return Index (Hedged to USD) (20.8%) effective October 1, 2019.
4. Returns presented are a blend of the Bloomberg Commodity Gold Index (37.5%) and the Bloomberg Commodity Index (62.5%). On July 1, 2014, the indices names were changed from DJ/UBS to Bloomberg. The returns have been adjusted for leverage.
5. HFRI Fund of Funds Conservative Index + 100 bps effective October 1, 2019.
6. Effective July 1, 2014 returns presented are a blend of MSCI ACW Index ($Net) (50%); Barclays Capital U.S. Treasury Index (75%); Barclays Capital World Inflation Linked Bond Index Hedged (55%); Bloomberg Commodity Index (Total Return) (15%); Bloomberg Gold Subindex (5%); and 3-Month LIBOR (-100%). The weights to these indices have varied in previous quarters. The returns have been adjusted for volatility.
7. Returns reported on a one-quarter lag, except for publicly traded real estate security investments.
8. Effective April 1, 2015, comprised of a blended benchmark consisting of the National Council of Real Estate Investment Fiduciaries (NCREIF) – Open End Diversified Core Equity (ODCE) Index and Burgiss Private iQ (for Value-Added Real Estate and Opportunistic Real Estate) reported on a one-quarter lag. For periods between April 1, 2010 and March 31, 2015, the benchmark was comprised of a blended benchmark of NCREIF-ODCE (core) and various private real estate benchmarks for Value-Added and Opportunistic (including NCREIF-Closed-End Value-Added (CEVA), NCREIF/Townsend and NCREIF-NPI) reported on a one-quarter lag. For all prior periods, the benchmark was comprised of a blended benchmark strategically split between public/private using various public REIT indices (FTSE EPRA/NAREIT Global Real Estate, Wilshire Real Estate Securities and Wilshire REIT) and NCREIF-NPI (for all non-core) reported on a one-quarter lag.
9. Burgiss Median, Vintage Year Weighted Index effective January 1, 2011. Previously, the Thompson ONE, Vintage Year Weighted Index was used. Returns reported on a one-quarter lag.
10. Returns are presented on an unleveraged basis for comparability purposes to the Policy Index.
11. Returns are presented on a volatility-adjusted basis for comparability purposes to the Policy Index.

Portfolio Summary Statistics
Asset Allocation
As of June 30, 2020

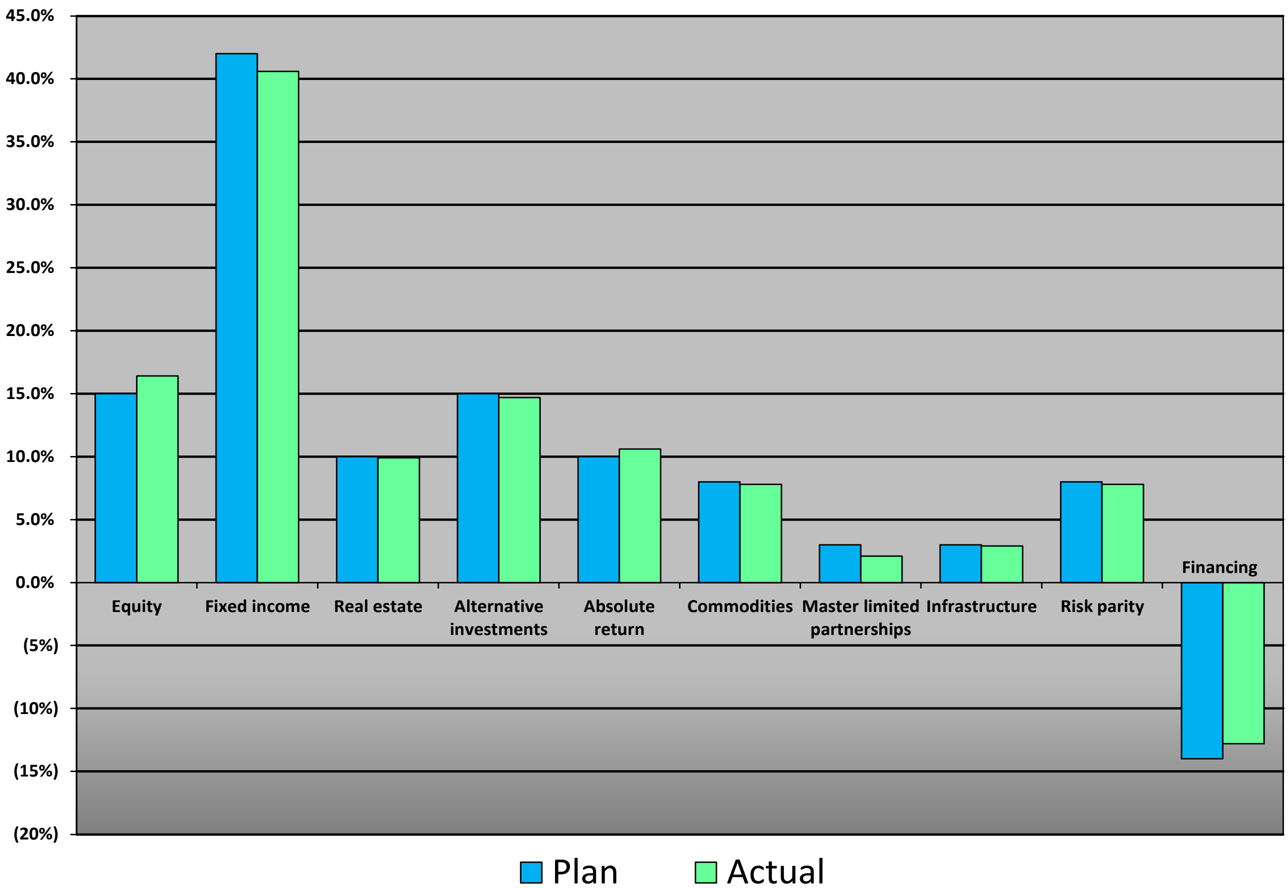
(Dollar Amounts in Thousands)

Pension investments		Fair Value	% Fair Value
Common and preferred stock (Equity):			
Large and mid cap stocks	$	4,106,592	7.2
Small cap stocks		646,920	1.1
Emerging markets stocks		1,541,506	2.7
Total Non-U.S. equity		**6,295,018**	**11.0**
Large cap stocks		2,352,682	4.1
Mid and small stocks		749,848	1.3
Total U.S. equity		**3,102,530**	**5.4**
Total Common and preferred stock - Asset Allocation Basis		**9,397,548**	**16.4**
Fixed income:			
Investment grade fixed income		9,773,387	17.0
Private Credit		5,250,947	9.2
Total U.S. Fixed income		**15,024,334**	**26.2**
Non-U.S. developed markets fixed income		4,437,200	7.8
Emerging markets fixed income		344,171	0.6
Total Non-U.S. Fixed income		**4,781,371**	**8.4**
Cash and cash equivalents		**3,425,643**	**6.0**
Total Fixed income - Asset Allocation Basis		**23,231,348**	**40.6**
Real estate		**5,689,428**	**9.9**
Alternative investments:			
Private equity		6,157,753	10.7
Special situations		1,168,041	2.0
Venture capital		1,138,718	2.0
Total Alternative investments - Asset Allocation Basis		**8,464,512**	**14.7**
Absolute return		**6,058,517**	**10.6**
Commodities		**4,471,408**	**7.8**
Master limited partnerships		**1,221,994**	**2.1**
Infrastructure		**1,663,789**	**2.9**
Risk parity		**4,482,602**	**7.8**
Financing		**(7,318,129)**	**(12.8)**
Total Pension investments - Asset Allocation Basis		**57,363,017**	**100.0**
Net Asset Allocation Adjustment*		(22,323)	
Pension investments per Statement of Fiduciary Net Position		**57,340,694**	
Postemployment Healthcare investments	**$**	**411,442**	**100.0**
Defined Contribution plan investments	**$**	**21,565**	**100.0**

* Includes reclassifications of certain investments between asset classes and investment receivables/payables to adjust the Statement of Fiduciary Net Position classification to the basis used to measure Asset Allocation. See the table and graph which follow.

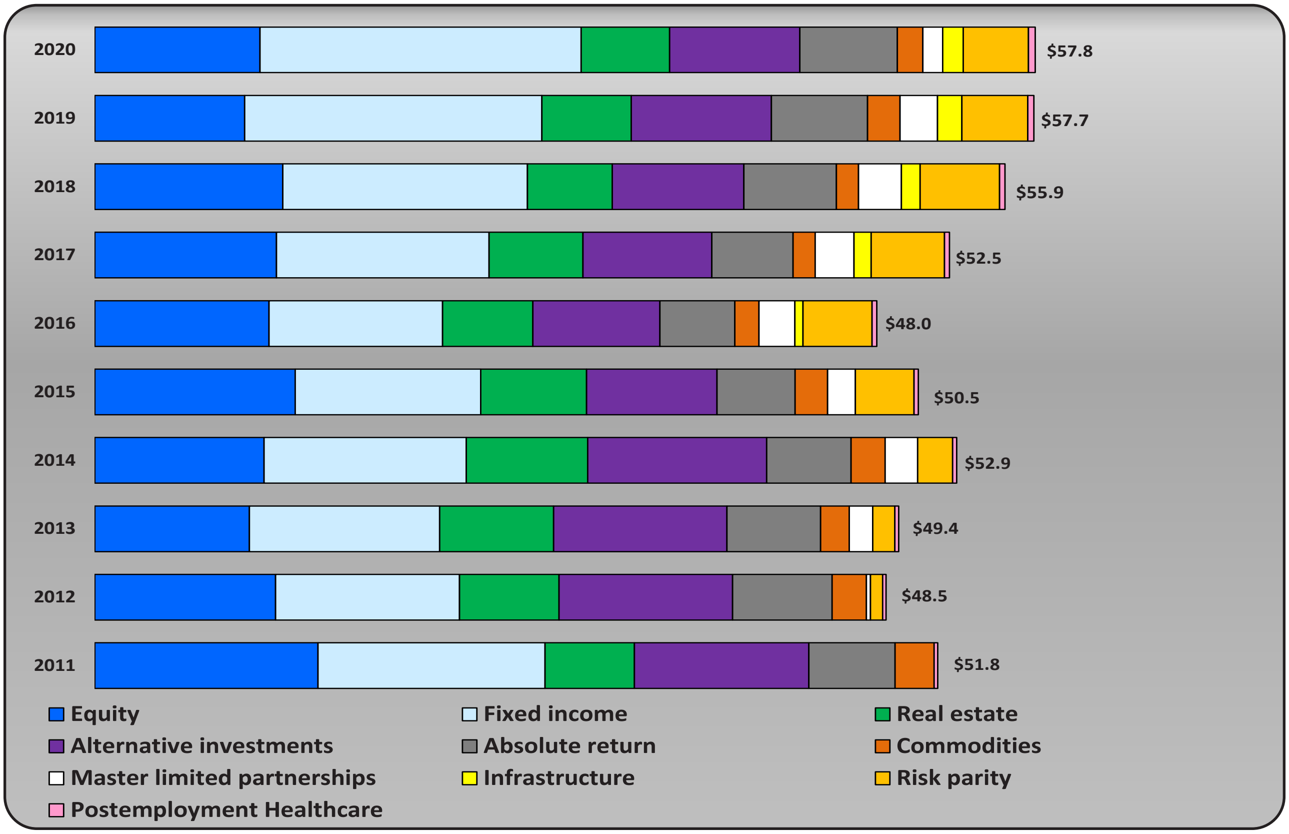
Comparison of Actual Portfolio Distribution to Asset Allocation Plan As of June 30, 2020

Asset Category	Plan	Actual
Common and preferred stock (Equity)	15.0%	16.4%
Fixed income	42.0	40.6
Real estate	10.0	9.9
Alternative investments	15.0	14.7
Absolute return	10.0	10.6
Commodities	8.0	7.8
Master limited partnerships	3.0	2.1
Infrastructure	3.0	2.9
Risk parity	8.0	7.8
Financing	(14.0)	(12.8)
Total	**100.0%**	**100.0%**



Portfolio Capital Distribution 10 Year Trend*

(Fair Value - Dollar Amounts in Billions)



*Defined Contribution Plan is not included in the above chart.

The following lists of portfolio detail statistics present the ten largest holdings by descending order of fair value for the largest public market asset classes. Information on the complete holdings of the System can be downloaded from the PSERS website at www.psers.pa.gov.

Common and Preferred Stock

10 Largest Holdings in Descending Order by Fair Value

As of June 30, 2020

(Dollar Amounts and Shares in Thousands)

Description	No. of Shares	Fair Value
SPDR Trust Unit Series 1	2,855	$ 880,333
The Children's Investment Fund LP	498,905	504,845
Cederberg Greater China Equity Fund	1,973	269,648
Steadview Capital Partners LP	178,330	178,591
iShares MSCI ETF	3,539	168,435
Effissimo Capital Management Feeder Fund 2	729	166,115
BlackRock Emerging Markets Alpha Advantage Fund Ltd.- Class P	105	148,165
Enterprise Products Partners, LP	8,004	145,427
Williams Partners, LP	6,181	117,561
Enbridge Inc.	3,797	115,276
Total of 10 Largest Holdings		**$ 2,694,396**

Fixed Income
10 Largest Holdings in Descending Order by Fair Value
As of June 30, 2020
(Dollar Amounts and Shares in Thousands)

Description	No. of Shares	Fair Value
Bridgewater International Inflation-Linked Bond Fund	276	$ 1,339,425
BlackRock US Extended Core Global Alpha Bond Fund Ltd.	365	918,482
Bridgewater Pure Alpha Fund II, Ltd.	138	534,463
TAO Partners Parallel Fund, LP	N/A	427,716
Bain Capital Credit Managed Account, LP	N/A	369,977
Bridgewater Short Term Investment Fund	29,135	369,899
Cerberus PSERS Levered Loan Opportunities Fund, LP	N/A	362,705
LBC-PSERS Credit Fund, LP	N/A	275,098
PIMCO BRAVO Fund III Onshore Feeder, LP	N/A	264,991
Bain Capital Distressed and Special Situations 2016, LP	N/A	261,471
Total of 10 Largest Holdings		**$ 5,124,227**

Absolute Return
10 Largest Holdings in Descending Order by Fair Value
As of June 30, 2020
(Dollar Amounts and Shares in Thousands)

Description	No. of Shares	Fair Value
Bridgewater Pure Alpha Fund II, Ltd.	240	$ 839,808
Garda Fixed Income Relative Value Opportunity Fund Ltd.	291	533,728
Capula Global Relative Value Fund, Ltd.	4,786	519,875
Aeolus Property Catastrophe Keystone PF Fund, LP	363	359,869
OWS Credit Opportunity Offshore Fund III, Ltd.	275	348,382
PIMCO Commodity Alpha Fund, Ltd.	256	343,625
PIMCO Global Credit Opportunity Offshore Fund Ltd.	280	294,280
Brigade Leveraged Capital Structures Offshore Ltd.	170	278,897
AKAZ Offshore Fund Ltd.	200	269,836
Capula Tail Risk Fund Ltd.	2,983	257,608
Total of 10 Largest Holdings		**$ 4,045,908**

