

Pennsylvania Public School Employees' Retirement System

A Component Unit of the Commonwealth of Pennsylvania



PA State Flower:
Mountain Laurel



PA State Animal:
White-tailed Deer

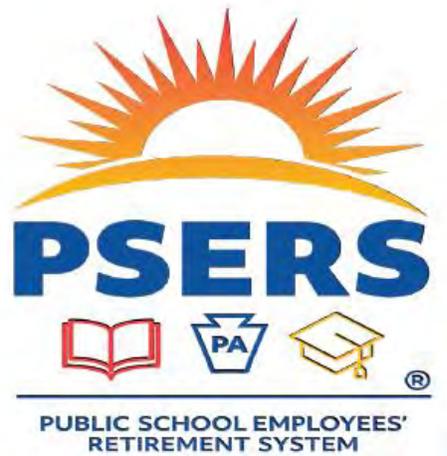


PA State Bird:
Ruffed Grouse

Budget Report - Appropriations Committee

Fiscal Year 2022 - 2023

PSERS BUDGET REPORT HIGHLIGHTS





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Budget Report Highlights - PSERS on Point

Fiscal Year 2022 - 2023



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PSERS At a Glance

PSERS was established on July 18, 1917, and officially began operations on July 1, 1919, to provide retirement benefits to public school employees of the Commonwealth of Pennsylvania.

PSERS' role expanded upon the passage of Act 5 of 2017 to include oversight of two new classes consisting of defined benefit (DB) and defined contribution (DC) components and a stand-alone DC class. PSERS currently serves over 500,000 active, terminated vested, and retired public school employees.

PSERS is administered by a staff of 365 and has 769 reporting units as of June 30, 2021. PSERS is headquartered in Harrisburg, Pennsylvania, and also has seven field offices in strategic areas of the Commonwealth to enable direct contact with the members and employers.

PSERS Defined Benefit (DB) Plan	PSERS Defined Contribution (DC) Plan
A member's pension benefit is determined by a formula that includes a pension multiplier, years of service, and final average salary and is fully funded during their working lifetime.	A member's retirement is based on member and employer contributions, the investment performance on those contributions, and the fees and expenses deducted from the member's DC account.
A DB pension is guaranteed, regardless of market fluctuations.	Member and employer contributions have the potential to grow based on investment earnings, but are not guaranteed.
Members in the DB Plan contribute base contributions between 4.50% and 10.30% of their pay to PSERS DB Plan depending on their class of membership. With the Shared Risk/Shared Gain provision, the contribution rate may change for some membership classes based on investment performance.	Members with a DC account contribute between 2.75% and 7.50% of their pay to PSERS DC Plan depending on the class of membership.

PSERS Active & Retired Membership



PSERS Snapshot

243,000
Retired
Members

248,000
Active
Members

27,000
Terminated
Vested Members

769
School
Employers

365
PSERS
Staff

PSERS HOP Prescription Drug Program Received Highest Rating from Centers for Medicare & Medicaid Services (CMS)

PSERS Health Options Program (HOP) Medicare Part D Prescription Drug Plan (PDP) received the Federal Centers for Medicare and Medicaid Services (CMS) highest rating, 5 Stars, for 2021 for use in 2022. PSERS HOP PDP is among only nine other plans in the U.S. to receive this award of excellence. CMS' Medicare Star Rating program rates Medicare Advantage (MA) and PDP based on a number of metrics around quality and performance. Rating criteria is based on a 1- to 5- point system. The ratings help members select the best plans for themselves or their families.

This marks the first time PSERS earned a 5-Star Rating in the 15-year history of offering a Medicare Part D program. The PSERS HOP PDP program has a history of earning high ratings of 4.0 to 4.5 annually since 2019 for overall service and quality of the prescription drug plan that retirees voluntarily pay for through monthly premiums. PSERS' latest CMS Star rating was based in part on how our members rate the plan's services and care and how well our plan helps our members use recommended and safe prescription medications.

PSERS HOP continues to see steady growth in enrollment and now has more than 121,000 PSERS retirees, spouses, and dependents enrolled as of June 30, 2021. Within the plan, there is a Dental Program offering that has eclipsed 27,000 enrollees. A Vision Program was added in January 2021 and has over 27,000 enrollees.



PSERS Board Of Trustees Releases Internal Investigation Report; No Evidence Of Criminal Conduct

On January 31, 2022, the Board of Trustees of the Public School Employees' Retirement System authorized the public release of the complete results of the nearly year-long internal investigation into the shared risk calculation error that occurred in late 2020. The internal investigation, conducted by the law firm Womble Bond Dickinson, also included a review of Harrisburg real estate purchases by the System.

After receiving the report during the meeting, the Board released the Womble Bond report, including all appendices and exhibits on the PSERS website.

Womble Bond Dickinson found no evidence of criminal conduct.

"Today marked an important milestone in the internal investigation and provided an opportunity at PSERS for both the Board and staff," said Board Chairman Christopher Santa Maria. "We are committed to learning from this process and will continue our best efforts to serve our members."

In March 2021, the PSERS Board delegated authority to the Audit/Compliance Committee to oversee an internal investigation of the circumstances surrounding an error in the reporting of investment performance results used by the Board in its December 3, 2020, certification of member contribution rates and shared risk calculation.

"I am thankful for the efforts of the PSERS Board and Audit/Compliance Committee over the past year," said Audit Committee Chairman Rep. Frank Ryan. "It was our goal to have an independent and fair investigation and I believe we achieved that. I am also pleased that the board has chosen to make the entire results of the investigation available to the public."

The report can be found on PSERS website at:
<https://www.psers.pa.gov/About/Board/Documents/Reports/2022.02.01%20-%20Final%20Womble%20Bond%20Report%20with%20Exhibits.PDF>

PSERS by the Numbers: Statistics by Legislative District

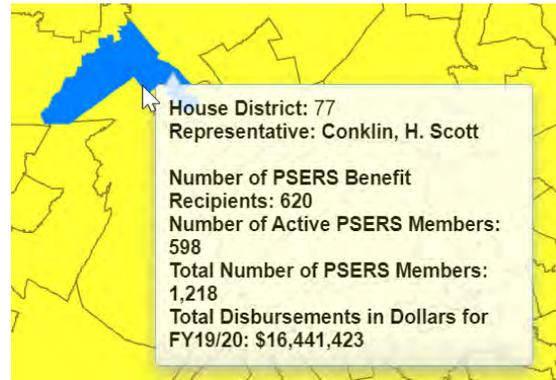
PSERS benefit payments and membership data are shown by U.S. Congressional districts, PA State Senate districts, and PA State House districts. Data is updated on a fiscal year (July 1-June 30) basis.

PSERS partnered with the Governor's Office of Administration, Office of Information Technology, Geospatial Services to create interactive, web-based maps that visualize PSERS benefit payments and membership by location. The interactive maps utilize the latest geospatial technology to present several statewide views of PSERS positive economic impact to the Commonwealth.

**PSERS Data by
U.S. Congressional
Districts**

**PSERS Data by
PA State House
Districts**

**PSERS Data by
PA State Senate
Districts**



Maps available at [PSERS.pa.gov](https://psers.pa.gov) About > Legislative Maps

PSERS Adapted Quickly to Impacts of COVID-19 Pandemic

Since March 16, 2020, most PSERS employees have been working remotely from their homes, with limited visits to physical office locations. PSERS operations and processes quickly adjusted with staff working remotely with only brief interruptions to call center and in-person assistance availability. Since then, overall, productivity has been maintained or even improved. Based on surveys conducted of persons attending online webinars, the majority of respondents preferred to have an in-person option for counseling. As a result, in-person counseling sessions began again in September 2021 and webinars are continuing for members who prefer an online format.

While all new retirees are required to set up direct deposit, PSERS had more than 11,000 annuitants receiving a monthly benefit via a paper check. Issues with the U.S. Postal Service in the month of March 2021 resulted in these members experiencing significant delays in receiving their benefit. Normal email and phone call volumes more than doubled due to repeated and ongoing outreach by these impacted members. PSERS conducted a campaign urging these members to switch to direct deposit, netting over a 25% reduction in the number of members receiving a paper check moving forward.

PSERS is in the process of progressing from an emergency work from home experience to a permanent model of telework on a part-time or full-time basis. Not only will this help to alleviate issues of having enough space to accommodate a growing staff, but costs savings have been achieved and opportunities are being explored that could result in additional cost savings in the future.

PSERS 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. The System also maintains a full accrual accounting system.

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.

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
- 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
- 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.

In August 2021, the Board approved a SOC 1 Type 2 Audit Study and directed staff to issue the Notice of Forthcoming Procurement for the SOC 1 Type 2 Audit to provide an internal control audit of the System in compliance with Act 128 of 2020.

SOC 1 Type 2 standards are established by the American Institute of Certified Public Accountants (AICPA). A System and Organization Controls (SOC) audit is performed by a certified public accounting firm and offers assurance that the controls that a service organization has put in place to protect its clients' assets (data in most cases) are operating effectively. A Type 1 report describes procedures and controls as of a specific point in time while a Type 2 report covers how the controls have been operating during a period of time, i.e., 6 months or 1 year.



Commonwealth and School Employer Contributions Make a Positive Difference

PSERS appreciates the budgetary commitment Commonwealth policymakers and school employers make through employer contribution rates (ECR). For the fifth year in a row, the ECR increase is in line with inflation and is lower than previously projected.

The ECR payments, coupled with Act 120 of 2010 and solid investment performance, helped improve the System's operations.

- PSERS unfunded liability and funded ratio on both actuarial and market value basis continue to improve.
 - ◆ Funded ratio on an actuarial basis improved from 59.2% to 59.6% this year and over last four years has improved from 56.5% to 59.6%.
 - ◆ PSERS unfunded accrued liability (debt) increased to approximately \$45.5 billion in FY 2021 due to the Board's recent adoption of new actuarial and economic assumptions. That liability, however, is expected to fall in the future.
- Total employer contributions are lower than originally estimated under Act 120 of 2010.
- Since June 30, 2021, the net asset value (NAV) has continued to grow from \$72.5 billion in assets to \$75.1 billion at December 31, 2021.
- The unfunded liability on a market value basis declined significantly by over \$8 billion from \$49.3 billion at June 30, 2020 to \$40.7 billion at June 30, 2021.
- The funded status on a market value basis increased from 54.4% at June 30, 2020, to 63.9% at June 30, 2021.

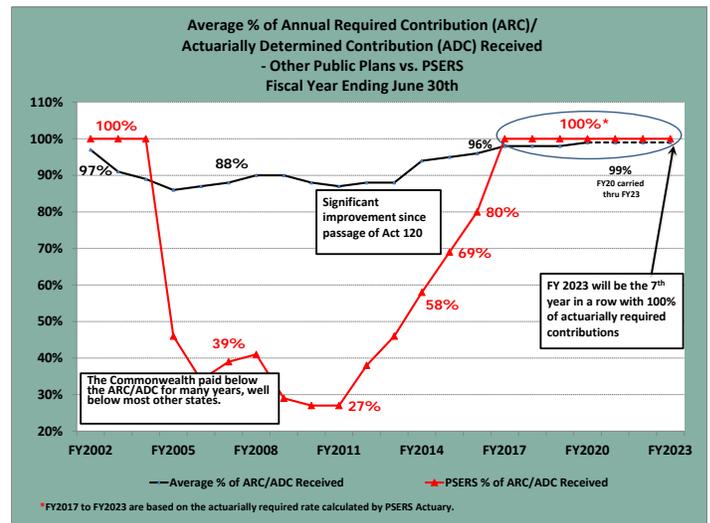
What was the catalyst for this success? The reduced cost of benefits implemented through Act 120 and Act 5 of 2017, and the funding changes implemented through Act 120.

Act 120 of 2010:

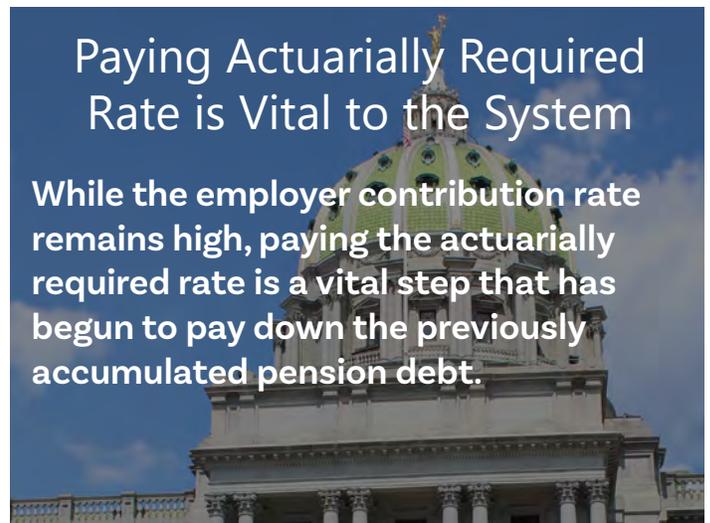
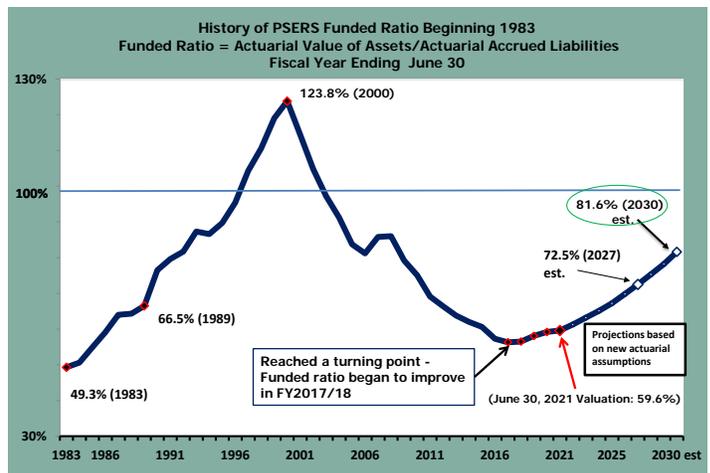
- Reduced the retirement multiplier to the 2.0% level that existed prior to Act 9 of 2001.
- Established a time table of incremental ECR increases needed to repay employer contributions that had been deferred over a long period.
- Set minimum employer payments to cover normal retirement costs not tied to the existing debt.
- Permitted PSERS to smooth in investment gains and losses over 10 years, as opposed to five, to better control budgetary swings for PSERS employers.

Act 5 of 2017

- Created two new membership classes consisting of defined benefit (DB) and defined contribution (DC) components and a stand-alone DC class.



Source for Average %: NASRA



PSERS Defined Contribution Plan: Two-Year Milestone

School employees who became 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 December 31, 2021, cumulative highlights included:

- 39,508 Participant Accounts with a Balance (up from 23,542 as of December 31, 2020).
- \$87.9 Million DC Net Position* (up from \$38.2 as of December 31, 2020).
- \$41.4 Million Total Member Contributions.
- \$32.4 Million Total Employer Contributions.



PSERS DC Investment Options & Plan Balance

The Retirement Code requires the DC plan to provide no less than 10 investment options offered by three or more investment providers. Currently, the DC plan has eight providers offering 20 investment options.

As of December 31, 2021, the total DC plan balance was nearly \$88 million.



Making an Investment Change

Participants can review and change their investment elections at any time in their PSERS DC account. While the target date investments are diversified, professionally managed, and aligned with a participant's date of birth, he or she may choose to invest in a different target date investment or create a unique allocation from the other available investment options.

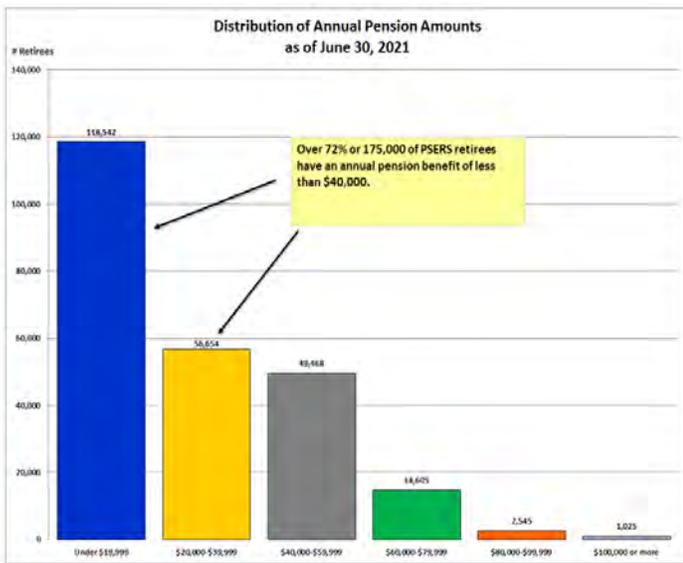


*DC net position includes assets held at Voya and BNY Mellon

PSERS Members Help Fund Their Own Retirement

The average PSERS retiree receives a modest pension of \$25,992 on an annual basis, a benefit earned through a career of 23 years in public education. During their career, members make mandatory contributions between 7.50% and 10.80% 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 the majority of such plans, members do not contribute and the employers bear 100% of the cost of the benefit*.

Six-figure pensions are rare, with fewer than 0.5% of PSERS retirees receiving an annual pension benefit over \$100,000. These 1,025 six-figure pensioners with PSERS spent an average of 37 years working in their public education careers and contributing to their benefit.



PSERS' member contribution rate is one of the highest among U.S. public pension plans that participate in Social Security.**

Most members contribute between 7.50% and 10.80% of their pay depending on their class of membership to help fund their own retirement benefit. Some members also share the investment risk and gain. Member contribution rates for some members hired on or after July 1, 2011, are subject to change every three years, based on the investment performance of the retirement fund.



Actuarial Governance - Five Year Experience Study Results

According to the Retirement Code, every five years PSERS Board reviews the results of an experience study prepared by PSERS' actuary. The experience study includes an in-depth look at the mortality, service and compensation experience and compares the results to PSERS' assumptions. The Board reviews the actuary's recommendations and may adopt and change PSERS' demographic and economic assumptions as necessary. Reviewing assumptions is an important task for PSERS' Board. An assumption that is significantly wrong in either direction could have an unfair cost distribution on generations of taxpayers and school employers.

In 2021, the Board approved the following assumptions which were implemented in the June 30, 2021 actuarial valuation:

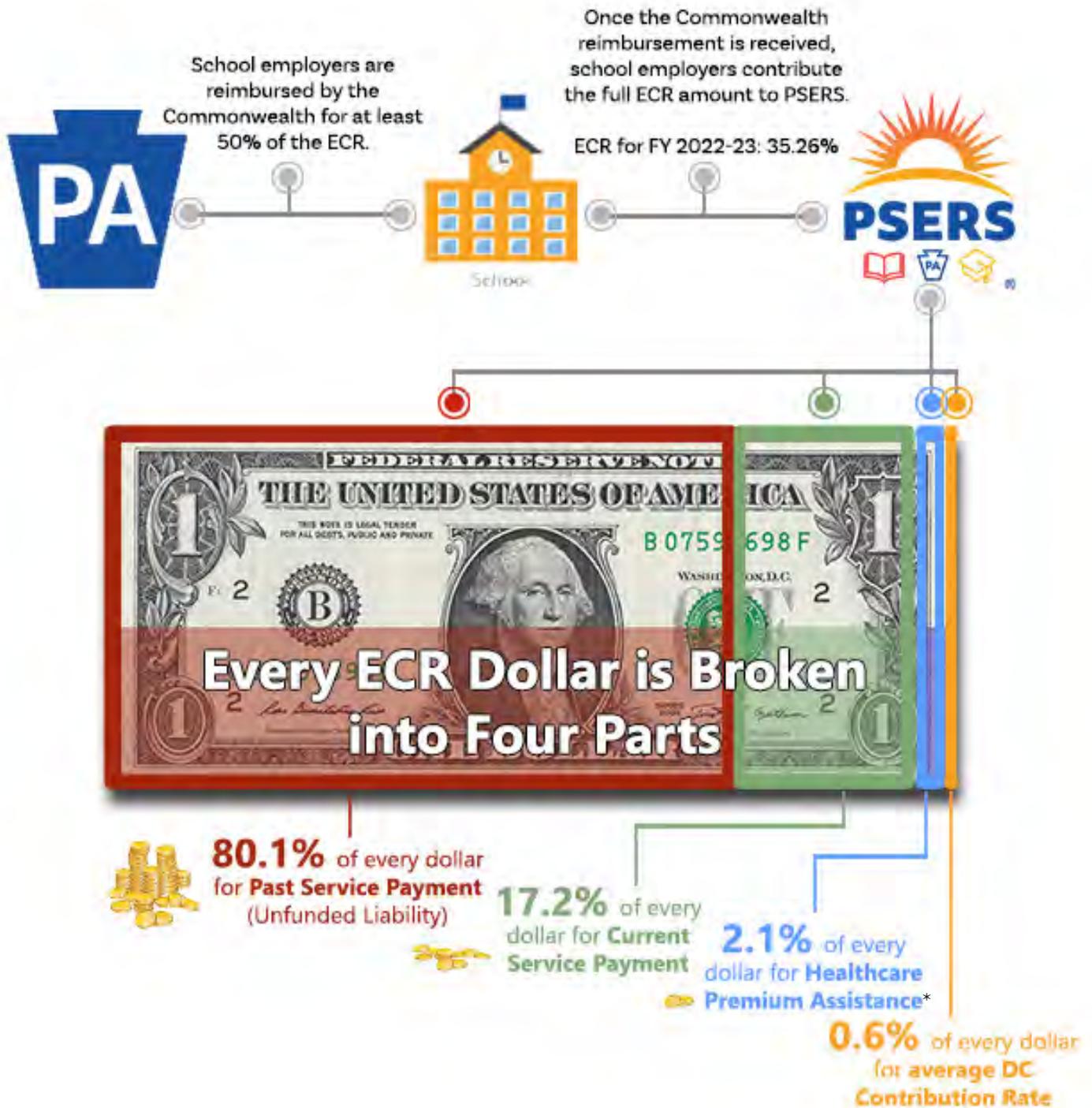
- Reducing the salary growth from 5.00% to 4.50%;
- Reducing inflation from 2.75% to 2.50%;
- Reducing payroll growth from 3.50% to 3.25%;
- Reducing the investment rate of return from 7.25% to 7.00% and,
- New mortality, retirement, and withdrawal factors.

* Based on a query of private plan IRS Form 5500 filings

** According the most recent National Association of State Retirement Administrators (NASRA) data, PSERS member contribution rate is the 15th highest member contribution rate among 77 large U.S. public pension plans that participate in Social Security as of FY 2020.

Payment for Past Service Debt is Over 80% of the Total Employer Cost

The majority of the employer contribution rate (ECR) in FY 2022-23 is for payment of the debt from past service (unfunded liability). It is not due to the payment of the current cost of benefits (employer normal cost) being earned by active members.



*per § 8509 in the Retirement Code

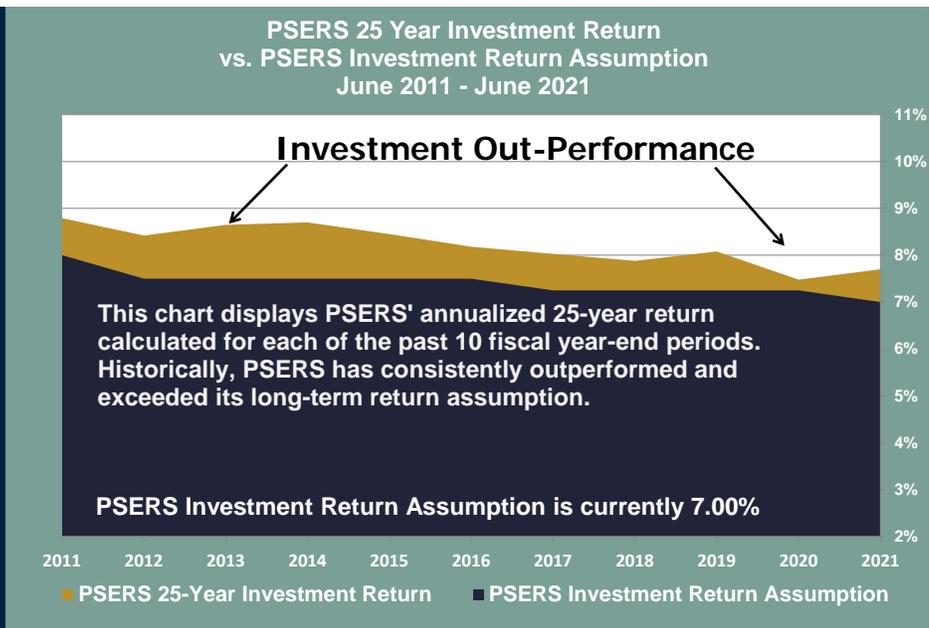
PSERS is Built for the Long Haul

Long-Term Investment Performance Consistently Outperforms

PSERS has built a diversified asset allocation that positions the Fund to earn its return assumption of 7.00% over the long-term (i.e., 25 to 30 years) although annual fluctuations will occur. PSERS believes the best way to achieve its long-term objectives is to maintain a diversified portfolio.

Income from the investment portfolio represents the major source of funding to the System, accounting for 60% of total additions over the twenty five-year period from FY 1997 to FY 2021. During FY 2021, net investment income was a record \$14.8 billion. The investment portfolio, which is one part of the System's net position, totaled \$72.2 billion, at fair value, as of June 30, 2021. For FY 2021, the time-weighted net rate of return on the System's investments was 24.58%. For the past 10 years, the Fund's annualized net of fee return was 8.04%, comfortably above the current actuarial assumed rate of return of 7.00%. The System has built a diversified allocation to allow it to collect risk premiums over the long-term. In the short-term, no one can predict what will happen, and the System expects to go through years where returns could be below 7.00%.

Longer-term returns continue to remain above PSERS' return assumption. PSERS posted a positive return of 7.70% for the 25-year period ended June 30, 2021.



PSERS Earned

24.58%

**return on investment
in FY 2021**

The net investment gain between July 1, 2020, and June 30, 2021, helped push the System's total net assets up by \$13.5 billion to an all-time high of \$72.5 billion.

The time-weighted net rate of return on the System's investments was 24.58%.

Diversified Assets Limit Risk in Volatile Markets

The Board reviews the long-term asset allocation targets of the System annually. The Board consults with its actuary, consultants, Investment Office professionals, and other sources of information it deems appropriate in formulating the asset allocation plan. The level of risk assumed by the System is largely determined by the Board's strategic asset allocation plan. The Board, in determining its long-term asset allocation, takes the following factors into consideration:

- The System's investment time horizon;
- The demographics of the plan participants and beneficiaries;
- The cash flow requirements of the System;
- The actuarial assumptions approved by the Board;
- The funded status of the System;
- The Board's willingness and ability to take risk; and,
- The employers' (Commonwealth and school districts) financial strength.

In approving the asset allocation for the System, the Board considers capital market expectations for expected return, volatility, and asset class correlations as prepared by its general investment consultant.

In December 2021, the Board adopted an updated Strategic Asset Allocation. The Board's strategic asset allocation approval establishes the guidelines for how PSERS' investment professionals and external managers invest assets of the \$75.1 billion fund to meet its long-term retirement obligations to the System's members. The Board's allocation changes, including an increase in public equities and the elimination of its absolute return holdings, are expected to be implemented prudently over time.



**The Board voted to eliminate its absolute return holdings in December 2021.*

***Leverage is utilized at the asset allocation level to provide additional exposure to diversifying asset classes. Total Leverage is allocated at -13%; Total Leverage is netted against the System's Cash allocation of 3% for a Net Leverage allocation of -10%.*

PSERS is a Global Investor

PSERS invests in 101 countries from Angola to Vietnam on 6 different continents.

PSERS Remains Committed to Transparency:

Investment Book of Record Project Phase One Completed

The operations team in the Investment Office successfully completed the first phase of the PSERS' Investment Book of Record (IBOR) project migration. The IBOR project began in December 2017 and is slated to be completed in 2023. The IBOR is a technological solution designed to deliver the current best available view of investment data suitable for investment decision-making, incorporating the current status and forward projections of portfolio investment holdings and cash position, as well as reference data and derived analytics supporting the investment decision-making process. Benefits sought from the IBOR include modernization of processes, increased transparency, and increased functionality.

PSERS Board Approved Investment Transparency Policy

On December 6, 2019, PSERS Board of Trustees approved an investment transparency policy that codified many of the agency's long-standing methods of providing 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, fee data, and budgetary and actuarial data. PSERS provides extensive investment information on its website *PSERS.pa.gov*. For example, detailed reports providing investment performance by manager and detailed fee information have been added to PSERS website.

New Travel Policy Adopted - Increases Transparency

In July 2021, the PSERS Board adopted a policy providing for the formal review, written approval and disclosure of all System related travel and travel expenses. Throughout the year in the course of fulfilling their fiduciary duties, Board and staff of the Fund may occasionally be required to travel on behalf of the System to attend meetings, educational seminars, due diligence reviews and satisfy such other fiduciary oversight and public outreach responsibilities. In addition travel reports from 2017 through 2021 have been posted on PSERS website at: <https://www.psers.pa.gov/FPP/Publications/Pages/PSERS-Board--Staff-Business-Travel-Costs.aspx>



For a closer look at PSERS Investments, visit the "Investment Program" page at *PSERS.pa.gov*.

Reports & Resources on PSERS website include:

"Investment Program" page:

- Carried Interest Report
- Quarterly Investment Performance
- Detailed Manager Fee Information

"Board of Trustees" page:

- Board Resolutions
- Transparency Policy
- Adjudications

"Financial Publications" page:

- Annual Comprehensive Financial Report (ACFR) & Summary Annual Financial Report (SAFR)
- Quarterly Financial Statements
- Budget Hearing Reports & Budget Report Highlights
- Actuarial Valuation
- Financial Asset Listing
- Employer Contribution Rates
- PA Pension Benefit Payments Map

Expanding Internal Investment Professionals Saves Additional Investment Fees



From FY 2014 to FY 2021, base fees decreased from \$394 million to \$384 million, while the fund grew from \$53.3 billion to \$72.5 billion.

PSERS In-House Management Saves Over \$40 Million Annually

The expansion of PSERS' professional staff allowed the Investment Office to support the large amount of assets managed internally at a significantly lower cost than if those assets were managed externally. The Investment Office currently manages 51%, or \$40.8 billion, of the gross assets (inclusive of leverage) internally. The estimated savings from managing those assets internally is approximately \$40 million per year. PSERS will continue its efforts to manage additional assets internally to prudently reduce management fees while pursuing additional depth for the investment team.

PSERS Investment Office Professional' Certifications & Education

- 22 Chartered Financial Analysts (CFA)
- 12 Chartered Alternative Investment Analysts (CAIA)
- 8 Certified Public Accountants (CPA)
- 5 Financial/Professional Risk Managers (FRM/PRM)
- 4 Certified Treasury Professionals (CTP)
- 1 Certified Financial Planner (CFP)
- 1 Certified Information Systems Auditor (CISA)
- 1 Certified Property Manager (CPM)
- 1 Chartered Global Management Accountant (CGMA)

- 61 Bachelor's Degrees
- 20 Master's Degrees (MBA)
- 2 Juris Doctor

Numbers as of December 31, 2021

PSERS FY 2022-2023 Budget Summary

PSERS' administrative budget is not funded from the Commonwealth's General Fund. It is funded from the investment earnings of the Fund and member and employer contributions. PSERS' FY 2022-23 budget submission contains an Administrative budget request of \$55,467,000 and a Defined Contribution budget request of \$949,000. PSERS also manages non-appropriated funds that cover expenses for Investment-Related Expenses, Health Insurance Account, Health Options Program, and Directed Commissions. PSERS' FY 2022-23 budgets, including non-appropriated funds, total \$97,502,000.

Appropriation	Governor's Recommended Budget (000s)
Administrative	\$ 55,467
Investment-Related	35,606
Defined Contribution	949
Health Insurance Account	1,415
HIA Health Options Program	1,452
Directed Commissions	2,000
Total	\$ 96,889

Enhancing Processes to Increase Efficiency and Improve Customer Service



PSERS Saves Over \$225,000 annually in Printing & Mailing Costs with Paperless Delivery

PSERS Continues to Reduce Mailing Costs and Environmental Impact

Since being implemented in April 2018, more than 200,000 members have created their online account and conducted more than 280,000 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 94% of all MSS accounts have opted to go paperless and receive information from PSERS electronically.

PSERS Saves \$6.4 Million Annually

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

Calendar Year 2021 Customer Service Highlights



Answered
172,000
Member Calls



Issued
268,000
1099-R's



Responded to
65,000
Member Emails



Issued 2.9 Million
Monthly Benefit
Payments to Members



Served
6,000
Members in
Counseling
Sessions



Processed
9,900
Retirement
Applications

Secure Messaging & More MSS Improvements

In December of 2021, secure messaging functionality was added which enables members to communicate with PSERS securely within the online portal with messages retained in their online account. More than 7,000 messages have been received since this was implemented with an average response time of less than two business days.

In an ongoing effort to improve MSS, PSERS added multiple enhancements in late 2021 and 2022 including:

- A redesigned platform that will provide easier navigation on PCs and mobile devices.
- Additional information available in members' accounts.
- More reports and improved payments options for employers.
- Ability to track the status of applications submitted for a retirement estimate, retirement benefit, or refund.

Awards Received During the Past Fiscal Year



Government Finance Officers Association (GFOA) of the United States and Canada Certificate of Achievement for Excellence in Financial Reporting - The Certificate of Achievement awarded by the GFOA is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports. PSERS has received a Certificate of Achievement for 38 consecutive years from FY 1983 to FY 2020.

GFOA Popular Annual Financial Reporting Award - 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, 2020, 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. PSERS has received a Certificate of Achievement for five consecutive years from FY 2016 to FY 2020.

Public Pension Coordinating Council Public Pension Standards Award - The Public Pension Coordinating Council has awarded its Public Pension Standards Award to PSERS for 2020. This award is in recognition of meeting professional standards for plan design and administration.

February 2022 PSERS Board of Trustees

Christopher Santa Maria, Chairman

Honorable Francis X. Ryan, Vice Chairman
House of Representatives

Honorable Matt D. Bradford
House of Representatives

Honorable Patrick M. Browne
Senate of Pennsylvania

Jason M. Davis

Eric O. DiTullio

Honorable Stacy Garrity
Treasurer of Pennsylvania

Susan C. Lemmo

Nathan G. Mains

Ann Monaghan

Honorable Katie J. Muth
Senate of Pennsylvania

Noe Ortega
Secretary of Education

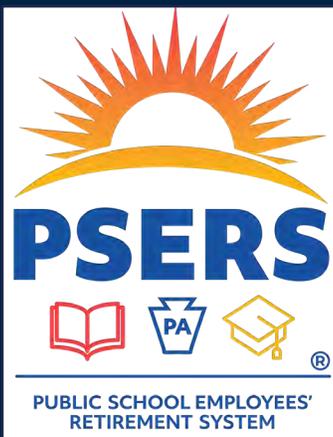
Joseph M. Torsella

Richard W. Vague
Secretary of Banking and Securities

Melva S. Vogler

PSERS Board Education and Training Program

Act 128 of 2020 required PSERS Board of Trustees to receive 10 hours of investment-related education and one hour of ethics training each year. In 2021, PSERS 15 Board members and their 15 designees completed 491 hours of investment-related education and ethics training. On average, each board member and designee received over 16 hours of education, far exceeding the education requirement.



Toll-Free: 1.888.773.7748

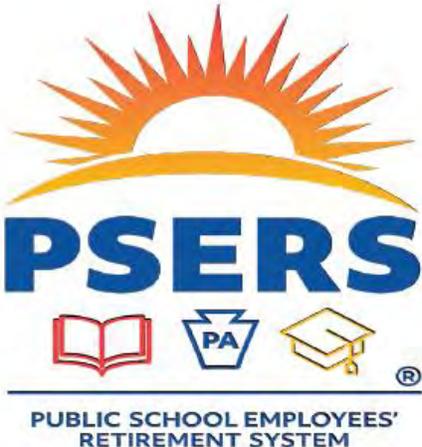
Local Phone: 717.787.8540

Email Address: ContactPSERS@pa.gov

Website: PSERS.pa.gov

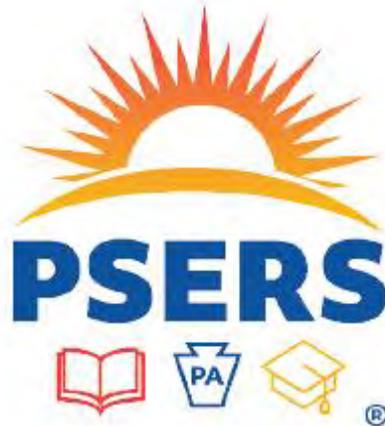
5 North 5th Street | Harrisburg, PA 17101-1905

PSERS BUDGET FY2022-23



Pennsylvania
Public School Employees Retirement System
A Component Unit of the Commonwealth of Pennsylvania

5 North 5th Street
Harrisburg, PA 17101-1905



FISCAL YEAR 2022-23 BUDGET REPORT
APPROPRIATIONS COMMITTEE
MARCH 11, 2022

Christopher Santa Maria
Chairman
Board of Trustees

Honorable Francis X. Ryan
Vice Chairman
Board of Trustees

Terri Sanchez
Interim Executive Director

Report prepared primarily by the Public School Employees Retirement System
Office of Financial Management with support from Investment Office and other PSERS professionals

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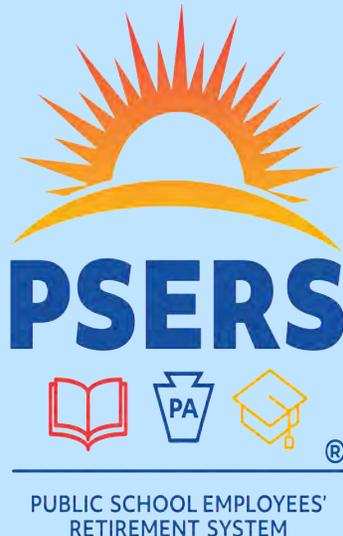
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PSERS BUDGET REPORT - FY2022-2023

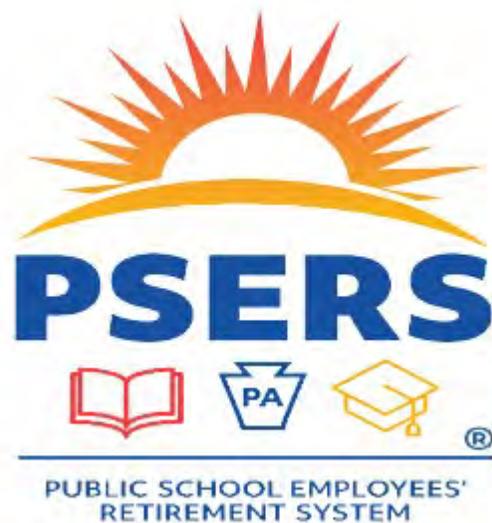


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PSERS Overview and Board of Trustees



Overview

Established on July 18, 1917, with operations commencing in 1919, the Pennsylvania Public School Employees Retirement System (PSERS, System, or Fund) provides retirement benefits to public school employees of the Commonwealth of Pennsylvania and administers post-employment healthcare benefits to PSERS retirees and dependents.

As of June 30, 2021, the System had approximately 248,000 active members. The annuitant membership was comprised of approximately 243,000 retirees and beneficiaries who collectively received average monthly pension benefit payments of over \$531 million including healthcare premium assistance. The average yearly pension benefit paid to annuitants was \$25,992. PSERS had 769 participating employers on June 30, 2021.

As reported in the latest Pension and Investments survey, published February 14, 2022, based on asset size, PSERS is the 37th largest plan among United States corporate and public pension plans, and the 16th largest state-sponsored public pension fund in the nation based on total plan assets. PSERS total plan net assets as of December

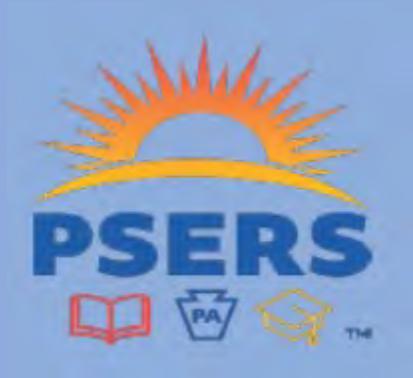
31, 2021 were approximately \$75.1 billion. PSERS preliminary investment rate of return for the one-year period ended December 31, 2021 was 19.30%, net of fees.

