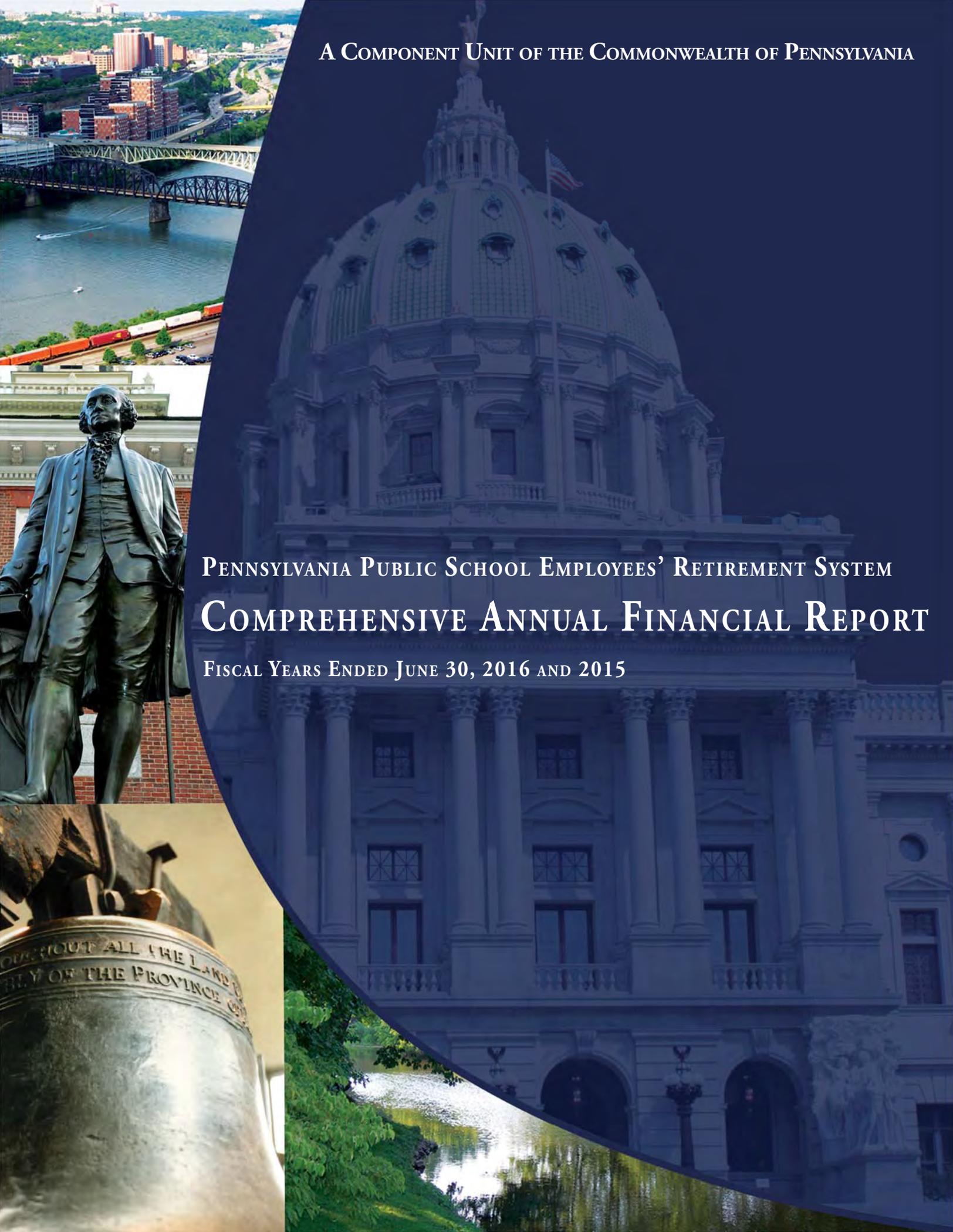


A COMPONENT UNIT OF THE COMMONWEALTH OF PENNSYLVANIA

PENNSYLVANIA PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM  
**COMPREHENSIVE ANNUAL FINANCIAL REPORT**

FISCAL YEARS ENDED JUNE 30, 2016 AND 2015



# **Pennsylvania Public School Employees' Retirement System**

(A Component Unit of the Commonwealth of Pennsylvania)