Postemployment Healthcare Investments
10 Largest Holdings in Descending Order by Fair Value
As of June 30, 2020
(Dollar Amounts in Thousands)

Description	Maturity Date	Interest Rate (%)	Par Value	Fair Value
Wilmington US Government MM	N/A	Various	$ 174,343	$ 174,343
PSERS Short-Term Investment Fund	Various	Various	141,199	141,199
World Financial Network	06/17/24	2.55%	6,517	6,514
Toyota Motor Credit Corp.	10/23/20	0.48%	6,000	6,000
Cabela's Credit Card Master Note Trust	07/17/23	0.85%	5,310	5,326
Master Credit Card	01/21/22	0.53%	2,972	2,977
World Omni Auto	Various	Various	2,858	2,861
Santander Drive Auto Receivables Trust	Various	Various	2,855	2,852
CarMax Auto Owner Trust	Various	Various	2,681	2,683
Hyundai Auto Lease	Various	Various	2,408	2,410
Total of 10 Largest Holdings				**$ 347,165**

Defined Contribution Plan Investments
10 Largest Holdings in Descending Order by Fair Value
As of June 30, 2020
(Dollar Amounts and Shares in Thousands)

Description	No. of Shares	Fair Value
PSERS Short-Term Investment Fund	N/A	$ 6,716
T Rowe Price Target Date 2060	568	6,383
T Rowe Price Target Date 2055	207	2,212
T Rowe Price Target Date 2050	143	1,522
T Rowe Price Target Date 2045	118	1,262
T Rowe Price Target Date 2040	93	997
T Rowe Price Target Date 2035	80	855
T Rowe Price Target Date 2030	64	696
T Rowe Price Target Date 2025	33	358
T Rowe Price Target Date 2020	16	180
Total of 10 Largest Holdings		**$ 21,181**

Comparison of Investment Activity Income
Fiscal Years Ended June 30, 2020 and 2019
(Dollar Amounts in Thousands)

Investment Activity		**2020**		2019
Net appreciation in fair value of investments	**$**	**261,864**	$	2,830,333
Short-term		**102,344**		130,046
Fixed income		**268,787**		256,597
Common and preferred stock		**277,635**		322,865
Collective trust funds		**4,633**		6,373
Real estate		**219,762**		226,303
Alternative investments		**371,652**		298,004
Total investment activity income	**$**	**1,506,677**	$	4,070,521

Brokers' fees on equity investment transactions for the fiscal year ended June 30, 2020 were $5.1 million. The System has commission recapture contracts with several brokers. These contracts generally stipulate that the brokers rebate a percentage of commissions earned on investment transactions directly to the System. During the fiscal year ended June 30, 2020, the System earned $51,000 from a commissions recapture program. A list of the brokers receiving fees in excess of $100,000 during the fiscal year follows:

Summary Schedule of Brokers' Fees
(Cumulative Fiscal Year Amounts Exceeding $100,000)
Fiscal Year Ended June 30, 2020
(Shares in Thousands)

Broker Name		**Fees Paid**	**Shares**	**Broker Name**		**Fees Paid**	**Shares**
Instinet LLC	$	550,766	163,028	Bank Of America Merrill Lynch	$	187,667	36,787
B. Riley & Company		337,840	12,011	Knight Securities		173,722	13,587
Fimat USA		270,415	110	Canaccord Genuity Inc.		170,874	34,533
Citigroup Inc.		267,939	38,422	UBS		164,603	26,394
Goldman Sachs & Company		241,070	35,702	J P Morgan Chase & Co.		134,131	31,383
Morgan Stanley & Company		200,414	44,626	Jefferies & Company Inc.		125,115	20,570
Liquidnet Inc.		198,897	21,122	Barclays Capital		116,955	10,188
Credit Suisse First Boston		191,985	36,781	Macquarie Bank Ltd		113,138	23,826

Professional Consultants
External Investment Advisors
As of June 30, 2020

Absolute Return Managers

- Aeolus Capital Management, Ltd.
- Apollo Aviation Group
- AKAZ Investment Partners, LP
- Bridgewater Associates, LP
- Brigade Capital Management
- Capula Investment Management, LLP
- Carlyle Aviation Management Limited
- Caspian Capital, LP
- Falko Regional Aircraft Limited
- Garda Capital Partners, LP
- HS Group Ltd.
- Independence Reinsurance Partners GP, LLC
- Nephila Capital, Ltd.
- Oceanwood Capital Management, Ltd.
- One William Street Capital Management, LP
- Pacific Investment Management Company, LLC
- Two Sigma Advisors, LP
- Venor Capital Management, LP

Publicly-Traded Real Estate Securities Advisor

- Security Capital Research & Management, Inc.

Non-U.S. Equity Managers

- Acadian Asset Management, LLC
- Baillie Gifford Overseas, Ltd.
- BlackRock Institutional Trust Company, N.A
- Cederberg Capital
- Effissimo Capital Management Pte. Ltd.
- Marathon Asset Management Limited
- Oberweis Asset Management, Inc.
- QS Batterymarch Financial Management, Inc.
- Steadview Capital Partners, LP
- The Children's Investment Fund, LP
- Wasatch Advisors, Inc.

Commodity Managers

- Denham Capital Management, LP
- Gresham Investment Management, LLC
- Wellington Management Company, LLP

U.S. Core Plus Fixed Income Managers

- BlackRock Financial Management
- SEI Investment Management Corporation

High Yield/Private Credit Managers

- Apollo Global Management, LLC
- Avenue Capital Group
- Bain Capital Credit, LP
- Brigade Capital Management
- The Carlyle Group
- Cerberus Business Finance, LLC
- Clearlake Capital Group, LP
- Galton Capital Group, LLC
- Hayfin Capital Management LLP
- Intermediate Capital Group PLC
- LBC Credit Management, LP
- Mariner Investment Group, LLC
- Oaktree Capital Management, LP
- Pacific Investment Management Company, LLC
- Park Square Capital, LLC
- SSG Capital Management Limited
- Summit Partners
- TCI Fund Management Limited
- TPG Sixth Street Partners
- Varde Partners, Inc.

Emerging Markets Debt Manager

- Franklin Templeton Investments

Multi-Sector Fixed Income Manager

- Pacific Investment Management Company, LLC

Non-U.S. Inflation-Linked Securities Manager

- Bridgewater Associates, LP

LIBOR-Plus Short-Term Investment Pool Managers

- Capula Investment Management, LLP
- Penn Mutual Asset Management, LLC
- Radcliffe Capital Management

Master Limited Partnership Managers

- Atlantic Trust Private Wealth Management
- Salient Capital Advisors, LLC

Currency Hedging Manager

- Insight Investment International Limited

Professional Consultants (Continued)

Infrastructure

- Blackstone Group, The
- GCM Grosvenor
- Mariner Investment Group, LLC
- Strategic Partners

Risk Parity Managers

- BlackRock Financial Management
- Bridgewater Associates, LP
- D.E. Shaw Investment Management, LLC

Real Estate Advisors

- Bell Partners, Inc.
- Charter Oak Advisors, Inc.
- GF Management, Inc.
- L&B Realty Advisors
- Property Management, Inc.

Real Estate Fund Managers

- Almanac Realty Investors, LLC
- Angelo, Gordon & Co., LP
- Ares Management, LLC
- Avenue Capital Group
- Bell Partners, Inc.
- BlackRock Real Estate
- Blackstone Group, The
- Brookfield Asset Management, Inc.
- Cabot Properties, Inc.
- Carlyle Group, The
- C-III Capital Partners, LLC
- DRA Advisors, LLC
- Equus Capital Partners, LTD
- Exeter Property Group
- Fortress Investment Group
- LAI Real Estate Investors, LLC
- LaSalle Mortgage Real Estate Investors
- LEM Capital Partners, LP
- O'Connor Capital Partners
- Paramount Group, Inc.
- PGIM Real Estate
- RCG Longview Management, LLC
- Silverpeak Real Estate Partners
- Stockbridge Capital Partners
- Strategic Partners
- UBS Realty Investors, LLC

Farmland Advisor

- Prudential Agricultural Group

Venture Capital Fund Managers

- Adams Capital Management, Inc.
- Aisling Capital, LLC
- Cross-Atlantic Capital Partners
- Insight Venture Management, LLC
- KBL Healthcare
- LLR Partners
- Mid-Atlantic Venture Funds
- Psilos Group Investors
- Quaker Bio-Ventures, Inc.
- Sante Ventures
- SCP Private Equity Partners
- StarVest Associates
- Sterling Partners
- Strategic Partners
- Summit Partners
- TDH, Inc.
- Tenaya Capital

Private Equity Fund Managers

- Actis LLP
- APAX Partners, LLP
- Bain Capital Partners, LLC
- Baring Private Equity Asia Limited
- Blue Point Capital Partners LLC
- Bridgepoint Capital Ltd
- Capital Group
- L Catterton Management Company LLC
- Cinven
- Coller Investment Management LTD
- Crestview Advisors LLC
- CVC Capital Partners Group
- Denham Capital
- EagleTree Capital
- The Energy & Minerals Group
- Equistone Partners Europe Limited
- Evergreen Pacific Partners GP LLC
- First Reserve Corporation
- GoldPoint Partners LLC
- Hahn & Company
- HgCapital
- Huntsman Gay Global Capital LLC
- Incline Management Corp.
- IPC Advisors
- K4 Capital Advisors
- Landmark Partners
- Milestone Partners
- Morgan Stanley
- New Mountain Investments
- NGP Energy Capital Management
- Odyssey Investment Partners LLC
- Orchid Asia
- PAI Europe

Professional Consultants (Continued)

- Palladium Equity Partners
- Partners Group Mgmt VI LTD
- Permira
- Platinum Equity Capital Partners
- Portfolio Advisors, LLC
- StepStone Group
- Sterling Partners
- Strategic Partners
- Trilantic Capital Management, LLC
- Webster Capital Management, LLC

Special Situations Fund Managers

- Apollo Global Management, LLC
- Arrowhead Mezzanine
- Avenue Capital Group
- Black Diamond Capital Management, LLC
- Cerberus Capital Management, LP
- Clearlake Capital Group, LP
- Gold Hill Venture Lending 03, LLC
- GoldPoint Partners, LLC
- Oaktree Capital Management LP
- Searchlight Capital Partners, LP
- Tulco Management, LLC
- Venor Capital Management, LP
- Versa Capital Management, LLC
- Windjammer Capital Investors

Custodian Bank

- The Bank of New York Mellon Corporation

Securities Lending Agent

- Deutsche Bank AG

Investment Accounting Application Service Provider

- STP Investment Services, LLC

Proxy Voting Agent

- Glass, Lewis & Co., LLC

Investment Evaluator and General Investment Consultant

- Aon Investment Consulting

Private Equity, Private Credit and Private Real Estate Investment Consultant

- Hamilton Lane Advisors, LLC

Absolute Return & Private Credit Consultant

- Aksia, LLC

Risk Management System Provider

- BlackRock Solutions

Defined Contribution Investment Consultant

- Cammack LaRhette Advisors, LLC

Actuarial Section

BUCK
500 Plaza Drive
Secaucus, New Jersey 07096-1533

August 5, 2020

Board of Trustees
Pennsylvania Public School Employees' Retirement System
5 North 5th Street
Harrisburg, Pennsylvania 17101-1905

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the Pennsylvania Public School Employees' Retirement System (Retirement System or PSERS) is performed annually to measure the ongoing costs and progress towards the funding goals of the Retirement System over time. The most recent actuarial valuation was completed as of June 30, 2019. The financing objective of the Retirement System is to:

- Fully fund all current costs based on the normal contribution rate determined under the funding method,
- Liquidate the unfunded accrued liability based on level percentage of pay amortization schedules required by the Public School Employees' Retirement Code, 24 Pa. C.S. §8101 et. seq. (Retirement Code) as amended by Act 2010-120, which requires amortization over 24 years of the unfunded accrued liability as of June 30, 2010, and of each change in the unfunded accrued liability due to actuarial experience after the June 30, 2010 valuation. Any increases in the unfunded liability arising from legislation enacted after June 30, 2010, are to be amortized over 10 years; and
- As directed by Act 5 of 2017, contribute 2.25% of pay for future Class T-G members and 2.00% for future Class T-H members and DC only participants to the School Employees' Defined Contribution Plan (Act 5 DC contributions).

The contribution policy of the Retirement System is set by statute. The Commonwealth's General Assembly has the authority to amend the benefit terms and funding policy for the System by passing bills in the Senate and House of Representatives and sending them to the Governor for approval.

Based on the June 30, 2019 actuarial valuation, a total contribution rate of 34.51% (33.51% Pension plus 0.82% Premium Assistance and 0.18% for Act 5 DC contributions) of payroll payable by employers for FY2019/2020, when taken together with the contributions payable by the members, current assets, and expected future asset returns, is sufficient to achieve the financing objective. The Act 120 minimum employer pension rate is the employer pension normal cost rate of 7.37%.

As required by the Retirement Code, the valuation takes into account all of the promised benefits to which members are entitled as of June 30, 2019, including pension and survivor benefits, as the basis for the pension contribution rate for fiscal year 2020/2021.

As required under Section 8502(j) of the Retirement Code, experience studies are performed for PSERS every five years, the most recent having been made as of June 30, 2015. This valuation was prepared on the basis of the demographic and economic assumptions that were recommended on the basis of the July 1, 2010 – June 30, 2015 Experience Review and approved by the Board of Trustees at its June 10, 2016 meeting, which includes a 7.25% per annum rate of investment return.

In our opinion, the actuarial assumptions used for funding purposes are reasonably related to the experience of the System and to reasonable long-term expectations. These assumptions were selected in accordance with applicable Actuarial Standards of Practice published by the Actuarial Standards Board.

The actuarial assumptions and methods used by PSERS for financial reporting meet the requirements set forth in Governmental Accounting Standards Board (GASB) Statement No. 67. The Health Insurance funding provisions of the Retirement Code differ from the GASB 74 disclosure requirements. For funding purposes, the actuarial liability equals the assets in the health insurance account, and a contribution is determined to provide for solvency of the account through the third fiscal year following the valuation date. For GASB 74 purposes the Health Insurance actuarial liability and normal cost requirements are determined under the entry age actuarial cost method. The entry age actuarial cost method meets the GASB 74 requirements for determining actuarial liability and normal cost and is the cost method specified by the Retirement Code for the PSERS pension plan.

The Retirement System reported the individual data for members of the Retirement System as of the valuation date to the actuaries. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the trust fund taken into account in the valuation was based on statements prepared for us by the Retirement System. The accuracy of the results presented in this report is dependent on the accuracy of the data.