During fiscal year 2021, PSERS pension disbursements to retirees totaled \$7.1 billion. Of this amount, nearly 94%, or \$6.7 billion, was distributed to Pennsylvania residents representing PSERS significant impact on the Commonwealth's economy.

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, 2021, there are over 94,000 retirees who receive this benefit. 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 121,000 annuitants and their dependents as of December 31, 2021.



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

PSERS Board of Trustees

as of February 28, 2022

Christopher Santa Maria, Chairman

Honorable Francis X. Ryan, Vice Chairman

House of Representatives

Honorable Matt D. Bradford

House of Representatives

Honorable Patrick M. Browne

Senate of Pennsylvania

Jason M. Davis

Eric O. DiTullio

Honorable Stacy Garrity

Treasurer of Pennsylvania

Susan C. Lemmo

Nathan G. Mains

Honorable Katie J. Muth

Senate of Pennsylvania

Ann Monaghan

Noe Ortega

Secretary of Education

Joseph M. Torsella

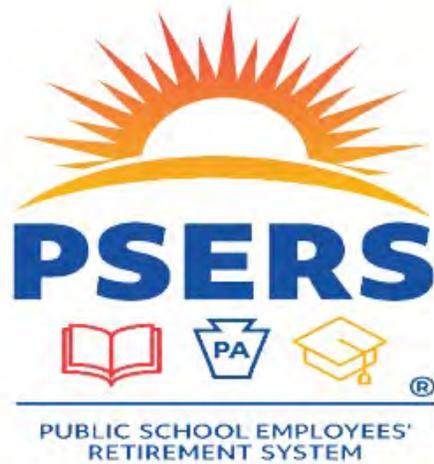
Governor's Appointee

Richard W. Vague

Secretary of Banking and Securities

Melva S. Vogler

PSERS Organizational Structure and Member Services



Organizational Structure of the Public School Employees Retirement System

Executive Office

The Executive Director acts as the Chief Executive Officer with overall responsibility for the management of the Public School Employees Retirement System (PSERS) to achieve the objectives of the agency as established by the Board of Trustees (Board). The position's primary duty is to lead PSERS employees in meeting the agency mission by serving the members and stakeholders of the System to: provide timely and accurate payment of benefits; maintain a financially sound System; invest the assets of the System prudently; clearly communicate members' and employers' rights and responsibilities, and manage the resources of the System effectively. In this capacity, the position has responsibility for the establishment, installation, and maintenance of modern management techniques to provide an efficient control of funds and services to the members of the System. It certifies expenditures of the Fund and oversees the performance of professional staff and external contractors for specialized services. The Executive Director also apprises and seeks approval from the Board for significant issues that will affect the System and its operation.

Investment Office

This office is responsible for the investment activities of the System. In compliance with the investment policy established by the Board, PSERS investment assets are allocated to numerous internal investment professionals and outside professional investment advisors.

Chief Counsel's Office

This office provides legal services through a team of professionals in collaboration with PSERS Executive Director and the Board of Trustees. The legal staff is responsible for representing the System in all administrative hearings and other litigation matters and providing counsel in a wide variety of matters including the interpretation of the Retirement Code, form and legality of all System contracts, corporate governance issues and the structure and implementation of the System's varied financial investments.

Internal Auditor's Office

This office provides independent, objective assurance, and consulting activity designed to add value and improve PSERS operations. Objectives are accomplished by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes. The office provides a wide range of quality independent internal auditing services for the Audit/Compliance Committee of the PSERS Board and executive management. It performs independent assessments of the systems of risk management, internal controls and operating efficiency, guided by professional standards and using innovative approaches. The office also routinely monitors compliance with established laws, rules, regulations, policies and procedures.

Organizational Structure (continued)

Office of Financial Management

This office is directed by the Chief Financial Officer (CFO) and has responsibility for planning, organizing and directing a complete accounting and financial reporting system in conformance with accounting principles generally accepted in the United States of America for PSERS Pension, Premium Assistance, HOP, and Defined Contribution Plans. The Office is also responsible for PSERS annuitant payroll and for managing actuarial functions. Oversight is provided for new systems development and maintenance of existing systems, and ensuring appropriate accounting controls. The office is the liaison for other state and federal agencies, reporting units, financial consultants, actuaries, and investment advisors for all accounting, financial reporting, treasury operations, taxation, actuarial and budgetary matters. The office is comprised of the CFO's Office, General and Public Market Accounting Division, Investment Accounting and Budget Division, Annuitant Accounting and Employer Accounting Division.

Deputy Executive Director and Director of Defined Contribution Investments

The position provides comprehensive leadership to assist the Executive Director to accomplish the agency mission by maintaining oversight of PSERS membership related benefit functions for both the agency's Defined Benefit (DB) and the Defined Contribution (DC) plans in addition to DC related investment contract management. This includes managerial responsibility for the following areas: member and employer communications; member retirement counseling; member and employer data administration; benefits determinations and processing; member appeals; knowledge management of benefit policies and procedures; health insurance retirement programs including premium assistance; third-party contractor administration, and defined contribution contract investment management.

Deputy Executive Director of Administration

The position provides comprehensive leadership to assist the Executive Director to accomplish the agency mission by maintaining oversight of PSERS administrative and information technology related services for the agency. This includes managerial responsibility for the following areas: information technology; human resources; board of trustees administration; third party contract administration; physical security; facilities; contracting and procurement; business continuity; safety; records management; and mail, imaging, and printing services.

Bureau of Benefits Administration

The Bureau of Benefits Administration maintains account data, determines membership and benefits eligibility, and calculates benefits for Pennsylvania public school employees. This bureau provides these functions for all benefits provided by PSERS, except the PSERS Health Options and Premium Assistance Programs.

Bureau of Communications and Counseling

The bureau provides services to educate and inform annuitants, members, employers, staff and the public about the benefit related programs and services provided by PSERS, as well as the rights and duties of employers and members in relation to those benefits. Information communicated spans from very detailed and fact-specific explanations and instructions to more general explanations and educational materials.

Organizational Structure (continued)

Health Insurance Office

This office is responsible for all aspects of the PSERS Health Options Program (HOP) and administering the PSERS annuitant health insurance premium assistance benefits. HOP is a voluntary statewide plan that provides group health insurance coverage for school retirees, their spouses, and eligible dependents.

Information Technology Office

This office oversees the Bureau of Information Technology and the Business Architecture Center. It is responsible for strategic information technology planning and policy development, ensuring that information technology plans, projects and policies are aligned with, in support of, and prioritized according to agency needs and requirements as well as those Commonwealth needs and requirements that are consistent with agency needs, and for communicating such to the agency's IT staff. Large information technology contracts and projects are managed by this office. This bureau is responsible for understanding, analyzing, documenting, and improving PSERS processes, information systems, and the relationships among these components so that PSERS is able to: conduct its business consistently and according to established rules; understand each component, its relationship to each of the other components and to PSERS mission, vision, values and goals; fully, yet quickly analyze and understand the impact of potential change to one or more of these components on the others; more effectively identify inefficient, duplicate, or suspect processes, technologies; and account for its processes, information systems and technologies.

Bureau of Administration

This bureau provides facilities, purchasing and contracting, policies and procedures, business continuity, records management, automotive, mail, imaging, and other administrative services necessary to support agency functions.

Human Resources Office

This office is responsible for supporting management and employees to facilitate the accomplishment of the agency's mission. It administers all human resources programs and ensures compliance with labor law and Commonwealth regulations. Programs include position classification, labor relations, recruitment and placement, employee benefits, employee compensation and pay, training and staff development, time and attendance, performance management, organizational development and support, employee transactions, Equal Employment Opportunities and other miscellaneous programs.

Chart 2.1

Organizational Chart of the Public School Employees Retirement System



PSERS REGIONAL OFFICES

Chart 2.2

Northwest

Franklin Penn Wood 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

300 Bellefonte Avenue, Suite 201
 Lock Haven, PA 17745-1903
 Local: 1.570.893.4410
 FAX: 1.570.893.4414
Toll-Free: 1.888.773.7748
 Jeremy Wible, Administrator

Northeast

417 Lackawanna Avenue, Suite 201
 Scranton, PA 18503-2013
 Local: 1.570.614.0269
 FAX: 1.570.614.0278
Toll-Free: 1.888.773.7748
 Paul Kanavy, Administrator



Southwest

300 Cedar Ridge Drive, Suite 301
 Pittsburgh, PA 15205-1159
 Local: 1.412.920.2014
 FAX: 1.412.920.2015
Toll-Free: 1.888.773.7748
 Russell Miller, Administrator

Centralwest

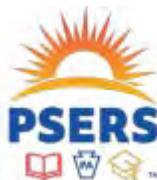
219 W. High Street
 Ebensburg, PA 15931-1540
 Local: 1.814.419.1180
 FAX: 1.814.419.1189
Toll-Free: 1.888.773.7748
 Brian Farester, Administrator

Southcentral

5 N 5th Street
 Harrisburg, PA 17101-1905
 Local: 1.717.720.6335
 FAX: 1.717.783.9606
 Toll-Free: 1.888.773.7748
 John Tucker, Administrator

Southeast

605 Louis Drive, Suite 500
 Warminster, PA 18974-2830
 Local: 1.215.443.3495
 FAX: 1.215.443.3487
Toll-Free: 1.888.773.7748
 Joshua Catalfu, Administrator
 Linda Visco, Administrator



Section 1 - PSERS Overview

Summary of Various Member Service Statistics

PSERS operates very efficiently. There are only 365 staff serving the needs of over 500,000 members of the System and 769 employers. PSERS professionals are dedicated to fulfilling PSERS

mission to serve our members. Below are highlights of some of the more common services that PSERS provides to its members.

Table 2.1

Benefits Processed (Major)	<u>Fiscal Year</u>	
	<u>2020-21</u>	<u>2019-20</u>
Initial Retirements (1-Step)	8,034	7,403
Initial Retirements (2-Step)	1,975	1,276
Final Retirements (2nd Step of 2-Step)	1,865	1,178
Purchases of Service and Corrections for Previously Unreported Service and/or Contributions not Withheld	4,335	3,029
Refunds	3,832	4,343
Death Benefits Processed	4,307	3,378
Account Verification - non retirements	11,990	12,390
TOTAL	36,338	32,997
Percent of Retirement Paid as 1 Step	80%	85%

Table 2.2

Other Member Services (Major)	<u>Fiscal Year</u>	
	<u>2020-21</u>	<u>2019-20</u>
Retirement Estimates	17,640	15,213
Phone Calls Answered	185,115	159,758
E-mails Received	64,944	69,718
E-mails Sent	55,605	61,251
General Information Sessions	—	154
General Information Attendees	—	9,057
Exit Counseling Sessions	1,061	1,214
Exit Counseling Attendees	6,485	5,970

Section 1 - PSERS Overview

Summary of Various Member Service Statistics (continued)

Table 2.3

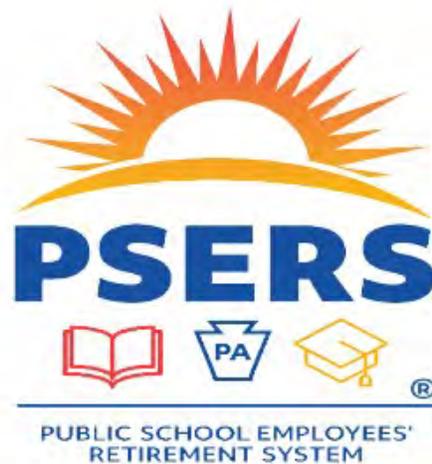
Member Self Service Transactions Done by Members	Calendar Year	
	2021	2020
Retirement Estimate	23,959	26,706
Nomination of Beneficiary	17,953	19,318
Address Change	13,403	10,862
Income Verification	16,242	14,749
W-4P	1,679	1,413
Apply for Multiple Service	57	44
Elect Class T-F	2	11
Elect Class T-H	91	79
Elect Class DC	244	160
Waive Membership	176	129
TOTAL	73,806	73,471

Table 2.4

Member Payment Services for Retirees and Beneficiaries	Calendar Year	
	2021	2020
Monthly Payments to Members	2,864,902	2,823,743
Non-recurring Payments to Members	46,839	46,924
W4-P Tax Withholding Forms Processed	2,410	3,168
EFT Forms Processed - Direct Deposit	11,452	7,618
ACH Rejects Researched and Reviewed (Direct Deposit Failures)	7,092	4,797
Member Payment Changes Processed	2,535	2,170
1099R-Paperless Delivery	68,139	58,151
1099R-Printed for Mailing	199,989	208,437
Total Forms 1099-R Produced	268,128	266,588

PSERS had over 200,000 members sign up for the MSS account. Of those, nearly 94% opted for paperless delivery. This has resulted in annual savings of over \$225,000 in postage, printing and paper since MSS went live in April 2018.

Economic Impact on Pennsylvania, Member Demographics, and Financial Information



Section 1 - PSERS Overview

Economic Impact on Pennsylvania, Member Demographics, and Financial Information

Economic Impact of Pension Benefits on Pennsylvania

In Fiscal Year 2020-21, PSERS pension disbursements to retirees totaled approximately \$7.1 billion. Of this amount, nearly 94%, or \$6.7 billion, went directly into state and local economies. According to a study by the Pensionomics for National Institute on Retirement Security, this spending expands through the economy as the retiree's spending becomes another's income, multiplying the effect of the \$6.7 billion into an economic impact of \$14.6 billion throughout the Commonwealth. Estimates show that the impact of money from PSERS in Pennsylvania includes:*

- Support for over 66,000 jobs that paid \$3.9 billion in wages and salaries.
- \$1.6 billion in federal and local tax revenues.

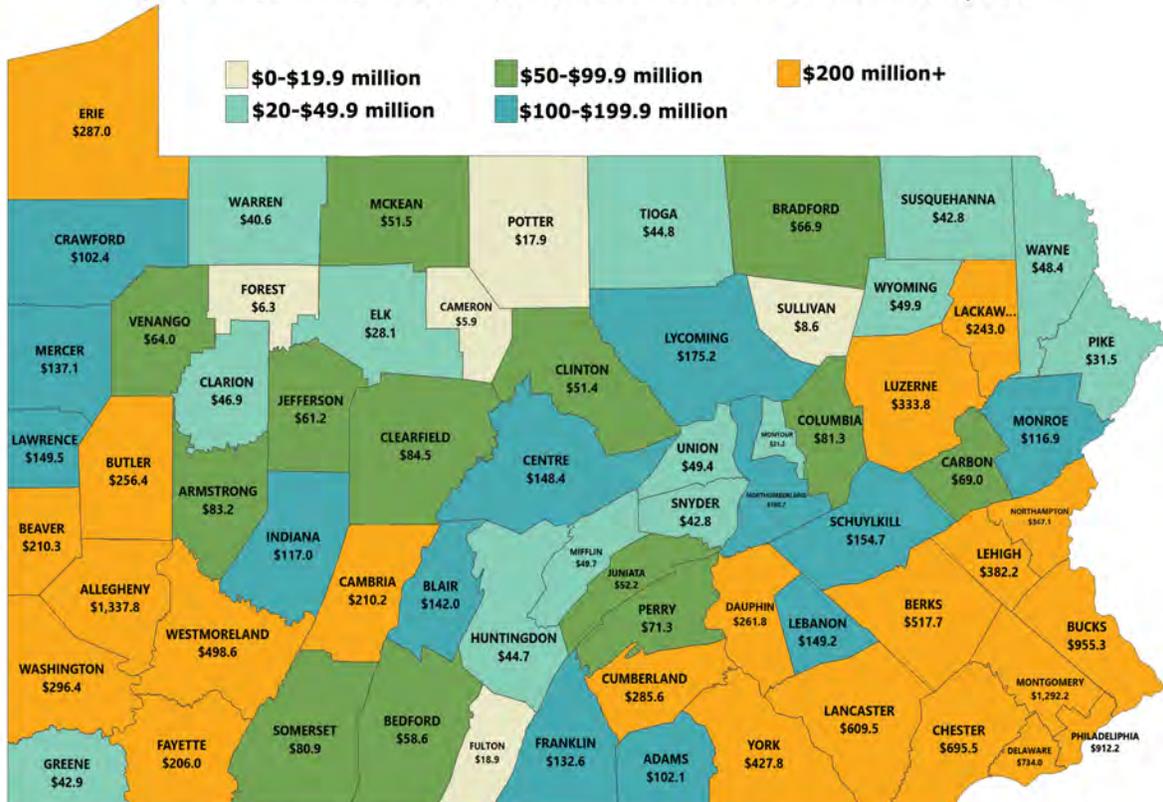
Table 3.1
Top 10 Counties Based on Economic Impact from Benefit Disbursements (Dollars in Millions)

ALLEGHENY	\$	1,337.8
MONTGOMERY		1,292.2
BUCKS		955.3
PHILADELPHIA		912.2
DELAWARE		734.0
CHESTER		695.5
LANCASTER		609.5
BERKS		517.7
WESTMORELAND		498.6
YORK		427.8

Pension Benefits in Pennsylvania

By County FY 2020-21

\$6.7 Billion in Benefits = \$14.6 Billion Positive Economic Impact



*Pensionomics The National Institute on Retirement Security, January 2021

Section 1 - PSERS Overview

Member Demographics and Financial Information (continued)

Table 3.2

Member by Type						
Fiscal Year Ended June 30	Active Members	Annuitants, Beneficiaries, and Survivor Annuitants	Total Active/Retired Members	Ratio of Active/ Retired	Vestees	Total Membership
2021	248,145	242,839	490,984	1.02 to 1	26,892	517,876
2020	256,306	239,614	495,920	1.07	25,903	521,823
2019	255,749	237,339	493,088	1.07	25,514	518,602
2018	256,362	233,288	489,650	1.10	25,117	514,767
2017	255,945	230,014	485,959	1.13	24,515	510,474
Average ratio of active members to annuitants (Public Funds)				1.30*		

*Based on the November 2021 Public Fund Survey prepared by the National Association of State Retirement Administrators (NASRA).

Section 1 - PSERS Overview

Member Demographics and Financial Information (continued)

Table 3.3

Profile of PSERS Annuitants, Beneficiaries, and Survivor Annuitants

Type of Member	Number of Members		Average Annual Benefit	
	<u>6/30/2021</u>	<u>6/30/2020</u>	<u>6/30/2021</u>	<u>6/30/2020</u>
Normal/Early Retirees	221,277	218,478	\$26,783	\$26,541
Survivor Annuitants	12,704	12,072	15,529	15,098
Disability Retirees	8,858	9,064	21,218	20,954
Total/Average Yearly Benefit	242,839	239,614	63,530	62,593

Age and Service Profile of All Active Members

	<u>6/30/2021</u>	<u>6/30/2020</u>
Average Age	45.5	45.5
Average Years of PSERS Service	12.1	11.8
Average Annual Compensation	\$56,663	\$54,535

Class T-C Members

Class T-D Members

	<u>6/30/2021</u>	<u>6/30/2020</u>	<u>6/30/2021</u>	<u>6/30/2020</u>
Number of Members	2,635	2,845	148,546	158,971
Average Age	54.4	54.1	49.2	48.9
Average Years of PSERS Service	22.7	22.1	17.4	16.7
Average Annual Compensation	\$59,759	\$58,049	\$68,659	\$65,821

Class T-E Members

Class T-F Members

	<u>6/30/2021</u>	<u>6/30/2020</u>	<u>6/30/2021</u>	<u>6/30/2020</u>
Number of Members	57,944	64,658	13,766	14,559
Average Age	41.2	40.4	39.9	39.2
Average Years of PSERS Service	4.6	3.6	5.1	4.1
Average Annual Compensation	\$38,989	\$35,219	\$50,590	\$43,836

Class T-G Members

Class T-H Members

	<u>6/30/2021</u>	<u>6/30/2020</u>	<u>6/30/2021</u>	<u>6/30/2020</u>
Number of Members	25,061	15,122	139	91
Average Age	36.4	36.6	35.8	35.3
Average Years of PSERS Service	0.9	0.4	1.6	0.5
Average Annual Compensation	\$29,558	\$25,376	\$33,252	\$29,308

Section 1 - PSERS Overview

Member Demographics and Financial Information (continued)

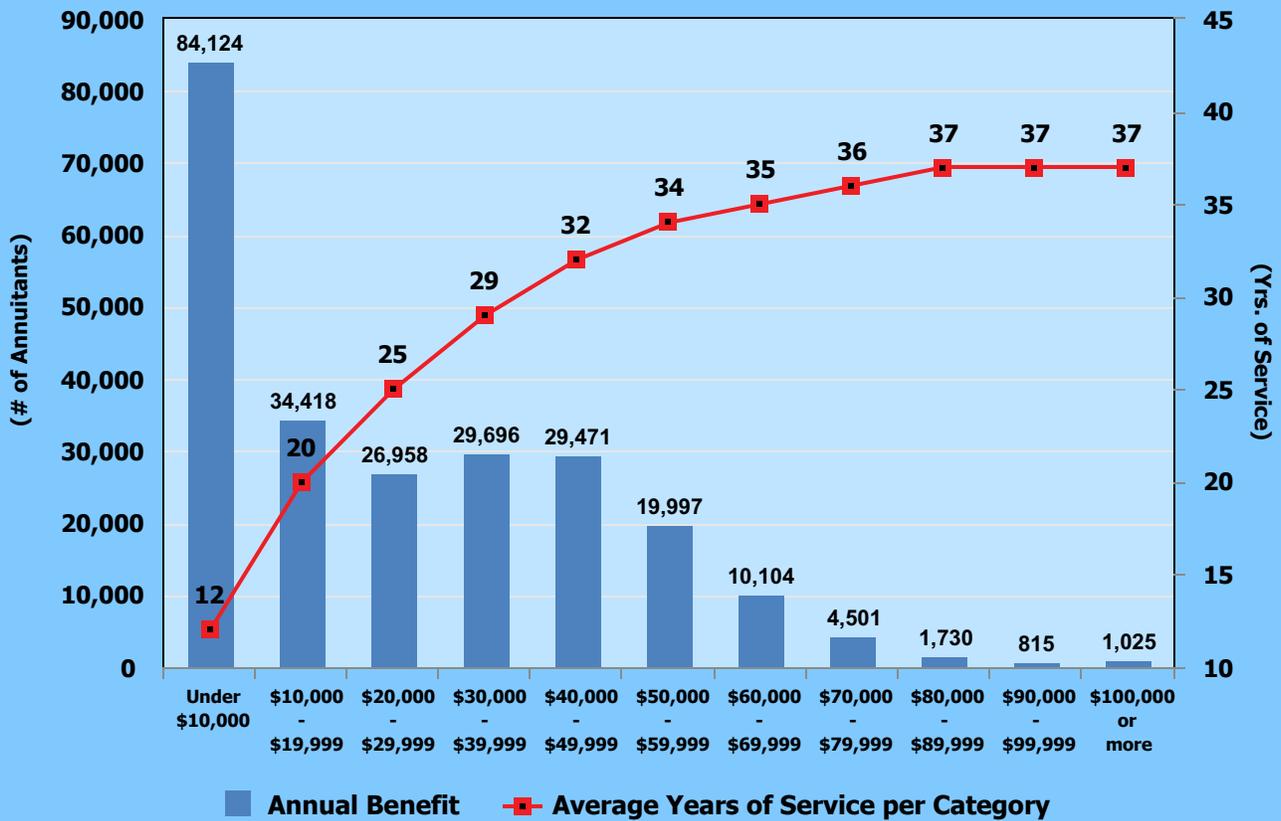
Benefit Summary

The average PSERS retiree receives \$25,992 annually, a benefit earned through a lengthy career in education.

receiving an annual benefit over \$100,000. Retirees earning over six figures have spent an average of 37 years working in their careers and contributing to their retirement accounts.

- Over 72% of PSERS retirees receive less than \$40,000 per year in benefits.
- Six-figure pensions are rare, with fewer than one-half of 1% of PSERS retirees

Chart 3.1 Distribution of Annual Pension Amounts Compared to Average Years of Service as of June 30, 2021



Section 1 - PSERS Overview

Member Demographics and Financial Information (continued)

Table 3.4

PSERS Pension Plan Changes in Fiduciary Net Position 10 Year Cumulative Summary - FISCAL YEAR (Dollar Amount in Millions)

	Cumulative 10 Year Total July 1, 2011 - June 30, 2021
Balance of Net Position (07/01/2011)	\$51,200
Member Contributions	\$10,138
Employer Contributions	32,235
Net Investment Income	43,214
Deductions - Benefits & Expenses	(64,820)
Net Increase	\$20,767
Balance of Net Position (06/30/2021)	\$71,967

Table 3.5

External Cash Flow - Pension Fiscal Years Ended June 30 (Dollar Amount in Thousands)

	-----Projected-----					
	2021	2022	2023	2024	2025	2026
Member Contributions	\$1,081,000	\$1,114,000	\$1,130,000	\$1,141,000	\$1,151,000	\$1,161,000
Employer Contributions	\$4,759,000	\$4,964,000	\$5,110,000	\$5,255,000	\$5,401,000	\$5,569,000
Total Contributions	\$5,840,000	\$6,078,000	\$6,240,000	\$6,396,000	\$6,552,000	\$6,730,000
Less:						
Benefits	\$7,134,000	\$7,291,000	\$7,453,000	\$7,620,000	\$7,792,000	\$7,968,000
Administrative expenses	\$50,000	\$51,000	\$52,000	\$53,000	\$54,000	\$55,000
Total Outflows	\$7,184,000	\$7,342,000	\$7,505,000	\$7,673,000	\$7,846,000	\$8,023,000
Negative External Cash Flow	-\$1,344,000	-\$1,264,000	-\$1,265,000	-\$1,277,000	-\$1,294,000	-\$1,293,000
End of Year Total Assets	\$71,967,000	\$75,698,000	\$79,691,000	\$83,953,000	\$88,498,000	\$93,365,000
Negative External Cash Flow (NECF) as a % of Total Assets	-1.9%	-1.7%	-1.6%	-1.5%	-1.5%	-1.4%
Average NECF as a % of Total Assets (Public Funds)	-2.7%					

*Based on the November 2021 Public Fund Survey prepared by NASRA.

Section 1 - PSERS Overview

Member Demographics and Financial Information (continued)

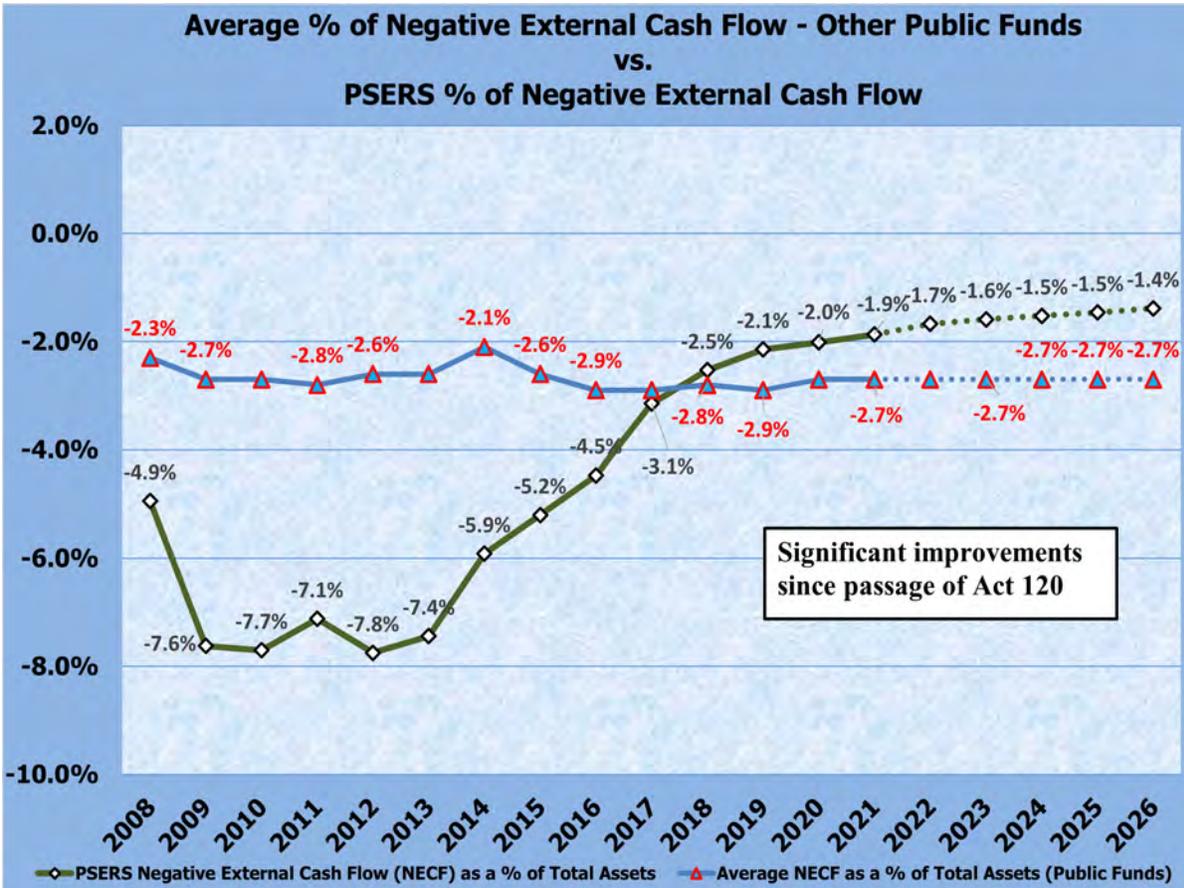
Negative External Cash Flow (NECF)

Using data from Table 3.4 on the previous page, the last 10 years of contributions and benefit payments resulted in a Negative External Cash Flow (NECF) of -\$22.4 billion (comprised of total deductions less member and employer contributions) during that time period. In Table 3.5, PSERS Negative External Cash Flow percentage is -1.9% of total assets for FY2020-21, which was more favorable than the public fund average for the fourth year in a row. The negative annual external cash flow has improved significantly since fiscal year 2012 due to the implementation of Act 120 in 2010. Act 120 provided for increased employer contributions to the actuarially required contribution levels. Due to receiving 100% of actuarially required contributions for the fifth consecutive year, the system's cash flow shortfall is now more favorable than the public fund average and will continue to improve over the next several years.

PSERS Negative External Cash Flow Projection (NECF)

In Chart 3.2, beginning in FY2018 PSERS projected NECF percentage of -2.5% is more favorable than the public fund percentage. If PSERS meets or exceeds its investment return assumptions, the Chart 3.2 total assets are projected to grow in excess of total liabilities and continue to pay down the unfunded liability.

Chart 3.2



Section 1 - PSERS Overview

Member Demographics and Financial Information (continued)

**Chart 3.3 Net Increase/Decrease to Fiduciary Net Position *
10 Year Trend (Fiscal Year Ended June 30)
(Dollar Amounts in Billions)**

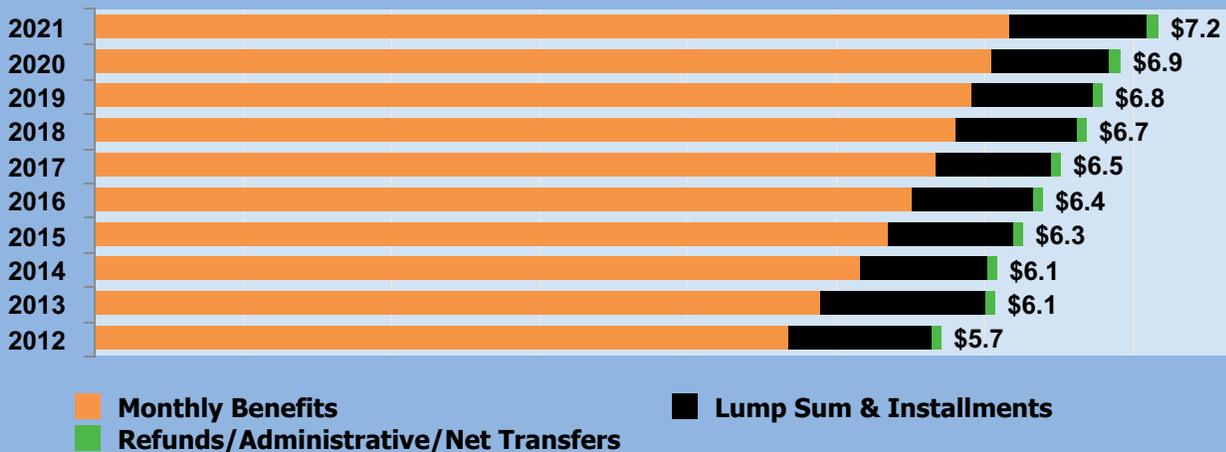


PSERS Pension Fiduciary Net Position

As depicted in Chart 3.3, PSERS fiduciary net position increased by \$13.4 billion from \$58.6 billion at June 30, 2020 to \$72.0 billion at June 30, 2021. The increase was due in large part to record

net investment income plus member and employer contributions exceeding deductions for benefit and administrative expenses.

**Chart 3.4 Deductions from Pension Fiduciary Net Position*
10 Year Trend (Fiscal Year ended June 30)
(\$ Amounts in Billions)**



*Does not include PSERS Postemployment Healthcare and DC Plans Net Position.

PSERS Deductions from Pension Fiduciary Net Position

As depicted in Chart 3.4, the increase for FY2020 to FY2021 is mainly attributed to an ongoing rise in

the average monthly benefit and an increase in pension lump sum rollover payments.

Section 1 - PSERS Overview

Statement of Fiduciary Net Position December 31, 2021 Unaudited (Dollar Amounts in Thousands)

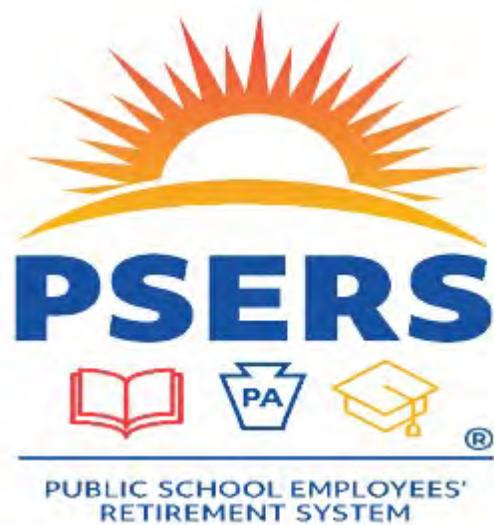
	Postemployment Healthcare				Totals
	Pension	Defined Contribution	Premium Assistance	Health Options Program	
Assets:					
Receivables:					
Members	\$ 364,577	\$ 314	\$ 1,672	\$ 153	\$ 366,716
Employers	1,321,051	246	31,922	—	1,353,219
Investment income	785,882	3	67	16	785,968
Investment proceeds	289,980	—	—	—	289,980
CMS Part D and prescriptions	—	—	—	85,777	85,777
Interfund receivable	3,320	—	—	—	3,320
Total Receivables	2,764,810	563	33,661	85,946	2,884,980
Investments, at fair value:					
Short-term	10,298,065	7,765	101,656	371,844	10,779,330
Fixed income	13,865,982	—	—	—	13,865,982
Common and preferred stock	18,698,614	—	—	—	18,698,614
Collective trust funds	5,967,502	80,821	—	—	6,048,323
Real estate	6,264,825	—	—	—	6,264,825
Alternative investments	17,377,699	—	—	—	17,377,699
Total Investments	72,472,687	88,586	101,656	371,844	73,034,773
Securities lending collateral pool	8,947,388	—	—	—	8,947,388
Capital assets (net of accumulated depreciation \$38,657)	15,736	—	—	—	15,736
Miscellaneous	36,203	6	—	—	36,209
Total Assets	84,236,824	89,155	135,317	457,790	84,919,086
Liabilities:					
Accounts payable and accrued expenses	182,806	77	197	2,736	185,816
Benefits payable	182,111	—	170	35,174	217,455
HOP participant premium advances	—	—	—	33,747	33,747
Investment purchases and other payables	229,443	593	—	—	230,036
Obligations under securities lending	8,947,388	—	—	—	8,947,388
Interfund payable	—	545	2,775	—	3,320
Other liabilities	166,942	—	—	—	166,942
Total Liabilities	9,708,690	1,215	3,142	71,657	9,784,704
Net position restricted for pension, DC and postemployment healthcare benefits	\$ 74,528,134	\$ 87,940	\$ 132,175	\$ 386,133	\$ 75,134,382

Section 1 - PSERS Overview

Statement of Changes in Fiduciary Net Position December 31, 2021 Unaudited (Dollar Amounts in Thousands)

	Pension	Defined Contribution	Premium Assistance	Postemployment Healthcare Health Options Program	Totals
Additions:					
Contributions:					
Members	\$ 542,624	\$ 13,828	\$ —	\$ —	\$ 556,452
Employers	2,410,506	10,820	57,225	—	2,478,551
Total contributions	2,953,130	24,648	57,225	—	3,035,003
HOP participant premiums	—	—	—	205,239	205,239
Centers for Medicare & Medicaid Services	—	—	—	33,852	33,852
Investment income:					
From investing activities:					
Net appreciation (depreciation) in fair value of investments	2,392,391	3,047	(178)	—	2,395,260
Short-term	4,838	6	273	92	5,209
Fixed income	240,113	—	—	—	240,113
Common and preferred stock	212,750	—	—	—	212,750
Collective trust funds	—	—	—	—	—
Real estate	255,773	—	—	—	255,773
Alternative investments	360,726	—	—	—	360,726
Total investment activity income	3,466,591	3,053	95	92	3,469,831
Investment expenses	(313,182)	(67)	—	—	(313,249)
Net income from investing activities	3,153,409	2,986	95	92	3,156,582
From securities lending activities:					
Securities lending income	16,648	—	—	—	16,648
Securities lending expense	(4,325)	—	—	—	(4,325)
Net income from securities lending activities	12,323	—	—	—	12,323
Total net investment income	3,165,732	2,986	95	92	3,168,905
Total Additions	6,118,862	27,634	57,320	239,183	6,442,999
Deductions:					
Benefits	3,512,325	—	57,132	203,495	3,772,952
Refunds of contributions	15,216	957	—	—	16,173
Administrative expenses	30,539	1,013	528	20,231	52,311
Total Deductions	3,558,080	1,970	57,660	223,726	3,841,436
Net increase (decrease)	2,560,782	25,664	(340)	15,457	2,601,563
Net position restricted for pension, DC and postemployment healthcare benefits:					
Balance, beginning of year	71,967,352	62,276	132,515	370,676	72,532,819
Balance, end of period	\$ 74,528,134	\$ 87,940	\$ 132,175	\$ 386,133	\$ 75,134,382

Actuarial Process and Pension Plan Funding



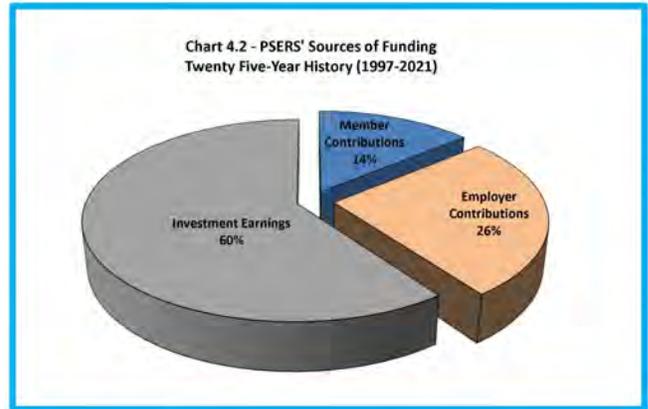
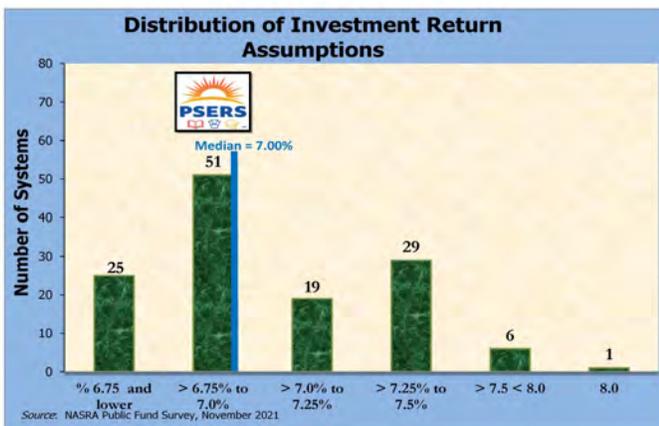
The Actuarial Process and Pension Plan Funding

Nearly all PSERS members are part of a defined benefit (DB) plan, meaning benefits are based on members' service and salary history. Act 5 of 2017 created two new hybrid defined benefit/defined contribution benefit options and a defined contribution only plan but did not go into effect until July 1, 2019. The following information highlights the actuarial process and funding for PSERS DB plan.