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Harrisburg, Pennsylvania 17101-1905

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## **Comprehensive Annual Financial Report** for the Fiscal Years Ended June 30, 2016 and 2015

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*Board of Trustees*

**James M. Sando**  
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**Glen R. Grell**  
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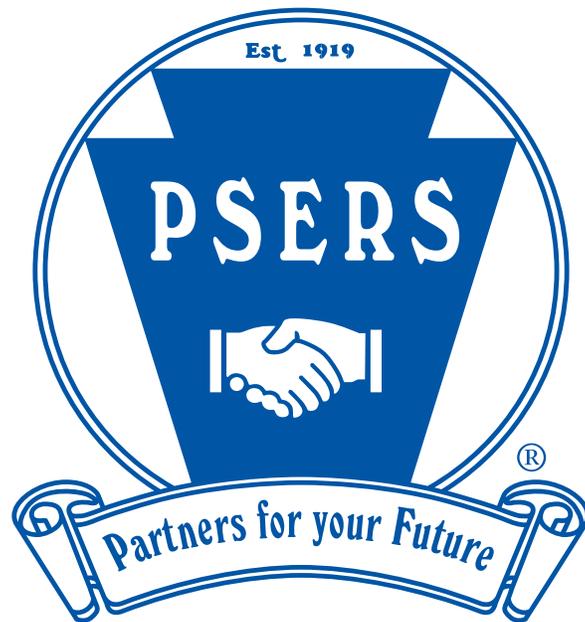
*Report prepared by the Public School Employees' Retirement System  
Office of Financial Management Staff*

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5 North 5th Street  
Harrisburg PA 17101-1905

**Letter of Transmittal**  
COMMONWEALTH OF PENNSYLVANIA  
**PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM**

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*Toll-Free - 1-888-773-7748  
(1-888-PSERS4U)  
Local - 717-787-8540  
Web Address: [www.pfers.state.pa.us](http://www.pfers.state.pa.us)*

October 27, 2016

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

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

We are pleased to present the ninety-seventh edition of the Comprehensive Annual Financial Report (CAFR) for the Pennsylvania Public School Employees' Retirement System (PSERS, System, or Fund) for the fiscal years ended June 30, 2016 (FY 2016) and 2015 (FY 2015). This report is intended to provide financial, investment, actuarial, and statistical information in a single publication.

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

The System was established on July 18, 1917 to provide retirement benefits to public school employees of the Commonwealth of Pennsylvania (PA). The members eligible to participate in the System include all full-time public school employees, part-time hourly public school employees who render at least 500 hours of service in the school year, and part-time per diem public school employees who render at least 80 days of service in the school year in any of the 781 reporting entities in Pennsylvania. As of June 30, 2016, the System had over 257,000 active members with an estimated annualized active payroll of \$13.0 billion.

The annuitant membership at June 30, 2016 was comprised of approximately 225,000 retirees and beneficiaries who receive over \$476 million in pension and healthcare benefits each month. The average yearly benefit paid to annuitants is \$25,203. The average benefit payment for each benefit type, grouped by years of credited service, is detailed in the Statistical Section of this report.

In addition to retirement benefits, PSERS administers the Premium Assistance Program that provides a health insurance premium subsidy of up to \$100 per month for those retirees who qualify. Currently, there are approximately 90,000 retirees receiving 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, Prescription Drug, and Medicare Advantage plans to over 105,000 retirees and their dependents.

PSERS provides a stable source of revenue for local economies throughout Pennsylvania. In FY 2016, PSERS distributed \$5.7 billion, or over 90%, in pension benefits to retired members who reside in Pennsylvania. These pension disbursements are a significant economic driver that benefit the economy of the Commonwealth. See the Pension Benefit Disbursement by County map in the Introductory Section of this report.