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

In our opinion, the attached schedules of valuation results fairly represent the status of the Public School Employees' Retirement System and present an accurate view of historical data. The underlying assumptions and methods used for both funding and GASB disclosure purposes are consistent with the statutory specifications and represent a best estimate of the aggregate future experience of the Retirement System.

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

- Summary of Results of Actuarial Valuation as of June 30, 2019
- History of Contribution Rates and Funded Ratios
- Description of Actuarial Assumptions and Methods
- Schedule of Active Member Valuation Data
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls
- Solvency Test
- Schedule of Funding Progress for Pensions
- Analysis of Past Financial Experience – Reconciliation of Employer Contribution Rates

In addition, Buck Global, LLC (Buck), prepared the "Schedule of Changes in the Employer Net Pension Liability," "Schedule of Employer Net Pension Liability," "Schedule of Employer Pension Contributions", "Schedule of Changes in the Employer Net OPEB (Premium Assistance) Liability", "Schedule of Employer Net OPEB (Premium Assistance) Liability, "Schedule of Employer OPEB (Premium Assistance) Contributions" and the "Schedule of Funding Progress" in the Financial Section.

This report was prepared solely for the Pennsylvania Public School Employees' Retirement System for the purposes herein stated and may not be appropriate to use for other purposes. Buck does not intend to benefit and assumes no duty or liability to other parties who receive this work. Use of this report for any other purposes or by anyone other than

PSERS and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. Buck should be asked to review any statement to be made on basis of the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

David L. Driscoll is a Fellow of the Society of Actuaries and a Member of the American Academy of Actuaries. Edward Quinn and Salvador Nakar are Members of the American Academy of Actuaries. We meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. This report has been prepared in accordance with all applicable Actuarial Standards of Practice, and we are available to answer questions concerning it.

Respectfully submitted,

David L. Driscoll, FSA, EA,MAAA, FCA
Principal, Consulting Actuary

Edward A. Quinn, EA, MAAA, FCA
Director, Retirement Actuary

Salvador Nakar, EA, MAAA, FCA
Senior Consultant, Actuary

SUMMARY OF RESULTS OF ACTUARIAL VALUATION AS OF JUNE 30, 2019 ($ Amounts in Thousands)

Item	June 30, 2019	June 30, 2018
Member Data		
1. Number of Members		
a) Active Members	255,749	256,362
b) Vestees[1]	25,514	25,117
c) Annuitants, Beneficiaries and Survivor Annuitants[2]	237,339	233,288
d) Total	518,602	514,767
2. Annualized Salaries[3]	$ 13,671,927	$ 13,379,041
3. Annual Annuities	$ 6,051,632	$ 5,926,658
Valuation Results		
4. Present Value of Future Pension Benefits		
a) Active Members	$ 64,673,835	$ 63,249,952
b) Inactive Members and Vestees	2,258,815	2,092,376
c) Annuitants, Beneficiaries and Survivor Annuitants	57,413,088	56,742,925
d) Total	$ 124,345,738	$ 122,085,253
5. Present Value of Future Pension Normal Cost		
a) Active Members	$ 10,182,324	$ 10,006,621
b) Employer	8,963,909	9,085,724
c) Total	$ 19,146,233	$ 19,094,345
6. Pension Accrued Liability		
a) Active Members (4a) - (5c)	$ 45,527,602	$ 44,155,607
b) Inactive Members and Vestees	2,258,815	2,092,376
c) Annuitants, Beneficiaries and Survivor Annuitants	57,413,088	56,742,925
d) Total	$ 105,199,505	$ 102,990,908
7. Health Insurance Assets for Premium Assistance	$ 125,185	$ 122,734
8. Total Accrued Liability for Funding (6) + (7)	$ 105,324,690	$ 103,113,642
9. Actuarial Value of Assets	$ 61,190,489	$ 58,258,273
10. Funded Status (9) / (8)	58.1%	56.5%
11. Unfunded Accrued Liability (8) - (9)	$ 44,134,201	$ 44,855,369
12. Total Normal Cost Rate	14.98%	15.08%
13. Member Contribution Rate	7.61%	7.59%
14. Employer Normal Cost Rate (12) - (13)	7.37%	7.49%
Employer Annual Funding Requirement	**Fiscal 2020/2021**	**Fiscal 2019/2020**
15. Employer Contribution Rate Calculated by Actuary		
a) Normal Cost	7.37%	7.49%
b) Unfunded Accrued Liability	26.14	25.87
c) Preliminary Pension Rate	33.51%	33.36%
d) Health Insurance Premium Assistance	0.82	0.84
e) Act 5 DC[4]	0.18	0.09
f) Total Rate[5] = (15c) + (15d) + (15e)	34.51%	34.29%

1. Excludes 132,854 and 127,136 inactive members and non-members as of June 30, 2019 and June 30, 2018, respectively, who are no longer participating and are valued for their accumulated deductions only.
2. Excludes 1,595 and 1,752 beneficiaries as of June 30, 2019 and June 30, 2018, respectively, who are only entitled to a pending lump sum distribution.
3. The salaries shown represent an annual rate of pay for members who were in active service on the valuation date.
4. Average DC contribution rate. Actual rate will vary by employer based on Class T-G, Class T-H, and Class DC only memberships.
5. The Act 120 minimum pension rate for the June 30, 2019 valuation is 7.37% and for the June 30, 2018 valuation is 7.49%.

HISTORY OF CONTRIBUTION RATES AND FUNDED RATIOS

Fiscal Year Ending June	Budgeted Total Employer Payroll (thousands)	Contribution Rates[1]								Funded Ratio
		Employee	Employer Normal Cost	Employer Unfunded Liability	Preliminary Employer Pension	Final Employer Pension[2]	Act 5 Employer DC[7]	Employer Health Insurance	Total Employer	
2010[3]	$ 12,899,000	7.32%	7.35%	(3.72)%	3.63%	4.00%	N/A	0.78%	4.78%	75.1%
2011[3,4]	13,510,000	7.34	8.08	(0.50)	7.58	5.00	N/A	0.64	5.64	69.1
2012	14,112,000	7.37	8.12	10.15	18.27	8.00	N/A	0.65	8.65	66.4
2013[5]	14,297,000	7.40	8.66	12.99	21.65	11.50	N/A	0.86	12.36	63.8
2014	13,720,000	7.43	8.57	15.25	23.82	16.00	N/A	0.93	16.93	62.0
2015	13,482,000	7.46	8.46	17.51	25.97	20.50	N/A	0.90	21.40	60.6
2016	13,375,000	7.49	8.38	19.44	27.82	25.00	N/A	0.84	25.84	57.3
2017	13,549,000	7.52	8.31	20.89	29.20	29.20	N/A	0.83	30.03	56.3
2018[6]	13,449,000	7.54	7.70	24.04	31.74	31.74	N/A	0.83	32.57	56.5
2019	13,775,000	7.57	7.59	25.01	32.60	32.60	N/A	0.83	33.43	**58.1**
2020	13,880,000	7.59	7.49	25.87	33.36	33.36	0.09%	0.84	34.29	*
2021	**14,078,000**	**7.61**	**7.37**	**26.14**	**33.51**	**33.51**	**0.18%**	**0.82**	**34.51**	*

1. In general, the Preliminary Employer Pension Rate equals the sum of the rates for the Employer Normal Cost and the Unfunded Liability; and the Final Employer Pension Rate is the greater of the Preliminary Pension Rate and any Pension Rate Floor or Collar stated in the Retirement Code. The Total Employer Rate is the sum of the Final Employer Pension Rate, Act 5 Employer DC Rate and the Employer Health Insurance Premium Assistance Rate.

2. The Final Employer Pension rate is limited by the Act 120 of 2010 pension rate collars for fiscal years 2012 through 2016.

3. At its January 2009 meeting, the Board voted to reduce the interest rate from 8.50% to 8.25% for the June 30, 2008 valuation and to 8.00% for subsequent valuations.

4. Act 46 of 2010 recertified the fiscal year ended June 30, 2011 pension rate from 7.58% to 5.00%.

5. Revised actuarial assumptions based on a five-year experience review ended June 30, 2010 were used to determine the contributions for the fiscal year ending June 30, 2013 and thereafter, which include an interest rate of 7.50%.

6. Revised actuarial assumptions based on a five-year experience review ended June 30, 2015 were used to determine the contributions for the fiscal year ending June 30, 2018 and thereafter, which include an interest rate of 7.25%.

7. It is assumed that new members through June 30, 2019 are Class T-E members and after June 30, 2019, it is assumed that 65% of new members elect Class T-G membership, 30% elect Class T-H membership and 5% elect DC Only participation under Act 5. In addition, the above rate is an average DC contribution rate. Actual rate will vary by employer based on Class T-G, Class T-H, and Class DC only memberships.

* Not Available

DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS

ASSUMPTIONS

Investment Rate of Return: 7.25% per annum, compounded annually (adopted as of June 30, 2016). The components are 2.75% for inflation and 4.50% for the real rate of return. Actuarial equivalent benefits are determined based on an interest rate of 4% per year (since 1960) except, in accordance with Act 5 of 2017, an interest rate of 7.25% per year is used for Class-TE and Class T-F members' Option 4 partial withdrawal of accumulated member contributions.

Discount Rate for GASB 67 Accounting: 7.25% as of June 30, 2017 and June 30, 2018. Rates were determined in accordance with the methods prescribed in GASB Statement No. 67.

Discount Rate for GASB 74 Accounting: 3.13% as of June 30, 2017 and 2.98% as of June 30, 2018. This rate represents the S&P 20-Year Municipal Bond Rate. Rates were determined in accordance with the methods prescribed in GASB Statement No. 74.

Separation from Service: Illustrative rates of assumed separation from service are shown in the following table (adopted as of June 30, 2016).

Age	Annual Rate of:						
	Withdrawal Less Than 5 Years of Service	Withdrawal: Between 5 and 10 Years of Service	Withdrawal: 10 or More Years of Service	Death[1]	Disability	Early Retirement[2]	Superannuation Retirement
MALES							
25	14.85%	5.70%	2.57%	0.041%	0.020%		
30	12.74	3.37	2.57	0.039	0.020		
35	13.39	3.21	1.50	0.044	0.058		
40	14.49	3.97	1.34	0.050	0.116		
45	14.42	4.53	1.37	0.084	0.160		19.16%
50	14.31	4.45	1.92	0.138	0.284		19.16
55	12.17	4.43	3.38	0.233	0.442	18.57%	26.59
60	12.43	5.58	5.57	0.379	0.582	14.42	30.87
65				0.700	0.087		21.39
69				1.067	0.135		19.34
FEMALES							
25	13.41%	7.47%	5.02%	0.013%	0.018%		
30	13.81	6.05	4.02	0.017	0.023		
35	14.22	5.53	2.85	0.024	0.055		
40	11.79	4.87	1.60	0.032	0.096		
45	11.54	4.51	1.65	0.051	0.135		15.00%
50	11.66	4.43	2.06	0.088	0.229		15.00
55	11.75	4.38	3.11	0.133	0.368	18.59%	10.02
60	12.25	5.97	6.40	0.196	0.360	17.05	35.77
65				0.327	0.082		22.23
69				0.443	0.115		22.79

1. These base mortality tables will then be projected on a generational basis using the Buck Modified 2015 projection scale from 2013 to the valuation date and thereafter.
2. Early Retirement – Age 55 with 25 years of service, but not eligible for Superannuation retirement.

DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS
(Continued)

Death after Retirement:
Male annuitants: RP-2014 male mortality table adjusted backward to 2006 with the MP-2014 improvement scale and projected to the valuation date with the Buck Modified 2015 projection scale.

Female annuitants: RP-2014 female mortality table adjusted backward to 2006 with the MP-2014 mortality improvement scale, projected to 2013 with the Buck Modified 2015 projection scale adjusted for credibility. This base mortality table will then be projected on a generational basis using the Buck Modified 2015 projection scale from 2013 to the valuation date.

Disabled annuitants: RP-2014 male and female disabled mortality tables adjusted backward to 2006 with the MP-2014 mortality improvement scale and projected from 2013 to the valuation date with the Buck Modified 2015 projection scale.

The above base mortality tables are projected on a fully generational basis using the Buck Modified 2015 projection scale from the valuation date.

For determination of actuarial equivalence, a unisex table based on the above base tables, with weightings of 25% of male and 75% of female mortality probabilities, is utilized. This table is then projected on a generational basis to 2020 using the Buck Modified 2015 projection scale.

Salary Increase: Effective average of 5.00% per annum, compounded annually (adopted as of June 30, 2016). The components are 2.75% for inflation, and 2.25% for real wage growth and merit or seniority increases. Representative values are as follows:

Age	Annual Rate of Salary Increase
20	10.25%
30	7.75
40	5.75
50	3.75
55	3.25
60	3.25
65	3.25
70	3.25

Payroll Growth: A 3.50% per annum payroll growth assumption is used to liquidate the unfunded accrued liability based on level-percent-of-pay amortization schedules required by the Retirement Code as amended by Act 120 of 2010 and Act 5 of 2017, i.e., a schedule of 24 years for the unfunded accrued liability as of June 30, 2010 and each change in the unfunded accrued liability due to actuarial experience after the June 30, 2010 valuation. Any legislation after June 30, 2010 that increases the liability due to benefit enhancements will be funded over 10 years based on level-percent-of-pay amortization.

MISCELLANEOUS

Annuity Optional Forms Assumption for Retiring Active Members:

- 50% will elect Maximum Straight Life Annuity (MSLA)
- 20% will elect OPTION 1 (Straight life annuity with guaranteed payments equal to present value of MSLA)
- 20% will elect OPTION 2 (100% Joint and Survivor with males 3 years older than females)
- 10% will elect OPTION 3 (50% Joint and Survivor with males 3 years older than females)
- 0% will elect OPTION 4 annuity

Option 4 Lump Sum Elections: 80% of Class T-C, Class T-D, Class T-E and Class T-F members are assumed to elect a refund of contributions and a reduced annuity.

Withdrawal Annuity: 90% of members are assumed to commence payment immediately and 10% are assumed to defer payment to superannuation age.

Health Insurance: Elections: 63% of eligible retirees are assumed to elect premium assistance.

Administrative Expenses: Assumed equal to $1,967,000 for fiscal year 2019/2020, $2,001,000 for fiscal year 2020/2021 and $2,101,000 for fiscal year 2021/2022.

Summary of Changes since the June 30, 2018 Valuation: Assumed administrative expenses for the Health Insurance Premium Assistance Plan changed from $2,065,000 for fiscal year 2020/2021 to $2,001,000, and the amount of $2,101,000 was added for the fiscal year 2021/2022.

METHODS

Calculations: The actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement system, and on actuarial assumptions that are internally consistent and reasonable based on the actual experience of the System.

Asset Valuation Method: A ten-year moving market average (five-year moving market average prior to June 30, 2010) value of assets that recognizes the 7.25% (7.50% prior to June 30, 2016, 8.25% prior to June 30, 2009, and 8.50% prior to June 30, 2008) actuarial expected investment return immediately and spreads the difference between the actual return on the market value of

DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS (Continued)

assets and the expected return on the actuarial value of assets over a period of ten years. The actuarial value of assets can be no less than 70% and no more than 130% of the market value of assets.