Actuarial Process

The actuarial process presumes that there will be a systematic flow of contributions at a specified level to pay for plan benefits and that the flow of contributions, together with investment earnings, will be sufficient to meet all benefit and expense requirements of the plan. Actuarial cost methods for funding PSERS pension plan are defined in the Public School Employees Retirement Code. The actuary for the pension plan and PSERS professionals review economic and demographic experience annually and, in more depth, over five-year periods. The actuary's periodic valuations test the validity of the underlying actuarial assumptions versus the actual experience of the plan. That experience is also used as a basis for formulating actuarial assumptions about what will occur in the future with respect to salary growth, investment returns, and demographic factors such as rates of retirement and death.

Chart 4.1



Actuarial Experience Study - June 30, 2021

Effective with the June 30, 2021 actuarial valuation, PSERS adopted several new demographic and economic assumptions as a result of the five-year Experience Study completed by PSERS actuary. PSERS investment rate of return assumption was changed from 7.25% to 7.00%, the salary growth assumption was changed from 5.00% to 4.50%, the inflation assumption was reduced from 2.75% to 2.50%, the payroll growth assumption was reduced from 3.50% to 3.25% and the rates of withdrawal, disability and retirement from employment among active members were updated and mortality rates were revised. Chart 4.1 displays PSERS 7.00% return assumption in comparison to other funds in the public pension universe.

Funding

The plan is funded through three sources(1) employer contributions; (2) member contributions; and, (3) investment earnings. As depicted in Chart 4.2, for the twenty-five-year period ended June 30, 2021 investment earnings provided 60% of PSERS funding followed by 26% from employers while members contributed 14%.

Employer Contributions

The Retirement Code vests PSERS Board with the authority to establish the employer contribution rate (ECR) based on the parameters in the Retirement Code. The Board in consultation with

The Actuarial Process and Pension Plan Funding (continued)

the actuary and PSERS staff establishes the employer contribution rate annually, as part of the annual actuarial valuation. The employer contribution rate, which is expressed as a percentage of payroll, is composed of three items: (1) the pension, (2) the defined contribution and (3) the healthcare premium assistance contributions.

The total employer contribution rate for the fiscal year ended June 30, 2021 was 34.51%, including 0.18% for Act 5 DC (estimated average rate) plus 0.82% for healthcare premium assistance.

The total employer contribution rate for the fiscal year ending June 30, 2022 is 34.94%. This rate consists of a 33.99% pension rate, 0.15% Act 5 DC (estimated average rate) plus the healthcare premium assistance contribution of 0.80%.

The FY2022-23 employer contribution rate is 35.26%. This rate consists of a 34.31% pension rate, the healthcare premium assistance contribution of 0.75% and an Act 5 DC estimated average rate of 0.20%. The Board of Trustees certified this rate, which was calculated in accordance with the provisions of PSERS retirement code, at their December 2021 meeting. While any contribution increase is a challenge for PSERS employers, the increase in the FY2022-23 contribution rate is only 0.92%. The very large increases that employers experienced prior to FY2017-18 are now in the past. The projected rate increases in the future are less than one-half of current levels of inflation.

For the fiscal year ended June 30, 2021, PSERS employer contributions totaled \$4.891 billion, which includes \$117 million for healthcare premium assistance and \$15 million for DC. For the fiscal year ending June 30, 2022 the estimate for total employer contributions is \$4.993 billion, reflective of the 34.94% contribution rate. The contribution rate for the fiscal year ending June 30, 2023 is 35.26%, resulting in an employer contribution estimate of \$5.112 billion.

Member Contributions

Most members of the Public School Employees Retirement System contribute between 7.5% and 10.8% of their pay depending on their class of membership to help fund their own retirement benefit. The average contribution rate payable by the members for the current year (FY2021-22) is 7.56%. This is in contrast to the majority of nonpublic (private) pension plans to which members do not contribute (Source: based on a query of private plan IRS Form 5500 filings). For these plans, the employers bear 100% of the costs of the benefit.

According to recent National Association of State Retirement Administrators (NASRA) data, PSERS member contribution rate is one of the highest among U.S. public pension plans that participate in Social Security.

Pursuant to Act 120, Class T-E and Class T-F members are subject to a “shared risk” employee contribution rate. Act 5 enhanced the shared risk program for T-E and T-F members and also added Class 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 specified range allotted for Class T-E, T-F, T-G and T-H but can fluctuate by the shared risk increment every three years depending on the investment performance of PSERS. These members share a portion of the investment risk of the Fund similar to a defined contribution plan. The member risk share measurement for the nine-year period ended June 30, 2020 determined that PSERS investment performance did not meet the shared risk target return threshold. Membership Class T-E, Class T-F, Class T-G, and Class T-H member defined benefit contribution rates increased on July 1, 2021. The next member risk share measurement is for the ten-year period ended June 30, 2023 and may affect the Class T-E, Class T-F, Class T-G, and Class T-H member contributions starting on July 1, 2024.

Section 1 - PSERS Overview

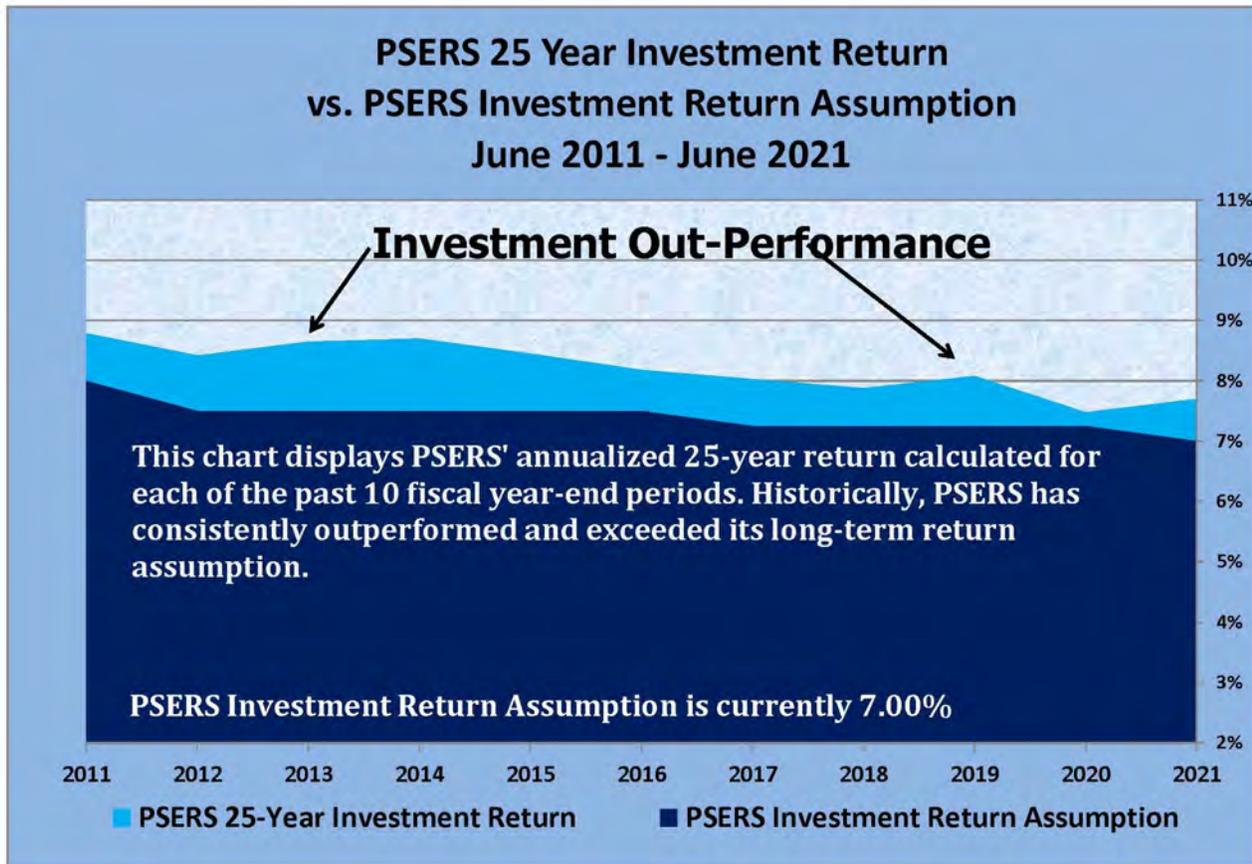
The Actuarial Process and Pension Plan Funding (continued)

PSERS members contributed \$1.081 billion of pension contributions for FY2021. Total member contributions are estimated to be \$1.080 billion for the fiscal year ending June 30, 2022 and \$1.090 billion for the fiscal year ending June 30, 2023.

Investment Returns

PSERS investment rate of return for the fiscal year ended June 30, 2021 was 24.58%, net of fees. The investment rates of return (net of fees) for the fiscal years ended June 30, 2020 and June 30, 2019 were 1.12% and 6.66%, respectively. The preliminary annualized rates of investment return for the three,

Chart 4.3



five, and ten-year periods ended December 31, 2021 are 13.59%, 10.58%, and 9.00%, respectively. Over the past 25 years ended December 31, 2021, the Fund earned an annualized rate of return of 7.69% (preliminary) which exceeded the Fund's long term investment rate of return assumption.

PSERS 25-year return, as shown in Chart 4.3, has consistently outperformed the actuarial investment rate of return. Throughout much of the 1990's and 2000's PSERS investment performance exceeded its investment rate of return assumption. This outstanding long-term investment performance resulted in declining employer contribution rates and/or contribution rates lower than the annual normal cost of benefits.

Funded Status

PSERS funded status is measured by comparing the actuarial value of assets with the accrued liability. The accrued liability is the present value of benefits accumulated to date for both active and retired members.

Section 1 - PSERS Overview

The Actuarial Process and Pension Plan Funding (continued)

Key Facts

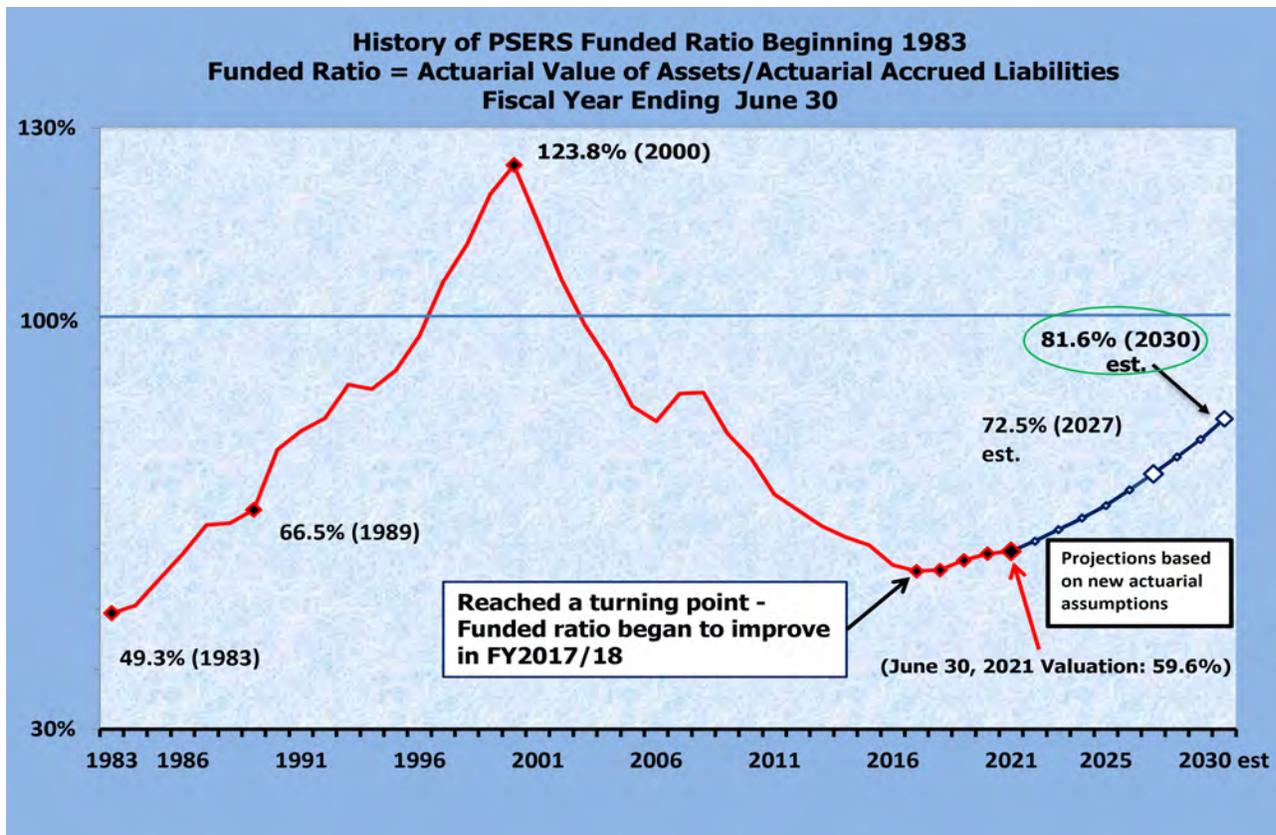
As a result of legislated contribution increases under Act 120, PSERS reached a turning point effective with the June 30, 2018 actuarial valuation as PSERS funded ratio began to slowly improve after declining for many years.

- Funded Status: 59.6% as of June 30, 2021
- Funded Status: 59.2% as of June 30, 2020
- Funded Status: 58.1% as of June 30, 2019
- Funded Status: 56.5% as of June 30, 2018
- The increase in FY2021 is the third consecutive improvement in the funded ratio, on an actuarial basis.

- The decrease in the funded status from 2000 to 2017 as depicted in Chart 4.4 was the result of several factors including: the unfavorable investment markets from 2001 to FY2003 and FY2008 to FY2009; funding changes enacted in Act 38 of 2002 and Act 40 of 2003 which resulted in employers underfunding PSERS; benefit enhancements from Act 9 and Act 38; the adoption of new demographic and economic assumptions in FY2016; funding collars in Act 120 which continued the employer underfunding of the system; and, actuarial liability losses.

A history of PSERS funded ratio beginning in 1983 and nine-year projection of PSERS funded status is shown in Chart 4.4. As a result of legislated contribution increases under Act 120, PSERS reached a turning point effective with the June 30, 2018 actuarial valuation as PSERS funded ratio began to slowly improve after declining for many years. Future projections now reflect a steadily increasing funded ratio.

Chart 4.4



Section 1 - PSERS Overview

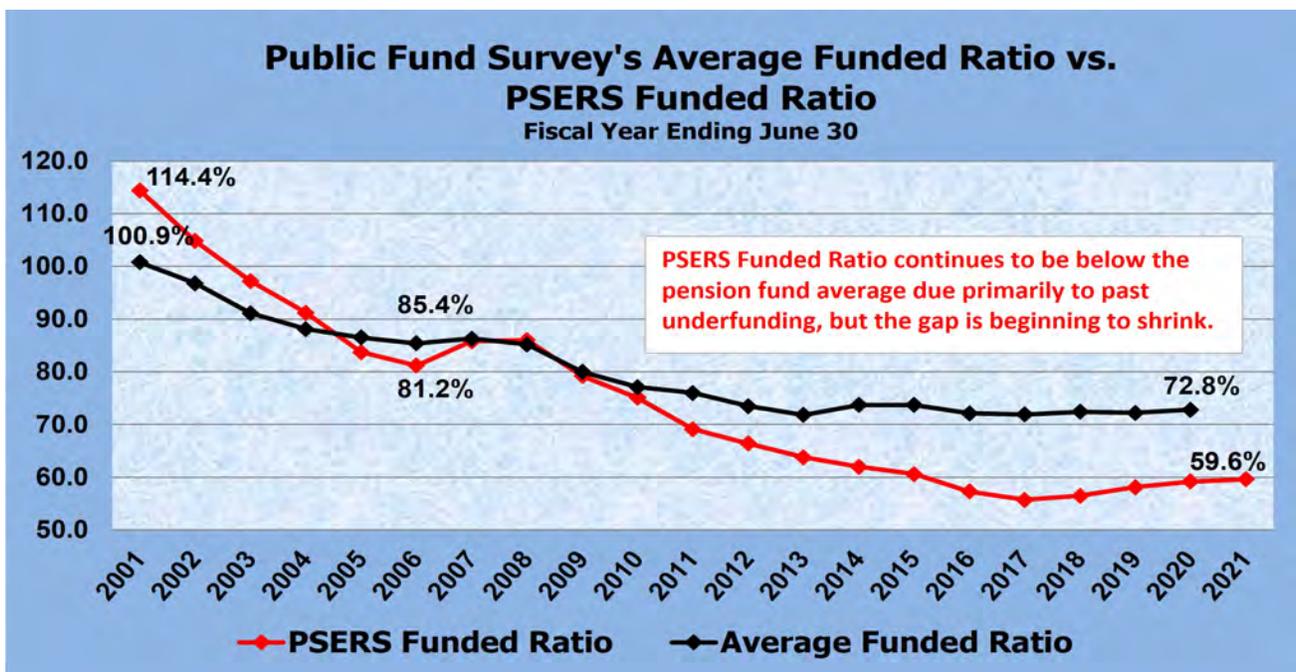
The Actuarial Process and Pension Plan Funding (continued)

A comparison of PSERS funded ratio to the public fund projected weighted average funding ratio provided by the National Association of State Retirement Administrators (NASRA) is shown in Chart 4.5 below. A lower than average funded ratio is an important factor because it signifies a smaller than average asset base. A smaller asset base means a greater percentage of the investment returns are being used to pay benefits, and results in a very slow growth of assets. High employer contributions are required in order for assets to grow.

Besides market performance, other factors that affect a plan's funding level include contributions made relative to those that are required; changes in benefit levels; changes in actuarial assumptions, and rates of employee salary growth (Public Fund Survey, 2021).

Since July 1, 2016 PSERS employer contribution rate has provided 100% of the actuarially required contributions. This was the first major step needed for PSERS funded ratio to begin to improve. As noted previously, as a result of receiving 100% of the actuarially required contributions for the second consecutive year, PSERS funded ratio began to increase in FY2017-18 and has steadily improved through FY2020-21. The gap between PSERS funded ratio and the public fund average is shrinking.

Chart 4.5



The Actuarial Process and Pension Plan Funding (continued)

Sources of Unfunded Liability

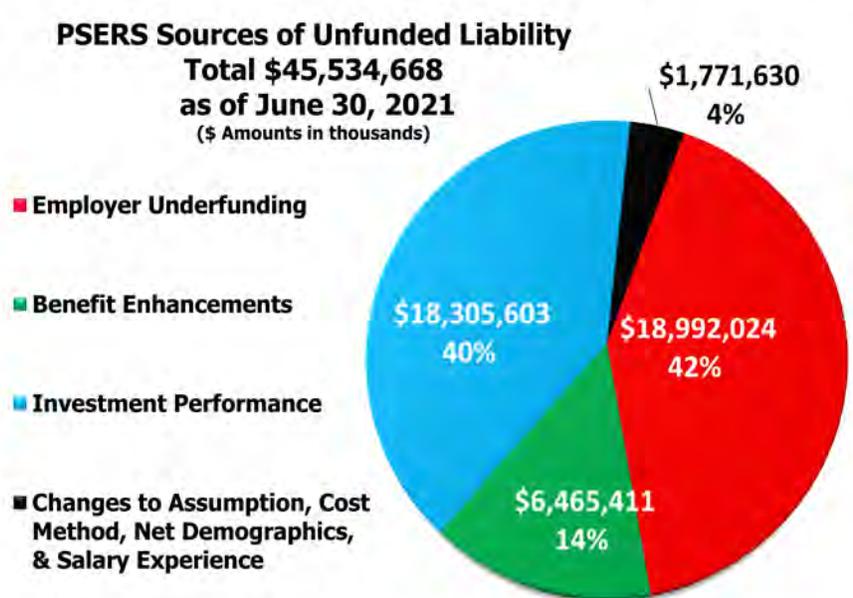
The System’s total funded ratio (for Pensions and Health Insurance combined) is 59.6% as of June 30, 2021. This funded ratio is based on an actuarial value of assets of \$67.25 billion and a total accrued liability of \$112.78 billion which equates to a \$45.53 billion unfunded liability. Chart 4.6 depicts the sources of the unfunded liability. The largest sources of unfunded liability in order of magnitude are employer funding deferrals (42%), investment performance (40%), and benefit enhancements (14%), which include Act 9, cost of living increases and early retirement incentives.

For many years PSERS outstanding investment performance compensated for unfunded benefit enhancements and employer funding deferrals. The Great Recession had a negative impact upon the System’s long-term investment performance and eliminated most of the significant investment out-performance. Without the significant investment out-performance to compensate, the employer funding deferrals and benefit enhancements have significantly increased PSERS unfunded liability. Approximately fifty-six percent of PSERS June 30, 2021 unfunded liability is due to employer funding deferrals and benefit enhancements, both of which are not a result of the defined benefit plan design.

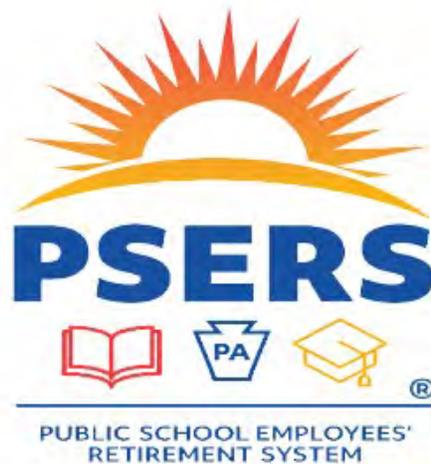
GASB 68 and 75 Pension and Healthcare Reporting for Employers

In June 2021, PSERS sent information to its employers to assist them in complying with GASB Statement No. 68, Accounting and Financial Reporting for Pensions and Statement No. 75, Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions (OPEB). The information sent to employers included a memo explaining PSERS role, descriptions of the material provided, and the employers’ responsibilities. In addition to the memo, PSERS provided a variety of schedules audited by PSERS independent public accountants as well as unaudited schedules. PSERS strives to incorporate all the information necessary for employers to comply with GASB 68 and 75 reporting requirements in these audited and unaudited schedules. Additionally, PSERS continues to make itself available to assist employers and their auditors should they have any additional requests in order to comply with GASB 68 and 75.

Chart 4.6



Employer Contribution Rate



Section 1 - PSERS Overview

Employer Contribution Rate

PSERS undergoes an annual independent actuarial valuation to calculate the actuarial assets and liabilities of the pension fund. Based on the actuarial valuation process, the actuary in consultation with PSERS professionals, develops the recommended Employer Contribution Rate (ECR) that determines the employer contributions to the pension plan, defined contribution plan, and healthcare premium assistance. The valuation process also measures the progress of the pension system toward funding pensions for its active and retired members.

Employer Contribution Rate Statistics

- Highest historical ECR (FY2021-22) 34.94 %
- Lowest historical ECR (FY2001-02) 1.09 %
- Ten yr. avg. ECR (2012-13 to 2021-22) 27.63 %
- Twenty yr. avg. ECR (2002-03 to 2021-22) 16.38 %
- Thirty yr. avg. ECR (1992-93 to 2021-22) 13.69 %
- Adopted ECR (FY2022-23) 35.26 %

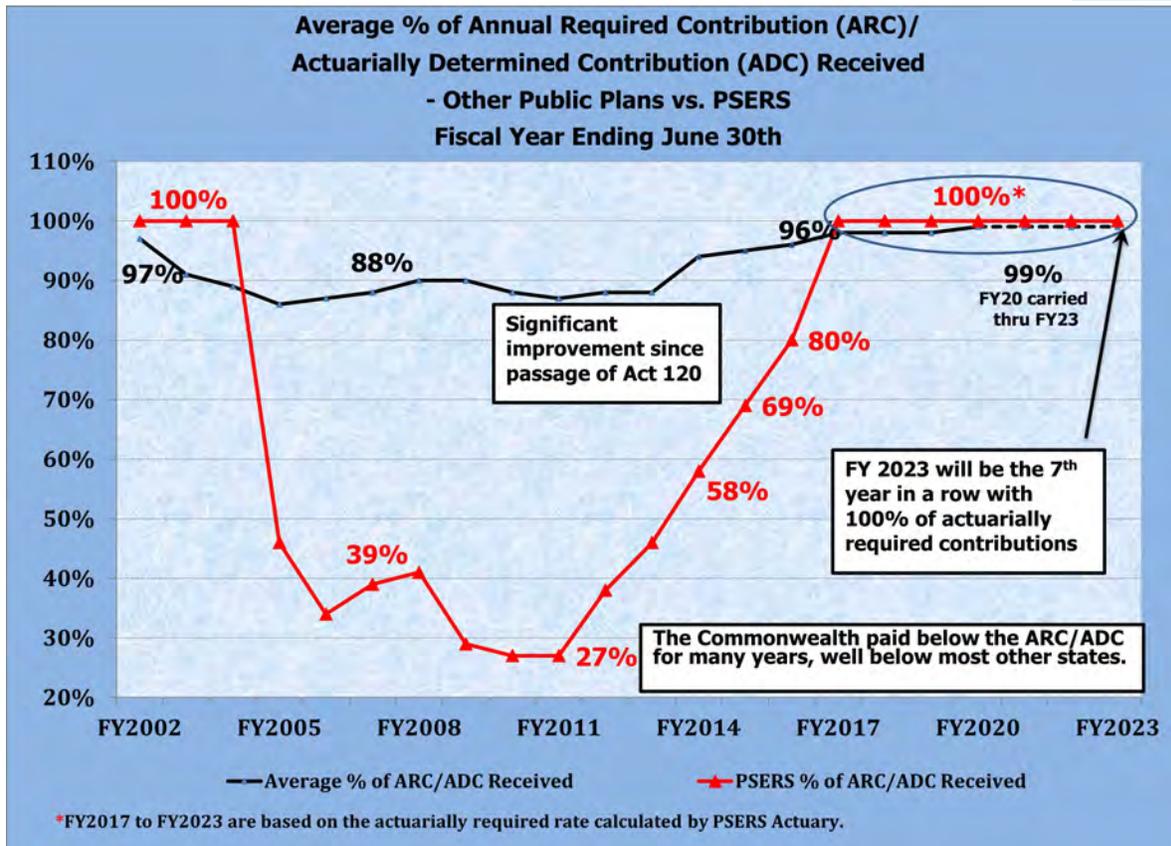
Act 120 of 2010

Progress on Funding Issue

PSERS is now in the 11th year under Act 120 of 2010. Act 120 provided historic pension reform and made dramatic progress toward addressing funding issues at PSERS. The legislation included actuarial and funding changes to PSERS and benefit reductions for individuals who became new members of PSERS on or after July 1, 2011.

As depicted in Chart 5.1, the gradual rate increases under Act 120 raised PSERS employer contributions to the 100% annual required contribution (ARC) goal, now referred to as the actuarially determined contribution (ADC) starting in FY2016-17. An ARC/ADC includes both the employer's normal cost and the amount required to amortize the unfunded actuarial accrued liability (UAAL) in an actuarially sound manner. PSERS Board certified an employer contribution rate of 35.26% for FY2022-23 in compliance with Act 120 and Act 5 of 2017. This will be the seventh consecutive year PSERS contribution rate provides 100% of the actuarially required contributions based on sound actuarial practices and principles and now exceeds the average ARC/ADC percentage

Chart 5.1



Employer Contribution Rate (continued)

of 99% for public funds based on the November 2021 Public Fund Survey prepared by NASRA.

Impact of Benefit Reduction for New Members on or after July 1, 2011

For school employees who became new members of PSERS on or after July 1, 2011 through June 30, 2019, there are two membership classes with “shared risk” elements: Class T-E and T-F. As of June 30, 2021, T-E and T-F members now total over 71,000 and account for 29% of the total active membership.

Class T-E

- Pension multiplier is 2%
- Effective July 1, 2011 employee contribution base rate is 7.5% (base rate) with “shared risk” contribution levels between 7.5% and 9.5%

Class T-F

- Pension multiplier is 2.5%
- Effective July 1, 2011 employee contribution base rate is 10.3% (base rate) with “shared risk” contribution levels between 10.3% and 12.3%

As of June 30, 2021, 57,944 or 81% of new members remained in Class T-E and 13,766 or 19% of new members elected Class T-F. As indicated, Class T-F members maintain the higher 2.5% pension multiplier but fully pay for the higher benefit by contributing a higher member contribution rate than Class T-E members.

For school employees who became new members of PSERS on or after July 1, 2019, there are two membership classes with “shared risk” elements: Class T-G and T-H. As of June 30, 2021, T-G and T-H members now total over 25,000 and account for 10% of the total active membership.

Class T-G

- Pension multiplier is 1.25%
- Effective July 1, 2019 employee contribution base rate is 8.25% (base DB rate of 5.5% plus DC rate of 2.75%) with “shared risk” contribution levels between 8.25% and 11.25%

Class T-H

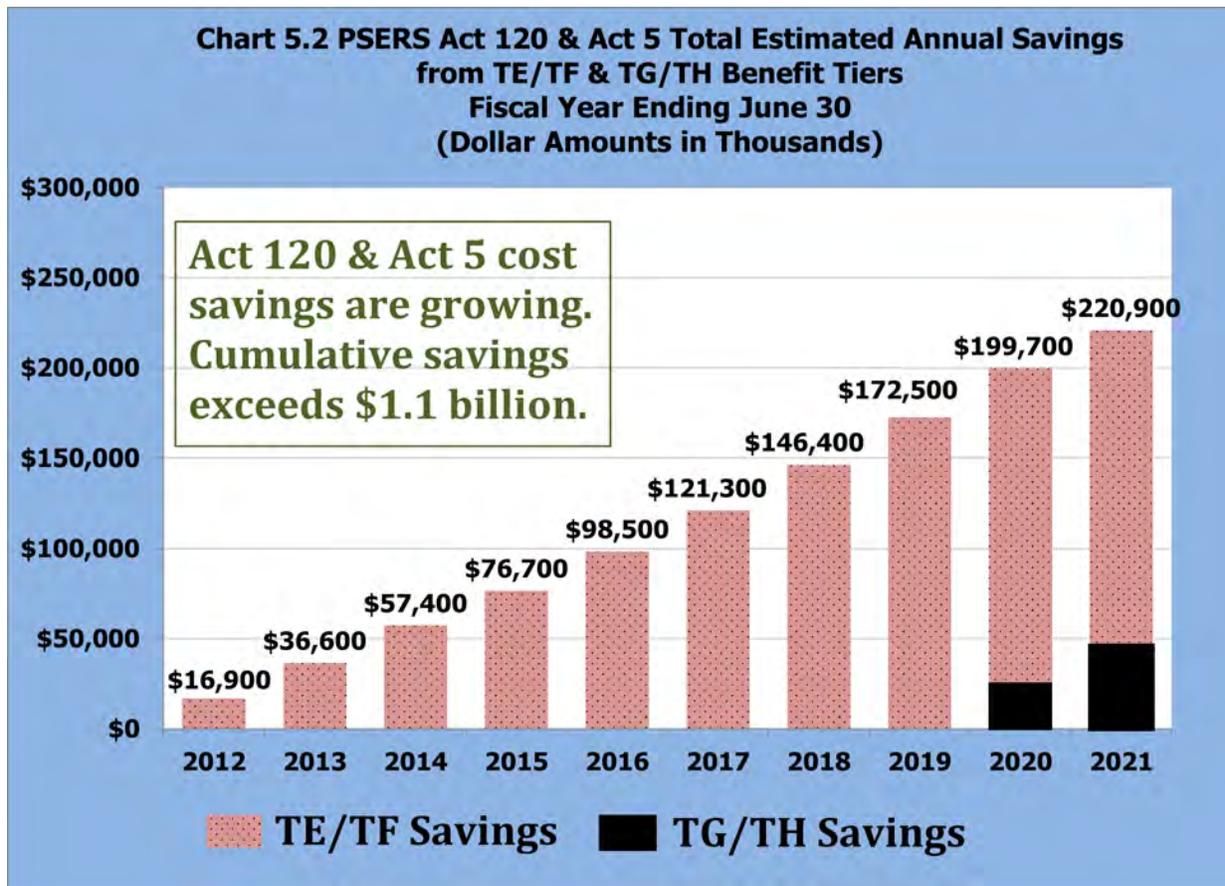
- Pension multiplier is 1.00%
- Effective July 1, 2019 employee contribution base rate is 7.5% (base DB rate of 4.5% plus DC rate of 3.0%) with “shared risk” contribution levels between 7.5% and 10.5%

As of June 30, 2021, 25,061 or 99% of new members remained in Class T-G and 139 or 1% of new members elected Class T-H. As indicated, Class T-G members maintain the higher 1.25% pension multiplier but fully pay for the higher benefit by contributing a higher member contribution rate than Class T-H members.

The total estimated savings of the T-E/T-F and T-G/T-H Benefit Tiers is illustrated in Chart 5.2. As the membership grew through FY2020-21, the annual savings from the low T-E/T-F and T-G/T-H cost structure also increased and allowed a greater portion of employer contributions to go towards paying the unfunded liability. Class T-E and T-F closed to new members after June 30, 2019. Cumulative estimated savings through June 30, 2021 are \$1.147 billion. The average member benefit for Act 120 members is approximately 32% lower than the benefit for pre- Act 120 members.

Section 1 - PSERS Overview

Employer Contribution Rate (continued)



Funding Changes - Employer Contributions

Act 120 of 2010 also suppressed the employer contribution rate by using rate caps to keep the rate from rising too high, too fast for budgetary purposes. The rate caps limited the amount the pension component of the employer contribution rate could increase over the prior year's rates. Effective with FY2016-17 the rate caps were no longer in place. PSERS Board has approved a total employer contribution rate of 35.26% for FY2022-23 which is a less than inflation increase of 0.92% over the FY2021-22 rate of 34.94%. This is the second smallest percentage increase since FY2009-10.

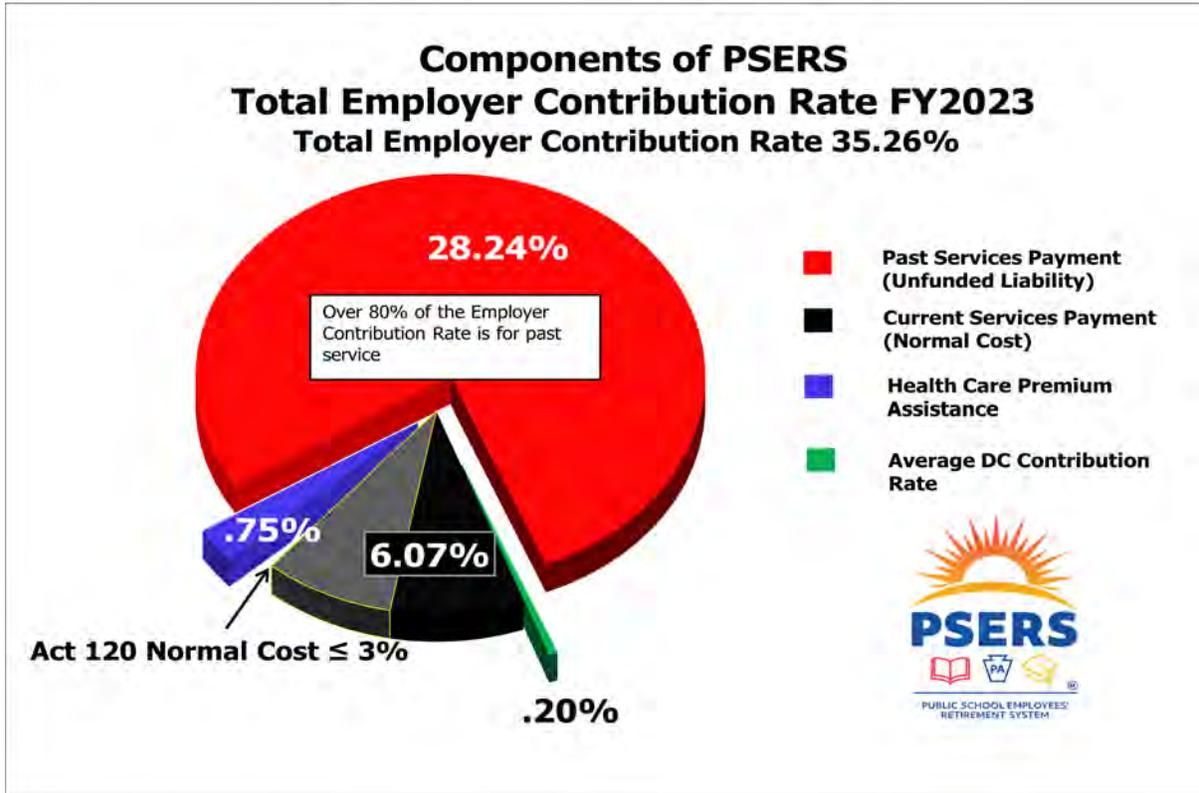
Employer Contribution Rate

Chart 5.3 displays the components of PSERS certified employer contribution rate of 35.26% in FY2022-23. The majority of the rate, over 80%, is

dedicated toward paying the cost of past service. The employers' cost for current service is a much smaller portion of the contribution rate and is projected to decrease each year as more post Act 120 members (includes Act 5) join the System and pre-Act 120 members retire. The cost structure of PSERS members since Act 120 is low and the shared risk provisions shift a portion of the investment risk to active members similar to a defined contribution plan. Essentially, Act 120 provides the members with a defined benefit plan, which is both adequate and secure, and provides the employers with a low cost employee pension benefit funded in large part by the members who have also assumed some of the investment risk. New members after June 30, 2019 fall under Act 5. Act 5 continues the low cost of current benefits created by Act 120 and shifts additional investment risks to members in the future as the defined contribution plan of Act 5 grows.

Employer Contribution Rate (continued)

Chart 5.3



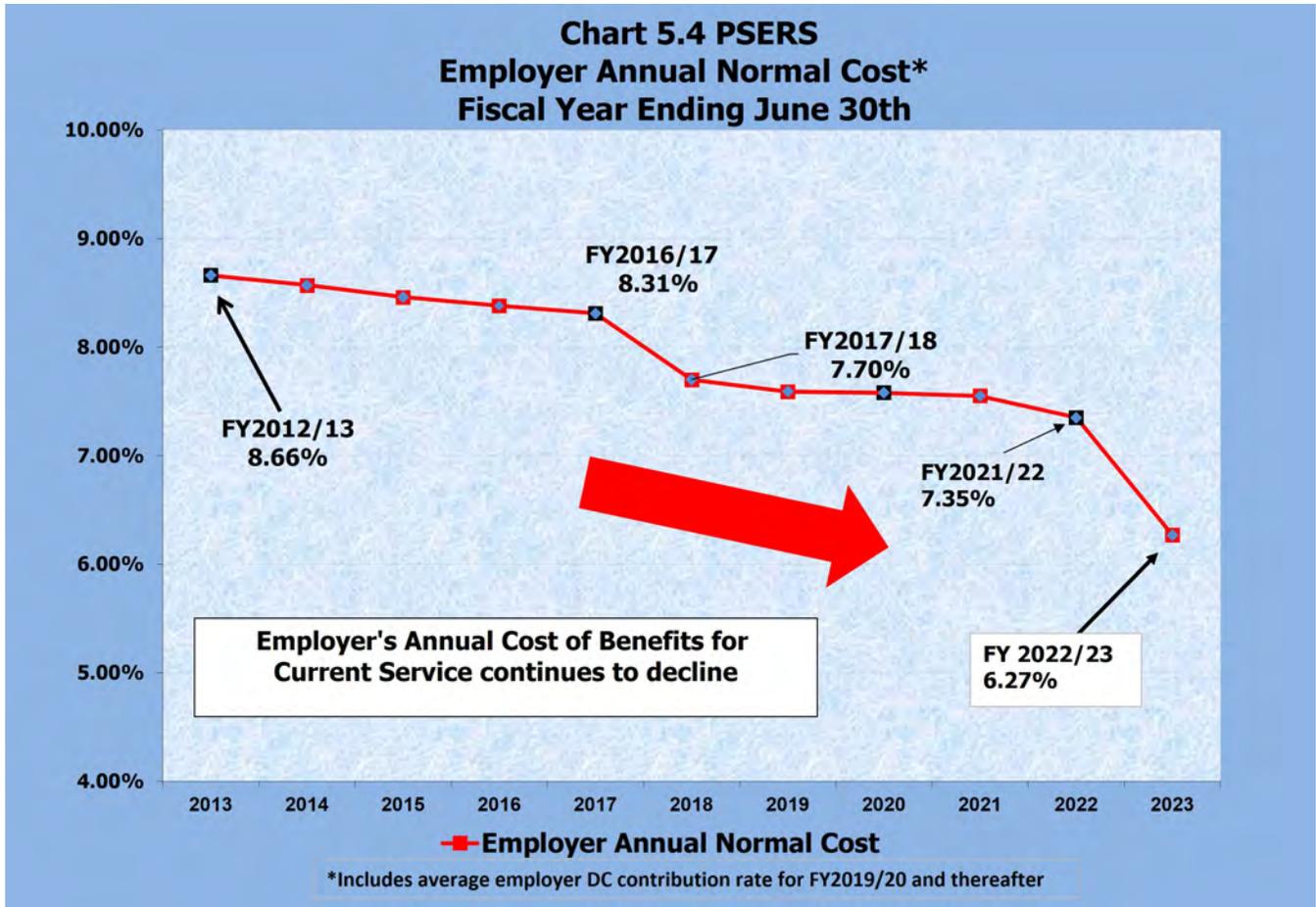
Section 1 - PSERS Overview

Employer Contribution Rate (continued)

Act 120 Employer Costs

As Chart 5.4 depicts, the employer normal cost decreases over time as Act 120 and Act 5 members replace retiring pre-Act 120 members. The employer normal cost of current benefits earned by Act 120 and Act 5 members is less than 3% of payroll which is less than 65% of the normal cost for pre-Act 120 members.

This represents a significant cost reduction for the employers. Chart 5.4 projects the employer normal cost to be 6.07% in FY2022-23 which is a 30% reduction from the 8.66% normal cost in FY2012-13. The substantial decrease from 7.35% in FY2021-22 to 6.07% in FY2022-23 is mainly due to the continued migration to lower cost members and from the new actuarial assumptions adopted by the Board.



Section 1 - PSERS Overview

Employer Contribution Rate (continued)

The Commonwealth's Department of Education School Employees Retirement Appropriation

The Commonwealth provides for its share of contributions to PSERS within the Department of Education budget. On average, the Commonwealth pays 57% of total employer contributions and employers pay for 43%.

Table 5.1 illustrates the projected amounts of the Commonwealth's Appropriation for FY2022-23 through FY2026-27. As depicted, the Commonwealth's share of contributions are starting to level out as the projected employer contribution rate increases in the future are less than current levels of inflation.

Act 5 of 2017

On June 12, 2017 Governor Wolf signed Act 5 of 2017 into law. This pension legislation represents a substantial change to PSERS operations and made significant changes to PSERS benefit structure for future members. School employees who become new members of PSERS on July 1, 2019 and thereafter must choose one of three new retirement plan options for their retirement benefits. The new plan designs include two hybrid benefit options consisting of defined benefit and defined contribution components and a stand-alone defined contribution plan. The current stand-alone defined benefit plan is no longer available to new members.

Act 5 does not affect already retired members or those whose retirement date was prior to June 12, 2017. Class T-C, Class T-D, Class T-E, and Class T-F members 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.

Act 5 allows an actuarially neutral Option 4 "lump sum" withdrawal of member contributions and interest for Class T-E and Class T-F members whose retirement date is on or after June 12, 2017, and expanded to the "shared risk" program.

Legislative Pension Proposal Assistance

Throughout 2021, PSERS professionals were actively engaged in providing actuarial data, legislative analyses and related technical information to members of the General Assembly and Executive Branch Officials on a range of pension policy proposals while remaining policy neutral.

PSERS will continue to cooperate with the General Assembly in its role as a technical expert in providing fact-based information to support efforts in determining effective pension policy. As in the past, PSERS will assist in drafting technically correct provisions and providing input on funding and operational aspects of various proposals, while remaining policy neutral on plan design elements of legislative proposals.

Table 5.1

**Commonwealth's Department of Education School Employees Retirement Appropriation
(Dollar Amounts in Billions)**

	-----Projected-----				
	<u>2022-23</u>	<u>2023-24</u>	<u>2024-25</u>	<u>2025-26</u>	<u>2026-27</u>
School Employees Retirement	\$2.901	\$3.007	\$3.101	\$3.201	\$3.296

Employer Contribution Rate (continued)

Recap

Act 120 reduced the employer's annual cost of benefits for members hired after June 30, 2011 by over 32% via member benefit reductions. However, a significant unfunded liability for service already rendered by pre-Act 120 members still remains to be paid. To address the underfunding which had taken place since FY2000-01, Act 120 also included rate collars designed to systematically increase the employer contribution rate over several years to raise the funding to actuarially required levels. Now that this objective has been achieved, the rate collars no longer apply.

At its December 2021 meeting, PSERS Board of Trustees certified an annual contribution rate of 35.26% for FY2022-23 which continues to put PSERS on the path towards full funding. For the seventh consecutive year, the Commonwealth's employer contributions rate provides 100% of the actuarially required contributions based on sound actuarial practices and principles. Contribution rates began to level off after FY2017-18 which has reduced budgetary pressure on the Commonwealth and school districts in FY2020-21 and beyond. The Pennsylvania Independent Fiscal Office (IFO) has recognized the Commonwealth's progress on its pension funding issues. As shown in Chart 5.5, pensions share of the Commonwealth's General Fund expenditures has leveled off and is no longer a major driver of General Fund expenditure growth. As displayed in Chart 5.6, the anticipated growth in PSERS Employer Contribution Rate is expected to be at less than half of inflationary levels for the next several years.

PSERS has reached a Turning Point under Act 120

Effective in FY2017-18, PSERS actuarial funded ratio has begun to slowly improve after declining steadily since FY2000-01. On a market value basis, PSERS funded ratio increased from 50.14% at June 30, 2016 to 63.90% at June 30, 2021 due primarily to PSERS receiving the full actuarially required contributions in each of the past four years and positive investment returns. As a result of these funding improvements, bond rating agencies have stated that the pension contribution increases borne by school employers and the Commonwealth have made a positive impact upon their ratings. This is very significant as the bond rating agencies' outlooks impact the Commonwealth's borrowing costs. In raising its outlook on the Commonwealth's general obligation bonds from 'negative' to 'stable' in September 2020, Fitch Ratings, Inc. noted that "The Commonwealth's long term liability burden is low. A recently completed ramp-up to making full actuarially determined contributions could slow future growth in net pension liabilities and lead to liability declines if maintained over time and if actuarial assumptions are met."

A major funding milestone was also reached during FY2016-17 as employers funded 100% of the actuarially required contributions to PSERS for the first time in fifteen years. FY2022-23 will be the seventh year in a row that PSERS will receive the full actuarially required contributions. These contributions are making a positive difference as PSERS funded ratio in FY2020-21 increased by a significant amount for the third consecutive year following a period of general decline since FY1999-00. Full actuarial funding from employers, along with member contributions and investment income are all necessary sources of funds that continue to pay down the unfunded liability of the System. While a challenging pension funding environment remains for school employers and the Commonwealth due to legacy debt issues, all of the sources of funding are now in place to bring PSERS back to fully funded status in an actuarially sound manner.

Section 1 - PSERS Overview

Employer Contribution Rate (continued)

Chart 5.5

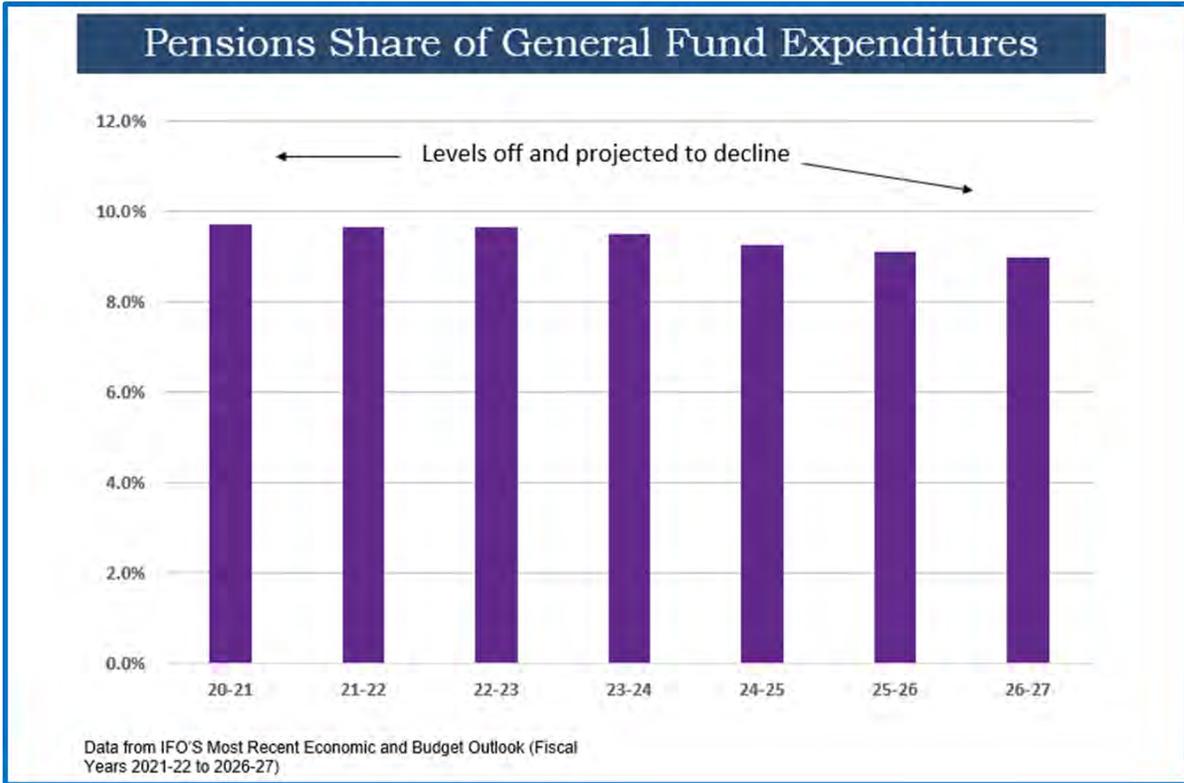
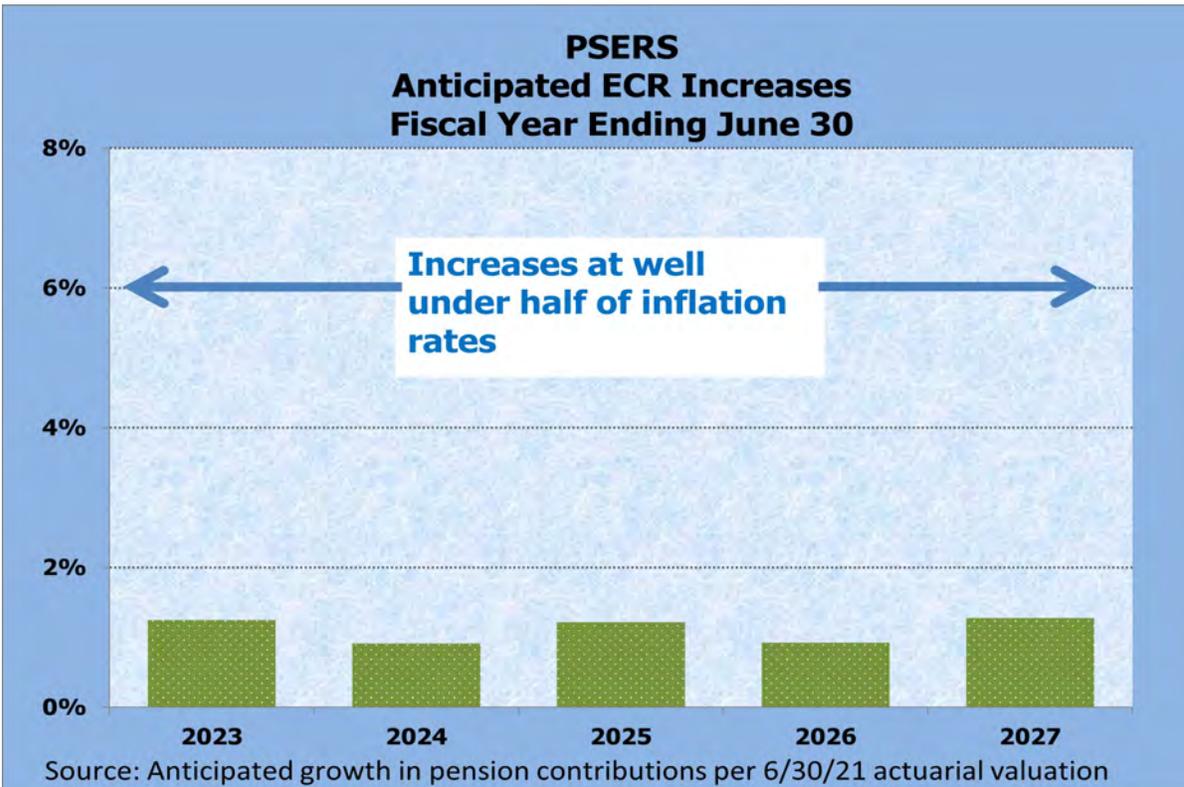


Chart 5.6

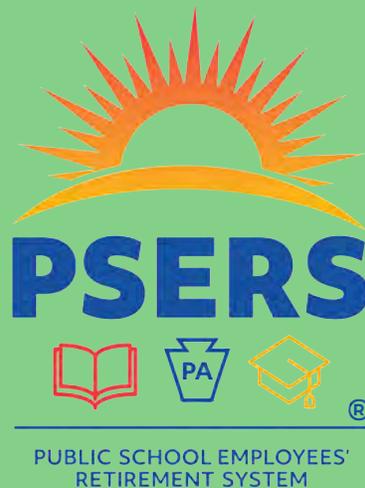


PSERS BUDGET REPORT - FY2022-2023

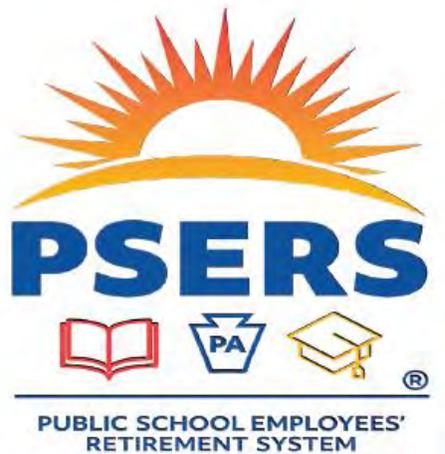


SECTION 2 - PSERS FY2022-23 BUDGET

Consultants Fees and Legislation	Tab 6
PSERS FY2022-23 Administrative, Defined Contribution Administrative, and Directed Commissions Recapture Program Budgets	Tab 7



Consultants Fees and Legislation



Section 2 - FY2022-23 Budget

Consultants' Fees (\$100,000 and Over)

Tables 6.1 and 6.2 list professional service firms under contract to provide services to PSERS during the fiscal year ended June 30, 2021.

**Table 6.1
Investment, Pension and Defined Contribution Plan Administration
Consultants**

<u>Firm</u>	<u>Services Provided</u>	<u>Consultant Fee</u>
ViTech Systems Group, Inc.	Pension administration system services	\$ 5,300,000 *
Hamilton Lane Advisors LLC	Private market consulting	\$ 2,000,000
Unisys Corporation	Server maintenance	\$ 1,667,759
Aon Investment Consulting	General investment consulting	\$ 655,892
Aksia LLC	Hedge fund investment consulting	\$ 595,000
OST Inc.	Information technology services	\$ 594,119 *
Buck Global, LLC	Pension Benefit Actuarial Services	\$ 461,633
Funston Advisory Services LLC	Board Governance Consulting Services	\$ 400,000 *
Clifton Larson Allen LLP	Financial Audit - Pension, Defined Contribution, Healthcare	\$ 212,370

**Table 6.2
Health Options and Premium Assistance Program Consultants**

<u>Firm</u>	<u>Services Provided</u>	<u>Consultant Fee</u>
Trustmark Health Benefits	Post employment healthcare benefits administration and claims adjudication	\$ 32,810,296 *
Optum Rx, Inc.	Post employment healthcare benefits administration and prescription drug plan	\$ 6,146,201 *
The Segal Company, Inc.	Consulting services for the Health Options Program and prescription drug plan	\$ 3,543,649 *
Gallagher Benefits Services, Inc.	Pharmacy benefit consulting services	\$ 1,079,577 *
Tivity Health	Silver Sneakers Fitness Program administration	\$ 833,901 *

* Amounts as reported in PSERS Annual Comprehensive Financial Report.

Legislation PSERS-Related 2021

Act 11A of 2021 (House Bill 1512)

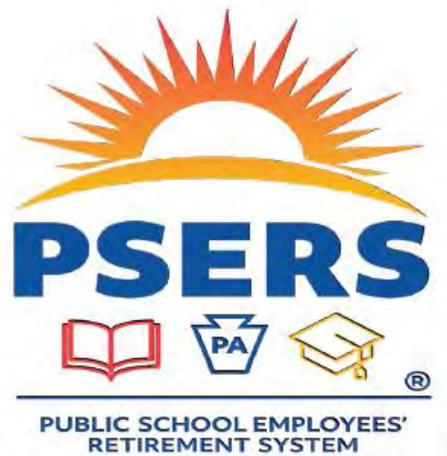
Act 11A of 2021 (House Bill 1512) makes an appropriation of \$52,906,000 from the Public School Employees Retirement Fund to provide for the expenses incurred by the Public School Employees Retirement Board for the administration of the system for the fiscal year July 1, 2021, to June 30, 2022, and for the payment of bills incurred and remaining unpaid at the close of the fiscal year ending June 30, 2021. Additionally, the Act appropriates \$955,000 from the PSERS Defined Contribution Fund restricted revenue account to provide for the expenses incurred by the Public School Employees Retirement Board for the administration of the defined contribution plan authorized by Act 5 of 2017 for the fiscal year beginning July 1, 2021, and for the payment of bills incurred and remaining unpaid at the close of the fiscal year ending June 30, 2022.

PSERS also manages non-appropriated funds that cover expenses for Investment-Related Expenses, Health Insurance Account, Health Options Program, and Directed Commissions. PSERS FY2021-22 budgets, including non-appropriated funds, total \$94,019,000.

Act 91 of 2021 (HB 412)

Act 91 of 2021 (HB 412) was enacted in December 2021 to provide additional flexibility regarding the hiring of substitute teachers through the 2022-2023 school year. For PSERS, this means that employers may hire a PSERS retiree as a day-to-day substitute under the emergency provisions of the Public School Employees Retirement Code without having to first offer such employment to a non-PSERS retiree; provided the employer first notifies and offers employment to those on a recall list.

PSERS FY2022-23 Administrative, Defined Contribution Administrative, and Directed Commissions Recapture Program Budgets



Section 2 - FY2022-23 Budget

Public School Employees Retirement System Fiscal Year 2022-2023 Administrative Budget

Table 7.1	<u>Appropriated Budget FY2020-21</u>	<u>Appropriated Budget FY2021-22</u>	<u>Budget Request FY2022-23</u>
Total Personnel Services	\$ 28,749,000	\$ 29,466,000	\$ 31,639,000
Operating Expenses and Fixed Assets			
Travel	\$ 197,400	\$ 163,800	\$ 158,800
Training & Conference Registration	185,600	170,400	164,900
Telecomm	419,200	415,200	427,000
Electricity	20,700	20,700	20,700
Consultant Services - Non EDP	2,165,500	1,602,000	1,543,600
Outsourced IT Consulting For Appl &	110,000	70,000	—
Consulting - Maint & Support - (Post Implementation)	83,000	45,000	45,000
Consulting - Security (Outsourced Inf Sec Services)	75,000	45,000	50,000
Consulting - General IT Support	1,278,000	1,108,600	900,600
Consulting - Outsourced Infrastructure Svcs (PACS)	1,250,000	2,095,000	2,655,000
Legal Services/Fees	227,000	352,000	1,362,200
Specialized Services	821,800	736,000	784,400
Other Specialized Services	220,300	244,400	243,800
Advertising	10,000	10,000	10,000
Medical, Mental & Dental Services	6,500	6,500	6,500
IT Shared Services	204,640	240,000	240,000
Software Licensing - Maintenance	1,064,860	1,114,100	1,084,800
Hardware - Maintenance	90,300	58,000	73,000
Contracted Maintenance Non EDP	162,800	162,800	158,000
Telecomm Data Services	83,200	64,000	56,000
Contracted Repairs - Non EDP	15,500	15,500	15,500
Real Estate Rental	1,936,900	2,039,100	2,022,900
Vehicle Rental	5,500	7,000	7,000
Office Equipment Rental	314,900	158,400	158,400
Other Rentals	8,900	10,000	10,600
Office Supplies	229,600	166,500	149,200
Educational & Medical Supplies	8,300	6,600	5,300
Software License Non-Recurring < \$5,000	11,900	261,000	246,100
Software Licensing - Proc. - Recurring	297,500	399,100	464,400
Hardware Desktop < \$5,000	281,500	134,500	49,500
Furniture and Fixtures	75,200	65,200	60,200
Other Equipment	13,000	10,000	10,000

Section 2 - FY2022-23 Budget

Table 7.1	<u>Appropriated Budget FY2020-21</u>	<u>Appropriated Budget FY2021-22</u>	<u>Budget Request FY2022-23</u>
Motorized Equipment Supplies	21,000	19,500	20,000
Postage and Freight	\$ 953,000	\$ 794,000	\$ 727,000
Printing	210,200	203,300	183,400
Subscriptions	47,400	48,300	37,200
Member Dues	41,500	44,800	49,300
Conference Expense	61,000	74,700	69,700
Insurance, Surety & Fidelity Bonds	10,000	170,000	189,500
Other Operational Expenses	2,851,200	2,630,900	2,620,500
HW Network and Server	—	—	200,000
Automobiles	19,800	19,800	20,000
Software License	7,507,000	6,798,000	6,500,000
Office Equipment	28,200	28,300	28,000
Total Operating Expenses and Fixed Assets	\$ 23,545,000	\$ 22,828,000	\$ 23,828,000
Total Administrative Budget	\$ 52,294,000	\$ 52,294,000	\$ 55,467,000

Administrative Budget

Table 7.1 displays PSERS Administrative Budget Request for FY2022-23. The \$55,467,000 administrative budget is not funded from the Commonwealth's General Fund, but rather from the earnings of the Fund itself. Historically, PSERS has under spent its approved budget, keeping more funds available to invest for PSERS members.

PSERS Administrative Budget Request for FY2022-23 resulted in an increase of \$3,173,000 or 6.0% above the FY2021-22 available budget. The majority of the increase is in personnel costs due to PSERS requesting 7 new positions--5 in the Information Technology Office (ITO) and 2 in the Internal Audit Office (IAO). As a result of a governance study which was recently completed by an outside consultant, PSERS Board is putting a greater emphasis on enhancement of cyber incident response strategies and improved continuity and disaster recovery documentation. Two of the ITO positions will be Information Security Specialists who will develop and implement security standards and policies; ensure integrity of systems and data; and identify security threats and develop counter measures. Another two positions in ITO will be Project Managers who will lead large, high-impact IT projects with multiple business areas and

vendors; manage scope and resources; and assign and prioritize tasks. These 2 positions will result in net savings of \$100,000 annually by reducing the need for outside contractors. A fifth position in ITO will be an Application Developer to design, develop, test, and document PSERS custom business solutions. The first IAO position that is being requested is an Assistant Audit Executive. This person would assess the IT environment, internal controls, and security of systems; provide training on IT competencies to audit staff on planned engagements; and lead operational audits in areas such as procurements and third-party risk management. The second IAO position would be an Assistant Internal Auditor for Financial Reporting and Healthcare. This person would ensure PSERS meets healthcare compliance standards; conduct evaluations of internal controls related to the healthcare program; and assist with the financial statement audit and fraud, waste, and abuse investigations.

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 three years, the System has added significantly to the number of active and

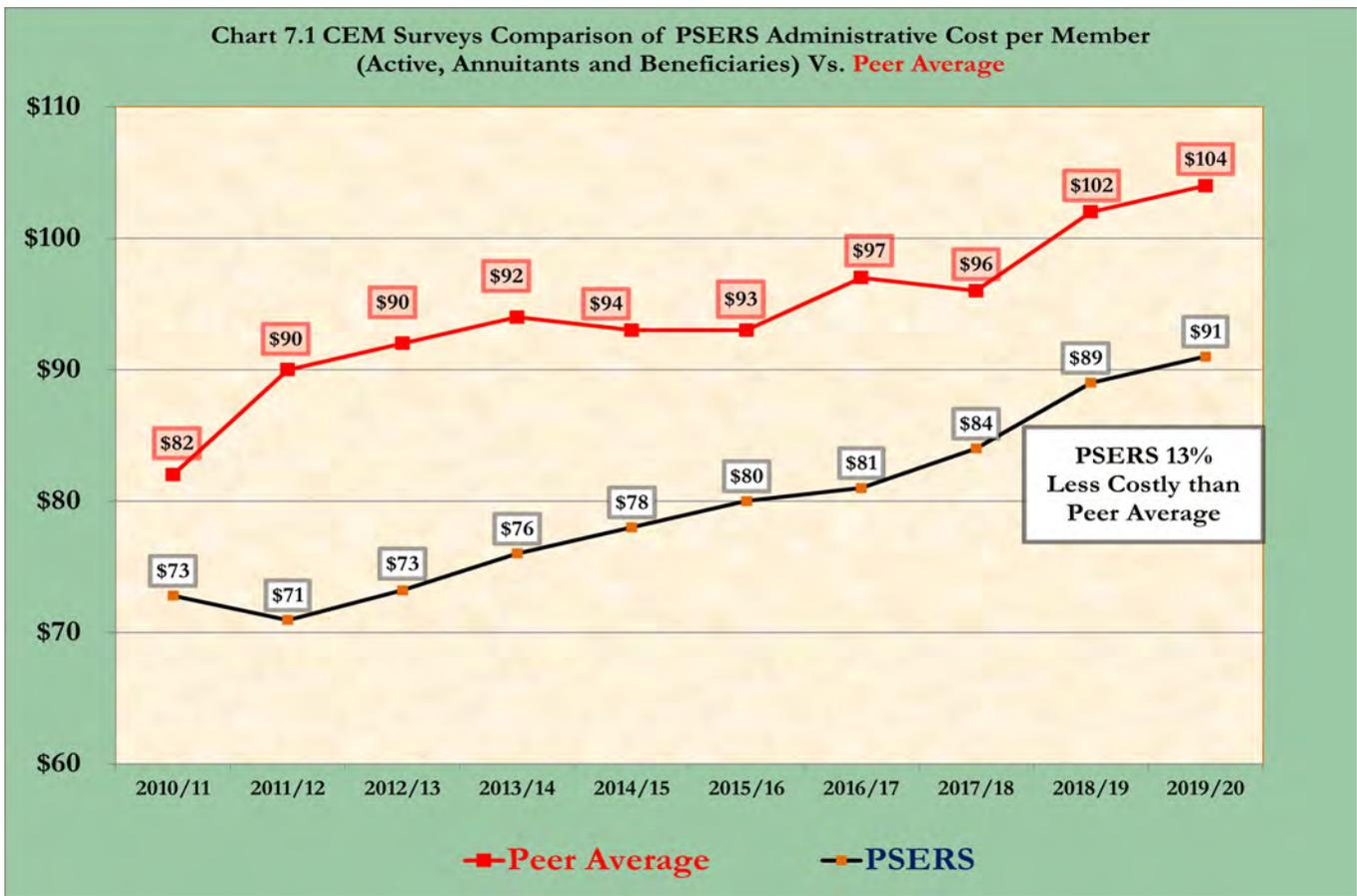
Section 2 - FY2022-23 Budget

Administrative Budget (continued)

retired members electing to receive newsletters, statement of accounts, 1099-Rs and other publications electronically, which saves the agency over \$225,000 per year in postage, printing and paper costs. During FY2021 specifically, the agency achieved a substantial savings in postage, reduced contracted maintenance and repair services, decreased rental of equipment and software, and lowered purchases of computer hardware and other equipment, all of which helps to maintain more investment earnings for the benefit of the Fund. In addition to these savings, PSERS renegotiated the terms with its database management system vendor through the Commonwealth of Pennsylvania contract in order to reduce costs by \$125,000.

PSERS Administrative Costs are Significantly Below Peers

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 results of the most recent survey, PSERS has 39% fewer full-time equivalent staff per member than the peer group average. Chart 7.1 above illustrates that 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.



Section 2 - FY2022-23 Budget

Investment Related Expenses Budget

Act 128 of 2020 directs the PSERS and SERS boards to provide for an internal control audit of their respective systems and plans at least once every five years. If an annual financial report or an internal control audit identifies a material weakness or significant deficiency, the board shall provide for an additional internal control audit of the system and the plan for the year subsequent to the report or audit in which the weakness or deficiency was identified. The PSERS Audit/Compliance Committee has made the determination for the system to conduct its audit in accordance with SOC 1 Type 2 standards established by the American Institute of Certified Public Accountants (AICPA). A System and Organization Controls (SOC) audit is performed by a certified public accounting firm and offers assurance that the controls that a service organization has put in place to protect its clients' assets (data in most cases) are operating effectively. A Type 1 report describes procedures and controls as of a specific point in time while a Type 2 report covers how the controls have been operating during a period of time, i.e., 6 months or 1 year. SOC 1 Type 1 or Type 2 audits are normally conducted on for-profit service companies such as banks or information technology providers.

An outside consultant hired by PSERS board in FY2020-21 to complete a governance study recommended the implementation of an Enterprise Risk Management program by performing internal control assessments and reporting, initiating a third-party risk management program, and improving coordination of monitoring, compliance, and audit functions. In addition to this, an investment consultant currently working for the board recommends that PSERS increase staffing to enhance operational oversight and reduce key-person risk; provide enhanced operational and compliance support to all asset classes and strategies managed by the Investment Office; and facilitate continuous improvement to current processes and procedures. As a result of these recommendations, and in response to the requirements of Act 128, the agency submitted a request to the Governor's Budget Office for 10 new

positions in FY2022-23 for the Investment Related Expenses appropriation. The Governor's Recommended Budget does not include these positions. It is worth noting that PSERS Board unanimously supported the new positions requested to achieve SOC 1 Type 2 compliance which is an unprecedented level of internal control assurance for a governmental cost-sharing multiple-employer pension plan such as PSERS. The following is a description of the requested positions:

Office of Financial Management (OFM) - Investment Accounting Specialist (2 Positions)

The Office of Financial Management (OFM) is seeking two Investment Accounting Specialist positions (one in the public investment markets and general accounting area and one in the private investment markets and employer accounting area) to assess the current internal control environment, document the controls in place, test the controls, and implement changes in processes and procedures where the current controls may be inadequate.

Investment Office (IO) - Intermediate Investment Professional - Risk Management

Perform in-depth assessments, reviews and updates of investment-related policies and related procedures periodically, including policies of the Board, the Investment Office and groups within the Investment Office, and support in the oversight of strategic business initiatives.

IO Senior Investment Professional - Non-Traditional Portfolio Oversight

Perform in-depth quantitative and qualitative risk assessments of Non-Traditional asset classes, portfolios, including in-depth research and reporting for the purposes of providing greater risk oversight. The work of the Senior Investment Professional will contribute to PSERS return by identifying and mitigating risks to which the fund is or could be exposed.

Investment Related Expenses Budget (continued)

IO Junior Investment Professional - Risk System and Modeling

Assist in providing the day-to-day back-up support to the senior members of the quantitative investment risk individual responsible for the risk system and investment risk modeling within the system.

IO Senior Investment Professional - External Operational Due Diligence

Perform in-depth reviews to determine the prospect for loss from inadequate or failed procedures, systems or policies of prospective and existing external investment managers, funds, and partnerships. Analysis will include legal, financial and accounting, and internal control-related documents, third-party service providers, organizational and staff criteria, regulatory compliance, and systems and technology matters.

IO Junior Investment Professional - Internal Operational and Internal Controls Risk

Assist in providing in-depth reviews to determine the prospect for loss from inadequate or failed procedures, systems or policies of prospective and existing internal and external investment managers, funds and partnerships. Supporting analysis, as applicable to internal and external managers, will include legal, financial and accounting, and tax documents, third-party service providers, organizational and staff criteria, investment compliance, and systems and technology matters.

IO Junior Investment Professional - Investment Compliance

Assist in the performance of in-depth compliance monitoring reviews of separate account portfolio guidelines, investment-related Board Policies and staff policies. The work of the Junior Investment Professional will contribute to PSERS return by enhancing compliance monitoring and oversight.

IO Intermediate Investment Professional - Investment Operations

This position will report to the Manager of Non-Traditional Investment Operations and be responsible for the analysis, verification, and entry of manager reported valuations in Burgiss Private i (PI) in coordination with the rest of operations, investment accounting, and consultants Aon, Aksia, and Hamilton Lane (HL). The position will also be expected to analyze cash flow and valuation activity as reported on Manager statements including impact on performance returns.

IO Intermediate Investment Professional - Investment Operations

This position will report to the Senior Manager of Investment Systems and will provide critical investment operational and portfolio data support and oversight for PSERS Non-Traditional asset classes; analyze, review, and approve non-traditional investment data entries and reconcile underlying Fund holdings in SimCorp Dimension to the overall Fund's NAV; and analyze quarterly financial statements to ensure all previously recorded investment activity and calculated performance is accurately reflected and reconciled with Fund managers.

Section 2 - FY2022-23 Budget

Public School Employees Retirement System Fiscal Year 2022-23 Defined Contribution (DC) Administrative Budget

Table 7.2

	<u>Budget</u> FY2020-21	<u>Budget</u> FY2021-22	<u>Budget</u> <u>Request</u> FY2022-23
Total Personnel Services	\$497,000	\$586,000	\$549,000
Operating Expenses and Fixed Assets			
Consultant Services - Non EDP	270,000	207,000	190,000
Legal Services/Fees	50,000	25,000	30,000
Other Operational Expenses	66,000	112,000	155,000
SW License recurring > \$,5000	200,000	25,000	25,000
Total Operating Expenses and Fixed Assets	\$586,000	\$369,000	\$400,000
Total Administrative Budget	\$1,083,000	\$955,000	\$949,000

Defined Contribution (DC) Administrative Budget

Table 7.2 displays PSERS Defined Contribution (DC) Administrative Budget Request for FY2022-23. The \$949,000 amount requested represents a decrease of almost 0.6% from the FY2021-22 available budget. As the implementation stage of Act 5 is completed, the need for consulting services and software programming changes is declining.

Waiver of Prior Year Remaining Budgets

PSERS received approval to waive all available balances from the FY2019-20 DC Appropriation by extending the lapse date until June 30, 2021. PSERS also received approval to waive all available balances from the FY2020-21 Administrative and DC Appropriations by extending the lapse date until June 30, 2022.

Directed Commissions Recapture Program

Directed Commissions Recapture is a program whereby a portion of commissions incurred by PSERS through investment trading activity is returned to PSERS. These funds can be used for the administration of the Fund or can be reinvested back into the asset allocation through a transfer to PSERS Retirement Account. Expenditures paid from the Directed Commissions Recapture Program Budget have the same PSERS internal approval process as any other expenditure made by the Fund.

Table 7.3

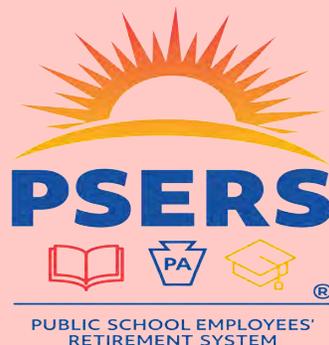
	<u>Budget</u> FY2020-21	<u>Budget</u> FY2021-22	<u>Budget</u> <u>Request</u> FY2022-23
Budgetary Reserve	\$2,000,000	\$2,000,000	\$2,000,000
Total	\$2,000,000	\$2,000,000	\$2,000,000

PSERS BUDGET REPORT - FY2022-2023

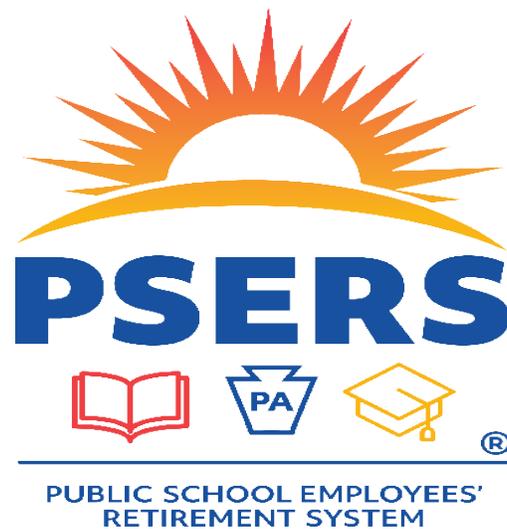


SECTION 3 - INVESTMENT INFORMATION

Investment Guidelines, Philosophy, and Risk Management	Tab 8
Capital Market Assumptions	Tab 9
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Performance	Tab 11
Managing Investment Fees, Expenses, and Carried Interest	Tab 12
Commitment to Pennsylvania-Based Investments	Tab 13



Investment Guidelines, Philosophy and Risk Management



Investment Guidelines, Philosophy, and Risk Management

Investment Objectives

The Board has established investment objectives for the Fund 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 and investment expenses, that equals or exceeds the Actuarial Assumed Rate approved by the Board.

To earn a long-term total return, net of fees and investment expenses, that equals or exceeds the Policy Index approved by the Board.

To prudently manage investment risks that are related to the achievement of investment goals.

Investment Philosophy

The PSERS Board of Trustees believes PSERS assets should be managed in accordance with PSERS 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.

PSERS 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: By and within asset classes.

- By geography.
- By strategy (e.g., in Public Equity: growth and value, concentrated and diversified, quantitative and fundamental).
- By vintage year for Private Investments (investment pacing in and out of investments helps mitigate the impact of market volatility).

Over any given period, any number of asset classes, geographies, strategies, and vintages will underperform others; that is to be expected and accepted.

4. Risk

For an underfunded plan or for a plan with negative 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 cash flow; for the former type of plan, peak-to-trough declines transform unrealized losses into permanent ones.

Drawdown risk should be mitigated, especially as the environment in which drawdowns occur is likely. Also the environment where the Plan Sponsor's willingness and ability to make contributions to the plan may be less than in normal times.

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.

Investment Philosophy (continued)

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 under perform 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 Investment Manager with PSERS.

Risk Management

Risk management is essential to the entire investment process. The goal of investment risk management is to find the appropriate balance between expected returns and the risks taken to generate those returns. An entirely risk-free investment portfolio that has a high probability of meeting all investment goals does not exist. Therefore, PSERS does not attempt to eliminate all risk but instead seeks to limit the possibility of permanent loss. Risk itself is neither good nor bad, but it is necessary that the System expose itself to some appropriate level of risk if it is to generate the long-term investment returns required to maintain stable and cost-effective contribution rates.

The future is difficult to forecast with any accuracy or certainty, particularly changes in the economic and market environment but PSERS can understand the future as a range of probabilities, some desirable and some not, and can position its current investments to guard against undesirable outcomes and to make desirable outcomes more likely. In positioning for future developments, PSERS cannot know with complete certainty how markets or particular investment strategies will perform. The strategic asset allocation mix, more than implementation or any other factor or decision, largely determines the portfolio's overall risk and return.

Section 3 Investment Information

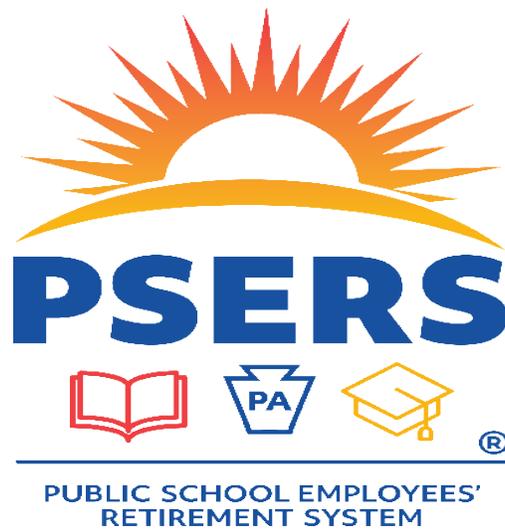
Investment Risk Management (continued)

Given its long-term investment horizon, PSERS accepts prudent investment risk in exchange for acceptable levels of additional incremental return. PSERS Board sets long-term asset allocation and risk parameters. The Investment Office implements

investment policies within these approved guidelines. The Investment Office works closely with PSERS Board to establish, monitor, and report its various risk metrics and has the required authority to efficiently and effectively implement associated actions.