Actuarial Cost Method for Pension Funding: Entry Age Normal Cost Method (modified slightly as of June 30, 2005 to use a pay-weighted average normal contribution rate). The results of each June 30 valuation normally determine the employer contribution rate for the second succeeding fiscal year. Act 120 revised the funding method effective with the June 30, 2010 valuation. Act 120 mandated that the outstanding balance of the unfunded accrued liability as of June 30, 2010, including changes in the unfunded accrued liability due to the funding reforms of Act 120, be amortized over a 24-year period, as a level percent of pay, beginning July 1, 2011. Future valuation gains and losses, and changes in the unfunded accrued liability resulting from changes in actuarial assumptions and methods, are amortized over a 24-year period, as a level percent of pay. As provided by Act 5 of 2017, future increases in the unfunded accrued liability due to benefit enhancement legislation will be amortized over 10-year periods, as a level percent of pay. Act 120 also modified the employer pension contribution requirements by imposing collars on the rate for fiscal years ending June 30, 2012, June 30, 2013, and on or after June 30, 2014; the pension contribution rate was limited to 3%, 3.5% and 4.5%, respectively, of total compensation of all active members, greater than the prior year's final contribution rate. Beginning with the fiscal year ending June 30, 2017, the actuarially required contribution rate was less than the collared rate and the final contribution rate was the actuarially determined contribution rate. However, as provided by Act 120 of 2010, the final contribution rate cannot be less than the employer normal contribution rate.

Actuarial Cost Method for Health Insurance Funding: The actuarial liability equals the assets in the health insurance account, and the results of the June 30 valuation determine the contribution rate for the second succeeding fiscal year. The rate so determined is the rate necessary to establish reserves sufficient to cover administrative expenses and provide premium assistance payments for all participating eligible annuitants during the third fiscal year that follows the valuation date.

Actuarial Cost Method for GASB 74 Accounting for Health Insurance: The actuarial liability and service cost are determined under the entry age actuarial cost method.

Summary of Changes since the June 30, 2018 Valuation: None.

DATA

Census and Assets: The valuation was based on members of the Retirement System as of June 30, 2019 and does not take into account future members. All census data was supplied by the Retirement System and was subject to reasonable consistency checks. The actuaries adjust the data to account for service and pay earned by members on or before the valuation that is not reported by the Retirement System until after the actuarial valuation is performed. Asset data was supplied by the Retirement System.

For employer DC contributions, it is assumed among new employees hired on or after July 1, 2019 that 65% will become Class T-G members, 30% will become Class T-H members and 5% will become Class DC only participants. These are the same assumptions used in the development of the Cost Note (published May 23, 2017) for the passage of Act 5 of 2017. This assumption may be updated for the June 30, 2020 valuation of the System after the actual Class T-G, Class T-H and Class DC only elections are known for the period July 1, 2019 to June 30, 2020.

SCHEDULE OF ACTIVE MEMBERS VALUATION DATA

Valuation as of June 30	Number of Participating Employers	Number of Active Members	Annual Compensation (Thousands)	Average Compensation	% Increase in Average
2019	774	255,749	$ 13,671,927	$ 53,458	2.43%
2018	775	256,362	13,379,041	52,188	2.48
2017	775	255,945	13,033,919	50,924	1.87
2016	781	257,080	12,851,289	49,989	2.46
2015	784	259,868	12,678,213	48,787	1.79
2014	784	263,312	12,620,862	47,931	1.92
2013	782	267,428	12,577,105	47,030	1.17
2012	773	273,504	12,714,371	46,487	0.52
2011	747	279,152	12,910,043	46,247	1.99
2010	747	282,041	12,788,847	45,344	1.26

SCHEDULE OF RETIRED MEMBERS AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS

Valuation Date as of June 30	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance (Millions)	Number	Annual Allowance (Millions)	Number	Annual Allowance[1] (Millions)		
2019	10,553	$ 246.6	6,502	$ 107.0	237,339	$ 6,051.6	2.11%	$ 25,498
2018	11,806	235.3	8,532	98.6	233,288	5,926.7	1.90	25,405
2017	12,876	274.2	7,690	102.1	230,014	5,816.4	2.65	25,287
2016	12,686	267.1	7,633	93.5	224,828	5,666.4	2.64	25,203
2015	15,017	297.3	9,142	91.7	219,775	5,520.6	3.39	25,119
2014	15,225	300.5	8,878	84.9	213,900	5,339.5	3.74	24,962
2013	16,404	377.6	10,866	83.7	207,553	5,147.1	5.63	24,800
2012	14,579	332.7	7,186	66.6	202,015	4,872.9	4.78	24,122
2011	16,228	453.7	6,540	76.4	194,622	4,650.8	7.17	23,897
2010	12,649	372.8	5,678	77.6	184,934	4,339.6	8.59	23,466

1. Reflects changes in annuities for continuing payees due to finalization of benefit calculations and due to the commencement of supplemental annuity payments.

POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS SCHEDULE OF RETIRED MEMBERS ADDED TO AND REMOVED FROM ROLLS

Valuation Date as of June 30	Added to Rolls		Removed from Rolls		Rolls at End of Year		% Increase in Annual Premium Assistance	Average Annual Premium Assistance
	Number[2]	Annual Premium Assistance (Millions)	Number[2]	Annual Premium Assistance (Millions)	Number[2]	Annual Premium Assistance (Millions)		
2019	5,673	$ 4.3	3,999	$ 3.0	150,916	$ 114.1	1.15%	$ 1,200
2018	5,501	4.2	3,770	2.9	149,242	112.8	1.17	1,200
2017	5,821	4.4	3,806	2.9	147,511	111.5	1.36	1,200
2016	5,758	4.4	3,516	2.7	145,496	110.0	0.00	1,200
2015	6,516	5.0	3,635	2.8	143,254	110.0	0.46	1,200
2014	4,969	3.9	2,289	1.8	140,373	109.5	0.37	1,200
2013	6,759	5.4	2,364	1.9	137,693	109.1	3.31	1,200
2012	5,751	4.6	1,372	1.1	133,298	105.6	3.43	1,200
2011	8,185	6.5	2,074	1.6	128,919	102.1	4.93	1,200
2010	6,709	5.3	2,323	1.8	122,808	97.3	3.73	1,200

2. Number of retired members eligible to participate in the Health Insurance Premium Assistance; 63% of eligible retirees are assumed to elect premium assistance as of June 30, 2016 to June 30, 2019; 64% of eligible retirees are assumed to elect premium assistance as of June 30, 2015; 65% of eligible retirees are assumed to elect premium assistance as of June 30, 2014; 66% of eligible retirees are assumed to elect premium assistance for the periods June 30, 2007 to June 30, 2013.

SOLVENCY TEST FOR PENSIONS[1]
COMPARATIVE SUMMARY OF ACCRUED LIABILITY AND ACTUARIAL VALUE OF ASSETS
($ Amounts in Thousands)

Valuation as of June 30	Accrued Liabilities for (1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets (1)	(2)	(3)
2019	$ 16,839,956	$ 57,413,088	$ 30,946,461	$ 61,065,304	100%	77 %	0 %
2018	16,120,538	56,742,925	30,127,445	58,135,539	100	74	0
2017	15,500,215	56,184,146	30,164,456	57,336,856	100	74	0
2016	14,907,731	55,314,858	29,766,812	57,265,506	100	77	0
2015	14,079,658	52,739,489	27,757,563	57,240,946	100	82	0
2014	13,554,229	51,425,295	27,373,459	57,231,799	100	85	0
2013	13,089,342	49,979,444	26,883,030	57,353,262	100	89	0
2012	12,535,442	47,511,912	27,713,306	58,227,622	100	96	0
2011	12,242,308	45,648,780	27,749,295	59,141,131	100	100	5
2010	11,850,031	40,284,383	26,871,014	59,306,848	100	100	27

SCHEDULE OF FUNDING PROGRESS FOR PENSIONS[1]
($ Amounts in Thousands)

Valuation as of June 30	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	Unfunded Accrued Liability as a Percentage of Covered Payroll
2019	$ 61,065,304	$ 105,199,505	$ 44,134,201	58.0%	$ 13,671,927	322.8%
2018	58,135,539	102,990,908	44,855,369	56.4	13,379,041	335.3
2017	57,336,856	101,848,817	44,511,961	56.3	13,033,919	341.5
2016	57,265,506	99,989,401	42,723,895	57.3	12,851,289	332.4
2015	57,240,946	94,576,710	37,335,764	60.5	12,678,213	294.5
2014	57,231,799	92,352,983	35,121,184	62.0	12,620,862	278.3
2013	57,353,262	89,951,816	32,598,554	63.8	12,577,105	259.2
2012	58,227,622	87,760,660	29,533,038	66.3	12,714,371	232.3
2011	59,141,131	85,640,383	26,499,252	69.1	12,910,043	205.3
2010	59,306,848	79,005,428	19,698,580	75.1	12,788,847	154.0

1. The amounts reported include assets and liabilities for Pensions.

ANALYSIS OF PAST FINANCIAL EXPERIENCE
RECONCILIATION OF EMPLOYER CONTRIBUTION RATES

Fiscal Year Ending June 30	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Effective Prior Year Contribution Rate	34.29%	33.43%	32.57%	30.03%	25.84%	21.40%	16.93%	12.36%	8.65%	5.64%
Prior Year Adjustment for Legislation	N/A	N/A	N/A	N/A	2.82	5.47	7.82	10.15	10.27	2.58
Net Change Due to:										
Change in Normal Rate	(0.12)	(0.10)	(0.11)	(0.23)	(0.07)	(0.08)	(0.11)	(0.09)	(0.22)	0.04
Payroll Growth and Liability Experience	0.25	(0.12)	(0.17)	0.96	0.14	0.58	0.68	0.72	(0.21)	0.40
Investment Loss/(Gain)	0.02	0.98	1.22	1.08	0.83	0.66	0.81	0.78	0.59	1.94
Health Insurance Contribution Change	(0.02)	0.01	0.00	0.01	(0.01)	(0.06)	(0.03)	0.07	0.21	0.01
Assumption/Method Change	N/A	N/A	(0.08)	0.44	N/A	N/A	N/A	N/A	3.04	N/A
Act 120 Funding Reforms	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.31
Act 5 Benefit and Funding Reforms[2]	0.09	0.09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Amortization of Prior Legislation Deferrals	0.00	0.00	0.00	0.28	0.48	0.69	0.77	0.76	0.18	N/A
Legislation Deferrals:										
Act 120 Collar[1]	N/A	N/A	N/A	N/A	N/A	(2.82)	(5.47)	(7.82)	(10.15)	(10.27)
Actual Contribution Rate:	34.51%	34.29%	33.43%	32.57%	30.03%	25.84%	21.40%	16.93%	12.36%	8.65%

1. The Final Employer Pension rate is limited by the Act 2010-120 pension rate collar. For the fiscal years ending June 30, 2012, June 30, 2013, and on or after June 30, 2014 the pension contribution rate can be no more than 3%, 3.5% and 4.5%, respectively, of total compensation of all active members, greater than the prior year's final contribution rate. Beginning with the fiscal year 2017, the actuarially required contribution rate is less than the collared rate and the final contribution rate is the actuarially determined contribution rate, provided that the final contribution rate is not less than the employer normal contribution rate.

2. Act 5 Defined Contribution rate. The above rate is an average DC contribution rate. Actual rate will vary by employer.

Statistical Section

Nockamixon State Park
Quakertown, PA

Photo Courtesy of Pennsylvania Department of Conservation and Natural Resources

Statistical Section Narrative

To assist readers in the assessment of the System's economic condition, the Statistical Section of this Comprehensive Annual Financial Report presents information to add historical perspective, context, and detail to the financial statements, notes to financial statements, and required supplementary information presented in the preceding sections. To provide historical perspective and a sense of trend, the exhibits in this section are presented in multiple-year formats. The information is categorized into three topical groups: *Financial Trends, Demographic and Economic Information, and Operating Information.*

Financial Trends

The Financial Trend Schedules and Graphs provide detailed information to present how PSERS' financial position has changed over time.

The following Financial Trend Schedules are presented:
- Schedule of Trend Data
- Total Changes in Fiduciary Net Position - Pension
- Total Changes in Fiduciary Net Position - Postemployment Healthcare Plans

The following Financial Trend Graphs are presented:
- Additions to Fiduciary Net Position - Pension
- Additions to Fiduciary Net Position - Postemployment Healthcare Plans
- Deductions from Fiduciary Net Position - Pension
- Deductions from Fiduciary Net Position - Postemployment Healthcare Plans

Demographic and Economic Information

Some of the following schedules listed are dependent upon an actuarial valuation. For those schedules, the most recent information is presented as of the year ended June 30, 2019, the date of PSERS' most current actuarial valuation completed at the time of publication.

- Summary Membership Data
- Summary Annuity Data
- Pension Benefit and Refund Deductions from Fiduciary Net Position
- Average Monthly Pension Benefit Payments
- Average Monthly Pension Benefit Payments and Average Final Average Salary
- Average Monthly Premium Assistance Benefit Payments and Average Final Average Salary

Operating Information

- Ten Largest Employers
- Schedule of Employers

Schedule of Trend Data
10 Year
(Dollar Amounts in Thousands)*

For years ended June 30	2020	2019	2018	2017	2016
Contribution Rates:					
Total Pension	33.36%	32.60%	31.74%	29.20%	25.00%
Health Care Insurance Premium Assistance	0.84%	0.83%	0.83%	0.83%	0.84%
Defined Contribution	0.09%	N/A	N/A	N/A	N/A
Total Employer	34.29%	33.43%	32.57%	30.03%	25.84%
Average Member	7.59%	7.57%	7.54%	7.52%	7.49%
Total Employer Contributions ***	$ 4,794,320	$ 4,602,349	$ 4,361,597	$ 3,943,758	$ 3,302,817
Market Value of Assets ***	$ 58,687,000	$ 58,859,000	$ 56,486,000	$ 53,279,000	$ 49,957,000
Actuarial Value of Assets	**	$ 61,190,000	$ 58,258,000	$ 57,461,000	$ 57,390,000
Accrued Actuarial Liability	**	$ 105,325,000	$ 103,114,000	$ 101,973,000	$ 100,114,000
Actuarial Funded Ratio	**	58.1%	56.5%	56.3%	57.3%
Total Benefits & Refunds	$ 7,365,198	$ 7,237,244	$ 7,143,341	$ 6,923,904	$ 6,779,577
Average Pension *	$ 25,843	$ 25,498	$ 25,405	$ 25,287	$ 25,203
Annuitants & Beneficiaries	240,758	237,339	233,288	230,014	224,828
Average Annual Member Compensation *	$ 54,535	$ 53,458	$ 52,188	$ 50,925	$ 49,989
Active Members	256,246	255,749	256,362	255,945	257,080
Retirements	8,290	8,746	9,840	9,479	10,135

For years ended June 30	2015	2014	2013	2012	2011
Contribution Rates:					
Total Pension	20.50%	16.00%	11.50%	8.00%	5.00%
Health Care Insurance Premium Assistance	0.90%	0.93%	0.86%	0.65%	0.64%
Total Employer	21.40%	16.93%	12.36%	8.65%	5.64%
Average Member	7.46%	7.43%	7.40%	7.37%	7.34%
Total Employer Contributions ***	$ 2,713,539	$ 2,109,952	$ 1,555,078	$ 1,085,927	$ 747,753
Market Value of Assets ***	$ 51,706,000	$ 53,092,000	$ 49,116,000	$ 48,628,000	$ 51,311,000
Actuarial Value of Assets	$ 57,362,000	$ 57,344,000	$ 57,454,000	$ 58,321,000	$ 59,252,000
Accrued Actuarial Liability	$ 95,945,000	$ 92,465,000	$ 90,052,000	$ 87,854,000	$ 85,752,000
Actuarial Funded Ratio	60.6%	62.0%	63.8%	66.4%	69.1%
Total Benefits & Refunds	$ 6,614,154	$ 6,417,455	$ 6,373,363	$ 5,992,979	$ 5,617,247
Average Pension *	$ 25,119	$ 24,962	$ 24,799	$ 24,122	$ 23,897
Annuitants & Beneficiaries	219,775	213,900	207,553	202,015	194,622
Average Annual Member Compensation *	$ 48,787	$ 47,931	$ 47,030	$ 46,487	$ 46,247
Active Members	259,868	263,312	267,428	273,504	279,152
Retirements	10,813	9,888	12,468	12,228	11,546

* All dollar amounts are in thousands, except Average Annual Member Compensation and Average Pension.