The Policies of the Board can be found on the Investment page on PSERS website.

Capital Market Assumptions



Capital Market Assumptions

Capital Market Assumptions (CMAs) are estimates of expected returns and risks for a given set of asset classes, and expectations of the relationship (correlations) between these asset classes over long periods of time. They are issued periodically by investment consultants, asset managers, and investment banks. Inflation, real short-term interest rates, and economic data frequently provide the foundation used by CMAs for expected returns across global asset classes. These are the primary building blocks for developing equity and fixed income returns expectations, which in turn are used in setting expectations for alternative asset class returns. PSERS collects and evaluates this information when considering its long-term actuarial rates of return assumptions and in setting its Asset Allocation Policy.

Compared to 2020, 2021 survey results under the 20-year forecast indicate a decrease in return assumptions across most asset classes. CMAs are forecasting slower growth and lower asset returns over the coming decade than has been experienced in past decades. We elaborate on select asset classes below.

Fixed Income

Nominal government bond returns are a function of long-term expectations for inflation and government yields. Corporate bond returns are a function of expected inflation, government yields, and expectations for credit spreads, defaults and downgrades. Most of the decrease in bond return assumptions from 2016 – 2021 can be explained by falling yields and tightening credit spreads. In response to the COVID-19 pandemic, the Federal Reserve lowered the target range for the federal funds rate to 0% to 0.25% in 2020 and maintained the target range in 2021.

Equities

Equity return assumptions are driven by market valuations, earnings growth expectations and assumed dividend payouts: Non-US Equity return expectations have declined relative to 2020, driven

by rising valuations and slowing growth. Equity market return assumptions over the past few years have been driven by rising valuations.

Real Estate

Global real estate return assumption in 2021 decreased relative to expected returns from 2020. Lower initial yields and slowing growth impacted the real return assumption in 2021.

Hedge Funds

Hedge Fund assumptions reflect changes in the underlying equity, fixed income and cash capital market assumptions. Decrease in the hedge fund assumption from 2020 to 2021 reflect the declining expectations for fixed income and cash.

An alternative approach to asset allocation that is sometimes suggested to pension plans is to establish a stereotypical 60% equity/40% fixed income policy that remains static over time. Tables 9.1 and 9.2 illustrate one reason why such an approach would not be prudent. Because PSERS can select from a broad array of asset allocation alternatives, we can analyze alternative allocation strategies using asset classes with varying expected returns and expected risk in order to formulate an optimal asset allocation policy most likely to achieve the investment return and investment risk goals established by the Board. In recent years, lower risk projections have afforded PSERS valuable flexibility in identifying different combinations of asset allocations that can achieve our current long-term goal of 7.00% at acceptable levels of risk even as return assumptions have fallen. Furthermore, 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. A stereotypical 60%/40% strategy would have precluded such flexibility and exposed the system to artificial and harmful limits on our ability to manage the Fund.

Section 3 Investment Information

Capital Market Assumptions (continued)

The table below summarizes the average expected capital market geometric return assumptions of 20-30 surveyed independent investment advisors in 2017 - 2021.

PSERS Capital Market Assumptions (CMA's)					
Average Expected Geometric Returns (2017 - 2021)					
Asset Class	2017	2018	2019	2020	2021
	Survey	Survey	Survey	Survey	Survey
U.S. Equity - Large Cap	7.8%	7.4%	7.1%	7.1%	6.7%
U.S. Equity - Small/Mid Cap	8.4%	8.2%	7.5%	7.6%	7.0%
Non-U.S. Equity - Developed	7.6%	7.7%	7.7%	7.5%	7.1%
Non-U.S. Equity - Emerging	8.7%	8.8%	8.7%	8.4%	7.8%
U.S. Corporate Bonds - Core	4.4%	4.5%	4.3%	3.6%	3.2%
U.S. Corp Bonds - Long Duration	4.8%	4.4%	4.4%	3.6%	3.4%
U.S. Corporate Bonds - High Yield	6.2%	5.8%	5.8%	5.6%	5.0%
Non-U.S. Debt - Developed	3.5%	3.2%	3.4%	2.3%	2.3%
Non-U.S. Debt - Emerging	6.2%	6.1%	6.1%	5.9%	5.3%
U.S. Treasuries (Cash Equivalent)	3.2%	3.1%	3.0%	2.3%	1.9%
TIPS (Inflation-Protected)	4.0%	4.0%	3.5%	2.7%	2.4%
Real Estate	6.7%	6.7%	6.8%	6.6%	6.2%
Hedge Funds	6.0%	6.2%	6.2%	5.7%	5.3%
Commodities	5.0%	4.9%	4.7%	4.0%	4.0%
Infrastructure	7.1%	7.1%	7.2%	7.3%	6.8%
Private Equity	10.1%	9.5%	10.1%	9.9%	9.7%
Private Debt	—	—	7.8%	7.9%	6.9%
Inflation	2.4%	2.5%	2.3%	2.2%	2.2%

Section 3 Investment Information

Capital Market Assumptions (continued)

The CMA surveys also included forecasts for 20 year average expected risk (Table 9.2). The numbers below reflect the expected standard deviation in % around the expected return.

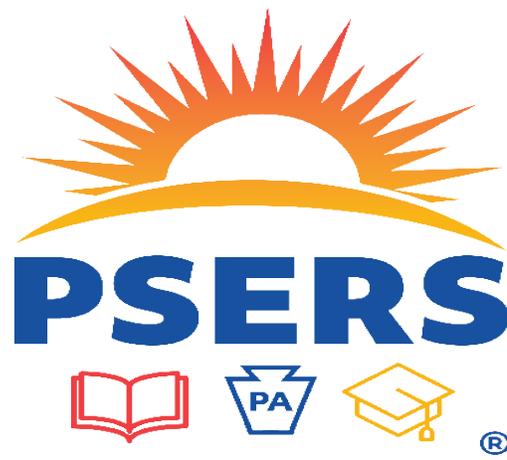
Table 9.2

PSERS Capital Market Assumptions (CMA's)

Average Expected Risk (2017 - 2021)

<u>Asset Class</u>	<u>2017 Survey</u>	<u>2018 Survey</u>	<u>2019 Survey</u>	<u>2020 Survey</u>	<u>2021 Survey</u>
US Equity – Large Cap	16.6%	16.4%	16.2%	16.2%	16.4%
US Equity – Small/Mid Cap	20.2%	20.2%	20.2%	20.2%	20.2%
Non-US Equity – Developed	18.9%	18.7%	18.2%	18.1%	18.3%
Non-US Equity – Emerging	25.4%	24.9%	24.7%	24.2%	24.3%
US Corporate Bonds – Core	5.5%	5.7%	5.5%	5.5%	5.5%
US Corporate Bonds – Long Duration	10.4%	10.8%	10.5%	10.2%	10.4%
US Corporate Bonds – High Yield	10.6%	10.2%	10.1%	9.8%	9.9%
Non-US Debt – Developed	7.4%	6.9%	7.6%	7.0%	7.2%
Non-US Debt – Emerging	11.8%	11.4%	11.3%	11.0%	11.3%
US Treasuries (Cash Equivalent)	3.0%	2.7%	2.3%	1.8%	1.3%
TIPS (Inflation-Protected)	6.3%	6.3%	6.1%	6.1%	5.6%
Real Estate	14.5%	13.9%	15.0%	16.8%	17.6%
Hedge Funds	8.0%	7.9%	8.4%	8.0%	8.1%
Commodities	17.9%	17.6%	17.7%	17.6%	17.3%
Infrastructure	14.6%	14.7%	14.4%	14.6%	17.0%
Private Equity	22.0%	22.2%	22.0%	22.0%	22.3%
Private Debt	—	—	11.6%	12.1%	11.4%
Inflation	1.7%	1.8%	1.7%	1.7%	2.1%

Asset Exposure and Investment Program Summary



PUBLIC SCHOOL EMPLOYEES'
RETIREMENT SYSTEM

Asset Exposure (as of June 30, 2021)

While the Board can choose to modify its asset allocation at any time it determines that changes are warranted (for example, due to changing liquidity circumstances or opportunities in the marketplace), the Board maintains a disciplined and thorough process to establish a new asset allocation policy annually. This process begins following the Board's review and acceptance of the actuary's annual report, as described in Tab 5. PSERS investment professionals and general investment consultant collaborate to analyze potential asset allocations (using actuarial as well as capital market return assumptions) in order to identify those potential asset allocations that meet the long-term return and risk objectives of the Fund. The Board is then presented with alternative

asset allocations with detailed analysis of probable long-term return and risk characteristics from which it will select a new Asset Allocation Policy for further implementation by staff.

The Board reviews the long-term asset allocation targets of the System at least annually. In establishing the asset allocation plan, the Board will consult with its actuary, consultants, investment staff, and other sources of information it deems appropriate in formulating this allocation. The purpose of the asset allocation is to meet the long-term financial needs and investment objectives of the System.

Section 3 - Investment Information

Asset Exposure (continued)

Table 10.1 represents PSERS asset exposure and target allocation plan that became effective April 1, 2021, and was in effect on June 30, 2021.

Table 10.1

PSERS Asset Exposure and Target Asset Allocation Plan (as of June 30, 2021)

<u>Asset Class</u>	<u>Market Value (in millions)</u>	<u>Percentage of Gross Asset Exposure</u>	<u>Percentage of Net Asset Exposure</u>	<u>Target Allocation %</u>	<u>Target Allocation Range</u>
Public Equity	\$ 17,079.0	22.5 %	24.8 %	27.0 %	
Private Equity	10,931.5	14.4 %	15.9 %	12.0 %	
Total Equity	\$ 28,010.5	36.9 %	40.7 %	39.0 %	± 5
Public Fixed Income*	\$ 16,188.7	21.3 %	23.5 %	27.0 %	
Private Credit	5,617.0	7.4 %	8.2 %	8.0 %	
Total Fixed Income	\$ 21,805.7	28.7 %	31.7 %	35.0 %	± 5
Public Commodities*	\$ 7,894.4	10.4 %	11.5 %	10.0 %	
Public Infrastructure*	4,894.5	6.4 %	7.1 %	4.0 %	
Public Real Estate*	1,760.1	2.3 %	2.6 %	3.0 %	
Total Public Real Asset	\$ 14,549.0	19.1 %	21.2 %	17.0 %	± 3
Private Commodities	\$ 282.9	0.4 %	0.4 %	0.0 %	
Private Infrastructure	480.1	0.6 %	0.7 %	4.0 %	
Private Real Estate	5,002.3	6.6 %	7.3 %	7.0 %	
Total Private Real Asset	\$ 5,765.3	7.6 %	8.4 %	11.0 %	± 3
Tail Risk Mitigation	\$ 36.6	— %	0.1 %	— %	
Absolute Return	\$ 5,858.5	7.7 %	8.5 %	8.0 %	± 3
Gross Asset Exposure	\$ 76,025.6	100.0 %	110.6 %	110.0 %	
Cash	\$ 3,020.0	4.0 %	4.4 %	3.0 %	
Explicit Leverage	(10,299.8)	(13.5)%	(15.0)%	(13.0)%	
Net Leverage	(7,279.8)	(9.5)%	(10.6)%	(10.0)%	10 to -20
Net Asset Exposure	\$ 68,745.8		100.0%	100.0%	

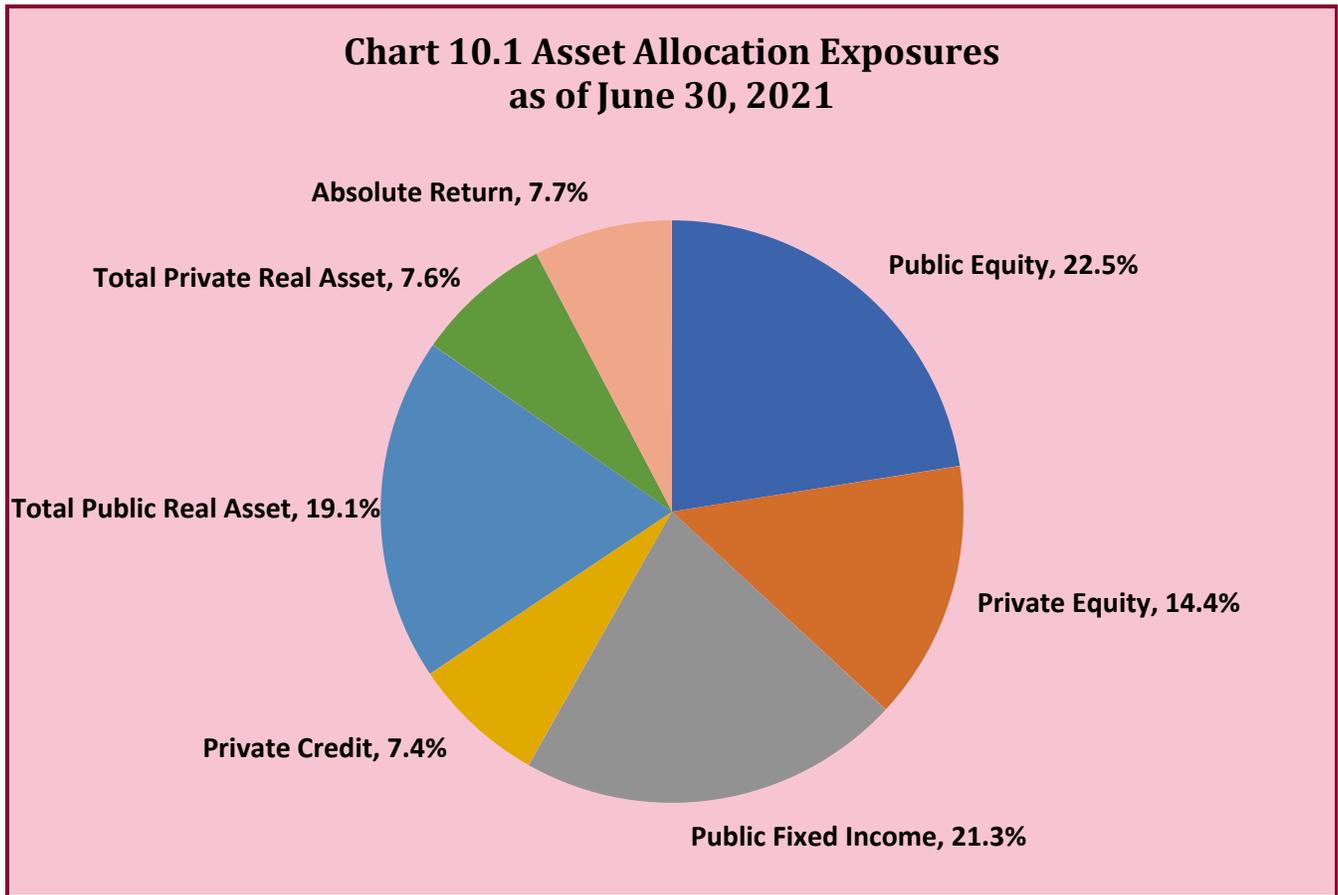
*PSERS uses leverage to achieve increased economic exposure to diversifying asset classes to manage the overall portfolio risk while maintaining an allocation designed to achieve the long-term return goals of the System. Increased economic exposure is generally achieved through the use of either derivative positions or higher volatility funds. As of June 30, 2021, PSERS had total increased economic exposure of \$10.3 billion related to the following asset classes: Equity (\$-.1 Billion); Fixed Income (\$3.3 billion); Infrastructure (\$1.4 billion); Real Estate (\$0.8 billion) and Commodities (\$4.9 billion). An allocation of 4% to Cash is included in the Target Allocation.

Note: PSERS asset allocation was updated December 17, 2021 and is available for review at <https://www.psers.pa.gov>

Section 3 - Investment Information

Asset Exposure (continued)

Chart 10.1 illustrates PSERS asset allocation exposure as of June 30, 2021:



Note: Financing represents a negative 9.5% allocation and is not reflected in Chart 10.1.

Section 3 - Investment Information

Asset Exposure (continued)

The purpose of the asset allocation is to meet the long-term investment objectives of the System. PSERS considers the expected range of returns for 1, 3, 5, and 10 year periods of various alternative asset allocations (as seen in Exhibit 10.1) to select the optimal asset allocation annually. While the range of returns can be high for any single year, volatility will decrease and converge around a median return over time. This is demonstrated in Exhibit 10.1 below, which depicts expected future returns for PSERS current asset allocation:



Range of Returns				
Percentiles	1 Year	3 Years	5 Years	10 Years
5%	27.5%	18.1%	15.4%	12.7%
25%	14.6%	11.1%	10.0%	9.0%
50%	6.5%	6.5%	6.5%	6.5%
75%	(1.1)%	2.0%	3.0%	4.0%
95%	(11.1)%	(4.0)%	(1.8)%	0.6%

Source: Aon Hewitt's 30-year capital market assumptions as of June 30, 2021.

Public Market Investments

Public Equity Investments

PSERS seeks to diversify assets by obtaining broad exposure to publicly traded equity markets. Public Equity plays a strategic role within the Fund, by providing a return premium over inflation, thereby preserving and enhancing the real value of the Fund, and by performing well when economic growth is stronger than expected or inflation is lower than expected. To maintain diversification within the asset class, the Fund pursues a global investment strategy across regions, sectors, market capitalization segments, and investment styles.

Public Equity assets may be invested in instruments that provide equity returns. Instruments used may be exchange-traded or non-exchange-traded and may be physical securities or derivatives.

Private Equity Investments

PSERS seeks to diversify its assets by providing exposure to private investments as part of the overall investable universe and to take advantage of the ability to accept less liquidity in exchange for higher potential returns, stronger investor rights and protections, and better alignment of interests. Private Equity also provides access to investment opportunities not available in Public Equity markets. The Private Equity asset class targets risk-adjusted returns in excess of the benchmark, net of fees, over a full market cycle. The Private Equity portfolio will achieve diversification by investing in funds and co-investments that are complementary in nature regarding fund size, sector, strategic, geographic and industry focus, and vintage year.

Private Equity assets may be committed to, but not limited to, funds, co-investments, secondaries, separate accounts, joint ventures, partnerships, limited liability companies, and operating companies (collectively "Private Equity Investments") investing in Private Equity strategies. Private Equity Investments may result in exposure to any type of private (sometimes public) security throughout the capital structure. PSERS will only consider investment structures that provide limited liability to PSERS which limits PSERS losses to the amount invested.

Public Fixed Income Investments

PSERS seeks to diversify assets by obtaining broad exposure to publicly traded fixed income markets. Public Fixed Income plays a strategic role within the Fund in a variety of ways. Nominal bonds serve as a hedge against lower inflation and weak economic growth, produce current income in the form of periodic interest payments, and provide liquidity to meet the Fund's obligations. Inflation protected bonds serve as a hedge against higher inflation and weaker economic growth and provide liquidity. Credit-related securities such as emerging market debt and public high yield bonds generate higher current income relative to investment grade debt and tend to do well when economic growth is stronger than expected. To maintain diversification within the asset class, the Fund pursues a global investment strategy across regions, sectors, maturity segments, credit quality, and investment styles.

Public Fixed Income assets may be invested in instruments that provide fixed income returns. Instruments used may be exchange-traded or non-exchange-traded and may be physical securities or derivatives.

Private Credit Investments

PSERS seeks to diversify its assets by providing exposure to private investments as part of the overall investable universe and to take advantage of the ability to accept less liquidity in exchange for higher potential returns, stronger investor rights and protections, and better alignment of interests. Private Credit typically provides enhanced yields over publicly-traded fixed income markets and serves as a diversifier to the overall portfolio due to the variety of underlying collateral types not easily accessed in traditional asset classes. The Private Credit asset class targets risk-adjusted returns in excess of the benchmark, net of fees, over a full market cycle. The Private Credit asset class will achieve diversification by investing in funds, both

Private Credit Investments (continued)

closed-end and evergreen, and co-investments that are complementary in nature regarding fund size, sector, strategic focus, geographic and industry focus and vintage year.

Private Credit assets may be committed to, but not limited to, funds, co-investments, secondaries and separate accounts (collectively "Private Credit Investments") investing in Private Credit strategies. Private Credit Investments may result in exposure to diverse securities throughout the capital structure. Private Credit assets also allow for structures which may not conform precisely to the previous list but whose intent is to capture private credit exposure and returns. PSERS will only consider investment structures that provide limited liability to PSERS which limits PSERS losses to the amount committed.

Public Commodities Investments

PSERS seeks to diversify assets by obtaining broad exposure to publicly traded commodities markets. Commodity investments consist of energy, precious metals, industrial metals, and agricultural. The prices of commodities are determined primarily by near-term events in global supply and demand conditions and are positively related with both the level of inflation and changes in the rate of inflation. Public Commodities play a strategic role within the Fund, by providing a hedge against unanticipated inflation and diversification benefits. To maintain diversification within the asset class, the Fund pursues an investment strategy across all key commodities and across investment styles.

Public Commodities assets may be invested in instruments that provide publicly traded commodities returns. Instruments used may be exchange-traded or nonexchange-traded and may be physical securities or derivatives, and leverage may be employed. In the case of Gold, the instruments may include physical gold (bullion).

Public Infrastructure Investments

PSERS seeks to diversify assets by obtaining broad exposure to publicly traded infrastructure markets. Public Infrastructure investments target stable, defensive investments with steady cash flows primarily within the energy, power, water, and

transportation sectors. Public Infrastructure plays a strategic role within the Fund, by providing steady returns and cash yields, defensive growth, inflation protection, capital preservation, liquidity and diversification benefits. To maintain diversification within the asset class, the Fund pursues a global investment strategy across geographic regions, sectors, market capitalization segments, and investment styles.

Public Infrastructure assets may be invested in instruments that provide publicly-traded infrastructure returns. Instruments used may be exchange-traded or nonexchange-traded and may be physical securities or derivatives, and leverage may be employed.

Public Real Estate Investments

PSERS seeks to diversify assets by obtaining broad exposure to publicly-traded real estate markets. Public Real Estate provides a strategic role within the Fund, by providing steady returns and cash yields, inflation protection, defensive growth, capital preservation, liquidity and diversification benefits. To maintain diversification within the asset class, the Fund pursues a global investment strategy across geographic regions, property sectors, market capitalization segments, and investment styles.

Public Real Estate assets may be invested in instruments that provide publicly-traded real estate returns. These include, but are not limited to, US and Non-US publicly-traded real estate investment trusts (REITs). Instruments used may be exchange-traded or non-exchange-traded and may be physical securities or derivatives.

Private Infrastructure Investments (continued)

Private Infrastructure Investments

PSERS seeks to diversify its assets by providing exposure to private investments as part of the overall investable universe. Additionally, when compared to other investable opportunities, private investments are intended to provide exposure to higher potential returns, stronger investor rights and protections, and better alignment of interests. While providing a current income return and a potential hedge against inflation, Private Infrastructure also provides access to investment opportunities not available in Public Infrastructure markets. The Private Infrastructure asset class targets risk-adjusted returns in excess of the benchmark, net of fees, over a full market cycle. The Private Infrastructure asset class will achieve diversification by investing in funds, both closed-end and evergreen and co-investments that are complementary in nature regarding fund size, sector, strategic focus, regional footprint and vintage year.

Private Infrastructure assets can be committed to, but not limited to, funds, co-investments, separate accounts, joint ventures, partnerships, limited liability companies, and operating companies (collectively "Private Infrastructure Investments") investing in private infrastructure strategies. Private Infrastructure Investments may result in exposure to any type of security throughout the capital structure. Notwithstanding investments in Separate Accounts, PSERS will only consider investment structures that provide limited liability to PSERS which limits PSERS losses to the amount committed.

Private Real Estate Investments

PSERS seeks to diversify its assets by providing exposure to private investments as part of the overall investable universe and to take advantage of the ability to accept less liquidity in exchange for higher potential returns, stronger investor rights and protections, and better alignment of interests. Private Real Estate typically provides current income, appreciation, and a potential hedge against inflation, and serves as a diversifier to the overall portfolio. Private Real Estate also provides access to investment opportunities not available in the publicly traded real estate markets. The Private Real Estate asset class targets risk-adjusted returns in excess of the benchmark, net of fees, over a full market cycle. The Private Real Estate asset class will achieve diversification by investing in funds, both closed-end and evergreen, and co-investments that are complementary in nature regarding fund size, property type, strategic focus, regional footprint and vintage year.

Private Real Estate investments can be committed to, but not limited to, funds, co-investments, separate accounts, joint ventures, partnerships, limited liability companies, private REITS and real estate operating companies (collectively "Private Real Estate Investments") investing in private real estate strategies. Private Real Estate Investments may be considered throughout the entire capital structure. Notwithstanding investments in Separate Accounts, PSERS will only consider investment structures that provide limited liability to PSERS which limits PSERS losses to the amount committed.

Private Real Estate Investments (continued)

Absolute Return Investments

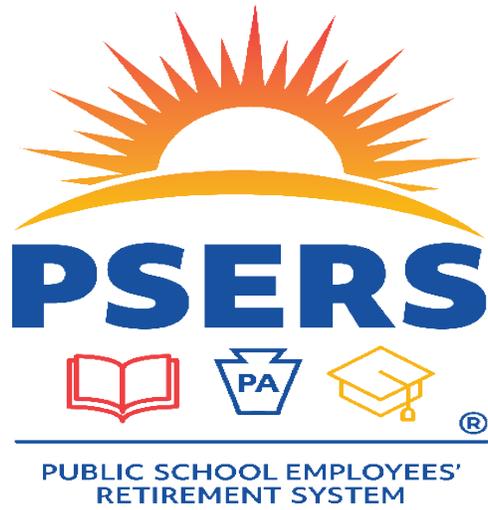
Through investment in Absolute Return strategies, PSERS seeks to reduce the risk and/ or enhance the returns of PSERS overall investment program through investment in a diversified basket of portfolios. The Absolute Return asset class targets managers which provide idiosyncratic returns and portfolios that exhibit low correlation to equities, fixed income, commodities, and other sources of low cost beta over a full market cycle. The Absolute Return asset class targets risk-adjusted returns in excess of the benchmark, net of fees, over a full market cycle. The Absolute Return asset class will achieve diversification by investing in funds, both closed-end and evergreen, and co-investments that are complementary in nature regarding fund size, sector, and strategic focus.

All strategies are eligible for inclusion in the Absolute Return asset class including event driven, relative value, tactical trading, and long/short equity. Investments are diversified by strategy in order to reduce the impact from any one strategy. Absolute Return assets can be committed to, but not limited to, funds, co-investments, separate accounts, joint ventures, partnerships, and limited liability companies (collectively “Absolute Return Investments”) investing in Absolute Return strategies. Absolute Return Investments may result in exposure to diverse securities throughout the capital structure. This Policy also allows for structures which may not conform precisely to the previous list but whose intent is to capture absolute return exposure and returns. PSERS will only consider investment structures that provide limited liability to PSERS which limits PSERS losses to the amount committed.

The Board of Trustees voted to end the Absolute Return program in December 2021, and it is anticipated it will be fully liquidated over the next few years.

PSERS Asset Class Policies can be found on our website at <https://www.psers.pa.gov/About/Investment/Pages/Guide.aspx>

Performance



Section 3 - Investment Information

Performance

PSERS general investment consultant 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, 2021, the System generated a total net of fee return of 24.58%. This

return exceeded the Total Fund Policy Index return of 20.58% by 400 basis points. Annualized total net of fee returns for the three-, five-, and ten-year periods ended June 30, 2021 were 10.35%, 10.10%, and 8.04%, respectively. The three-, five-, ten-year return ended June 30, 2021 exceeded the Total Fund Policy Index returns by 25, 71, and 44 basis points respectively.

Table 11.1 provides the System's total time-weighted investment returns for each major asset class and the total portfolio, including, where applicable and available, respective benchmark indexes used by asset class and median performance by asset class:

Table 11.1	Annualized Total Returns (%) Net of Fees Ended June 30, 2021					
	1 Year	3 Year	5 Year	10 Year	15 Year	20 Year
PSERS Total Fund	24.58	10.35	10.10	8.04	6.64	7.14
Total Fund Policy Index	20.58	10.10	9.39	7.60	6.45	6.57
Median Public Defined Benefit Plan (DBP) Fund Universe (Aon Hewitt Database)	26.98	10.86	10.55	8.22	7.01	6.88
60% Global Equity / 40% Barclays U.S. Aggregate Bond Index	22.27	11.53	10.59	7.62	6.79	6.69
PSERS U.S. Equity Portfolios	46.73	17.77	17.32	14.54	10.49	9.00
U.S. Equity Policy Index	45.60	17.88	17.39	14.47	10.62	8.94
PSERS Non-U.S. Equity Portfolios	40.41	13.69	14.78	9.01	7.92	9.02
Non-U.S. Equity Policy Index	35.56	10.51	12.36	7.32	6.37	7.72
PSERS Fixed Income Portfolios (4)	6.16	7.07	6.60	6.36	7.18	7.13
Fixed Income Policy Index	3.77	6.93	5.19	4.39	5.96	5.89
PSERS Commodity Portfolios (4)	14.36	9.11	5.73	-0.66	N/A	N/A
Commodity Policy Index	14.65	3.78	1.83	-3.28	N/A	N/A
PSERS Absolute Return Portfolios	12.72	4.73	5.60	4.23	5.28	N/A
Absolute Return Policy Index	16.16	7.86	6.68	6.36	6.90	N/A
PSERS Infrastructure Portfolios	19.60	14.08	-2.34	-1.48	0.86	1.34
Infrastructure Policy Index	14.78	0.74	2.70	N/A	N/A	N/A
PSERS Real Estate (2) (4)	14.72	8.18	9.29	10.18	4.72	8.08
Blended Real Estate Index	12.17	5.63	7.39	9.34	7.45	8.49
PSERS Alternative Investments (3)	57.14	18.75	17.35	12.56	12.16	11.71
Burgiss Median, Vintage Year Weighted Index	42.48	16.46	15.93	13.12	10.57	8.52
<i>Other Footnotes to the Total Portfolio are available on page 102 of PSERS Annual Comprehensive Financial Report.</i>						

Performance (continued)

The past fiscal year was positive for the System with a net of fee return of 24.58%, exceeding the Total Fund Policy Index by 4.00%. The following asset classes were significant contributors to absolute returns this past fiscal year:

- U.S. Small Cap Equities, as represented by the S&P SmallCap 600 Index, were up 67.4%. U.S. small cap stocks performed well due to supportive fiscal and monetary stimulus measures, the rollout of the vaccine, and a stronger than expected economic recovery.
- Private Equity, as represented by Burgiss Private Equity, was up 42.5%.

Significant detractors from absolute performance this past fiscal year included:

- U.S. Long Treasuries, as represented by the Bloomberg U.S. Long Treasury Index, were down 10.6%. Returns in long-term treasuries were driven by rising interest rates.
- Gold, as represented by the Bloomberg Gold Subindex Total Return, was down 3.9%.

As noted, two of the best performing asset classes this past fiscal year were U.S. Small Cap Equities and Commodities, which were both up over 45%, while one of the worst performers was U.S. Long Treasuries, returning -10.6% for FY2021. This illustrates the importance of diversification. 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 outcomes. The System diversifies simply because it does not 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. PSERS employs diversification across a wide variety of public and private markets. Exposure to U.S. Equities, Commodities, and Private Equity aided the System's overall performance during the past fiscal year. Diversification into asset classes such as U.S. Long Treasuries and Gold resulted in a drag on overall performance.

In analyzing performance, PSERS Board, general investment consultant and staff pay attention to the Sharpe ratio, which tells an investor what portion of a portfolio's performance is associated with risk taking. The Sharpe ratio measures a portfolio's added value relative to its total risk; the higher a portfolio's Sharpe ratio, the better its risk-adjusted return. PSERS Sharpe ratio, as calculated by the general investment consultant, was 1.22 for the 5-year period ending June 30, 2021, a top 3rd percentile score among public pension plans with assets above \$1 billion.

During the past fiscal year, the equity markets performed strongly due to supportive monetary and fiscal stimulus measures and optimism of an economic recovery. Since the COVID-19 pandemic, U.S. fiscal stimulus totaled approximately \$6 trillion from early 2020 throughout the end of June 2021. Due to the vaccination efforts in the U.S. outpacing those other regions, U.S. stocks were the top performing region within the global equity market. In the U.S., economic activity rebounded as vaccination rates increased and lockdown restrictions eased. Non-U.S. stocks lagged their U.S. counterparts due to COVID-19 cases increasing more rapidly and economies growing more slowly.

Section 3 - Investment Information

Performance (continued)

In response to the COVID-19 pandemic major central banks implemented accommodative monetary policies. In the U.S., the Federal Reserve kept the target range for the federal funds rate to 0% to 0.25% in 2021 and projected to increase rates in 2022 due to elevated inflation. Headline inflation, as measured by the Consumer Price Index, rose by 5.4% over the fiscal year. The U.S. nominal yield curve shifted upward as yields rose across medium- to longer-term maturities during the fiscal year. The 10-year U.S. Treasury yield ended the fiscal year at 1.45%, 79 basis points lower than the beginning of the year. The sharp increase in interest rates resulted in a negative return for long government bonds. Due to optimism of an economic recovery and rising interest rates, investors flocked away from safe-haven assets, such as gold.

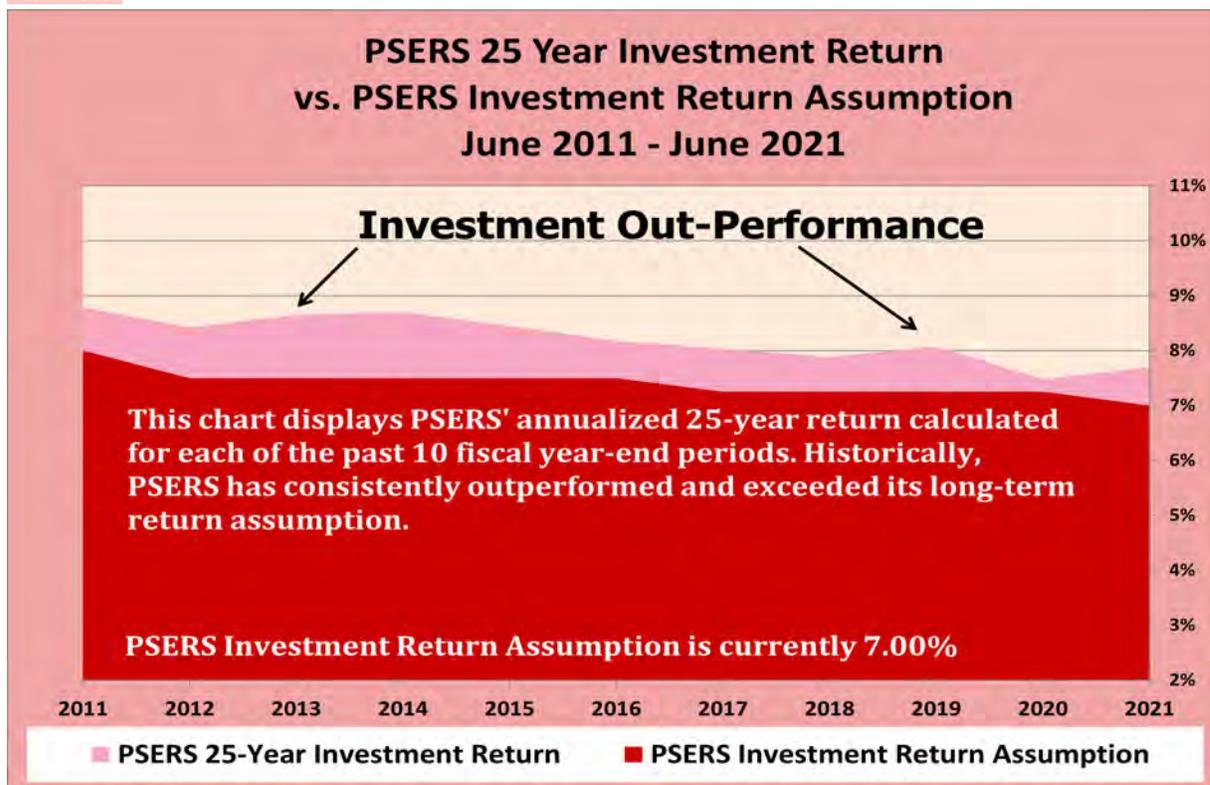
Commodities produced strong positive returns over the 12 months ended June 30, 2021, largely driven by the energy sector and rising crude oil prices. Oil prices advanced sharply as consumer demand returned around the world due to the increase of vaccination rates and easing of lockdown restrictions. Oil prices rose to their highest level in three years after failing into negative territory for the first time in April 2020 when investors faced storage facility shortages and a decreasing demand because of the COVID-19 pandemic. The price of MTI crude oil increased by ~87% over the past 12 months to US\$73/bbl.

Long Term Investment Performance Consistently Outperforms

The assets of the System are invested to maximize the returns for the level of risk taken. Chart 11.1 shows PSERS 25-Year Trailing Investment Return for each of the past 10 fiscal years and Chart 11.2 depicts PSERS Fiscal Year Investment Return versus PSERS Investment Return Assumption for the past 10 fiscal years.

As shown in Chart 11.1, the 25-year trailing investment return has exceeded the investment return assumption over the last ten years including the Great Recession.

Chart 11.1



Section 3 - Investment Information

Performance (continued)

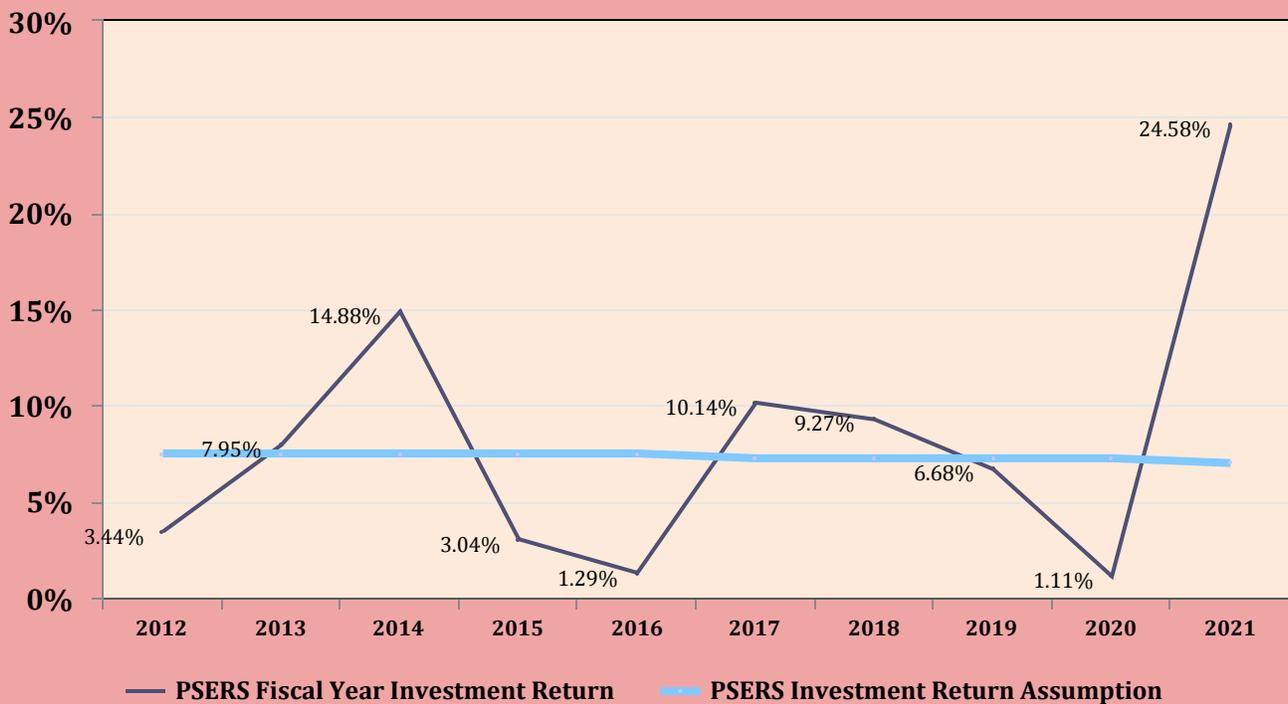
PSERS ten-year annualized net of fee return has been 8.04%, exceeding the actuarial assumed rate of return of 7.00%. With interest rates at historically low levels, the System needs to take prudent risks to achieve its long-term goal of a 7.00% return. An important concept to remember from the last sentence is “long-term.” The System has built a diversified allocation to allow it to collect risk premia over the long- term.