** Data for these categories relate to the actuarial valuation for fiscal year ended June 30, 2020. Results for this valuation were not available at publication date.

*** Excludes Health Options Program and Defined Contribution Plan.

Total Changes in Fiduciary Net Position - Pension
10 Year Trend
(Dollar Amounts in Thousands)

Additions to Fiduciary Net Position

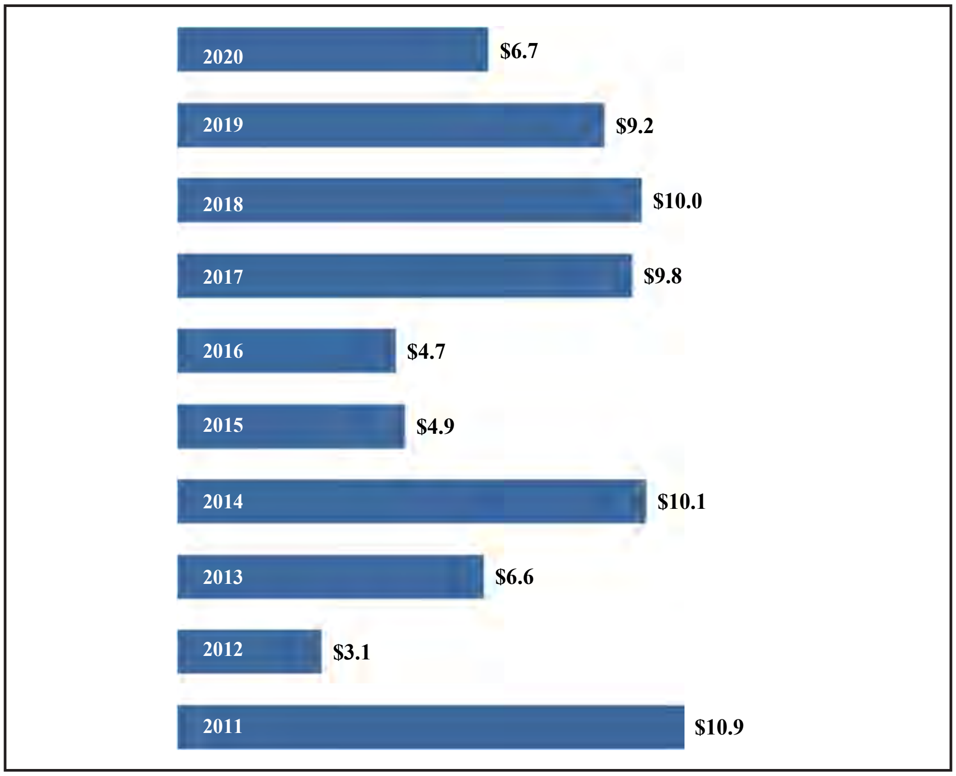
Year Ended June 30	Member Contributions	Employer Contributions	Net Investment Income	Total Additions
2020	$ 1,067,957	$ 4,676,413	$ 1,001,846	$ 6,746,216
2019	1,064,043	4,487,520	3,628,710	9,180,273
2018	1,026,375	4,249,611	4,714,158	9,990,144
2017	1,013,847	3,832,773	4,995,362	9,841,982
2016	989,266	3,189,510	473,206	4,651,982
2015	984,634	2,596,731	1,328,516	4,909,881
2014	966,926	1,992,084	7,097,761	10,056,771
2013	991,087	1,446,402	4,126,002	6,563,491
2012	952,887	1,004,584	1,093,319	3,050,790
2011	1,042,707	658,511	9,246,091	10,947,309

Deductions from Fiduciary Net Position

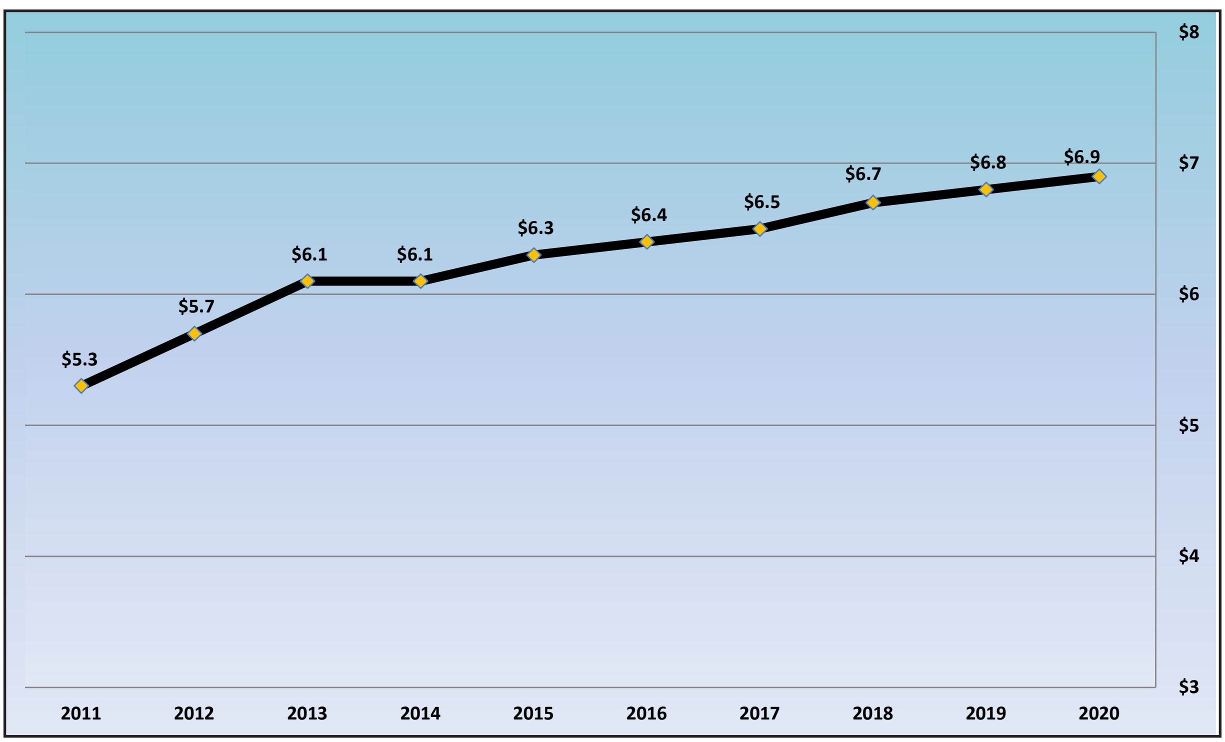
	Benefit Payments						
Year Ended June 30	Annuities	Lump-Sums**	Refunds of Contributions	Administrative	Net Transfers*	Total Deductions	Net Increase / (Decrease)
2020	$ 6,051,233	$ 794,675	$ 27,463	$ 46,799	$ 3,144	$ 6,923,314	$ (177,098)
2019	5,925,048	808,016	27,027	48,931	1,081	6,810,103	2,370,170
2018	5,813,139	814,384	19,881	46,544	7,742	6,701,690	3,288,454
2017	5,673,309	780,015	20,928	45,127	(673)	6,518,706	3,323,276
2016	5,522,662	815,131	20,069	45,118	2,463	6,405,443	(1,753,461)
2015	5,356,085	840,167	20,920	42,331	3,429	6,262,932	(1,353,051)
2014	5,166,777	862,018	22,823	38,712	1,887	6,092,217	3,964,554
2013	4,905,200	1,111,692	24,461	37,480	2,893	6,081,726	481,765
2012	4,691,250	964,056	24,675	34,242	2,765	5,716,988	(2,666,198)
2011	4,322,520	958,703	17,695	37,028	9,844	5,345,790	5,601,519

* Net transfers to the Commonwealth of Pennsylvania State Employees' Retirement System.
** Lump-Sums includes both pension and death lump sums.

Additions to Fiduciary Net Position - Pension
10 Year Trend
(Dollar Amounts in Billions)



Deductions from Fiduciary Net Position - Pension
10 Year Trend
(Dollar Amounts in Billions)



Total Changes in Fiduciary Net Position - Postemployment Healthcare Plans
10 Year Trend
(Dollar Amounts in Thousands)

Premium Assistance

Year Ended June 30	Additions to Fiduciary Net Position: Employer Contributions	Net Investment Income	Total Additions
2020	$ 117,907	$ 1,752	$ 119,659
2019	114,829	2,313	117,142
2018	111,986	1,455	113,441
2017	110,985	663	111,648
2016	113,307	542	113,849
2015	116,808	215	117,023
2014	117,868	70	117,938
2013	108,676	110	108,786
2012	81,343	423	81,766
2011	89,242	691	89,933

Year Ended June 30	Deductions from Fiduciary Net Position: Benefits	Administrative	Total Deductions	Net Increase / (Decrease)
2020	$ 113,279	$ 1,148	$ 114,427	$ 5,232
2019	112,777	1,914	114,691	2,451
2018	111,847	2,603	114,450	(1,009)
2017	110,229	2,239	112,468	(820)
2016	108,273	1,656	109,929	3,920
2015	106,298	2,142	108,440	8,583
2014	104,197	2,030	106,227	11,711
2013	100,078	2,112	102,190	6,596
2012	97,206	2,065	99,271	(17,505)
2011	93,518	1,988	95,506	(5,573)

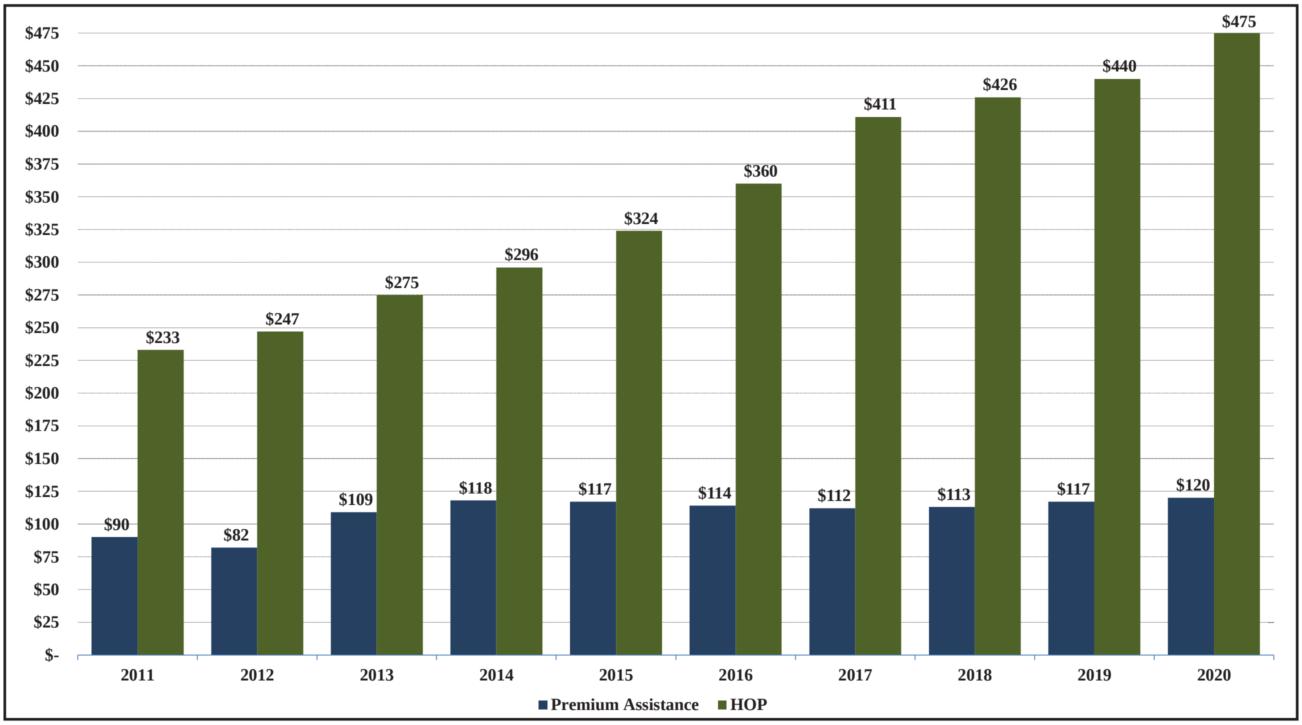
Total Changes in Fiduciary Net Position - Postemployment Healthcare Plans
10 Year Trend (continued)
(Dollar Amounts in Thousands)