In the short term, no one knows what will happen, and the System can experience periods of time of sub-7.00% annual returns. 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 it, such as equities, fixed income, and real assets. In any given year, the System expects some assets to perform well, such as U.S. Small Cap Equities and Commodities did this past fiscal year, and some assets to not perform as well, such as U.S. Long Treasuries this past fiscal year. However, over the long term, the System expects each of its asset classes to generate a positive return commensurate with the risks taken. The future is uncertain, but PSERS believes it is well positioned to accomplish its objectives.

As depicted in chart 11.2, PSERS one-year investment return was well above the investment return assumption for the fiscal year 2021. Five of the ten fiscal years, it performed above the assumption.

**Chart 11.2 PSERS Fiscal Year Investment Return vs. PSERS Investment Return Assumption
June 2012 - June 2021**



Section 3 - Investment Information

Performance (continued)

Table 11.2 demonstrates that over the past 22 fiscal years, on average, every dollar PSERS has spent in investment fees and expenses has resulted in investment earnings of \$2.04 above the Policy Benchmark's dollar returns.

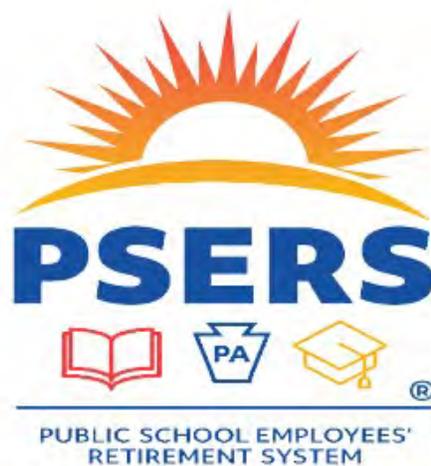
Table 11.2

PSERS Investment Earnings over Policy Benchmark Fiscal Years Ended June 30

Fiscal Year	Total Investment Expenses *	PSERS Net Return over Policy Benchmark (AFTER Payment of all Expenses)	PSERS Investment Earnings over Policy Benchmark Net of Total Investment Expenses *	\$'s of Gross Alpha for every \$1 of Investment Expenses
2021	\$618	4.00%	2,181	4.53
2020	515	(1.47)%	(816)	(0.59)
2019	450	(1.22)%	(653)	(0.45)
2018	468	1.03%	514	2.10
2017	474	1.75%	801	2.69
2016	416	(1.96)%	(996)	(1.39)
2015	455	0.05%	9	1.02
2014	482	0.50%	222	1.46
2013	558	1.27%	579	2.04
2012	481	1.09%	518	2.08
2011	515	1.02%	415	1.81
2010	522	2.20%	890	2.71
2009	478	(5.22)%	(3,133)	(5.55)
2008	399	(0.98)%	(618)	(0.55)
2007	314	4.36%	2,360	8.52
2006	211	3.26%	1,635	8.75
2005	193	2.36%	1,090	6.65
2004	191	3.51%	1,388	8.27
2003	179	(0.42)%	(142)	(0.21)
2002	163	0.56%	319	2.96
2001	144	2.13%	1,200	9.33
2000	125	1.85%	934	8.47
Total	\$8,351		8,697	\$2.04

*Dollar amounts in millions.

Managing Investment Fees, Expenses, and Carried Interest

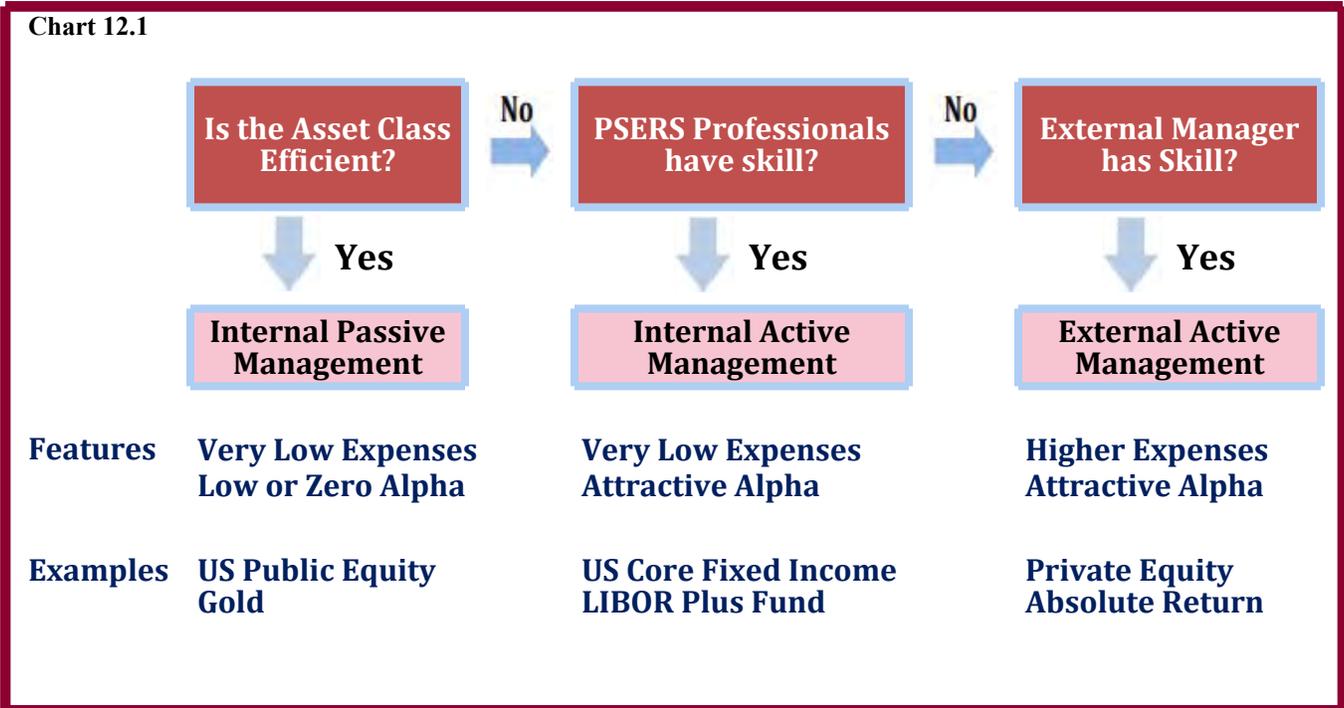


Section 3 - Investment Information

Managing Investment Fees, Expenses, and Carried Interest

PSERS investment professionals annually formulate an Asset Allocation Policy (as more fully described in Tab 9) with input from the general investment consultant, and work on an ongoing basis to implement the Policy through identification of attractive investment strategies and well-qualified investment managers. The Board reviews and approves the long-term asset

allocation targets of the System annually. A fundamental part of this implementation process is making key decisions with regard to use of active or passive strategies implemented by internal professionals or external investment managers, as depicted in Chart 12.1.



Management of investment fees and expenses is integrated into the process of making these key decisions, so analysis of these costs must also occur within this context. If one assumes that, under PSERS Asset Allocation Policy, all of PSERS investments could be made in a passive manner resulting in negligible fees and expenses while earning investment returns equal to the Policy Benchmark, then one can also assume that all of PSERS actual investment fees and expenses are incurred with the goal of earning investment returns that exceed the Policy Benchmark (of course, as the prudent investor realizes, not all investments can be made in passive strategies, not

all passive strategies have low fees, and not all passive strategies deliver the market returns targeted). These assumptions allow PSERS to analyze how much excess investment return above the Policy Benchmark the System has been able to generate over time for the level of fees and expenses actually paid.

PSERS ability to select a prudent combination of both internal and external managers, and both active and passive strategies, has generated and continues to generate significant excess risk-adjusted, net of fee returns relative to the Policy Benchmarks.

Section 3 - Investment Information

Managing Investment Fees, Expenses, and Carried Interest (continued)

Chart 12.2 below demonstrates that over the past 22 fiscal years, PSERS has earned \$8.8 billion in additional investment returns above the Board-approved Policy Index, net of fees.

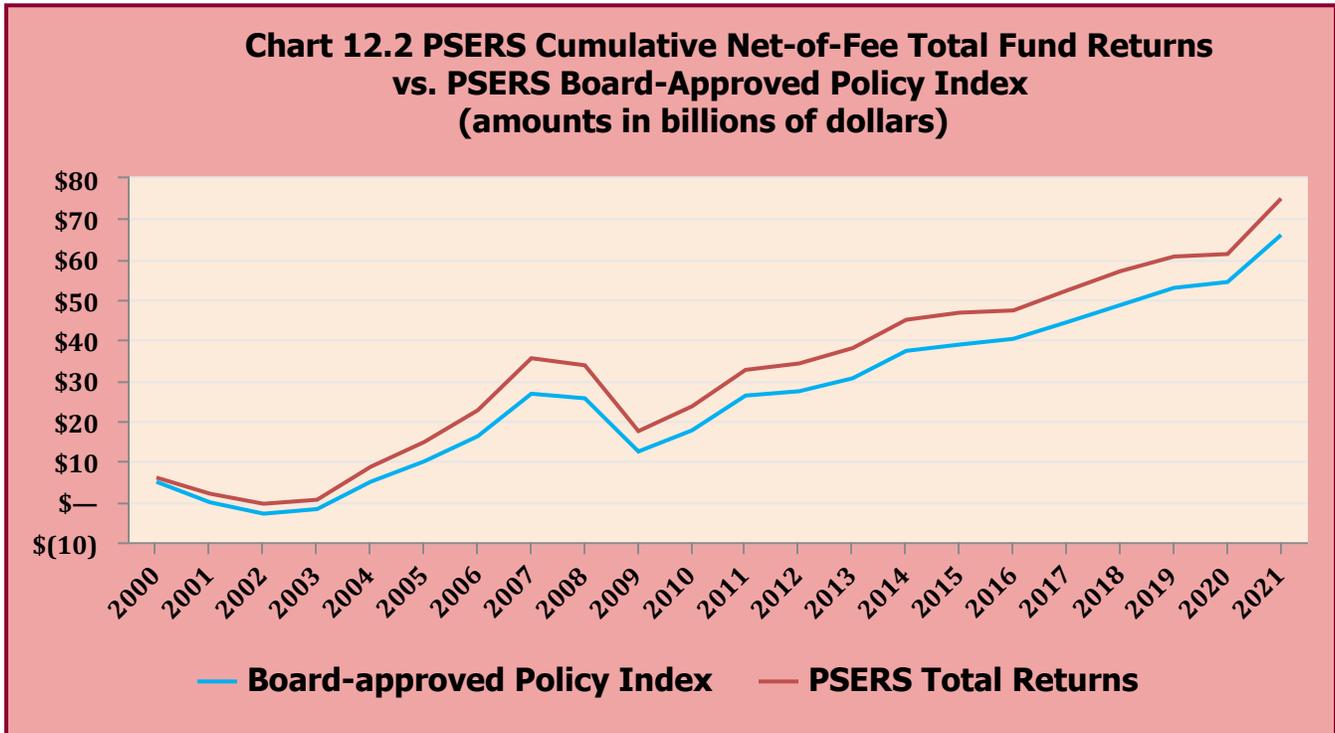
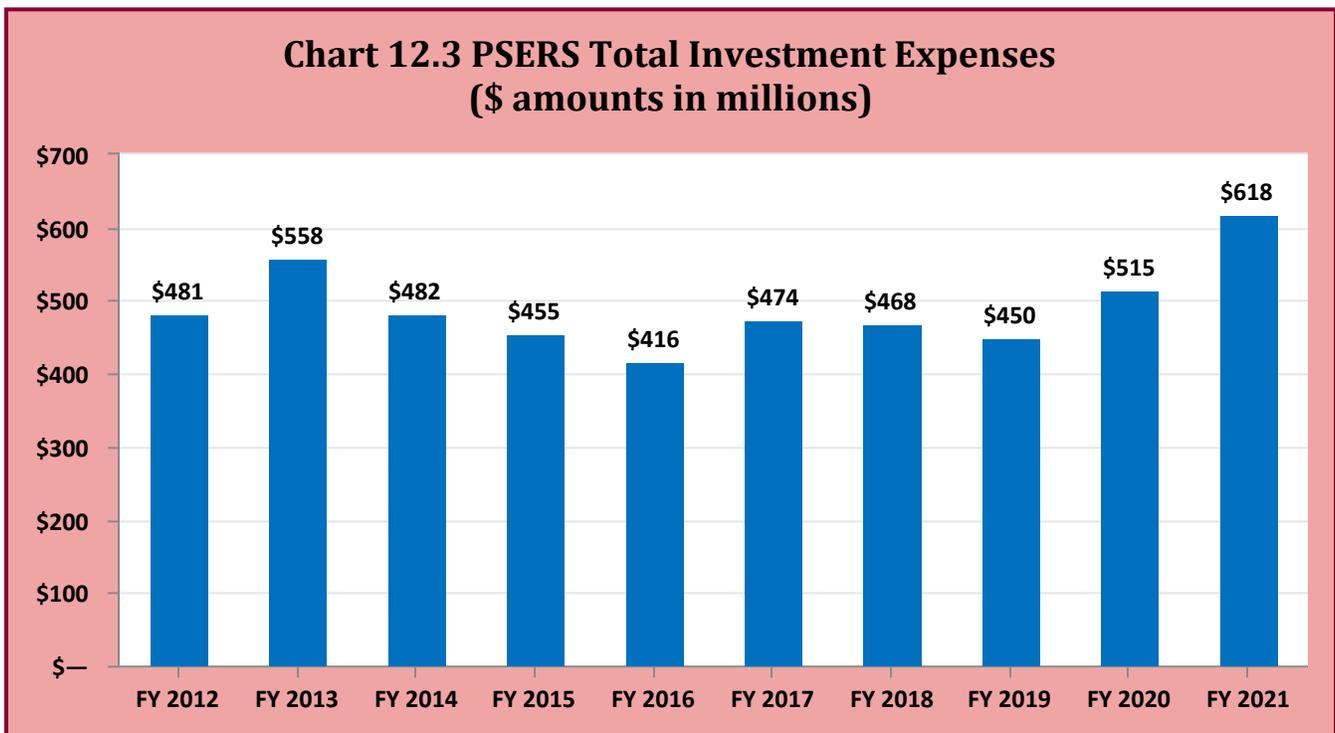


Chart 12.3 shows PSERS Total Investment Expenses over the past ten fiscal years



Section 3 - Investment Information

Key Decision: Internal vs. External Investment Management

PSERS generally prefers to assign investment management responsibilities to internal professionals rather than to external investment management companies when certain conditions are present (see Chart 12.1). For example, it must be clear that internal professionals can achieve risk-adjusted returns that are at least equal to what might be earned by external investment managers in equivalent strategies, and PSERS investment professionals must simultaneously have the operational capacity to take on the additional work. When assets are assigned to PSERS professionals, the total costs (e.g., salary and benefits, computers and office supplies) are much lower than using

even the largest “very low fee” index mutual fund companies charge, giving PSERS a significant advantage.

When PSERS does select external investment managers, the decision is based in part on the fees the System has negotiated and in part on the likelihood the manager will meet or exceed the performance expected. Fee negotiations begin with the expectation that the contract with the investment manager will have a “Most Favored Nations” clause guaranteeing that PSERS fees will be at least as low as other clients with a similar investment amount, and the System then negotiates fees lower from that point wherever possible.

Chart 12.4 displays the distribution of PSERS managed assets as of June 30, 2021.

**Chart 12.4 PSERS Asset Exposures under Management
as of June 30, 2021
(\$ Billions)**



Note: Financing represents a negative \$7.3 billion allocation exposure and is not reflected in Chart 12.4.

Section 3 - Investment Information

Key Decision: Internal vs. External Investment Management

PSERS investment staff managed 27 portfolios internally, with a total estimated net asset value of over \$40 billion on June 30, 2021, resulting in significant fee savings. For the entire fiscal year,

PSERS incurred costs of approximately \$26 million to manage these portfolios internally, as well as oversee all of the external managers, manage the asset allocation, oversee risk, and perform other tasks in managing the overall investment program.

As shown in Table 12.1 below, managing these assets externally would have cost PSERS over \$42 million in additional fees (\$ amounts in thousands):

Table 12.1

Internally Managed Accounts as of June 30, 2021

Account	Asset Class	Market Value as of 6/30/21*	Estimated Annual Fee %	Estimated Cost to Manage Externally
PSERS - S&P 500 Index	U.S. Equities	\$ 4,904,289	0.05%	\$ 2,452
PSERS - S&P 400 Index	U.S. Equities	831,065	0.03%	249
PSERS - S&P 600 Index	U.S. Equities	872,493	0.04%	349
Misc. PSERS Equity Accounts	U.S. Equities	1,201	0.00%	—
U.S. Equities Total		\$ 6,609,048		\$ 3,050
PSERS ACWI ex. U.S. Index**	International Equity	3,326,292	0.17%	5,655
Emerging Markets Equity	International Equity	322,774	0.03%	97
International Equity		\$ 3,649,066		\$ 5,752
Private Equity Co-Investments	Private Equity	1,053,984	1.00%	10,540
FIGS, Inc.	Private Equity	498,174	0.10%	498
Private Equity Total		\$ 1,552,158		\$ 11,038
Private Credit Co-Investments	Fixed Income	149,811	1.00%	1,498
PSERS Active Aggregate	Fixed Income	651,261	0.21%	1,368
PSERS TIPS Portfolio	Fixed Income	1,122,225	0.13%	1,459
PSERS TIPS SIP**	Fixed Income	3,312,937	0.03%	994
PSERS Funded Passive U.S.	Fixed Income	3,045,360	0.03%	914
PSERS Long Treasuries	Fixed Income	4,511,856	0.03%	1,354
Active High Yield**	Fixed Income	204,358	0.44%	899
Fixed Income Total		\$ 12,997,808		\$ 8,486
PSERS Infrastructure Index	Infrastructure	2,731,400	0.03%	819
PSERS Public Infrastructure**	Infrastructure	1,222,614	0.35%	4,279
Infrastructure Co-Investments	Infrastructure	35,697	1.00%	357
Infrastructure Total		\$ 3,989,711		\$ 5,455
PSERS Commodity Beta**	Commodities	2,640,862	0.03%	792
PSERS Gold Fund**	Commodities	4,324,467	0.03%	1,297
Private Commodities Co-Investments	Commodities	57,247	1.00%	572
Commodities Total		\$ 7,022,576		\$ 2,661
PSERS REIT Index**	Real Estate	1,526,244	0.03%	458
Real Estate Co-Investments	Real Estate	70,388	0.49%	345
Real Estate Direct Investment	Real Estate	298,460	0.50%	1,492
Real Estate Total		\$ 1,895,092		\$ 2,295
Absolute Return Co-	Absolute Return	13,347	1.00%	133
Absolute Return Total		\$ 13,347		\$ 133
Tail Risk Mitigation**	Tail Risk	36,589	1.50%	549
Tail Risk Total		\$ 36,589		\$ 549
PSERS Cash Management	Cash Management	3,019,957	0.10%	3,020
Cash Management Total		\$ 3,019,957		\$ 3,020
Grand Total		\$ 40,785,352		\$ 42,439

**Market values include cash and derivatives exposure

Key Decision: Active vs. Passive Investment Management

Passive investment strategies form the basis that the Fund uses to attain market exposure in many public market asset classes. The advantage of passive strategies, such as indexing, is that they are generally very inexpensive to implement. If solely using passive strategies, however, performance will be limited to general market performance with little or no potential for excess earnings.

PSERS evaluates and selects active managers on a case by case basis with strong emphasis on understanding the manager's sustainable investment edge. If PSERS investment professionals and consultants have conviction that the manager's process will generate attractive and potentially uncorrelated risk-adjusted net of fee returns in excess of the most competitive passive benchmarks, the active manager will be considered. Active strategies are also used by PSERS in asset classes where passive strategies are not available, such as Private Equity.

In selecting active managers, PSERS strives to hire managers that meet the following criteria:

- have a unique insight or process;
- have the ability to add long-term excess returns above passive alternatives, net of fees;
- have adequate capacity to execute the strategy;
- add diversification to PSERS existing investment structure;
- do not exhibit style drift; and
- exhibit a high level of ethical behavior.

The advantage of active strategies is that they endeavor to generate net of fee returns in excess of the passive alternatives, if available, and/or provide diversification benefits which help manage total portfolio risk. The disadvantages of active strategies include being more expensive to implement than passive strategies and the risk that they may underperform passive strategies.

PSERS regularly measures the performance of active strategies relative to alternative passive strategies. In cases where PSERS is not receiving investment earnings from its active strategies in excess of alternative passive strategies, when all investment fees are taken into account, capital is redeployed either to other active strategies or to passive strategies. If PSERS determines that the active managers are not meeting expectations as a group, the Fund would endeavor to exit active strategies altogether and move to a purely passive implementation.

Section 3 - Investment Information

Investment Advisory Fees

Table 12.2 summarizes total investment expenses for the fiscal year ended June 30, 2021. “Total External Management” includes all fees paid to external investment managers as either a base fee or a share of profits earned (performance fee). “Total Internal Management” includes all staff salaries related to PSERS Investment Office as well as costs needed to support their work (e.g., vendor services, hardware and software, office supplies). “Total Other Expenses” include fees paid to the custodian bank, consultants, and legal services providers.

Table 12.2

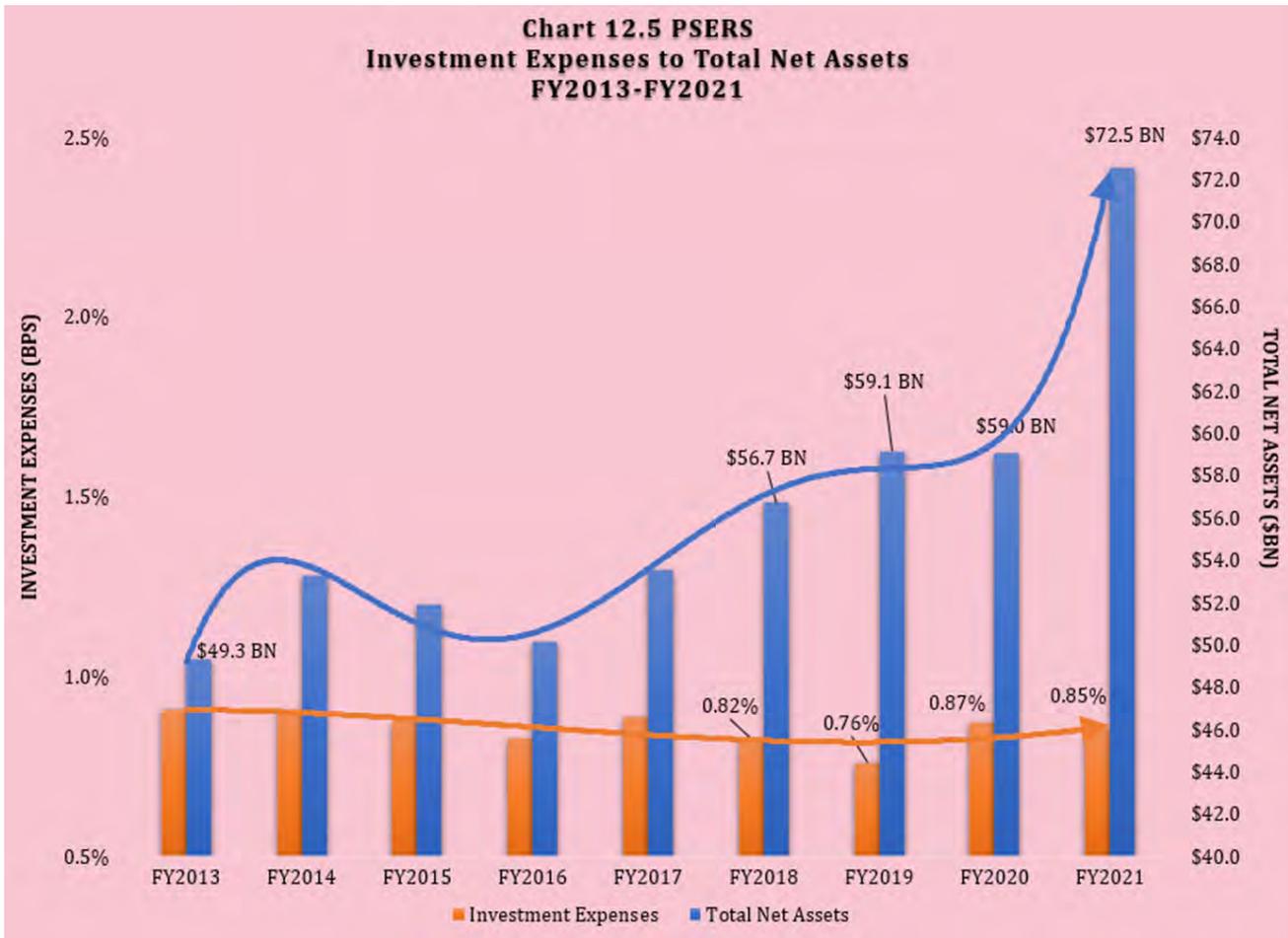
Summary of Investment Advisory Fees Fiscal Year Ended June 30, 2021 (Dollar Amounts in Thousands)

	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total Fees</u>	<u>Basis Points</u>
External Management				
Domestic Equity	\$ 558	\$ 2,500	\$ 3,058	123
International Equity	26,486	66,575	93,061	172
Fixed Income	35,364	27,304	62,668	83
Private Credit	57,990	—	57,990	108
Real Estate	51,618	—	51,618	104
Alternative Investments	101,569	—	101,569	119
Absolute Return	93,073	102,585	195,658	298
Commodities	7,259	—	7,259	207
Infrastructure	5,052	—	5,052	43
Master Limited Partnerships	786	1,686	2,472	32
Risk Parity	4,021	—	4,021	75
Defined Contribution	97	—	97	158
Total External Management	\$ 383,873	\$ 200,650	\$ 584,523	153
Total Internal Management			\$ 26,407	7
Total Investment Management			\$ 610,930	83
Custodian Fees			\$ 2,496	
Consultant & Legal Fees			4,626	
Total Other Expenses			\$ 7,122	
Total Investment Expenses			\$ 618,052	84

Section 3 - Investment Information

Investment Advisory Fees (continued)

Increasing the number and size of portfolios managed internally has been a core initiative in reducing PSERS Total Investment Expenses in recent years. **As Chart 12.5 illustrates, Total External Management fees have remained fairly even from Fiscal Year 2013 to Fiscal Year 2021, while Total Net Assets have increased significantly from \$49.3 billion to \$72.5 billion.** It is worth noting that these decreases have occurred while Total Internal Management and Total Other Expenses have remained flat.



Section 3 - Investment Information

External management fees are treated as a reduction of the investment revenue of the Fund rather than as a budgeted administrative expense.

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
U.S. Equity			
Radcliffe Capital Management LP	\$ 558	\$ 2,500	\$ 3,058
Total - U.S. Equity	\$ 558	\$ 2,500	\$ 3,058
Non - U.S. Equity			
Acadian Asset Management, LLC	\$ 1,294	\$ —	\$ 1,294
Baillie Gifford Overseas Ltd.	2,662	2,851	5,513
BlackRock Financial Management, Inc.	1,866	9,497	11,363
Cederberg Greater China EQ FD	—	—	—
ECM Feeder Fund 2 LP	—	126	126
Insight Investment International Limited	1,004	—	1,004
Marathon Asset Management Limited	3,134	—	3,134
Oberweis Asset Management, Inc.	2,615	—	2,615
QS Batterymarch Financial Management, Inc.	790	—	790
Steadview Capital Partners LP	2,297	21,925	24,222
The Children's Investment Fund LP	6,345	30,585	36,930
Wasatch Advisors, Inc.	4,479	1,591	6,070
Total - Non - U.S. Equity	\$ 26,486	\$ 66,575	\$ 93,061
Fixed Income			
BlackRock Financial Management, Inc.	\$ 4,290	\$ 10,293	\$ 14,583
Bridgewater Associates, LP	22,219	—	22,219
Brigade Capital Management, LLC	4,964	15,199	20,163
Capula Investment Management, LP	19	—	19
Mariner Investment Group, LLC	732	—	732
Pacific Investment Management Company (PIMCO)	37	—	37
Penn Mutual Asset Management, LLC	52	(23)	29
Radcliffe Capital Management, L.P.	510	1,835	2,345
SEI Investments Company	509	—	509
Templeton Investment Counsel, LLC	2,032	—	2,032
Total - Fixed Income	\$ 35,364	\$ 27,304	\$ 62,668
Private Credit			
Apollo European Principal Finance Fund II (Dollar A), L.P.	\$ 278	\$ —	\$ 278
Apollo European Principal Finance Fund III (Dollar A), LP	1,858	—	1,858
Avenue Energy Opportunities Fund, L.P.	1,462	—	1,462
Avenue Energy Opportunities Fund II, L.P.	850	—	850
Avenue Europe Special Situations Fund III (U.S.), L.P.	1,419	—	1,419

Section 3 - Investment Information

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
Private Credit (Continued)			
Bain Capital Credit Managed Account (PSERS), L.P.	\$ 1,744	\$ —	\$ 1,744
Bain Capital Distressed and Special Situations 2013 (A), L.P.	657	—	657
Bain Capital Distressed and Special Situations 2016 (A), L.P.	2,606	—	2,606
Bain Capital Distressed and Special Situations 2019 (A), L.P.	1,034	—	1,034
Bain Capital Middle Market Credit 2014, LP	751	—	751
Carlyle Energy Mezzanine Opportunities Fund II, L.P.	1,531	—	1,531
Carlyle Energy Mezzanine Opportunities Fund-Q, L.P.	113	—	113
Cerberus PSERS Levered Loan Opportunities Fund, L.P.	8,647	—	8,647
Clearlake Opportunities Partners (P) II, L.P.	758	—	758
Galton Onshore Mortgage Recovery Fund IV, L.P.	382	—	382
Hayfin SOF II USD Co-Invest, L.P.	106	—	106
Hayfin SOF II USD, L.P.	2,624	—	2,624
HayFin Special Opportunities Credit Fund (Parallel), L.P.	401	—	401
ICG Europe Fund V, L.P.	1,520	—	1,520
ICG Europe Fund VI, L.P.	1,129	—	1,129
ICG Europe Fund VII Feeder SCSp	1,875	—	1,875
International Infrastructure Finance Company Fund, L.P.	374	—	374
Latitude Management Real Estate Capital IV, Inc.	675	—	675
LBC Credit Partners III, L.P.	699	—	699
LBC-P Credit Fund, L.P.	6,051	—	6,051
Park Square - PSERS Credit Opportunities Fund, L.P.	4,049	—	4,049
PIMCO BRAVO Fund III Onshore Feeder, LP	1,951	—	1,951
PSERS TAO Partners Parallel Fund, L.P.	4,284	—	4,284
Sixth Street Fundamental Strategies Partners (A), L.P.	100	—	100
Sixth Street Specialty Lending Europe II, L.P.	182	—	182
SSG Capital Partners V Sidecar, L.P.	443	—	443
SSG Capital Partners V, L.P.	2,182	—	2,182
TOP NPL (A), L.P.	3	—	3
TPG Opportunities Partners II (A), L.P.	21	—	21
TPG Opportunities Partners III (A), L.P.	639	—	639
TSSP Opportunities Partners IV (A), L.P.	2,247	—	2,247
Varde Scratch and Dent Feeder I-A, L.P., The	490	—	490
Varde Scratch and Dent Feeder, L.P., The	455	—	455
Whitehorse Liquidity Partners (Onshore) IV, L.P.	1,400	—	1,400
Total - Private Credit	\$ 57,990	\$ —	\$ 57,990
Real Estate-Direct Ownership			
Bell Partners Inc.	\$ 922	\$ —	\$ 922
Charter Oak Advisors, Inc.	960	—	960

Section 3 - Investment Information

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
Real Estate-Direct Ownership (Continued)			
GF Management, Inc.	\$ 131	\$ —	\$ 131
L & B Realty Advisors, L.L.P.	128	—	128
Subtotal - Real Estate-Direct Ownership	\$ 2,141	\$ —	\$ 2,141
Real Estate-Partnerships/Funds			
AG Core Plus Realty Fund III, L.P.	\$ 196	\$ —	\$ 196
AG Core Plus Realty Fund IV, L.P.	1,320	—	1,320
AG Europe Realty Fund II, L.P.	707	—	707
AG Europe Realty Fund III, L.P.	1,009	—	1,009
AG Realty Value Fund X, L.P.	1,271	—	1,271
Almanac Realty Securities V, L.P.	1	—	1
Almanac Realty Securities VI, L.P.	149	—	149
Almanac Realty Securities VII, L.P.	571	—	571
Almanac Realty Securities VIII, L.P.	1,872	—	1,872
Ares European Real Estate Fund IV, L.P.	681	—	681
Ares U.S. Real Estate Fund VIII, L.P.	518	—	518
Ares U.S. Real Estate Fund IX, L.P.	1,049	—	1,049
ARS VII (Sidecar V), L.P.	75	—	75
ARS VIII (SC V), L.P.	46	—	46
Avenue Real Estate Fund (Parallel) L.P.	661	—	661
Bell Institutional Fund V, L.P.	705	—	705
Bell Institutional Fund VI, L.P.	1,048	—	1,048
Bell Institutional Fund VII, L.P.	1,407	—	1,407
Blackstone Real Estate Debt Strategies II, L.P.	10	—	10
Blackstone Real Estate Debt Strategies III, L.P.	888	—	888
Blackstone Real Estate Partners Europe III, L.P.	282	—	282
Blackstone Real Estate Partners Europe IV, L.P.	386	—	386
Blackstone Real Estate Partners VII, L.P.	1,249	—	1,249
Blackstone Real Estate Partners VIII, L.P.	2,734	—	2,734
Brookfield Strategic Real Estate Partners, L.P.	738	—	738
Brookfield Strategic Real Estate Partners II, L.P.	1,806	—	1,806
Brookfield Strategic Real Estate Partners III-A, L.P.	2,620	—	2,620
Cabot Industrial Core Fund, L.P.	1,229	—	1,229
Cabot Industrial Core Fund II, L.P.	560	—	560
Cabot Industrial Value Fund V, L.P.	1,500	—	1,500
Cabot Industrial Value Fund VI, L.P.	1,188	—	1,188
Carlyle Realty Partners V, L.P.	140	—	140
Carlyle Realty Partners VI, L.P.	95	—	95
Carlyle Realty Partners VII, L.P.	375	—	375
Carlyle Realty Partners VIII, L.P.	1,729	—	1,729

Section 3 - Investment Information

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
Real Estate-Partnerships/Funds (Continued)			
DRA Growth and Income Fund IX, LLC	\$ 1,603	\$ —	\$ 1,603
DRA Growth and Income Fund VII, L.P.	230	—	230
DRA Growth and Income Fund VIII, LLC	1,212	—	1,212
DRA Fund IX Industrial Co-Investment LLC	99	—	99
DRA Growth and Income Fund VIII Co-Investment I, LLC	137	—	137
DRA Growth and Income Master Fund X, LLC	529	—	529
Exeter Core Industrial Club Fund II, L.P.	778	—	778
Exeter Industrial Core Fund III, L.P.	195	—	195
Exeter Industrial Value Fund III, L.P.	169	—	169
Exeter Industrial Value Fund IV, L.P.	1,059	—	1,059
Exeter Industrial Value Fund V, L.P.	823	—	823
Latitude Management Real Estate Capital III, Inc.	553	—	553
LEM Multifamily Fund V, L.P.	1,000	—	1,000
LEM Multifamily Senior Equity Fund IV, L.P.	605	—	605
PGIM Real Estate Capital VII, SCSp	171	—	171
Pramerica Real Estate Capital VI, L.P.	692	—	692
RCG Longview Debt Fund V, L.P.	30	—	30
RCG Longview Debt Fund VI, L.P.	936	—	936
RCG Longview Equity Fund, L.P.	42	—	42
Security Capital Preferred Growth (Public)	1,824	—	1,824
Senior Housing Partnership Fund V, L.P.	754	—	754
Stockbridge Real Estate Fund II, LP	71	—	71
Stockbridge Real Estate Fund III, LP	298	—	298
Stockbridge Real Estate Fund, L.P.	3,788	—	3,788
Stockbridge I Secondary	80	—	80
UBS (US) Trumbull Property Fund, L.P.	249	—	249
Subtotal - Real Estate-Partnerships/Funds	\$ 48,742	\$ —	\$ 48,742
Real Estate-Farmland			
Prudential Agricultural Group	735	—	735
Subtotal - Real Estate-Farmland	\$ 735	\$ —	\$ 735
Total Real Estate	\$ 51,618	\$ —	\$ 51,618
Private Equity			
Actis Global 4, L.P.	\$ 1,359	\$ —	\$ 1,359
Apax Digital, L.P.	1,590	—	1,590
Apax X USD, L.P.	1,370	—	1,370

Section 3 - Investment Information

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
Private Equity (Continued)			
Bain Capital Asia Fund II, L.P.	\$ 620	\$ —	\$ 620
Bain Capital Asia Fund III-A, L.P.	1,903	—	1,903
Bain Capital Asia Fund IV-B, L.P.	1,500	—	1,500
Bain Capital Fund XI-A, L.P.	355	—	355
Bain Capital Fund XII, L.P.	1,648	—	1,648
Baring Asia Private Equity Fund V, L.P.	3,075	—	3,075
Baring Asia Private Equity Fund VI, L.P.	1,242	—	1,242
Blue Point Capital Partners III (B), L.P.	589	—	589
Blue Point Capital Partners IV, L.P.	840	—	840
Bridgepoint Development Capital III, L.P.	750	—	750
Bridgepoint Europe IV, L.P.	527	—	527
Bridgepoint Europe V, L.P.	1,428	—	1,428
Bridgepoint Europe VI, L.P.	1,126	—	1,126
Capital International Private Equity Fund VI, L.P.	451	—	451
Catterton Growth Partners II, L.P.	932	—	932
Catterton Growth Partners III, L.P.	1,165	—	1,165
Catterton Growth Partners, L.P.	371	—	371
Catterton Partners VI, L.P.	577	—	577
Catterton Partners VII, L.P.	1,729	—	1,729
Catterton VIII, L.P.	1,169	—	1,169
Cinven Fund (Fifth), L.P.	181	—	181
Cinven Fund (Sixth), L.P.	283	—	283
Coller International Partners VI, L.P.	700	—	700
Coller International Partners VII, L.P.	997	—	997
Crestview Partners II, L.P.	926	—	926
Crestview Partners III, L.P.	834	—	834
Crestview Partners, L.P.	250	—	250
Crown CG Private Equity Fund 2019, L.P.	531	—	531
Denham Commodity Partners Fund VI, L.P.	564	—	564
Energy & Minerals Group Fund III, L.P.	835	—	835
Equistone Partners Europe Fund V E, L.P.	655	—	655
Equistone Partners Europe Fund VI E, SCSp	387	—	387
GoldPoint Partners Co-Investment V, L.P.	276	—	276
Hahn & Company III L.P.	2,250	—	2,250
Hahn & Company III-S L.P.	239	—	239
Hg Genesis 9 A, L.P.	166	—	166
Hg Saturn 2 A L.P.	1,089	—	1,089
HgCapital 7 A, L.P.	557	—	557
HgCapital 8 D, L.P.	1,875	—	1,875
HGGC Fund II, L.P.	970	—	970
HGGC Fund III, L.P.	1,327	—	1,327

Section 3 - Investment Information

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
Private Equity (Continued)			
Incline Elevate Fund, L.P.	\$ 575	\$ —	\$ 575
Incline Equity Partners III (PSERS), L.P.	280	—	280
Incline Equity Partners IV, L.P.	898	—	898
K4 Private Investors, L.P.	1,800	—	1,800
Landmark Equity Partners XIV, L.P.	252	—	252
Lindsay Goldberg V, L.P.	1,525	—	1,525
Milestone Partners FS 2, L.P.	275	—	275
Milestone Partners IV, L.P.	345	—	345
New Mountain Partners IV, L.P.	516	—	516
New Mountain Partners V, L.P.	979	—	979
New Mountain Partners VI, L.P.	1,184	—	1,184
NGP Natural Resources X, L.P.	443	—	443
NGP Natural Resources XI, L.P.	946	—	946
North Haven PE Asia Fund IV, L.P. (Morgan Stanley)	1,085	—	1,085
Odyssey Investment Partners Fund V, L.P.	1,270	—	1,270
Orchid Asia V, L.P.	110	—	110
Orchid Asia VI, L.P.	1,072	—	1,072
Orchid Asia VII, L.P.	1,454	—	1,454
PAI Europe VI, L.P.	1,218	—	1,218
PAI Europe VII, L.P.	1,783	—	1,783
Palladium Equity Partners IV, L.P.	461	—	461
Partners Group Secondary 2011 (USD), L.P. Inc.	864	—	864
Partners Group Secondary 2015 (USD) A, L.P.	1,219	—	1,219
Platinum Equity Capital Partners V, L.P.	252	—	252
Platinum Equity Small Cap Fund, L.P.	765	—	765
Portfolio Advisors Secondary Fund III, L.P.	1,605	—	1,605
Portfolio Advisors Secondary Fund IV, L.P.	88	—	88
Portfolio Advisors Secondary Fund, L.P., PA	129	—	129
Strategic Partners Fund V, L.P.	89	—	89
Strategic Partners Fund VI, L.P.	403	—	403
Strategic Partners Fund VII, L.P.	1,250	—	1,250
Trilantic Capital Partners V (North America), L.P.	534	—	534
Trilantic Capital Partners VI (North America), L.P.	2,250	—	2,250
Webster Capital IV, L.P.	35	—	35
Subtotal - Private Equity	\$ 70,162	\$ —	\$ 70,162
Private Debt			
Apollo Investment Fund IX, L.P.	\$ 2,667	\$ —	\$ 2,667
Apollo Investment Fund VIII, L.P.	634	—	634
Cerberus Institutional Partners V, L.P.	50	—	50
Cerberus Institutional Partners VI, L.P.	2,064	—	2,064

Section 3 - Investment Information

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
Private Debt (Continued)			
Cerberus Institutional Partners, L.P. (Series 4)	\$ 1	\$ —	\$ 1
Clearlake Capital Partners IV, L.P.	280	—	280
Clearlake Capital Partners V, L.P.	570	—	570
Clearlake Capital Partners VI, L.P.	669	—	669
Searchlight Capital II, L.P.	590	—	590
Searchlight Capital III, L.P.	2,460	—	2,460
Venor Special Situations Fund II, L.P.	527	—	527
Versa Capital Fund II, L.P.	1,235	—	1,235
Versa Capital Fund III, L.P.	1,515	—	1,515
Subtotal - Private Debt	\$ 13,262	\$ —	\$ 13,262
Venture Capital			
Aisling Capital IV, L.P.	\$ 73	\$ —	\$ 73
Insight Opportunities Fund I, L.P.	142	—	142
Insight Partners XI, L.P.	2,413	—	2,413
Insight Venture Partners X, L.P.	1,405	—	1,405
Greenoaks Capital Opportunities Fund III	667	—	667
LLR Equity Partners III, L.P.	39	—	39
LLR Equity Partners IV, L.P.	1,238	—	1,238
LLR Equity Partners V, L.P.	3,000	—	3,000
LLR Equity Partners VI, L.P.	457	—	457
Oak HC/FT Partners IV, L.P.	451	—	451
Sante Health Ventures III	2,382	—	2,382
StarVest Partners II (Parallel), L.P.	243	—	243
Summit Partners Growth Equity Fund IX, L.P.	1,142	—	1,142
Summit Partners Growth Equity Fund VIII, L.P.	1,022	—	1,022
Summit Partners Growth Equity Fund X, L.P.	215	—	215
Summit Partners Venture Capital Fund III, L.P.	172	—	172
Summit Partners Venture Capital Fund IV, L.P.	752	—	752
Tenaya Capital VI, L.P.	573	—	573
Tenaya Capital VII, L.P.	1,456	—	1,456
Tenaya Capital V-P, L.P.	303	—	303
Subtotal - Venture Capital	\$ 18,145	\$ —	\$ 18,145
Total Alternative Investments	\$ 101,569	\$ —	\$ 101,569

Section 3 - Investment Information

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
<u>Absolute Return</u>			
Aeolus Capital Management Ltd.	\$ 6,700	\$ 1,414	\$ 8,114
AKAZ Offshore Fund LTD	3,165	1,996	5,161
Bridgewater Associates, Inc.	22,676	—	22,676
Brigade Capital Management	3,173	8,419	11,592
Capula Investment Management, LLP	11,338	3,177	14,515
Caspian Capital, LP	3,020	7,165	10,185
Falko Regional Aircraft Opportunities Fund II L.P.	1,085	—	1,085
Garda Capital Partners, LP	9,400	15,079	24,479
HS Group Sponsor Fund II Ltd.	918	—	918
Independence Reinsurance Partners GP, LLC	3,249	479	3,728
Nephila Capital Ltd.	2,524	—	2,524
Nimbus Weather Fund	2,267	5,441	7,708
Oceanwood Opportunities Fund	924	7,209	8,133
OWS Credit Opportunity Offshore Fund III, Ltd.	5,622	15,200	20,822
Pacific Investment Management Company (PIMCO)	9,104	23,448	32,552
Perry Partners, L.P.	66	—	66
Sciens Aviation Special Opportunities Investment Fund III, L.P.	1,496	—	1,496
Sciens Aviation Special Opportunities Investment Fund IV, L.P.	1,657	—	1,657
Sciens Aviation Special Opportunities Investment Fund V, L.P.	2,564	—	2,564
Two Sigma Risk Premia Enhanced Fund	317	—	317
Venor Capital Offshore	1,808	13,558	15,366
Total - Absolute Return	\$ 93,073	\$ 102,585	\$ 195,658
<u>Commodities</u>			
Denham Mining Fund, L.P.	\$ 2,053	\$ —	\$ 2,053
Gresham Investment Management, LLC	995	—	995
NGP Natural Resources XII, L.P.	3,145	—	3,145
Wellington Management Company, LLP	1,066	—	1,066
Total - Commodities	\$ 7,259	\$ —	\$ 7,259
<u>Diversified Infrastructure</u>			
Blackstone Infrastructure Partners L.P.	\$ 3,002	\$ —	\$ 3,002
International Infrastructure Finance Company II, LP	391	—	391
GCM Grosvenor Customized Infrastructure Strategies II, LP	498	—	498
Strategic Partners Real Assets II, L.P.	1,161	—	1,161
Total - Infrastructure	\$ 5,052	\$ —	\$ 5,052

Section 3 - Investment Information

Table 12.3

Investment Fees by Manager Fiscal Year ended June 30, 2021 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Base Fees</u>	<u>Performance Fees</u>	<u>Total</u>
<u>Master Limited Partnerships</u>			
Salient Capital Advisors, LLC	\$ 393	\$ —	\$ 393
Stein Roe Investment Counsel D/B/A Atlantic Trust	393	1,686	2,079
Total - Master Limited Partnerships	\$ 786	\$ 1,686	\$ 2,472
<u>Risk Parity</u>			
BlackRock Institutional Trust Company, N.A.	\$ 712	\$ —	\$ 712
Bridgewater Associates, LP	2,291	—	2,291
D.E. Shaw Investment Management, L.L.C.	1,018	—	1,018
Total - Risk Parity	\$ 4,021	\$ —	\$ 4,021
<u>Defined Contribution</u>			
T. Rowe Price Target Date Funds	\$ 97	\$ —	\$ 97
Total - Defined Contribution	\$ 97	\$ —	\$ 97
Total External Management	\$ 383,873	\$ 200,650	\$ 584,523
Total Internal Management			\$ 26,407
Total Investment Management			\$ 610,930

*Internal Management expenses include salaries and fringe benefits of \$14,905 and operating expenses of \$11,502.

Investment Fees and Expenses Initiatives

PSERS continues to pursue several avenues intended to maintain a reasonable cost structure. These initiatives include:

- For external managers making traditional investments, reduce base fees and create better alignment of interests by moving to a lower base fee coupled with a profit share.
- For external managers making traditional and absolute return investments, enter into arrangements for netting of profit shares for managers with multiple PSERS mandates.
- For external managers making nontraditional investments, continue to grow co-investments (which have lower fees and profit shares).
- For external managers making nontraditional investments, move away from paying on committed capital and towards paying on invested capital whenever possible.
- For external managers, re-underwriting all fee arrangements to ensure that the fee arrangements are fair and equitable.
- Research firms specializing in investment management fee negotiations, considering their credentials, references, past performance in reducing investment management fees for clients, and probable cost effectiveness for PSERS, for possible retention.

Carried Interest Reported by Manager

PSERS, as part of its historic commitment to transparency, has evolved its reporting on private markets fees and costs. PSERS disclosed profit share (carried interest), net management fees, and other fund expenses by fund in one report for the calendar year ended 2020. PSERS uses a best effort approach to gather the necessary data by canvassing our active funds for carried interest, management fee offsets and other fund expenses detailed out by fund. This information was presented to PSERS Board in March 2022 and the full report is available on our website at www.psers.pa.gov.

Section 3 - Investment Information

Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Net Mgmt Fees</u>	<u>Net Carried Interest</u>	<u>Partnership Expenses</u>	<u>Total</u>
Private Equity				
Actis Emerging Markets 3, L.P.	\$ —	\$ —	\$ 329	\$ 329
Actis Global 4, L.P.	1,358	1,916	182	3,456
Adams Capital Management, L.P.	—	—	6	6
Aisling Capital II L.P.	—	—	27	27
Aisling Capital III, L.P.	—	(157)	26	(131)
Aisling Capital IV, L.P.	750	9,604	253	10,607
Allegheny New Mountain Partners, L.P.	—	22	27	49
Apax Digital, L.P.	1,657	7,792	571	10,020
Apax Europe VII, L.P.	—	(1,643)	14	(1,629)
Apax X USD, L.P.	3,063	1,244	497	4,804
Apollo Investment Fund IX, L.P.	2,743	1,527	756	5,026
Apollo Investment Fund VIII, L.P.	698	1,095	460	2,253
Avenue Special Situations Fund VI, L.P.	—	—	16	16
Bain Capital Asia Fund II, L.P.	675	732	39	1,446
Bain Capital Asia Fund III-A, L.P.	2,600	20,773	420	23,793
Bain Capital Asia Fund IV-B, L.P.	1,500	1,973	472	3,945
Bain Capital Fund XI-A, L.P.	414	5,547	41	6,002
Bain Capital Fund XII-A, L.P.	1,875	1,665	668	4,208
Baring Asia Private Equity Fund IV, L.P.	—	3,213	253	3,466
Baring Asia Private Equity Fund V, L.P.	3,073	(10,872)	1,886	(5,913)
Baring Asia Private Equity Fund VI, L.P.	1,342	5,600	1,080	8,022
Blue Point Capital Partners (B), L.P.	—	—	3	3
Blue Point Capital Partners II (B), L.P.	8	—	27	35
Blue Point Capital Partners III (B), L.P.	592	1,538	102	2,232
Blue Point Capital Partners IV, L.P.	939	—	105	1,044
Bridgepoint Capital II (Secondary)	—	—	1	1
Bridgepoint Development Capital III, L.P.	1,299	6,414	407	8,120
Bridgepoint Europe I	—	—	1	1
Bridgepoint Europe II	—	(18)	65	47
Bridgepoint Europe III A, L.P.	—	—	77	77
Bridgepoint Europe IV, L.P.	407	(1,437)	184	(846)
Bridgepoint Europe V, L.P.	1,194	4,099	241	5,534
Bridgepoint Europe VI, L.P.	1,367	—	382	1,749
Capital International Private Equity Fund V L.P.	—	—	29	29
Capital International Private Equity Fund VI, L.P.	582	—	43	625
Catterton Growth Partners II, L.P.	960	11,712	57	12,729

Section 3 - Investment Information

Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Net Mgmt Fees</u>	<u>Net Carried Interest</u>	<u>Partnership Expenses</u>	<u>Total</u>
Private Equity (continued)				
Catterton Growth Partners, L.P.	\$ 458	\$ (6,088)	\$ 83	\$ (5,547)
Catterton Partners VI, L.P.	412	1,594	55	2,061
Catterton Partners VII, L.P.	1,393	2,548	108	4,049
Cerberus Institutional Partners V, L.P.	197	5,395	643	6,235
Cerberus Institutional Partners VI, L.P.	2,039	10,203	1,566	13,808
Cerberus Institutional Partners, L.P. (Series 3)	—	51	36	87
Cerberus Institutional Partners, L.P. (Series 4)	—	33,068	528	33,596
Clearlake Capital Partners IV, L.P.	593	2,598	122	3,313
Clearlake Capital Partners V, L.P.	699	3,536	310	4,545
Clearlake Capital Partners VI, L.P.	966	1,079	371	2,416
Clearlake Flagship Plus Partners, L.P.	—	110	96	206
Co-Investment 2000 Fund, L.P.	—	—	(144)	(144)
Co-Investment Fund II, L.P.	—	—	120	120
Coller International Partners VI, L.P.	738	330	23	1,091
Coller International Partners VII, L.P. - Series A	1,094	675	37	1,806
Crestview Partners II, L.P.	907	5,461	318	6,686
Crestview Partners III, L.P.	1,246	2,510	433	4,189
Crestview Partners, L.P.	250	(2,340)	7	(2,083)
Cross Atlantic Technology Fund II	—	—	7	7
Cross Atlantic Technology Fund, L.P.	—	—	1	1
Crown CG Private Equity Fund 2019, L.P.	1,709	—	523	2,232
Crown CG Private Equity Fund 2019S, L.P.	—	—	119	119
CVC Capital Partners Asia Pacific III, L.P.	—	(1,638)	63	(1,575)
CVC European Equity Partners V (A), L.P.	—	3,370	9,674	13,044
DCPF VI Oil and Gas Co-Investment Fund, L.P.	41	822	11	874
Denham Commodity Partners Fund VI, L.P.	677	—	65	742
Equistone Partners Europe Fund V E, L.P.	859	—	98	957
Equistone Partners Europe Fund VI E, SCSp	1,313	—	295	1,608
First Reserve Fund XII, L.P.	—	—	92	92
Gleacher Mezzanine Fund II, L.P.	—	(126)	22	(104)
Gold Hill Venture Lending 03, L.P.	35	(13)	17	39
GoldPoint Partners Co-Investment V, L.P.	304	48	27	379
Hahn & Company III L.P.	2,250	—	528	2,778
Hahn & Company III-S L.P.	172	—	70	242
Hg Genesis 9 L.P.	288	—	170	458
Hg Saturn 2 A L.P.	844	—	(232)	612

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Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Net Mgmt Fees</u>	<u>Net Carried Interest</u>	<u>Partnership Expenses</u>	<u>Total</u>
Private Equity (continued)				
HgCapital 7 A, L.P.	\$ 645	\$ —	\$ 1,193	\$ 1,838
HgCapital 8 D, L.P.	1,638	—	393	2,031
HGGC Fund II, L.P.	1,094	2,812	126	4,032
HGGC Fund III, L.P.	1,487	7,618	275	9,380
Incline Elevate Fund, L.P.	900	11,074	161	12,135
Incline Equity Partners III (PSERS), L.P.	—	2,161	34	2,195
Incline Equity Partners IV, L.P.	1,079	4,495	114	5,688
Incline Equity Partners V, L.P.	139	—	275	414
Insight Opportunities Fund I, L.P.	6	—	—	6
Insight Partners XI, L.P.	2,616	2,371	479	5,466
Insight Venture Partners X, L.P.	1,297	2,697	96	4,090
Irving Place Capital MB-PSERS II, L.P.	—	(1,356)	63	(1,293)
Irving Place Capital Partners III SPV, L.P.	—	5,073	137	5,210
K4 Private Investors, L.P.	1,894	3,613	216	5,723
L Catterton Growth Partners III, L.P.	1,184	9,723	101	11,008
L Catterton VIII, L.P.	1,178	11,417	76	12,671
Landmark Equity Partners XIII, L.P.	—	—	100	100
Landmark Equity Partners XIV, L.P.	266	1,571	33	1,870
Lindsay Goldberg V, L.P.	329	655	443	1,427
LLR Equity Partners II, L.P.	—	10	26	36
LLR Equity Partners III, L.P.	340	1,913	90	2,343
LLR Equity Partners IV, L.P.	2,011	3,276	132	5,419
LLR Equity Partners V, L.P.	3,446	2,717	608	6,771
LLR Equity Partners VI, L.P.	932	—	7	939
Milestone Partners FS 2, L.P.	(219)	1,738	81	1,600
Milestone Partners III, L.P.	61	—	29	90
Milestone Partners IV, L.P.	298	(1,999)	215	(1,486)
NEPA Venture Fund II	—	392	246	638
New Mountain Partners III L.P.	—	11,472	53	11,525
New Mountain Partners IV, L.P.	607	6,691	27	7,325
New Mountain Partners V, L.P.	3,250	15,411	405	19,066
New Mountain Partners VI, L.P.	1,000	—	232	1,232
New York Life Capital Partners I, L.P.	—	—	79	79
New York Life Capital Partners III-A, L.P.	—	—	164	164
New York Life Capital Partners IV-A, L.P.	1	(240)	149	(90)
NGP Natural Resources X, L.P.	455	—	124	579

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Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Net Mgmt Fees</u>	<u>Net Carried Interest</u>	<u>Partnership Expenses</u>	<u>Total</u>
Private Equity (continued)				
NGP Natural Resources XI, L.P.	\$ 982	\$ —	\$ 46	\$ 1,028
North Haven Private Equity Asia IV, L.P.	1,109	(2,493)	262	(1,122)
OCM Opportunities Fund VII L.P.	—	—	24	24
OCM Opportunities Fund VII-b L.P.	—	(913)	21	(892)
Odyssey Investment Partners Fund V, L.P.	1,345	—	45	1,390
Orchid Asia V, L.P.	120	(124)	28	24
Orchid Asia VI, L.P.	1,110	3,161	309	4,580
Orchid Asia VII, L.P.	1,500	4,454	252	6,206
PA Portfolio Advisors Secondary Fund, L.P.	88	—	219	307
PAI Europe IV-B2, L.P.	—	(933)	17	(916)
PAI Europe V, L.P.	—	(1)	28	27
PAI Europe VI, L.P.	1,056	5,571	60	6,687
PAI Europe VII, L.P.	1,453	26	520	1,999
Palladium Equity Partners IV, L.P.	484	(4,219)	200	(3,535)
Partners Group Secondary 2008, L.P.	—	156	170	326
Partners Group Secondary 2011 (USD), L.P. Inc.	911	2,590	62	3,563
Partners Group Secondary 2015 (USD) A, L.P.	1,250	1,149	76	2,475
Permira IV, L.P.	—	(547)	5	(542)
Platinum Equity Capital Partners IV, L.P.	—	18,081	769	18,850
Platinum Equity Capital Partners V, L.P.	2,761	1,197	1,419	5,377
Platinum Equity Capital Partners-A II, L.P.	—	4,826	—	4,826
Platinum Equity Capital Partners-A III, L.P.	—	19,721	124	19,845
Platinum Equity Capital Partners-A, L.P.	—	(38)	—	(38)
Platinum Equity Small Cap Fund, L.P.	1,989	—	871	2,860
Portfolio Advisors Secondary Fund III, L.P.	1,485	—	184	1,669
Portfolio Advisors Secondary Fund IV, L.P.	79	—	261	340
Sante Health Ventures III	2,382	—	160	2,542
SCP Private Equity Partners II, L.P.	—	—	75	75
Searchlight Capital II, L.P.	512	11,986	121	12,619
Searchlight Capital III, L.P.	2,433	2,115	223	4,771
StarVest	—	—	13	13
StarVest Partners II (Parallel), L.P.	227	—	160	387
StepStone International Investors III L.P.	—	—	36	36
Sterling Capital Partners, L.P.	—	(304)	48	(256)
Sterling Venture Partners, L.P.	—	—	10	10
Strategic Partners Fund III VC, L.P.	—	—	35	35

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Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

Manager	Net Mgmt Fees	Net Carried Interest	Partnership Expenses	Total
Private Equity (continued)				
Strategic Partners Fund IV VC, L.P.	\$ 49	\$ 1,957	\$ 30	\$ 2,036
Strategic Partners Fund IV, L.P.	73	218	32	323
Strategic Partners Fund V, L.P.	218	751	68	1,037
Strategic Partners Fund VI, L.P.	455	(22)	63	496
Strategic Partners Fund VII, L.P.	1,250	(2,596)	353	(993)
Summit Partners Growth Equity Fund IX-A, L.P.	502	12,807	53	13,362
Summit Partners Growth Equity Fund VIII-A, L.P.	1,062	4,663	52	5,777
Summit Partners Growth Equity Fund X-A, L.P.	—	2,390	265	2,655
Summit Partners Venture Capital Fund III-A, L.P.	212	1,509	13	1,734
Summit Partners Venture Capital Fund IV-A, L.P.	793	3,908	88	4,789
Tenaya Capital VI, L.P.	353	(674)	58	(263)
Tenaya Capital VII, L.P.	641	5,344	45	6,030
Tenaya Capital V-P, L.P.	1,745	2,877	80	4,702
The Energy & Minerals Group Fund III, L.P.	907	—	25	932
The Fifth Cinven Fund, L.P.	409	(12,443)	56	(11,978)
The Fourth Cinven Fund, L.P.	—	—	(9)	(9)
The Sixth Cinven Fund, L.P.	664	(2,886)	98	(2,124)
Trilantic Capital Partners IV L.P.	—	(486)	75	(411)
Trilantic Capital Partners V (North America), L.P.	546	257	111	914
Trilantic Capital Partners VI (North America), L.P.	2,255	—	356	2,611
Venor Special Situations Fund II, L.P.	623	—	292	915
Versa Capital Fund I, L.P.	—	—	174	174
Versa Capital Fund II, L.P.	1,395	—	395	1,790
Versa Capital Fund III, L.P.	1,811	—	726	2,537
Webster Capital IV, L.P.	133	5,623	89	5,845
Total - Private Equity	\$ 115,886	\$ 329,495	\$ 43,432	\$ 488,813
Private Credit				
Apollo European Principal Finance Fund II (Dollar A)	\$ 307	\$ (5,829)	\$ 187	(5,335)
Apollo European Principal Finance Fund III (Dollar A)	2,352	441	1,528	4,321
Avenue Energy Opportunities Fund II, L.P.	850	—	645	1,495
Avenue Energy Opportunities Fund, L.P.	1,579	—	674	2,253
Avenue Europe Special Situations Fund III (U.S.), L.P.	1,571	—	604	2,175
Bain Capital Credit Managed Account (PSERS), L.P.	1,622	—	299	1,921
Bain Capital Distressed & Spec. Situations 2013 (A)	1,310	(3,785)	352	(2,123)
Bain Capital Distressed & Spec. Situations 2016 (A)	2,622	(1,252)	720	2,090
Bain Capital Distressed & Spec. Situations 2019 (A)	545	—	949	1,494

Section 3 - Investment Information

Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Net Mgmt Fees</u>	<u>Net Carried Interest</u>	<u>Partnership Expenses</u>	<u>Total</u>
Private Credit (continued)				
Bain Capital Middle Market Credit 2010, L.P.	\$ 50	\$ 14	\$ 77	\$ 141
Bain Capital Middle Market Credit 2014, LP	815	(4,541)	126	(3,600)
Brigade Distressed Value Offshore Fund	1,674	95	1,002	2,771
Brigade Structured Credit Offshore Fund	2,708	(115)	518	3,111
Carlyle Energy Mezzanine Opportunities Fund II, L.P.	1,313	—	333	1,646
Cerberus Levered Loan Opportunities Fund I, L.P.	—	(114)	192	78
Cerberus Levered Loan Opportunities Fund II, L.P.	605	(7,182)	657	(5,920)
Cerberus PSERS Levered Loan Opps Fund, L.P.	8,084	6,170	3,694	17,948
Clearlake Opportunities Partners (P) II, L.P.	822	1,438	490	2,750
Galton Onshore Mortgage Recovery Fund III, L.P.	—	—	258	258
Galton Onshore Mortgage Recovery Fund IV, L.P.	586	—	799	1,385
Hayfin SOF II USD Co-Invest, L.P.	102	—	—	102
Hayfin SOF II USD, L.P.	2,491	(3,257)	—	(766)
HayFin Special Opps Credit Fund (Parallel), L.P.	424	1,988	—	2,412
ICG Europe Fund V, L.P.	534	(293)	293	534
ICG Europe Fund VI, L.P.	994	10,192	810	11,996
ICG Europe Fund VII Feeder SCSp	1,875	(70)	420	2,225
International Infrastructure Finance Co Fund, L.P.	601	645	301	1,547
Latitude Management Real Estate Capital IV, Inc.	685	—	125	810
LBC Credit Partners III, L.P.	767	690	184	1,641
LBC-P Credit Fund, L.P.	6,134	5,108	643	11,885
Oaktree Loan Fund 2X, LP	—	—	76	76
Opps NPL (A), L.P.	—	(208)	131	(77)
Park Square - PSERS Credit Opportunities Fund, L.P.	5,834	627	4,682	11,143
PIMCO BRAVO Fund III Onshore Feeder, LP	1,890	(7,144)	1,389	(3,865)
PIMCO Commercial Real Estate Debt Fund, L.P.	—	2,826	343	3,169
PSERS TAO Partners Parallel Fund, L.P. - (TAO 2.0)	1,827	2,749	802	5,378
PSERS TAO Partners Parallel Fund, L.P. - (TAO 3.0)	1,829	2,218	736	4,783
PSERS TAO Prtnrs Parallel Fund, L.P. (TAO Cntngnt)	276	2,592	609	3,477
Sankaty Credit Opportunities IV, L.P.	224	185	69	478
Sixth Street Fundamental Strategies Partners (A), L.P.	13	507	268	788
Sixth Street Opportunities Partners II (A), L.P.	—	(141)	119	(22)
Sixth Street Opportunities Partners III (A), L.P.	718	(438)	295	575
Sixth Street Opportunities Partners IV (A), L.P.	2,250	3,794	432	6,476
Sixth Street Specialty Lending Europe II, L.P.	140	20	368	528
SSG Capital Partners V Sidecar, L.P.	64	1,594	197	1,855

Section 3 - Investment Information

Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Net Mgmt Fees</u>	<u>Net Carried Interest</u>	<u>Partnership Expenses</u>	<u>Total</u>
Private Credit (continued)				
SSG Capital Partners V, L.P.	\$ 1,972	\$ 1,795	\$ 344	\$ 4,111
Summit Partners Credit Fund II, L.P.	—	(851)	97	(754)
TCI Real Estate Partners Fund III	—	1,084	75	1,159
Varde Scratch and Dent Feeder I-A, L.P., The	614	(520)	347	441
Varde Scratch and Dent Feeder, L.P., The	503	(1,059)	284	(272)
Whitehorse Liquidity Partners (Onshore) IV, L.P.	1,042	3,948	700	5,690
Total - Private Credit	\$ 63,218	\$ 13,921	\$ 29,243	\$ 106,382
Private Commodities				
Denham Mining Fund, L.P.	\$ 2,115	\$ —	\$ 265	\$ 2,380
NGP Natural Resources XII, L.P.	3,142	—	151	3,293
Total - Private Commodities	\$ 5,257	\$ —	\$ 416	\$ 5,673
Private Infrastructure				
Blackstone Infrastructure Partners L.P.	\$ 2,221	\$ —	\$ 930	\$ 3,151
GCM Grosvenor Customized Infra Strategies II, LP	418	561	168	1,147
International Infrastructure Finance Company II, L.P.	803	1,159	308	2,270
ISQ Global Infrastructure Fund III, L.P.	1,485	—	510	1,995
Strategic Partners Real Assets II, L.P.	1,056	3,228	242	4,526
Total - Private Infrastructure	\$ 5,983	\$ 4,948	\$ 2,158	\$ 13,089
Private Real Estate				
AG Core Plus Realty Fund III, L.P.	\$ 194	\$ (413)	\$ 46	\$ (173)
AG Core Plus Realty Fund IV, L.P.	1,320	(1,212)	234	342
AG Europe Realty Fund II, L.P.	829	1,380	219	2,428
AG Europe Realty Fund III, L.P.	1,041	—	(7)	1,034
AG Realty Value Fund X, L.P.	1,196	2,001	269	3,466
Almanac Realty Securities V, L.P.	2	(18)	69	53
Almanac Realty Securities VI, L.P.	149	(2,519)	11	(2,359)
Almanac Realty Securities VII, L.P.	537	652	33	1,222
Almanac Realty Securities VIII, L.P.	1,875	—	28	1,903
Ares European Real Estate Fund III, L.P.	—	—	27	27
Ares European Real Estate Fund IV, L.P.	632	(266)	409	775
Ares U.S. Real Estate Fund IX, L.P.	983	1,894	206	3,083
Ares U.S. Real Estate Fund VII, L.P.	—	13	72	85
Ares U.S. Real Estate Fund VIII, L.P.	602	2,446	95	3,143

Section 3 - Investment Information

Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Net Mgmt Fees</u>	<u>Net Carried Interest</u>	<u>Partnership Expenses</u>	<u>Total</u>
Private Real Estate (continued)				
Atlanta Marriott	\$ 131	\$ —	\$ —	\$ 131
Avenue Real Estate Fund (Parallel) L.P.	661	—	348	1,009
Bell Institutional Fund IV, LLC	—	—	(2)	(2)
Bell Institutional Fund V, L.P.	801	1,523	655	2,979
Bell Institutional Fund VI, L.P.	868	831	594	2,293
Bell Institutional Fund VII, L.P.	1,149	—	210	1,359
BlackRock Europe Property Fund III, L.P.	—	—	(854)	(854)
Blackstone Real Estate Debt Strategies II, L.P.	23	30	—	53
Blackstone Real Estate Debt Strategies III, L.P.	968	(25)	—	943
Blackstone Real Estate Partners Europe III, L.P.	614	(993)	—	(379)
Blackstone Real Estate Partners Europe IV, L.P.	414	(1,359)	82	(863)
Blackstone Real Estate Partners V, L.P.	—	(223)	—	(223)
Blackstone Real Estate Partners VI, L.P.	—	3,874	66	3,940
Blackstone Real Estate Partners VII, L.P.	1,239	(7,255)	186	(5,830)
Blackstone Real Estate Partners VIII, L.P.	2,842	5,577	—	8,419
Brookfield Strategic Real Estate Partners II, L.P.	2,043	664	149	2,856
Brookfield Strategic Real Estate Partners III-A, L.P.	2,605	—	361	2,966
Brookfield Strategic Real Estate Partners, L.P.	774	(1,943)	379	(790)
Cabot Industrial Core Fund II, L.P.	508	106	73	687
Cabot Industrial Core Fund, L.P.	1,292	12,207	90	13,589
Cabot Industrial Value Fund V, L.P.	1,500	(433)	305	1,372
Cabot Industrial Value Fund VI, L.P.	751	—	78	829
Cabot UK Core Plus Industrial Fund SCSp	—	—	661	661
Carlyle Realty Partners III, L.P.	—	1,321	96	1,417
Carlyle Realty Partners IV, L.P.	7	—	97	104
Carlyle Realty Partners V, L.P.	142	2,987	169	3,298
Carlyle Realty Partners VI, L.P.	92	(969)	150	(727)
Carlyle Realty Partners VII, L.P.	397	82	106	585
Carlyle Realty Partners VIII, L.P.	1,714	4,015	497	6,226
Centerline High Yield CMBS III - Loan/Stock	44	—	—	44
DRA Growth and Income Fund IX, LLC	1,713	1,610	169	3,492
DRA Growth and Income Fund VI, L.P.	—	(179)	12	(167)
DRA Growth and Income Fund VII, L.P.	292	1,968	779	3,039
DRA Growth and Income Fund VIII, LLC	1,308	(2,754)	137	(1,309)
DRA Growth and Income Fund X, LLC	429	—	181	610

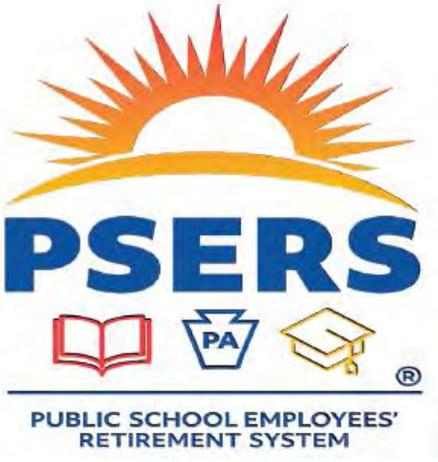
Section 3 - Investment Information

Table 12.4

Carried Interest Reported by Manager Calendar Year ended December 31, 2020 (Dollar amounts in Thousands)

<u>Manager</u>	<u>Net Mgmt Fees</u>	<u>Net Carried Interest</u>	<u>Partnership Expenses</u>	<u>Total</u>
Private Real Estate (continued)				
Exeter Core Industrial Club Fund II, L.P.	\$ 776	\$ 1,246	\$ 105	\$ 2,127
Exeter Industrial Core Fund III, L.P.	102	—	44	146
Exeter Industrial Value Fund II, L.P.	—	8	20	28
Exeter Industrial Value Fund III, L.P.	192	455	60	707
Exeter Industrial Value Fund IV, L.P.	1,009	(1,808)	97	(702)
Exeter Industrial Value Fund V, L.P.	1,200	—	144	1,344
Five North 5th Street	53	—	—	53
Fortress Investment Fund IV LP	—	—	63	63
Fortress Investment Fund LLC	—	—	16	16
Fortress Investment Fund V (Fund A) L.P.	—	—	294	294
Keystone Portfolio	738	—	992	1,730
LAI Strategic Realty Investors, L.P.	—	20	25	45
Latitude Management Real Estate Capital III, Inc.	769	(472)	188	485
LEM Multifamily Fund V, L.P.	(236)	1,911	80	1,755
LEM Multifamily Senior Equity Fund IV, L.P.	525	3,484	137	4,146
LEM RE HY Debt & Pfd Equity Fund III, L.P.	—	—	35	35
Paramount Group Real Estate Fund VII, L.P.	—	—	36	36
PGIM Agricultural Separate Account	856	—	—	856
Pramerica Real Estate Capital VI, L.P.	546	(908)	502	140
PSERS YES Holdings, L.P.	—	—	97	97
RCG Longview Debt Fund V, L.P.	51	69	88	208
RCG Longview Debt Fund VI, L.P.	938	(1,220)	212	(70)
RCG Longview Equity Fund, L.P.	35	—	93	128
Rivercenter Mall	58	—	—	58
Senior Housing Partnership Fund IV, L.P.	16	(101)	64	(21)
Senior Housing Partnership Fund V, L.P.	734	(784)	122	72
Stockbridge Real Estate Fund II, LP	69	—	65	134
Stockbridge Real Estate Fund III, LP	298	—	106	404
Stockbridge Real Estate Fund, L.P.	3,527	(2,360)	234	1,401
Strategic Partners Fund IV RE, L.P.	36	—	53	89
The Galleria at Ft Lauderdale	484	—	—	484
UBS (US) Trumbull Property Fund, L.P.	260	—	15	275
Total - Private Real Estate	\$ 47,717	\$ 24,160	\$ 11,472	\$ 83,349
Grand Total	\$ 238,061	\$ 372,524	\$ 86,721	\$ 697,306

Commitment to Pennsylvania Based Investments



Commitment to Pennsylvania Financial Services Firms (as of June 30, 2021)

The members of the Board and Professional Staff are fiduciaries and must act in the interests of the members of the System and for the exclusive benefit of the System's members. In creating the investment program, the Board hires both external and internal investment managers. The Board has determined that it is in the best interest of the System to manage assets internally when (1) the System's investment professionals have the proven ability and capacity to manage portfolios internally at least as well as the external investment managers, and (2) the cost of investing those assets is no greater than the cost that would have been incurred to have those assets externally managed. The Board will also consider the diversification benefits that may be achieved by allocating assets to external portfolio managers even when conditions (1) and (2) are met.

The Board evaluates external managers based on a variety of factors, including: (1) a unique insight or

process; (2) the ability to add long-term excess returns above passive alternatives, net of fees; (3) adequate capacity to execute the strategy; (4) adding diversification to our existing investment structure; (5) not exhibiting style drift, and; (6) exhibiting a high level of ethical behavior. In selecting external managers, PSERS will show preference to Pennsylvania-based potential managers that demonstrate similar strengths to alternative managers without a Pennsylvania nexus.

PSERS has shown a strong commitment to Pennsylvania's financial services industry by having assets managed by firms based in Pennsylvania or by firms with offices in Pennsylvania. In FY2021, investment management fees paid to external firms managing PSERS assets from offices located in Pennsylvania amounted to \$27.8 million, or 4.8% of the total external investment manager fees.

Section 3 - Investment Information

Table 13.1 lists the asset exposures managed internally by PSERS, as of June 30, 2021.

Table 13.1

Pennsylvania-Based Asset Exposures Managed Internally

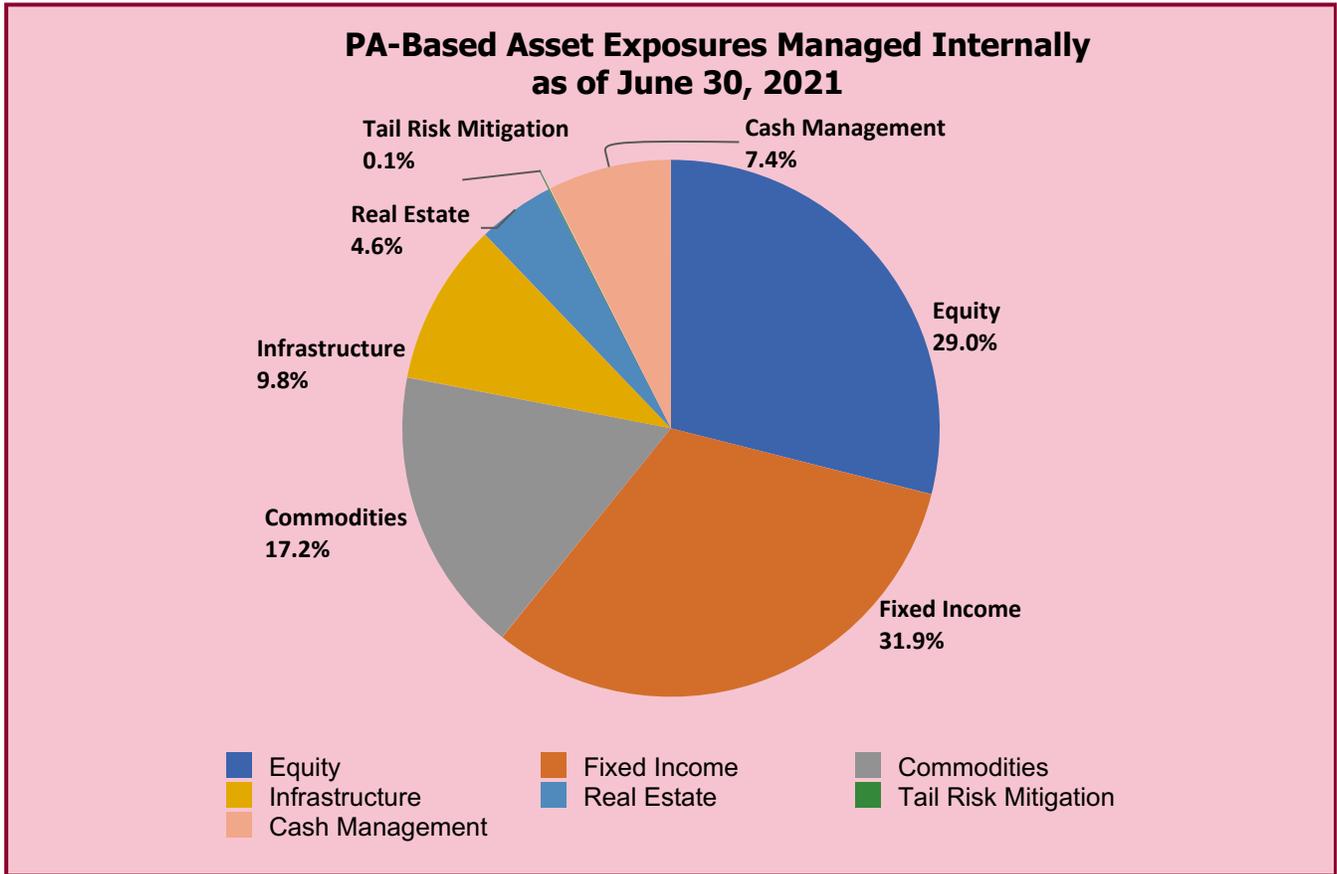
(as of June 30, 2021)

Asset Class	Market Value (in millions)	% of Total
Public Equity	10,258.1	25.2%
Private Equity	1,552.2	3.8%
Public Fixed Income	12,848.0	31.5%
Private Credit	149.8	0.4%
Public Commodities	6,965.3	17.1%
Private Commodities	57.2	0.1%
Public Infrastructure	3,954.0	9.7%
Public Real Estate	1,526.2	3.7%
Private Real Estate	368.8	0.9%
Private Infrastructure	35.7	0.1%
Absolute Returns	13.3	—
Tail Risk Mitigation	36.6	0.1%
Cash Management	3,020.0	7.4%
Totals	\$ 40,785.2	100.0%

Section 3 - Investment Information

Commitment to Pennsylvania Financial Services Firms (continued)

Chart 13.1 displays the distribution of exposures managed internally as of June 30, 2021.