Health Options Program

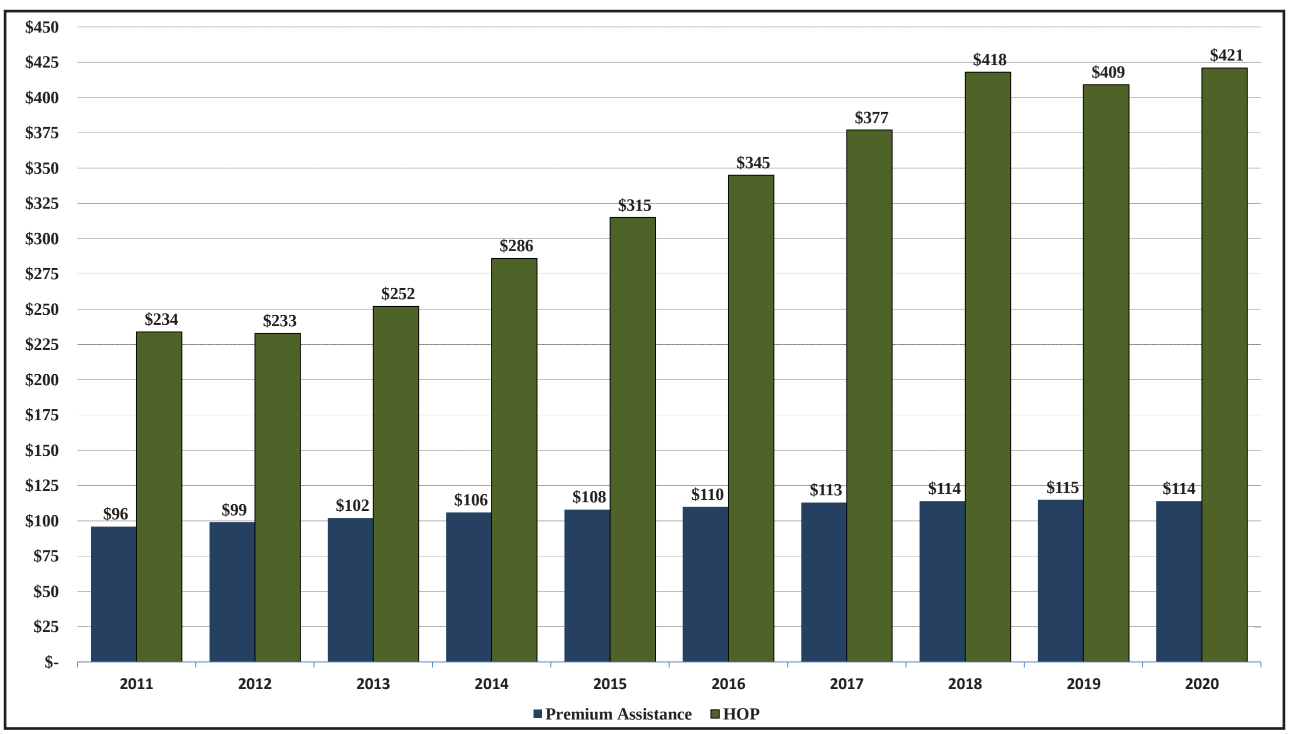
Year Ended June 30	Participant Premiums	CMS Contributions	Net Investment Income	Total Additions
	Additions to Fiduciary Net Position			
2020	$ 390,883	$ 81,248	$ 2,464	$ 474,595
2019	376,449	60,379	3,654	440,482
2018	359,896	63,998	1,960	425,854
2017	336,646	73,771	678	411,095
2016	308,132	51,034	299	359,465
2015	281,855	42,436	152	324,443
2014	257,740	37,759	191	295,690
2013	234,516	40,698	226	275,440
2012	213,642	33,462	237	247,341
2011	201,014	32,080	310	233,404

Year Ended June 30	Benefits	Administrative	Total Deductions	Net Increase / (Decrease)
	Deductions from Fiduciary Net Position			
2020	$ 375,392	$ 45,173	$ 420,565	$ 54,030
2019	363,295	45,515	408,810	31,672
2018	376,348	41,853	418,201	7,653
2017	340,096	37,071	377,167	33,928
2016	310,979	33,457	344,436	15,029
2015	287,255	28,027	315,282	9,161
2014	259,753	25,975	285,728	9,962
2013	229,039	22,644	251,683	23,757
2012	213,027	20,213	233,240	14,101
2011	214,967	18,729	233,696	(292)

Additions to Fiduciary Net Position - Postemployment Healthcare Plans
10 Year Trend
(Dollar Amounts in Millions)



Deductions from Fiduciary Net Position - Postemployment Healthcare Plans
10 Year Trend
(Dollar Amounts in Millions)



Total Changes in Fiduciary Net Position -Defined Contribution (DC) Plan
10 Year Trend
(Dollar Amounts in Thousands)

	Additions to Fiduciary Net Position			
Year Ended June 30	Member Contributions	Employer Contributions	Net Investment Income	Total Additions
2020	$ 8,343	$ 6,586	$ 655	$ 15,584

	Deductions from Fiduciary Net Position			
Year Ended June 30	Benefits	Administrative	Total Deductions	Net Increase / (Decrease)
2020	$ 12	$ 3,167	$ 3,179	$ 12,405

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

Summary Membership Data
10 Year Trend

For year ended June 30	Male			Female			Total Number of Active Members
	Average Age	Average Service	Average Annual Salaries	Average Age	Average Service	Average Annual Salaries	
2020	45.6	12.1	$ 59,699	45.5	11.7	$ 52,599	256,246
2019	45.3	12.0	58,960	45.5	11.6	51,395	255,749
2018	45.2	11.8	57,722	45.4	11.4	50,115	256,362
2017	45.0	11.7	56,369	45.3	11.3	48,879	255,945
2016	44.8	11.6	55,518	45.2	11.1	47,912	257,080
2015	44.6	11.5	54,269	45.0	11.0	46,720	259,868
2014	44.5	11.2	53,248	45.0	10.9	45,918	263,312
2013	44.4	11.1	52,413	44.9	10.7	45,005	267,428
2012	44.3	10.9	51,751	44.9	10.6	44,513	273,504
2011	44.1	10.8	51,678	44.6	10.3	44,209	279,152

Summary Annuity Data
10 Year Trend

For year ended June 30	Number of Annuitants & Beneficiaries	Total Annual Annuities (In Thousands)	Average Annual Annuity
2020	240,758	$ 6,222,002	$ 25,843
2019	237,339	6,051,632	25,498
2018	233,288	5,926,658	25,405
2017	230,014	5,816,388	25,287
2016	224,828	5,666,392	25,203
2015	219,775	5,520,620	25,119
2014	213,900	5,339,477	24,962
2013	209,204	5,147,060	24,603
2012	202,015	4,872,918	24,122
2011	194,622	4,650,798	23,897

Pension Benefits and Refund Deductions from Fiduciary Net Position
10 Year Trend
(Dollar Amounts in Thousands)

For year ended June 30	Retirements: Normal	Retirements: Early	Retirements: Disability	Retirements: Pension Lump Sum Benefits	Retirements: Survivor and Beneficiary**
2020	$ 3,621,470	$ 2,171,691	$ 182,731	$ 702,122	$ 167,894
2019	3,485,370	2,111,663	181,178	700,911	253,942
2018	3,357,416	2,114,708	191,527	734,989	228,883
2017	3,292,906	2,040,966	186,674	678,736	254,042
2016	3,203,542	2,007,372	182,320	686,988	257,571
2015	3,088,036	1,986,684	177,693	709,240	234,599
2014	2,953,187	1,928,614	167,676	741,386	237,932
2013	2,811,906	1,845,269	161,995	933,049	264,673
2012	2,629,151	1,758,581	149,000	887,244	231,330
2011	2,420,883	1,664,903	141,273	847,482	206,682

For year ended June 30	Net Transfers*	Total Pension Benefits Deductions	Refunds	Total Pension Benefits and Refund Deductions
2020	$ 3,144	$ 6,849,052	$ 27,463	$ 6,876,515
2019	1,081	6,734,145	27,027	6,761,172
2018	7,742	6,635,265	19,881	6,655,146
2017	(673)	6,452,651	20,928	6,473,579
2016	2,463	6,340,256	20,069	6,360,325
2015	3,429	6,199,681	20,920	6,220,601
2014	1,887	6,030,682	22,823	6,053,505
2013	2,893	6,019,785	24,461	6,044,246
2012	2,765	5,658,071	24,675	5,682,746
2011	9,844	5,291,067	17,695	5,308,762

* Net transfers to the Commonwealth of Pennsylvania State Employees' Retirement System.
** Survivor and Beneficiary includes both death lump sums and survivor annuities.

Average Monthly Pension Benefit Payments
Total Annuitants Grouped by Years of Credited Service
10 Year Trend

	Years of Credited Service									
	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
Fiscal year ended June 30, 2020										
Normal and Early	4,498	19,335	26,748	22,391	22,666	26,725	48,227	36,688	9,153	**216,431**
	$ 86	$ 206	$ 393	$ 835	$ 1,444	$ 2,229	$ 3,240	$ 4,209	$ 4,591	**$ 1,915**
Disability	17	1,937	2,159	1,830	1,776	1,425	390	17	1	**9,552**
	$ 2,197	$ 746	$ 972	$ 1,593	$ 2,311	$ 3,062	$ 3,960	$ 3,559	$ 4,550	**$ 2,550**
Beneficiary and Survivor	783	571	1,180	1,102	1,148	1,191	2,031	1,972	717	**10,695**
	$ 927	$ 203	$ 322	$ 562	$ 856	$ 1,219	$ 1,717	$ 2,101	$ 2,206	**$ 1,124**
Fiscal year ended June 30, 2019										
Normal and Early	4,504	18,870	26,468	22,032	22,088	26,182	47,919	36,550	8,757	**213,370**
	$ 85	$ 216	$ 385	$ 817	$ 1,413	$ 2,200	$ 3,226	$ 4,194	$ 4,604	**$ 1,905**
Disability	17	1,885	2,095	1,741	1,716	1,398	361	17	1	**9,231**
	$ 2,197	$ 750	$ 965	$ 1,628	$ 2,265	$ 3,017	$ 3,475	$ 3,559	$ 4,550	**$ 2,490**
Beneficiary and Survivor	786	545	1,143	1,084	1,123	1,150	1,963	1,901	700	**10,395**
	$ 933	$ 198	$ 315	$ 551	$ 836	$ 1,199	$ 1,680	$ 2,019	$ 2,128	**$ 1,095**
Fiscal year ended June 30, 2018										
Normal and Early	4,491	18,293	26,168	21,619	21,551	25,664	47,527	36,395	8,352	**210,060**
	$ 83	$ 218	$ 380	$ 807	$ 1,388	$ 2,176	$ 3,210	$ 4,180	$ 4,572	**$ 1,890**
Disability	19	1,884	2,088	1,708	1,694	1,417	353	21	1	**9,185**
	$ 2,322	$ 784	$ 956	$ 1,631	$ 2,189	$ 3,032	$ 3,260	$ 3,562	$ 4,550	**$ 2,476**
Beneficiary and Survivor	826	519	1,113	1,055	1,096	1,088	1,885	1,825	682	**10,089**
	$ 945	$ 196	$ 308	$ 528	$ 806	$ 1,178	$ 1,636	$ 1,953	$ 2,047	**$ 1,066**
Fiscal year ended June 30, 2017										
Normal and Early	4,417	17,616	25,734	21,177	20,989	24,996	47,090	36,155	8,019	**206,193**
	$ 81	$ 222	$ 382	$ 793	$ 1,357	$ 2,145	$ 3,193	$ 4,161	$ 4,539	**$ 1,875**
Disability	18	1,831	2,001	1,634	1,639	1,381	346	6	1	**8,857**
	$ 2,449	$ 778	$ 948	$ 1,638	$ 2,208	$ 3,024	$ 3,240	$ 3,951	$ 4,550	**$ 2,532**
Beneficiary and Survivor	864	507	1,104	1,025	1,074	1,085	1,800	1,756	669	**9,884**
	$ 953	$ 195	$ 301	$ 505	$ 781	$ 114	$ 1,586	$ 1,880	$ 1,960	**$ 919**
Fiscal year ended June 30, 2016										
Normal and Early	4,437	19,030	25,603	21,411	21,273	25,037	46,029	36,489	5,534	**204,843**
	$ 93	$ 189	$ 373	$ 798	$ 1,383	$ 2,200	$ 3,247	$ 4,250	$ 4,616	**$ 2,173**
Disability	-	1,829	2,149	1,714	1,567	1,337	554	17	9	**9,176**
	$ -	$ 777	$ 1,001	$ 1,342	$ 1,985	$ 2,807	$ 3,588	$ 3,078	$ 2,353	**$ 1,613**
Beneficiary and Survivor	-	6,100	580	574	593	609	1,008	943	402	**10,809**
	$ -	$ 1,256	$ 278	$ 421	$ 613	$ 902	$ 1,233	$ 1,452	$ 1,508	**$ 1,129**

Average Monthly Pension Benefit Payments
Total Annuitants Grouped by Years of Credited Service
10 Year Trend (Continued)

	Years of Credited Service									
	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total
Fiscal year ended June 30, 2015										
Normal and Early	4,360	17,744	24,820	20,719	20,682	24,379	45,677	36,248	5,532	**200,161**
	$ 94	$ 186	$ 359	$ 772	$ 1,344	$ 2,153	$ 3,218	$ 4,222	$ 4,564	**$ 2,169**
Disability	-	1,841	2,134	1,686	1,534	1,332	550	19	9	**9,105**
	$ -	$ 762	$ 980	$ 1,306	$ 1,937	$ 2,773	$ 3,602	$ 3,235	$ 2,353	**$ 1,584**
Beneficiary and Survivor	-	5,481	619	621	628	648	1,067	1,018	427	**10,509**
	$ -	$ 1,219	$ 271	$ 399	$ 611	$ 883	$ 1,221	$ 1,420	$ 1,497	**$ 1,089**
Fiscal year ended June 30, 2014										
Normal and Early	4,232	16,238	24,007	20,109	20,068	23,694	45,272	35,798	5,468	**194,886**
	$ 94	$ 183	$ 346	$ 743	$ 1,292	$ 2,097	$ 3,186	$ 3,186	$ 4,181	**$ 2,157**
Disability	-	1,812	2,038	1,624	1,495	1,316	557	20	8	**8,870**
	$ -	$ 752	$ 954	$ 1,266	$ 1,888	$ 2,712	$ 3,598	$ 3,216	$ 2,240	**$ 1,560**
Beneficiary and Survivor	-	4,733	672	674	678	697	1,124	1,100	466	**10,144**
	$ -	$ 1,192	$ 256	$ 397	$ 606	$ 875	$ 1,213	$ 1,392	$ 1,455	**$ 1,052**
Fiscal year ended June 30, 2013										
Normal and Early	4,051	14,757	23,095	19,499	19,506	22,897	44,704	35,277	5,384	**189,170**
	$ 93	$ 179	$ 331	$ 708	$ 1,243	$ 2,041	$ 3,151	$ 4,142	$ 4,354	**$ 2,146**
Disability	-	1,749	1,950	1,554	1,455	1,283	547	17	10	**8,565**
	$ -	$ 729	$ 925	$ 1,249	$ 1,843	$ 2,654	$ 3,546	$ 3,163	$ 2,311	**$ 1,532**
Beneficiary and Survivor	-	5,659	724	729	728	745	1,191	1,190	503	**11,469**
	$ -	$ 814	$ 254	$ 387	$ 620	$ 854	$ 1,195	$ 1,368	$ 1,442	**$ 866**
Fiscal year ended June 30, 2012										
Normal and Early	3,881	13,459	22,313	18,971	18,919	21,855	43,662	34,024	5,170	**182,254**
	$ 111	$ 176	$ 317	$ 680	$ 1,202	$ 1,972	$ 3,105	$ 4,078	$ 4,196	**$ 2,110**
Disability	-	1,698	1,882	1,517	1,397	1,257	531	15	9	**8,306**
	$ -	$ 694	$ 875	$ 1,166	$ 1,748	$ 2,583	$ 3,465	$ 2,917	$ 2,147	**$ 1,467**
Beneficiary and Survivor	-	5,234	772	784	780	797	1,261	1,281	546	**11,455**
	$ -	$ 702	$ 245	$ 390	$ 603	$ 850	$ 1,175	$ 1,341	$ 1,412	**$ 811**
Fiscal year ended June 30, 2011										
Normal and Early	3,695	12,263	21,497	18,343	18,199	21,042	42,507	33,045	5,045	**175,636**
	$ 114	$ 174	$ 305	$ 656	$ 1,158	$ 1,921	$ 3,064	$ 4,041	$ 4,133	**$ 2,091**
Disability	-	1,629	1,798	1,473	1,366	1,216	523	15	9	**8,029**
	$ -	$ 680	$ 839	$ 1,136	$ 1,686	$ 2,548	$ 3,476	$ 2,878	$ 2,147	**$ 1,441**
Beneficiary and Survivor	-	4,389	817	819	804	842	1,322	1,362	602	**10,957**
	$ -	$ 652	$ 239	$ 372	$ 583	$ 842	$ 1,170	$ 1,322	$ 1,383	**$ 796**

Average Monthly Pension
Benefit Payments and Average Final Average Salary
New Annuitants Grouped by Years of Credited Service
10 Year Trend

	Years of Credited Service								
	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+
Fiscal year ended June 30, 2020									
Number of retired members	172	850	821	711	641	471	405	181	70
Final Average Salary	$ 21,714	$ 30,682	$ 37,547	$ 46,199	$ 54,113	$ 64,876	$ 71,857	$ 76,131	$ 79,480
Monthly Benefit	$ 124	$ 291	$ 620	$ 1,202	$ 1,858	$ 2,721	$ 3,613	$ 4,438	$ 5,331
Fiscal year ended June 30, 2019									
Number of retired members	212	1,322	1,329	1,439	1,321	1,201	1,212	517	169
Final Average Salary	$ 19,164	$ 29,025	$ 36,844	$ 47,538	$ 57,936	$ 67,160	$ 79,421	$ 82,570	$ 82,190
Monthly Benefit	$ 104	$ 272	$ 648	$ 1,258	$ 2,017	$ 2,822	$ 3,967	$ 4,910	$ 5,510
Fiscal year ended June 30, 2018									
Number of retired members	263	1,482	1,494	1,582	1,412	1,405	1,336	665	208
Final Average Salary	$ 20,236	$ 31,055	$ 37,759	$ 46,933	$ 58,435	$ 67,357	$ 77,429	$ 82,396	$ 81,987
Monthly Benefit	$ 104	$ 275	$ 680	$ 1,230	$ 2,034	$ 2,849	$ 3,906	$ 4,944	$ 5,575
Fiscal year ended June 30, 2017									
Number of retired members	265	1,614	1,482	1,446	1,220	1,307	1,155	709	160
Final Average Salary	$ 18,974	$ 30,501	$ 37,885	$ 45,909	$ 56,379	$ 66,588	$ 77,070	$ 79,036	$ 84,568
Monthly Benefit	$ 111	$ 279	$ 651	$ 1,217	$ 2,000	$ 2,839	$ 3,929	$ 4,736	$ 5,806
Fiscal year ended June 30, 2016									
Number of retired members	373	1,865	1,576	1,443	1,334	1,352	1,160	775	181
Final Average Salary	$ 18,335	$ 31,100	$ 37,355	$ 48,242	$ 56,310	$ 68,557	$ 75,449	$ 79,529	$ 78,836
Monthly Benefit	$ 129	$ 269	$ 634	$ 1,302	$ 1,964	$ 2,958	$ 3,890	$ 4,845	$ 5,464
Fiscal year ended June 30, 2015									
Number of retired members	393	2,099	1,649	1,469	1,381	1,412	1,286	961	234
Final Average Salary	$ 17,942	$ 30,693	$ 37,628	$ 47,743	$ 57,560	$ 67,961	$ 76,491	$ 80,236	$ 79,194
Monthly Benefit	$ 113	$ 264	$ 637	$ 1,274	$ 2,031	$ 2,929	$ 3,995	$ 4,884	$ 5,402
Fiscal year ended June 30, 2014									
Number of retired members	426	1,957	1,442	1,195	1,098	1,191	1,209	894	187
Final Average Salary	$ 18,745	$ 31,795	$ 35,935	$ 45,981	$ 56,674	$ 64,895	$ 74,770	$ 78,322	$ 82,919
Monthly Benefit	$ 126	$ 267	$ 605	$ 1,242	$ 2,043	$ 2,795	$ 3,973	$ 4,811	$ 5,835
Fiscal year ended June 30, 2013									
Number of retired members	404	1,967	1,662	1,386	1,471	1,680	2,013	1,517	298
Final Average Salary	$ 22,052	$ 30,966	$ 36,735	$ 46,773	$ 55,331	$ 67,805	$ 77,241	$ 83,353	$ 85,981
Monthly Benefit	$ 156	$ 280	$ 658	$ 1,265	$ 1,988	$ 2,956	$ 4,161	$ 5,200	$ 6,066
Fiscal year ended June 30, 2012									
Number of retired members	384	1,716	1,395	1,226	1,373	1,440	1,998	1,704	319
Final Average Salary	$ 19,074	$ 30,273	$ 35,706	$ 44,534	$ 54,305	$ 64,007	$ 74,534	$ 80,285	$ 80,899
Monthly Benefit	$ 126	$ 286	$ 635	$ 1,216	$ 1,977	$ 2,815	$ 4,097	$ 5,033	$ 5,630
Fiscal year ended June 30, 2011									
Number of retired members	380	1,591	1,323	1,131	1,247	1,418	2,309	2,023	281
Final Average Salary	$ 17,212	$ 30,174	$ 34,363	$ 44,577	$ 52,788	$ 64,398	$ 73,905	$ 79,420	$ 79,799
Monthly Benefit	$ 98	$ 315	$ 645	$ 1,238	$ 1,908	$ 2,893	$ 4,031	$ 4,981	$ 5,491

Average Monthly Premium Assistance
Benefit Payments and Average Final Average Salary
New Annuitants Grouped by Years of Credited Service
10 Year Trend

	Years of Credited Service								
	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+
Fiscal year ended June 30, 2020									
Number of retired members		2	5	124	161	172	167	82	30
Final Average Salary		$ 34,396	$ 45,093	$ 48,660	$ 55,672	$ 67,434	$ 72,738	$ 79,472	$ 82,504
Monthly Benefit		$ 100	$ 100	$ 100	$ 99	$ 96	$ 99	$ 99	$ 100
Fiscal year ended June 30, 2019									
Number of retired members		3	7	323	457	578	618	283	100
Final Average Salary		$ 41,862	$ 59,557	$ 53,896	$ 63,581	$ 70,831	$ 80,662	$ 81,735	$ 80,136
Monthly Benefit		$ 100	$ 100	$ 100	$ 99	$ 99	$ 99	$ 99	$ 100
Fiscal year ended June 30, 2018									
Number of retired members		4	11	407	488	686	719	397	129
Final Average Salary		$ 50,976	$ 51,460	$ 54,563	$ 62,642	$ 69,894	$ 78,859	$ 82,780	$ 84,484
Monthly Benefit		$ 100	$ 100	$ 100	$ 99	$ 99	$ 99	$ 99	$ 99
Fiscal year ended June 30, 2017									
Number of retired members		8	11	407	478	691	697	428	111
Final Average Salary		$ 42,397	$ 44,435	$ 52,914	$ 62,343	$ 70,886	$ 77,638	$ 80,600	$ 88,119
Monthly Benefit		$ 98	$ 100	$ 99	$ 99	$ 99	$ 98	$ 98	$ 99
Fiscal year ended June 30, 2016									
Number of retired members		11	18	364	490	751	679	477	119
Final Average Salary		$ 49,259	$ 54,492	$ 55,542	$ 61,110	$ 71,925	$ 76,944	$ 82,180	$ 80,265
Monthly Benefit		$ 100	$ 98	$ 99	$ 99	$ 99	$ 99	$ 99	$ 99
Fiscal year ended June 30, 2015									
Number of retired members		9	23	375	505	779	729	632	154
Final Average Salary		$ 43,082	$ 49,673	$ 55,760	$ 61,127	$ 71,418	$ 79,086	$ 80,931	$ 78,375
Monthly Benefit		$ 98	$ 100	$ 100	$ 98	$ 99	$ 99	$ 98	$ 99
Fiscal year ended June 30, 2014									
Number of retired members		20	24	279	402	628	723	549	127
Final Average Salary		$ 44,134	$ 45,734	$ 50,908	$ 61,032	$ 67,662	$ 74,376	$ 80,928	$ 85,627
Monthly Benefit		$ 99	$ 100	$ 99	$ 99	$ 98	$ 99	$ 98	$ 100
Fiscal year ended June 30, 2013									
Number of retired members		10	29	345	521	945	1,169	937	191
Final Average Salary		$ 38,956	$ 61,571	$ 51,758	$ 57,669	$ 69,854	$ 76,812	$ 83,780	$ 84,225
Monthly Benefit		$ 99	$ 100	$ 99	$ 100	$ 98	$ 98	$ 98	$ 100
Fiscal year ended June 30, 2012									
Number of retired members		8	18	259	342	594	819	666	128
Final Average Salary		$ 33,448	$ 38,655	$ 45,382	$ 54,454	$ 64,728	$ 74,849	$ 79,041	$ 77,220
Monthly Benefit		$ 100	$ 69	$ 100	$ 100	$ 99	$ 98	$ 97	$ 99
Fiscal year ended June 30, 2011									
Number of retired members		24	39	325	475	853	1,543	1,402	207
Final Average Salary		$ 41,609	$ 51,763	$ 48,062	$ 54,261	$ 67,086	$ 74,658	$ 79,436	$ 77,751
Monthly Benefit		$ 100	$ 100	$ 98	$ 99	$ 97	$ 96	$ 97	$ 98

Ten Largest Employers
Current Year
(Based on number of reported members)

As of June 30, 2020

	Employer	Number of Reported Members	Percentage of Total
1.	Philadelphia City School District	18,649	7.28%
2.	Pittsburgh School District	4,076	1.59%
3.	Central Bucks School District	2,779	1.08%
4.	Allentown City School District	2,157	0.84%
5.	North Penn School District	2,137	0.83%
6.	Reading School District	1,900	0.74%
7.	Bethlehem Area School District	1,889	0.74%
8.	Downingtown Area School District	1,695	0.66%
9.	Lower Merion School District	1,672	0.65%
10.	Lancaster School District	1,573	0.61%

As of June 30, 2011

	Employer	Number of Reported Members	Percentage of Total
1.	Philadelphia City School District	21,256	7.63%
2.	Pittsburgh School District	4,375	1.57%
3.	Central Bucks School District	2,725	0.98%
4.	Allentown City School District	2,646	0.95%
5.	North Penn School District	2,149	0.77%
6.	Reading School District	2,130	0.76%
7.	Erie City School District	1,919	0.69%
8.	Pocono Mountain School District	1,905	0.68%
9.	Bethlehem Area School District	1,854	0.67%
10.	Upper Darby School District	1,708	0.61%

Schedule of Employers for FY 2020

School Districts

A

Abington
Abington Heights
Albert Gallatin
Aliquippa
Allegheny Valley
Allegheny-Clarion Valley
Allentown City
Altoona Area
Ambridge Area
Annville-Cleona
Antietam
Apollo-Ridge
Armstrong
Athens Area
Austin Area
Avella Area
Avon Grove
Avonworth

B

Bald Eagle Area
Baldwin-Whitehall
Bangor Area
Beaver Area
Bedford Area
Belle Vernon Area
Bellefonte Area
Bellwood-Antis
Bensalem Township
Benton Area
Bentworth
Berlin Brothersvalley
Bermudian Springs
Berwick Area
Bethel Park
Bethlehem Area
Bethlehem-Center
Big Beaver Falls Area
Big Spring
Blackhawk
Blacklick Valley
Blairsville-Saltsburg
Bloomsburg Area
Blue Mountain
Blue Ridge
Boyertown Area
Bradford Area
Brandywine Heights Area
Brentwood Borough
Bristol Borough
Bristol Township
Brockway Area
Brookville Area
Brownsville Area
Burgettstown Area
Burrell
Butler Area

C

California Area
Cambria Heights
Cameron County
Camp Hill
Canon-McMillan
Canton Area
Carbondale Area
Carlisle Area
Carlynton
Carmichaels Area
Catasauqua Area
Centennial
Central Bucks
Central Cambria
Central Columbia
Central Dauphin
Central Fulton
Central Greene
Central Valley
Central York
Chambersburg Area
Charleroi Area
Chartiers Houston
Chartiers Valley
Cheltenham Township
Chester-Upland
Chestnut Ridge
Chichester
Clairton City
Clarion Area
Clarion-Limestone Area
Claysburg-Kimmel
Clearfield Area
Coatesville Area
Cocalico
Colonial
Columbia Borough
Commodore Perry
Conemaugh Township Area
Conemaugh Valley
Conestoga Valley
Conewago Valley
Conneaut
Connellsville Area
Conrad Weiser Area
Cornell
Cornwall-Lebanon
Corry Area
Coudersport Area
Council Rock
Cranberry Area
Crawford Central
Crestwood
Cumberland Valley
Curwensville Area

D

Dallas
Dallastown Area
Daniel Boone Area
Danville Area
Deer Lakes
Delaware Valley
Derry Area
Derry Township
Donegal
Dover Area
Downingtown Area
Dubois Area
Dunmore
Duquesne City

E

East Allegheny
East Lycoming
East Penn
East Pennsboro Area
East Stroudsburg Area
Eastern Lancaster County
Eastern Lebanon County
Eastern York
Easton Area
Elizabeth Forward
Elizabethtown Area
Elk Lake
Ellwood City Area
Ephrata Area
Erie City
Everett Area
Exeter Township

F

Fairfield Area
Fairview
Fannett Metal
Farrell Area

Schedule of Employers (Continued)

Ferndale Area
Fleetwood Area
Forbes Road
Forest Area
Forest City Regional
Forest Hills
Fort Cherry
Fort LeBoeuf
Fox Chapel Area
Franklin Area
Franklin Regional
Frazier
Freedom Area
Freeport Area

G

Galeton Area
Garnet Valley
Gateway
General McLane
Gettysburg Area
Girard
Glendale
Governor Mifflin
Great Valley
Greater Johnstown
Greater Latrobe
Greater Nanticoke Area
Greencastle-Antrim
Greensburg Salem
Greenville Area
Greenwood
Grove City Area