Section 3 - Investment Information

Table 13.2 is a list of assets managed by external managers with headquarters or offices located in Pennsylvania, as of June 30, 2021.

Table 13.2 Pennsylvania-Based External Managers	
Public Equity:	Private Equity:
Radcliffe Capital Management, L.P.	Adams Capital Management, L.P.
	Co-Investment 2000 Fund, L.P.
Public Fixed Income:	Co-Investment Fund II, L.P.
Radcliffe Capital Management, L.P.	Cross Atlantic Technology Fund II
	Cross Atlantic Technology Fund, L.P.
Private Credit:	Incline Elevate Fund II, L.P.
International Infrastructure Finance Company Fund, L.P.	Incline Elevate Fund, L.P.
LBC Credit Partners III, LP	Incline Equity Partners III, L.P.
LBC Credit Partners-P Credit Fund, LP	Incline Equity Partners IV, L.P.
	Incline Equity Partners V, L.P.
Private Real Estate:	LLR Equity Partners II, L.P.
	LLR Equity Partners III, L.P.
Exeter Core Industrial Club Fund II, L.P.	LLR Equity Partners IV, L.P.
Exeter Industrial Core Fund III, L.P.	LLR Equity Partners V, L.P.
Exeter Industrial Value Fund II, L.P.	LLR Equity Partners VI, L.P.
Exeter Industrial Value Fund III, L.P.	Milestone Partners FS 2, L.P.
Exeter Industrial Value Fund IV, L.P.	Milestone Partners III, L.P.
Exeter Industrial Value Fund V, L.P.	Milestone Partners IV, L.P.
GF Management	NEPA Venture Fund II
LEM Multifamily Fund V, L.P.	PNC Equity Partners II, L.P.
LEM Multifamily Senior Equity Fund IV, L.P.	SCP Private Equity Partners II, L.P.
Property Management, Inc.	Versa Capital Fund I, L.P.
	Versa Capital Fund II, L.P.
Private Infrastructure:	Versa Capital Fund III, L.P.
International Infrastructure Finance Company Fund II, L.P.	

Investments in Pennsylvania-Based Companies (as of June 30, 2021)

Pennsylvania Private Equity and Private Equity Co-Investments are sourced from funds where PSERS or its consultant is an investor. The Board, in managing the investment portfolio, will also be cognizant of concentration risk to any one region, including Pennsylvania. The Fund will continue to seek investments in Pennsylvania-based companies when the investment characteristics are equivalent to other favorable investments, subject to diversification considerations.

U.S. Equities

PSERS invests in the stock of Pennsylvania-based companies through the various U.S. Equity portfolios managed by internal portfolio managers. PSERS has always had investments in large national firms located in Pennsylvania.

Fixed Income Securities

PSERS invests in the debt of Pennsylvania-based companies through the various Fixed Income portfolios managed by external and internal portfolio managers. PSERS has always had investments in large national firms located in Pennsylvania.

Private Infrastructure

PSERS Private Infrastructure Program has committed \$1.3 billion to 5 partnerships. From the program inception to June 30, 2021, PSERS has committed capital to 1 partnership headquartered in Pennsylvania.

Private Real Estate

PSERS has investments in limited partnerships that have invested in Pennsylvania real estate properties. PSERS Real Estate program has committed \$16.8 billion to 141 partnerships. From the program inception to June 30, 2021, PSERS has committed capital to 19 partnerships headquartered in Pennsylvania.

Private Equity

PSERS Private Equity program has committed \$33.4 billion to 294 partnerships. From the program inception to June 30, 2021, PSERS has committed capital to 45 partnerships headquartered in Pennsylvania.

Private Equity and Private Real Estate Pennsylvania In-House Co-Investment Program

In April 2015, PSERS Board approved a \$250 million commitment for PSERS to co-investment in portfolio companies based in Pennsylvania. The portfolio companies are sourced from funds where PSERS or its consultant is an investor. As of June 30, 2021, PSERS has invested \$58.0 million and has a total value of \$124.5 million, resulting from \$65.9 million in distributions and \$58.6 million of net assets. The number of employees, payroll, and market value are included within their respective asset class in Table 13.3.

Private Credit

PSERS Private Credit Program has committed \$12.3 billion to 282 partnerships. From the program inception to June 30, 2021, PSERS has committed capital to 3 partnerships headquartered in Pennsylvania.

Section 3 - Investment Information

Table 13.3 displays Pennsylvania-based investments and other statistics at June 30, 2021 (\$'s in millions):

Table 13.3

Statistics of Pennsylvania-Based Investments

<u>Asset Class</u>	<i>Total PA Market Value (PSERS Portion)</i>	<i>Total PA Market Value (Total Invested)</i>	<i># of People Employed</i>	<u>Payroll</u>
US Equities	\$ 88.2	\$ 88.2	*	\$ *
Fixed Income	61.3	61.3	*	*
Private Real Estate	102.6	1,678.1	92.0	4.1
Private Equity:				
Buyout	1,826.2	41,763.2	55,904.0	524.8
Growth Equity	251.9	3,048.3	1,903.0	46.9
Venture Capital	20.3	39.8	126.0	10.7
Total	\$ 2,350.5	\$ 46,679.0	\$ 58,025.0	\$ 586.5

* Statistics for publicly traded companies not included due to the difficulty in obtaining the information.

PSERS BUDGET REPORT - FY2022-2023

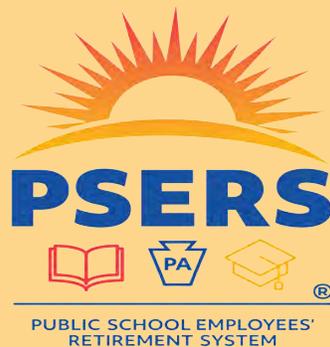


PA State Tree:
Eastern Hemlock

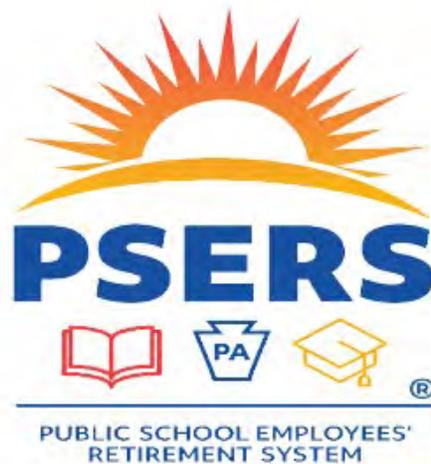
SECTION 4 - POSTEMPLOYMENT HEALTHCARE PROGRAMS

Health Options Program Tab 14

Premium Assistance Program Tab 15



Health Options Program



Section 4 - Other PSERS Programs

Health Options Program

Pursuant to Sec. 8502.2 PSERS sponsors a group health insurance program called the Health Options Program (HOP) for individuals who are annuitants or survivor annuitants or the spouse or dependents of an annuitant or survivor annuitant. The HOP commenced on January 1, 1994. As of January 1, 2022 there are 123,353 participants (103,881 retirees plus their dependents) in the HOP. The HOP is funded solely by and for eligible participants. The following is a summary of HOP initiatives during the period January 1, 2021 to January 1, 2022.

The Retirement Board issued an Invitation for Application (IFA) to allow qualified insurance carriers to apply to PSERS to offer a fully insured Medicare Advantage Prescription Drug (MAPD) group insurance plan and accompanying Pre-65 group insurance plan to PSERS retirees who participate in the HOP. The effective date of the insurance is January 1, 2022. As a result of the IFA, PSERS is expecting the following carriers to participate in HOP:

- Aetna
- Capital Blue Cross (CBC)/Keystone Health Plan Central
- Highmark
- Independence Blue Cross (IBC)/Keystone Health Plan East
- UPMC

The HOP expanded the usual Option Selection Period to be a true Open Enrollment in Fall 2021 for the 2022 Plan Year. This means members who are currently enrolled can make changes for 2022 that typically require a Qualifying Event. For example, members can add their spouse and/or eligible dependents, add medical or prescription drug coverage if they don't already have it, or enroll in dental and vision coverage. In addition, if they have a spouse who is not already enrolled, this is an opportunity to ensure his or her coverage in the event of their death. Members who previously did not enroll in HOP, now have the option to join HOP effective January 1, 2022.

The HOP offers PSERS annuitants a variety of health benefits and insurance plans. Annuitants and their dependents may select among plans supplementing original Medicare, Medicare prescription drug plans, and dental insurance. Annuitants also may select a Medicare Advantage plan that provides prescription drug coverage and may include a dental and vision benefit. All plans offered through the HOP provide a Pre-65 plan for individuals not yet eligible for Medicare. Each year participants of the HOP may change their health benefit coverage to meet changing needs. The following is a summary of the standard Medicare Part D plans:

Standard Benefit	2022	2021
Deductible	\$480	\$445
Initial Coverage Limit	\$4,430	\$4,130
Out-of-Pocket Threshold	\$7,050	\$6,550
Minimum Cost sharing in Catastrophic Coverage Portion of the Benefit		
Generic	\$3.95	\$3.70
Other	\$9.85	\$9.20

These plan design limits and thresholds are tied to specific indices, including the average per capita Part D spending and the annual percentage increase in the Consumer Price Index.

Section 4 - Other PSERS Programs

Health Options Program (continued)

Medicare prescription drug plans are required to provide 75% coverage for generic drugs in the Coverage Gap for 2020 and beyond. There is effectively no additional funding from CMS; accordingly, the cost of the mandated benefit increase is paid by participants not receiving

low-income subsidies. Medicare prescription drug plans pay 5% of the cost of brand drugs in the Coverage Gap, with the manufacturer discount covering the remaining 70%. The following table shows how much members pay for drugs in the Coverage Gap.

The Member Pays in Coverage Gap:	Medicare Rx Discount
Generic Drugs	25%
Brand Drugs	25% (after 70% manufacturer discount and 5% plan benefit)
Non-preferred Brand Rx	25% (after 70% manufacturer discount and 5% plan benefit)

Section 4 - Other PSERS Programs

Health Options Program (continued)

Plans Available Through the Health Options Program

The HOP offers participants a choice among supplements to Medicare, various Medicare prescription drug plans, and Medicare Advantage plans. Participants under age 65 and not eligible for Medicare may elect to enroll in a high deductible health insurance plan with or without prescription

drug coverage or a managed care plan. These options were available to new enrollees or HOP participants electing to change coverage during the 2022 option selection period conducted in the fall of 2021. The following is a list of HOP plans as of January 1, 2022:

For Individuals Eligible for Medicare:	For Individuals Not Eligible for Medicare:
HOP Value Medical Plan (Medicare supplement)	HOP Pre-65 Medical Plan
HOP Medical Plan (Medicare supplement)	
Value Medicare Rx Option (Medicare Part D)	HOP Pre-65 Medical Plan w/ Rx coverage
Basic Medicare Rx Option (Medicare Part D)	
Enhanced Medicare Rx Option (Medicare Part D)	
Medicare Advantage Plans	Companion Pre-65 Managed Care Plans
Aetna Medicare P01 PPO	Aetna Premier Open Choice PPO
Capital Blue Cross BlueJourney PPO	Capital Blue Cross PPO
Highmark FreedomBlue PPO	Highmark PPO Blue (80-70 Plan)
Independence Blue Cross Personal Choice 65 PPO	Independence Blue Cross POS (\$20-\$40/\$250)
UPMC PSERS HOP Custom HMO	UPMC Business Advantage

Section 4 - Other PSERS Programs

Health Options Program (continued)

HOP Program Plan Premiums

Paid By Individuals ELIGIBLE for Medicare

The premiums paid by participants eligible for Medicare generally vary by geographical area. The exceptions are the premiums for the HOP Medicare Rx Options. The following tables show the standard monthly premium rates for 2022 compared to the

2021 rates in Pennsylvania for single coverage. These rates do not reflect the \$100 Premium Assistance benefit provided to eligible retirees or discounts available to individuals enrolling at age 65.

Southeastern Region: Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties	2022	2021	Increase/ (Decrease)
Medicare Supplement Plans			
Value Medical Plan	\$117	\$117	0%
Value Medical Plan w/ Value Medicare Rx Option	\$139	\$140	(1)%
Value Medical Plan w/ Basic Medicare Rx Option	\$183	\$186	(2)%
Value Medical Plan w/ Enhanced Medicare Rx Option	\$239	\$245	(2)%
HOP Medical Plan	\$207	\$207	0%
HOP Medical Plan w/ Value Medicare Rx Option	\$229	\$230	0%
HOP Medical Plan w/ Basic Medicare Rx Option	\$273	\$276	(1)%
HOP Medical Plan w/ Enhanced Medicare Rx Option	\$329	\$335	(2)%
Medicare Advantage Plans			
Aetna Medicare P01 PPO	\$450	\$441	2%
CBC BlueJourney PPO	\$250	\$250	0%
Highmark FreedomBlue PPO	\$336	\$342	(2)%
IBC Personal Choice 65 PPO	\$433	\$794	(45)%
UPMC PSERS HOP Custom HMO	\$243	\$243	0%
Legacy Medicare Advantage Plans (no new enrollment)			
Aetna Medicare P02 HMO	\$555	\$547	1%
IBC Keystone 65 Select HMO (\$15/\$20)	\$400	\$393	2%

Section 4 - Other PSERS Programs

Health Options Program (continued)

Southwestern Region: Allegheny, Fayette, Greene, Indiana, Washington, and Westmoreland Counties	2022	2021	Increase/ (Decrease)
Medicare Supplement Plans			
Value Medical Plan	\$115	\$115	0%
Value Medical Plan w/ Value Medicare Rx Option	\$137	\$138	(1)%
Value Medical Plan w/ Basic Medicare Rx Option	\$181	\$184	(2)%
Value Medical Plan w/ Enhanced Medicare Rx Option	\$237	\$243	(2)%
HOP Medical Plan	\$198	\$198	0%
HOP Medical Plan w/ Value Medicare Rx Option	\$220	\$221	0%
HOP Medical Plan w/ Basic Medicare Rx Option	\$264	\$267	(1)%
HOP Medical Plan w/ Enhanced Medicare Rx Option	\$320	\$326	(2)%
Medicare Advantage Plans			
Aetna Medicare P01 PPO	\$403	\$395	2%
CBC BlueJourney PPO	\$250	\$250	0%
Highmark Freedom Blue PPO	\$242	\$253	(4)%
UPMC PSERS HOP Custom HMO	\$243	\$243	0%
Legacy Medicare Advantage Plans (no new enrollment)			
Aetna Medicare P02 HMO	\$347	\$342	1%
Highmark Legacy Freedom Blue PPO	\$323	\$323	0%
Highmark Security Blue HMO	\$253	\$253	0%

North & Central Region: (All Other Counties in Pennsylvania)	2022	2021	Increase/ (Decrease)
Medicare Supplement Plans			
Value Medical Plan	\$102	\$102	0%
Value Medical Plan w/ Value Medicare Rx Option	\$124	\$125	(1)%
Value Medical Plan w/ Basic Medicare Rx Option	\$168	\$171	(2)%
Value Medical Plan w/ Enhanced Medicare Rx Option	\$224	\$230	(3)%
HOP Medical Plan	\$179	\$179	0%
HOP Medical Plan w/ Value Medicare Rx Option	\$201	\$202	0%
HOP Medical Plan w/ Basic Medicare Rx Option	\$245	\$248	(1)%
HOP Medical Plan w/ Enhanced Medicare Rx Option	\$301	\$307	(2)%
Medicare Advantage Plans			
Aetna Medicare P01 PPO	\$286	\$280	2%
CBC BlueJourney PPO	\$250	\$250	0%
Highmark FreedomBlue PPO	\$242	\$248	(2)%
UPMC PSERS HOP Custom HMO*	\$243	\$243	0%
Legacy Medicare Advantage Plans (no new enrollment)			
Aetna Medicare P02 HMO	\$347	\$342	1%
CBC BlueJourney HMO	\$207	\$198	5%
Highmark SecurityBlue HMO	\$303	\$303	0%

*Not available in all North & Central Region counties.

Section 4 - Other PSERS Programs

Health Options Program (continued)

HOP participants may select Enhanced, Basic, or Value Medicare Rx Option coverage without enrolling in the HOP Medical Plan or Value Medical Plan. The monthly premium rates for the Medicare Rx Options do not vary by region. Stand-alone prescription drug coverage does not qualify for Premium Assistance.

Medicare Prescription Drug Plans All Regions	2022	2021	Increase
Enhanced Medicare Rx Only	\$122	\$128	(5)%
Basic Medicare Rx Only	\$66	\$69	(4)%
Value Medicare Rx Only	\$22	\$23	(4)%

HOP Options Program Premiums Paid By Individuals NOT ELIGIBLE for Medicare

The premiums paid by participants not eligible for Medicare generally do not vary by geographical area. The exceptions are the regional managed care plans. The following tables show the monthly premium rates for 2022 compared to the 2021 rates in Pennsylvania for single coverage. These rates do not reflect the \$100 Premium Assistance benefit provided to eligible retirees.

All Regions	2022	2021	Increase
HOP Pre-65 Medical Plan			
HOP Pre-65 Medical Plan (Single Coverage)	\$990	\$941	5%
Pre-65 Medical Plan w/ Prescription Drugs	\$1,115	\$1,060	5%

Southeastern Region: Bucks, Chester, Delaware, Montgomery, and Philadelphia Counties	2022	2021	Increase/ (Decrease)
Managed Care Plans			
Aetna Premier Open Choice PPO	\$2,113	\$2,113	0%
CBC PPO	\$1,371	\$1,371	0%
Highmark PPOBlue (80-70 Plan)	\$1,292	\$1,287	0%
IBC POS (\$20-\$40/\$250)	\$2,472	\$2,273	9%
UPMC Business Advantage	\$1,516	\$1,448	5%
Legacy Managed Care Plans (no new enrollments)			
Aetna Value Open Choice PPO	\$1,828	\$1,828	0%
IBC Personal Choice PPO	\$2,634	\$2,424	9%

Section 4 - Other PSERS Programs

Health Options Program (continued)

Southwestern Region: Alleghany, Fayette, Greene, Indiana, Washington, and West Moreland Counties	2022	2021	Increase/ (Decrease)
Managed Care Plans			
Aetna Premier Open Choice PPO	\$2,113	\$2,113	0%
CBC PPO	\$1,371	\$1,371	0%
Highmark PPOBlue (80-70 Plan)	\$1,292	\$1,287	0%
UPMC Business Advantage	\$1,516	\$1,448	5%
Legacy Managed Care Plans (no new enrollments)			
Aetna Value Open Choice PPO	\$1,828	\$1,828	0%
Highmark PPOBlue (80-70 Plan)	\$1,784	\$1,760	1%

North & Central Region: (All other counties in Pennsylvania)	2022	2021	Increase/ (Decrease)
Managed Care Plans			
Aetna Premier Open Choice PPO	\$2,113	\$2,113	0%
CBC PPO	\$1,371	\$1,371	0%
Highmark PPOBlue (80-70 Plan)	\$1,292	\$1,287	0%
UPMC Business Advantage*	\$1,516	\$1,448	5%
Legacy Managed Care Plans (no new participants)			
Aetna Value Open Choice PPO	\$1,828	\$1,828	0%
CBC HMO	\$1,935	\$1,935	0%
Highmark PPOBlue (High Option)	\$1,784	\$1,760	1%

*Not available in all North & Central Region counties.

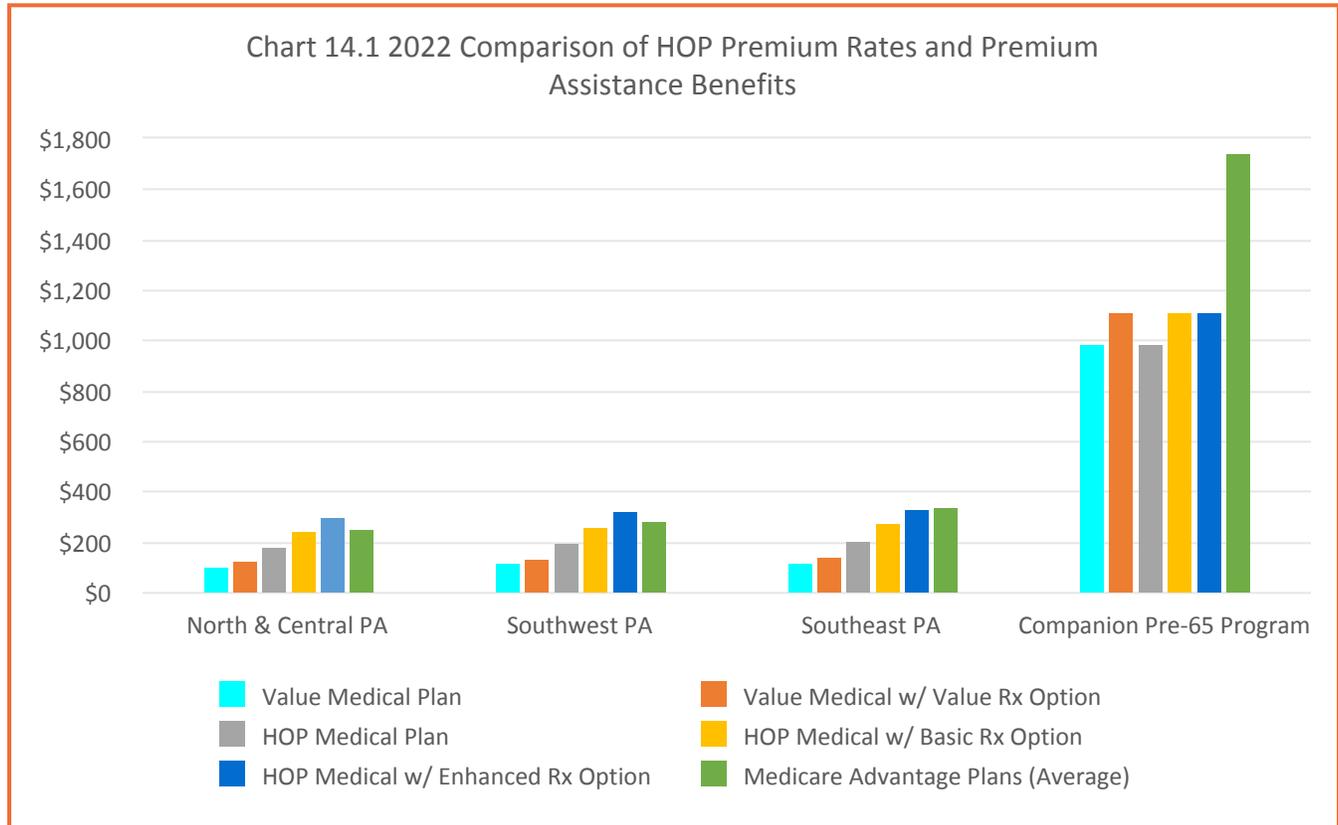
Section 4 - Other PSERS Programs

Health Options Program (continued)

HOP Premiums Compared to the PSERS Premium Assistance Benefit

Chart 14.1 displays the HOP monthly premiums paid by PSERS retirees for single coverage compared with the PSERS Premium Assistance benefit. Participating eligible annuitants are entitled to receive Premium Assistance payment of

\$100 per month or their out-of-pocket monthly health insurance premium. The premiums for 2-person and family coverage would be at least twice the cost of single coverage. Premium Assistance is an offset for the PSERS retiree’s premium only.



As illustrated in the table below, the percentage of Premium Assistance benefit coverage varies by region and plan.

2022	North & Central PA	Southwest PA	Southeast PA	Companion Pre-65 Program
Value Medical Plan	\$102	\$115	\$117	\$990
Value Medical w/ Value Rx Option	\$124	\$137	\$139	\$1,115
HOP Medical Plan	\$179	\$198	\$207	\$990
HOP Medical w/ Basic Rx Option	\$245	\$264	\$273	\$1,115
HOP Medical w/ Enhanced Rx Option	\$301	\$320	\$329	\$1,115
Medicare Advantage Plans (Average)	\$255	\$285	\$342	\$1,743
Premium Assistance	\$100	\$100	\$100	\$100

Section 4 - Other PSERS Programs

Health Options Program (continued)

HOP Enrollment

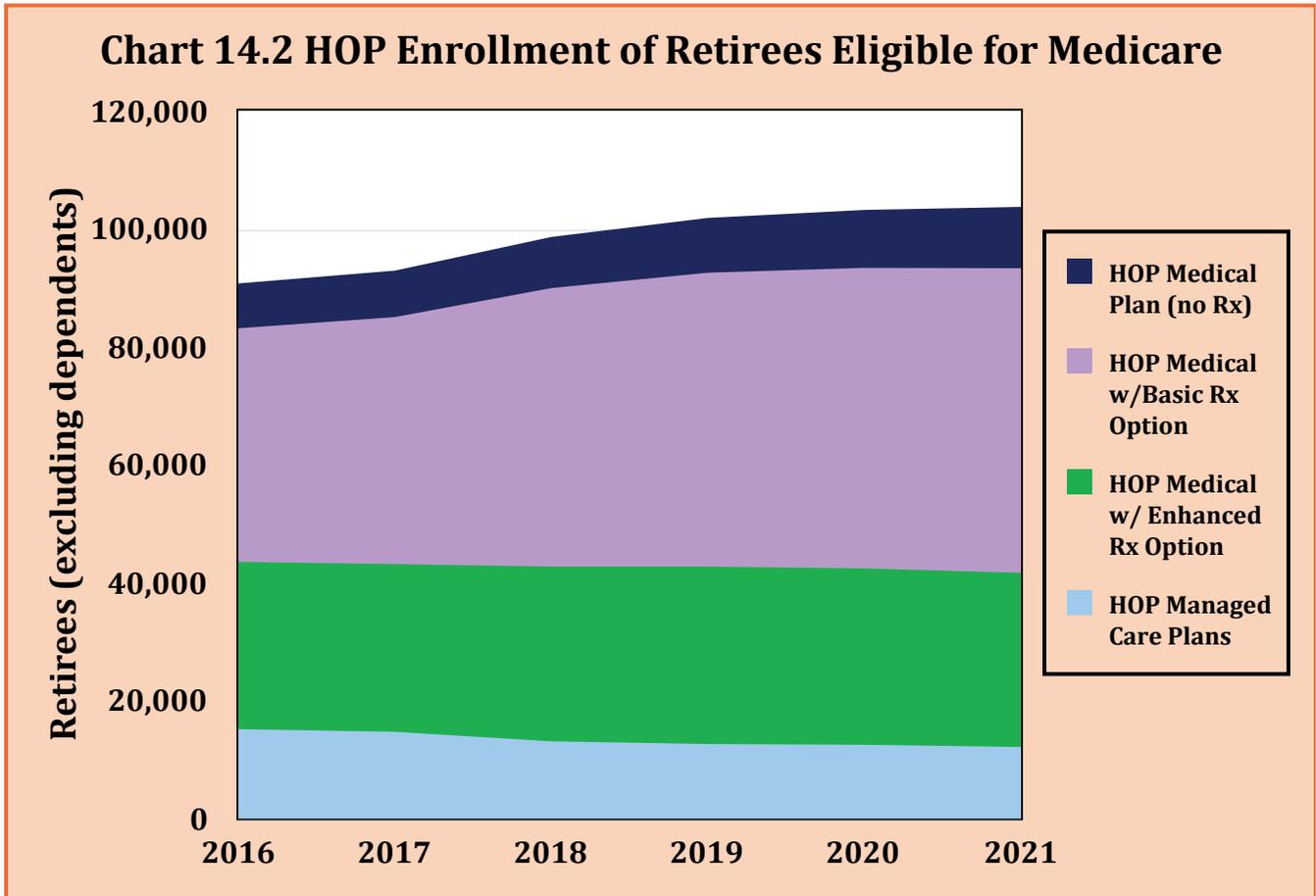
As of January 1, 2022 there are 123,353 participants (103,881 retirees plus their dependents) in the HOP. The total numbers of retirees by Option are:

Individuals Eligible for Medicare	Retirees	Participants
HOP Medical w/ Basic Medicare Rx Option	48,637	58,405
HOP Medical w/ Enhanced Medicare Rx Option	29,531	34,646
HOP Medical w/ Value Medicare Rx Option	2,646	2,966
HOP Medical Plan (no Rx)	10,031	11,111
HOP Enhanced Rx Only	83	104
HOP Basic Rx Only	191	243
HOP Value Rx Only	25	29
HOP Value Medical Only	69	80
HOP Value Medical w/ Enhanced Medicare Rx Option	10	15
HOP Value Medical w/ Basic Medicare Rx Option	55	78
HOP Value Medical w/ Value Medicare Rx Option	305	392
Highmark PPO/Legacy HMO	9,437	11,778
Keystone East HMO/IBC Legacy PPO	637	739
CBC PPO/Keystone Central Legacy HMO	704	891
UPMC HMO	991	1,292
Aetna PPO/Legacy HMO	331	381
Total Medicare Eligible	103,683	123,150
Individuals Not Eligible for Medicare		
HOP Pre-65 Medical Plan w/ Rx Coverage	125	126
HOP Pre-65 Medical Plan	41	43
Highmark PPO	4	4
CBC PPO/Keystone Central Legacy HMO	23	25
Keystone East HMO/IBC Legacy PPO	1	1
Aetna PPO/Legacy HMO	2	2
UPMC Business Advantage	2	2
Total Not Eligible for Medicare	198	203
Total in HOP	103,881	123,353

Section 4 - Other PSERS Programs

Health Options Program (continued)

Enrollment in the PSERS HOP continues to increase. As illustrated by Chart 14.2, the number of retirees participating in the HOP has increased 14% over the past 5 years.



Section 4 - Other PSERS Programs

Health Options Program (continued)

HOP Voluntary Dental and Vision Programs

Beginning January 1, 2016, HOP offered a voluntary MetLife Dental Plan to members and dependents enrolled in the HOP Medical Plan or the Value Medical Plan (those enrolled in a Medicare Advantage Plan are not eligible for this program as most of these plans have dental coverage). Beginning January 1, 2021, HOP began offering the MetLife Dental and EyeMed Vision Option. As with the previous dental program, dental and vision coverage is not available on a stand alone basis and participants must be enrolled in either the HOP Medical Plan or the Value Medical Plan.

Enrollment is typically limited to the initial offering or upon a qualifying event. For 2022, all HOP participants were given the opportunity to elect combined dental and vision benefits during a special open enrollment period, with benefits effective January 1, 2022.

As of January 1, 2022 there are (28,927 participants 25,249 retirees plus their dependents) in the HOP voluntary dental and vision program. The total numbers of retirees by year since program inception:

Dental Enrollment Per Year (As of January 1)	Retirees	Participants
2022*	25,249	28,927
2021*	17,456	22,829
2020	16,729	18,864
2019	14,482	16,436
2018	11,535	13,099

*Includes Dental & Vision Enrollment

Health Options Program Funding

A majority of the premium income is deducted from the retiree's monthly retirement benefit and transferred to the plan (claims administrator for the self-funded Options). Approximately 5,000 retirees submit monthly premium payments to the HOP Administration Unit, as their monthly retirement benefits, if any, are insufficient to cover the premium cost.

HOP income is projected to be \$480.7 million during the 2022 Plan (calendar) Year. A majority of this income comes from premium payments from participants. Other sources of funding are Medicare prescription drug payments (for participants enrolled in a Medicare prescription drug plan) from CMS and interest income. Table 14.1 displays the breakdown of these sources of income (Dollar amounts in millions):

Table 14.1 Income	Calendar Year 2022
Participant Contributions	\$409.2
CMS - Medicare Prescription Drug Payments	\$71.3
Interest Income	\$0.2
Total	\$480.7

Section 4 - Other PSERS Programs

Health Options Program (continued)

PSERS retirees enrolled in the HOP, who meet the eligibility requirements for Premium Assistance, receive up to \$100 per month as a partial reimbursement for the out-of-pocket premium expense. At January 1, 2022, 85,618 of the 103,881 HOP retirees receive Premium Assistance. This accounts for nearly \$103 million of the \$114 million annual benefit expense of the Premium Assistance

Program. The following Premium Assistance Program section provides additional information.

Contributions and interest income pay for the benefits provided to HOP participants plus administrative expenses. Table 14.2 displays the breakdown of the benefit expenses (Dollar amounts in millions):

Table 14.2 Benefit Expense

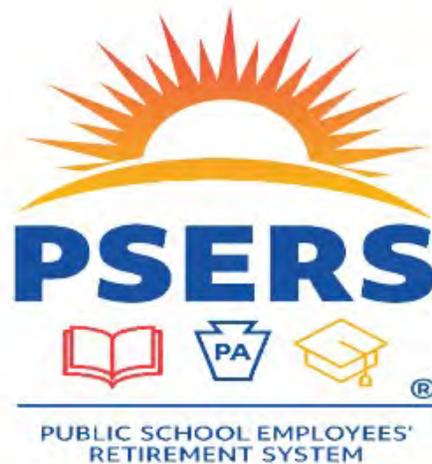
Calendar Year 2022

Self-funded Hospital, Medical & Major Medical Benefits	\$232.7
Self-funded Prescription Drug Benefits	\$159.9
Insured Managed Care and Dental Premiums	\$61.8
Total	\$454.4

In addition to the benefit expenses identified above, the HOP will pay \$11.8 million in enrollment and administrative expenses including reimbursing PSERS for its expenses.

As of December 31, 2021, HOP had net assets of \$386 million held in trust to pay the expenses of HOP for the exclusive benefit of participants.

Premium Assistance Program



Premium Assistance Program

In accordance with Sec. 8509 of the Public School Employees Retirement Code 24 Pa. C.S. § 8509, PSERS provides up to \$100 per month in Premium Assistance to eligible retirees to help cover the cost of their health insurance. The Premium Assistance program began on July 1, 1992. The eligibility requirements for premium assistance are as follows:

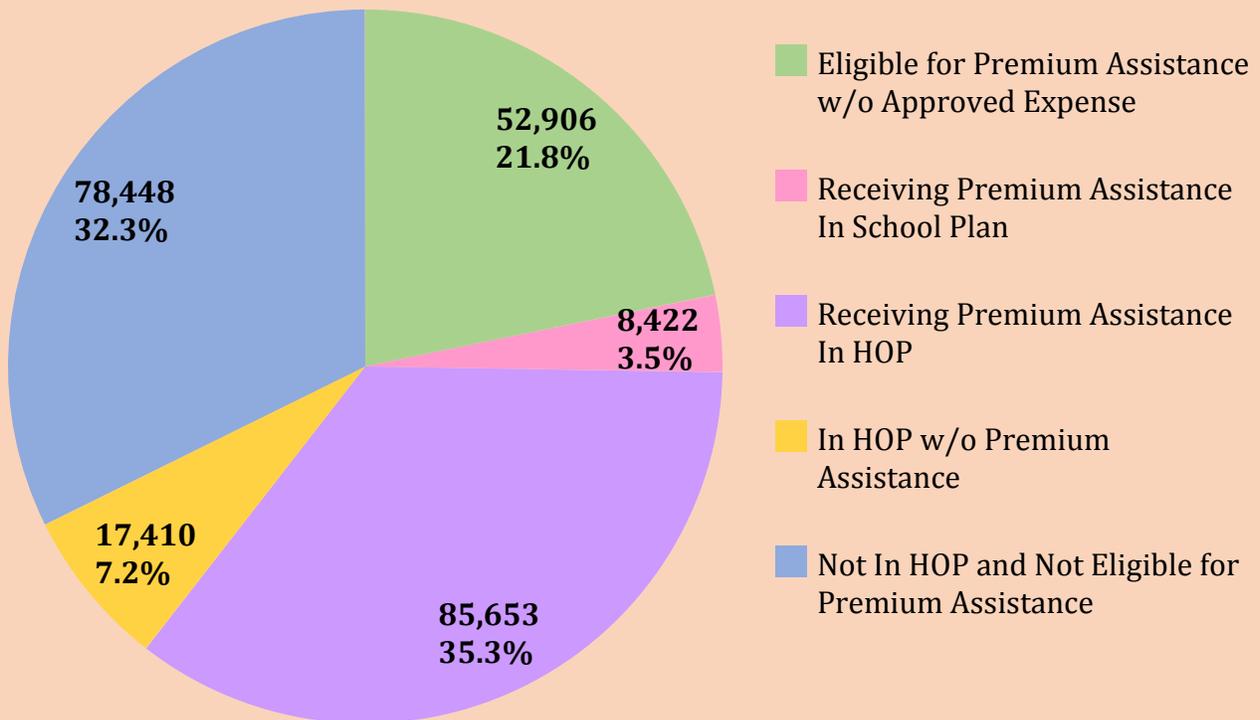
- 24.5 years of credited service, or
- 15 years of credited service if termination of employment and retirement occurred after superannuation age , or
- Receiving a disability annuity from PSERS; and
- Have an out-of-pocket premium expense from their former school employer’s health plan or the PSERS sponsored HOP.

Enrollment

As of June 30, 2021, PSERS had 242,839 retirees receiving a monthly benefit. Of these retirees 146,981 meet the service, service and age at termination of school service, or retirement type (disability) eligibility requirements for the premium assistance program. Of the retirees meeting these requirements, 52,906 are not receiving premium assistance payments because they do not have an out-of-pocket premium expense from an approved plan. Of the 94,075 retirees receiving premium assistance benefits, 85,653 are enrolled in HOP and 8,422 are participating in their former school employer’s health plan and have an out-of-pocket premium expense.

A breakdown of retirees by their premium assistance status is displayed in Chart 15.1:

Chart 15.1 Retiree Population by Premium Assistance Status



Premium Assistance Program (continued)

June 30, 2021	Number	Percentage
Eligible for Premium Assistance w/o Approved Expense ¹	52,906	21.8%
Receiving Premium Assistance In School Plan ¹	8,422	3.5%
Receiving Premium Assistance In HOP ¹	85,653	35.3%
In HOP w/o Premium Assistance	17,410	7.2%
Not In HOP and Not Eligible for Premium Assistance	78,448	32.3%
Total Retiree Population	242,839	100.0%

¹ Meeting the service, service and age at termination of school employment or retirement type requirements.

Funding

The Premium Assistance Program is funded by employer contributions. The contribution rate is calculated by PSERS actuary in accordance with the formula set forth in the Retirement Code². The contribution needed during FY2022/23 is 0.75% of payroll.

For the year ended June 30, 2021, employer contributions equaled \$116.5 million and net investment income totaled \$0.3 million. During this period, PSERS paid Premium Assistance benefits equaling \$113.5 million and incurred administrative expenses of \$1.1 million. As of December 31, 2021, the Premium Assistance Program had net assets of \$132 million.

²§8509. Health insurance premium assistance program: (a) Contribution rate.-- For each fiscal year beginning after July 1, 1991, the premium assistance contribution rate shall be established to provide reserves sufficient, when combined with unexpended amounts from the reserves set aside the previous fiscal year for health insurance assistance payments, to provide premium assistance payments in the subsequent fiscal year for all participating eligible annuitants. The Board is authorized to expend an amount not to exceed 2% of the health insurance account each year to pay for the direct expense of administering the health insurance premium assistance program, which expenditure may be included in the Board's consideration when it establishes the premium assistance contribution rate each year.