H

Halifax Area
Hamburg Area
Hampton Township
Hanover Area
Hanover Public
Harbor Creek
Harmony Area
Harrisburg City
Hatboro-Horsham
Haverford Township
Hazleton Area
Hempfield
Hempfield Area
Hermitage
Highlands
Hollidaysburg Area
Homer-Center
Hopewell Area
Huntingdon Area

I

Indiana Area
Interboro
Iroquois

J

Jamestown Area
Jeannette City
Jefferson-Morgan
Jenkintown
Jersey Shore Area
Jim Thorpe Area
Johnsonburg Area
Juniata County
Juniata Valley

K

Kane Area
Karns City Area
Kennett Consolidated
Keystone
Keystone Central
Keystone Oaks
Kiski Area
Kutztown Area

L

Lackawanna Trail
Lakeland
Lake-Lehman
Lakeview
Lampeter-Strasburg
Lancaster
Laurel
Laurel Highlands
Lebanon
Leechburg Area
Lehighton Area
Lewisburg Area
Ligonier Valley
Line Mountain
Littlestown Area
Lower Dauphin
Lower Merion
Lower Moreland Township
Loyalsock Township

M

Mahanoy Area
Manheim Central
Manheim Township
Marion Center Area
Marple Newtown
Mars Area
McGuffey
McKeesport Area
Mechanicsburg Area
Mercer Area
Methacton
Meyersdale Area
Mid Valley
Middletown Area
Midd-West
Midland Borough
Mifflin County
Mifflinburg Area
Millcreek Township
Millersburg Area
Millville Area
Milton Area
Minersville Area
Mohawk Area
Monessen
Moniteau
Montgomery Area
Montour
Montoursville Area
Montrose Area
Moon Area
Morrisville Borough
Moshannon Valley
Mount Carmel Area
Mount Pleasant Area
Mount Union Area
Mountain View
Mt. Lebanon
Muhlenberg
Muncy

N

Nazareth Area
Neshaminy
Neshannock Township
New Brighton Area
New Castle Area
New Hope-Solebury
New Kensington-Arnold
Newport
Norristown Area
North Allegheny
North Clarion County
North East
North Hills
North Penn
North Pocono
North Schuylkill
North Star
Northampton Area

Schedule of Employers (Continued)

Northeast Bradford
Northeastern York
Northern Bedford County
Northern Cambria
Northern Lebanon
Northern Lehigh
Northern Potter
Northern Tioga
Northern York County
Northgate
Northwest Area
Northwestern
Northwestern Lehigh
Norwin

O

Octorara Area
Oil City Area
Old Forge
Oley Valley
Oswayo Valley
Otto-Eldred
Owen J. Roberts
Oxford Area

P

Palisades
Palmerton Area
Palmyra Area
Panther Valley
Parkland
Pen Argyl Area
Penn Cambria
Penn Hills
Penn Manor
Penncrest
Penn-Delco
Pennridge
Penns Manor
Penns Valley Area
Pennsbury
Penn-Trafford
Pequea Valley
Perkiomen Valley
Peters Township
Philadelphia City
Philipsburg-Osceola Area
Phoenixville Area
Pine Grove Area
Pine-Richland
Pittsburgh
Pittston Area
Pleasant Valley
Plum Borough
Pocono Mountain
Port Allegany
Portage Area
Pottsgrove
Pottstown
Pottsville Area
Punxsutawney Area
Purchase Line

Q

Quaker Valley
Quakertown Community

R

Radnor Township
Reading
Red Lion Area
Redbank Valley
Reynolds
Richland
Ridgway Area
Ridley
Ringgold
Riverside
Riverside Beaver County
Riverview
Rochester Area
Rockwood Area
Rose Tree Media

S

Saint Clair Area
Saint Marys Area
Salisbury Township
Salisbury-Elk Lick
Saucon Valley
Sayre Area
Schuylkill Haven Area
Schuylkill Valley
Scranton
Selinsgrove Area
Seneca Valley
Shade Central City
Shaler Area
Shamokin Area
Shanksville-Stonycreek
Sharon City
Sharpsville Area
Shenandoah Valley
Shenango Area
Shikellamy
Shippensburg Area
Slippery Rock Area
Smethport Area
Solanco
Somerset Area
Souderton Area
South Allegheny
South Butler County
South Eastern
South Fayette Township
South Middleton
South Park
South Side Area
South Western
South Williamsport Area
Southeast Delco
Southeastern Greene
Southern Columbia Area
Southern Fulton
Southern Huntingdon County
Southern Lehigh
Southern Tioga
Southern York County
Southmoreland
Spring Cove
Spring Grove Area
Springfield
Springfield Township
Spring-Ford Area
State College Area
Steel Valley
Steelton-Highspire
Sto-Rox
Stroudsburg Area
Sullivan County
Susquehanna Community
Susquehanna Township
Susquenita

T

Tamaqua Area
Titusville Area
Towanda Area
Tredyffrin-Easttown
Trinity Area
Tri-Valley
Troy Area
Tulpehocken Area
Tunkhannock Area
Turkeyfoot Valley Area
Tuscarora
Tussey Mountain
Twin Valley
Tyrone Area

Schedule of Employers (Continued)

U

Union
Union Area
Union City Area
Uniontown Area
Unionville-Chadds Ford
United
Upper Adams
Upper Darby
Upper Dauphin Area
Upper Dublin
Upper Merion Area
Upper Moreland Township
Upper Perkiomen
Upper Saint Clair

V

Valley Grove
Valley View

W

Wallenpaupack Area
Wallingford-Swarthmore
Warren County
Warrior Run
Warwick
Washington
Wattsburg Area
Wayne Highlands
Waynesboro Area
Weatherly Area
Wellsboro Area
West Allegheny
West Branch Area
West Chester Area
West Greene
West Jefferson Hills
West Middlesex Area
West Mifflin Area
West Perry
West Shore
West York Area
Western Beaver County
Western Wayne
Westmont Hilltop
Whitehall-Coplay
Wilkes-Barre Area
Wilkinsburg Borough
William Penn
Williams Valley
Williamsburg Community
Williamsport Area
Wilmington Area
Wilson
Wilson Area
Windber Area
Wissahickon
Woodland Hills
Wyalusing Area
Wyoming Area
Wyoming Valley West
Wyomissing Area

Y

York City
York Suburban
Yough

Area Vocational Technical Schools

A. W. Beattie Career Center
Admiral Peary AVTS
Beaver County AVTS
Bedford County Technical Center
Berks CTC
Bethlehem AVTS
Bucks County Technical High School
Butler County AVTS
Carbon Career & Technical Institute
Career Institute of Technology
Central Montco Technical High School
Central PA Institute of Science & Technology
Central Westmoreland CTC
Clarion County Career Center
Clearfield County CTC
Columbia-Montour AVTS
Crawford County CTC
CTC of Lackawanna County
Cumberland-Perry AVTS
Dauphin County Technical School
Delaware County AVTS
Eastern Center for Arts & Technology
Eastern Westmoreland CTC
Erie County Technical School
Fayette County AVTS
Forbes Road CTC
Franklin County CTC
Fulton County AVTS
Greater Altoona CTC
Greater Johnstown AVTS
Greene County CTC
Huntingdon County CTC
Indiana County Technology Center
Jefferson County-DuBois AVTS
Lancaster County CTC
Lawrence County CTC
Lebanon County CTC
Lehigh Career & Technical Institute
Lenape Tech
Lycoming CTC
Mercer County Career Center
Middle Bucks Institute of Technology
Mifflin County Academy of Science & Technology
Mon Valley CTC
Monroe Career & Tech Institute
North Montco Technical Career Center
Northern Tier Career Center
Northern Westmoreland CTC
Northumberland County AVTS
Parkway West CTC
Reading-Muhlenberg CTC
Schuylkill Technology Center
Somerset County Technology Center
Steel Center AVTS
SUN Area Technical Institute
Susquehanna County CTC
Upper Bucks County AVTS
Venango Technology Center
West Side AVTS
Western Area CTC
Western Center for Technical Studies
Wilkes-Barre Area CTC
York County School of Technology

Schedule of Employers (Continued)

Intermediate Units

Allegheny #3
Appalachia #8
Arin #28
Beaver Valley #27
Berks County #14
BLaST #17
Bucks County #22
Capital Area #15
Carbon-Lehigh #21
Central #10
Central Susquehanna #16
Chester County #24
Colonial #20
Delaware County #25
Intermediate Unit #1
Lancaster-Lebanon #13
Lincoln #12
Luzerne #18
Midwestern #4
Montgomery County #23
Northeastern Educational #19
Northwest Tri-County #5
Pittsburgh-Mt. Oliver #2
Riverview #6
Schuylkill #29
Seneca Highlands #9
Tuscarora #11
Westmoreland #7

Colleges / Universities

State System of Higher Education
- Bloomsburg University
- California University
- Cheyney University
- Clarion University of Pennsylvania
- East Stroudsburg University
- Edinboro University
- Indiana University
- Kutztown University
- Lock Haven University
- Mansfield University
- Millersville University
- Shippensburg University
- Slippery Rock University
- West Chester University

Bucks County Community College
Butler County Community College
Community College of Allegheny County
Community College of Beaver County
Community College of Philadelphia
Delaware County Community College
Harrisburg Area Community College
Lehigh Carbon Community College
Luzerne County Community College
Montgomery County Community College
Northampton County Community College
Penn State University
Pennsylvania College of Technology
Pennsylvania Highlands Community College
Reading Area Community College
Thaddeus Stevens College of Technology
Westmoreland County Community College

Other

Berks County Earned Income Tax Bureau
Department of Education - Commonwealth of Pennsylvania
Lancaster County Academy
Overbrook School for the Blind
Pennsylvania School Boards Association
Pennsylvania School for the Deaf
Western Pennsylvania School for Blind Children
Western Pennsylvania School for the Deaf
York Adams Academy

Charter Schools (C S)

21st Century Cyber C S
Achievement House C S
Act Academy Cyber C S
Ad Prima C S
Agora Cyber C S
Alliance For Progress C S
Antonia Pantoja C S
Architecture and Design Charter High School
Arts Academy C S
Aspira Bilingual Cyber C S
Avon Grove C S
Baden Academy C S
Bear Creek Community C S
Belmont C S
Boys' Latin of Philadelphia C S
Bucks County Montessori C S
Casa C S
Center for Student Learning Charter School at Pennsbury
Central Pennsylvania Digital Learning Foundation C S
Centre Learning Community C S
Chester County Family Academy C S
Christopher Columbus C S
Circle of Seasons C S
City Charter High School
Collegium C S
Commonwealth Connections Academy C S
Community Academy of Philadelphia C S
Crispus Attucks Youthbuild C S
Discovery C S
Dr. Robert Ketterer C S
Environmental Charter School at Frick Park
Erie Rise Leadership Academy C S
Esperanza Academy C S
Esperanza Cyber C S

Schedule of Employers (Continued)

Eugenio Maria de Hostos Community Bilingual C S
Evergreen Community C S
Fell C S
First Philadelphia Charter School for Literacy
Folk Arts - Cultural Treasures C S
Franklin Towne Charter Elementary School
Franklin Towne Charter High School
Frederick Douglas Mastery C S
Freire C S
Gettysburg Montessori C S
Gillingham C S
Global Leadership Academy C S
Global Leadership Academy C S- Huey
Green Woods C S
Hardy Williams Academy C S
Hope for Hyndman C S
Howard Gardner Multiple Intelligence C S
I-Lead C S
IMHOTEP Institute C S
Independence C S
Infinity C S
Inquiry C S
Insight PA Cyber CS
John B Stetson C S
Keystone Academy C S
Keystone Education Center C S
Kipp Academy C S
La Academia: The Partnership C S
Laboratory C S
Lehigh Valley Academy Regional C S
Lehigh Valley Charter School for the Performing Arts
Lehigh Valley Dual Language C S
Lincoln C S
Lincoln Leadership Academy C S
Lincoln Park Performing Arts C S
Lindley Academy CS
Manchester Academic C S
Mariana Bracetti Academy C S
Maritime Academy C S
Mastery Charter High School
Mastery Charter School - Cleveland Elementary
Mastery Charter School - Clymer Elementary
Mastery Charter School - Francis D Pastorius Elementary
Mastery Charter School - Harrity Elementary
Mastery Charter School - John Wister Elementary
Mastery Charter School - Mann Elementary
Mastery Charter School - Pickett Campus
Mastery Charter School - Prep Elementary
Mastery Charter School - Shoemaker Campus
Mastery Charter School - Simon Gratz
Mastery Charter School - Smedley Elementary
Mastery Charter School - Thomas Campus
Math Civics and Sciences C S
Mathematics, Science & Technology Community C S
Memphis Street Academy C S - J.P. Jones
Montessori Regional C S
Multi-Cultural Academy C S
New Day C S
New Foundations C S
Nittany Valley C S
Northwood Academy C S
Olney Charter High School
Pan American Academy C S
Passport Academy C S
Penn Hills C S for Entrepreneurship
Pennsylvania Cyber C S
Pennsylvania Distance Learning C S
Pennsylvania Leadership C S
Pennsylvania Virtual C S
People for People C S
Perseus House Charter School of Excellence
Philadelphia Academy C S
Philadelphia Charter School for Arts & Sciences at H.R. Edmunds
Philadelphia Electrical & Technology Charter High School
Philadelphia Harambee Institute of Science and Technology C S
Philadelphia Montessori C S
Philadelphia Performing Arts C S
Premier Arts & Science C S
Preparatory Charter School of Mathematics, Science, Technology & Careers
Propel Charter School - Braddock Hills
Propel Charter School - East C S
Propel Charter School - Hazelwood
Propel Charter School - Homestead
Propel Charter School - McKeesport
Propel Charter School - Montour
Propel Charter School- Northside
Propel Charter School - Pitcairn
Renaissance Academy - Edison C S
Richard Allen Preparatory C S
Robert Benjamin Wiley Community C S
Roberto Clemente C S
Russell Byers C S
Sankofa Freedom Academy C S
School Lane C S
Seven Generations C S
Souderton Charter School Collaborative
Spectrum C S
Stone Valley Community C S
Sugar Valley Rural C S
SusQ - Cyber C S
Sylvan Heights Science C S
Tacony Academy C S
Tidioute Community C S
Universal Alcorn C S
Universal Audenried C S
Universal Bluford C S
Universal Creighton C S
Universal Daroff C S
Universal Institute C S
Universal Vare C S
Urban Academy Greater Pittsburgh C S
Urban Pathways 6-12 C S
Urban Pathways K - 5 College C S
Vida C S
West Oak Lane C S
West Philadelphia Achievement Charter Elementary School
Wissahickon C S
York Academy Regional C S
Young Scholars C S
Young Scholars of Central Pennsylvania C S
Young Scholars of Western Pennsylvania C S