The System is a governmental cost-sharing, multiple-employer defined benefit pension plan, to which all members and 781 reporting units contribute. PSERS is administered by a staff of 322. The System is headquartered in Harrisburg, Pennsylvania, and has eight field offices in strategic areas of the Commonwealth to enable direct contact with the membership and the System's employers.

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

### **Economic Summary**

Economically, the fiscal year was a tale of two halves. The first seven and a half months (July 1, 2015 to February 11, 2016) were weak, marked by a Fed rate hike in December, expectations of multiple interest rate hikes in 2016, and risk assets falling in price. The MSCI All Country World Index, a global equity index, fell by 16.6% during this period, only to rebound 13.0% from the middle of February to June 30, 2016, for a total return of negative 3.1% for the fiscal year. Commodities fell by 27.9% during the first seven and a half months, but rebounded 20.3% during the remainder of the year for a total return of negative 13.3%. U.S. long-term treasuries were up 14.0% during the first half and continued to rise another 4.6% during the second half for a total return of 19.3%.

The U.S. economy has shown continued, albeit slow, growth this past fiscal year. Low interest rates have provided a low cost of borrowing so that the economy, housing, and employment conditions can continue to improve. The U.S. real Gross Domestic Product (GDP) increased an average of 1.2% per quarter during the past fiscal year with a range of 0.8% to 2.0%. Housing during the past fiscal year has shown continued improvement, up around 4.6% as measured by the S&P Case-Shiller 20-City Home Price Index.

Economic conditions continue to be very weak in Europe as aggressive European Central Bank policies have been unable to generate any significant improvements in economic growth, employment, and inflation. The United Kingdom (U.K.) held a non-binding referendum to determine if the U.K. would remain in or leave the European Union (EU), where the U.K. had been a member since being admitted in 1973. The polls all suggested prior to the vote that the U.K. would remain; however, its citizens voted to leave. Global risk markets (equities, commodities, credit) heavily sold off for a couple days immediately following the vote; however, they rebounded quickly. The long-term impacts have yet to be determined. While the Euro Area economy is weak, Japan's economy may be even weaker. As of the first quarter 2016 (the latest data available), Japan's real GDP increased by 0.1% over the past year. China had robust growth compared to the other developed regions of the world. China's real GDP increased by 6.7% over the past year, slightly slower than the 7.0% pace as of June 2015. Inflation in China has remained relatively stable over the past year at 1.8% compared to 1.4% last year.

The Board has continued to fulfill its mission to maintain stability and the long-term optimum value of the Fund. This is evidenced in the long-term growth of the System's assets and the actuarial soundness of the Fund. The annualized time-weighted rate of return for the twenty-five year period ended June 30, 2016 was 8.18% and exceeded the Fund's long-term investment rate of return assumption. Of utmost importance to the Board is the assurance that the required reserves are available for payment of retirement benefits.

### **Status of Pension Funding Initiatives**

As the annual savings from the reduced Act 120 benefit structure increase and higher employer contributions are paid by school employers and the Commonwealth, PSERS is approaching a turning point.

As noted in the FY 2015 CAFR, for many years the Commonwealth and school employers paid below the annual required contribution (ARC) that was necessary to pay down the unfunded liability of the System. The ARC percentage received fell to a low of 27% before significant pension reform was enacted in 2010.

## Introductory Section

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Act 120 of 2010 made dramatic progress toward addressing the funding issue at PSERS. Since 2010, Act 120 increased employer contributions to the System and for the first time in 15 years, the employer contribution rate for the fiscal year ending June 30, 2017 (FY2017) provides 100% of the actuarially required rate based on sound actuarial practices and principles.

As a result of the increased funding, in approximately two years, PSERS' funded ratio is projected to slowly improve after declining for many years and has put PSERS on a path to eventual full funding.

As of June 30, 2016, approximately 58,000 of PSERS' active membership is under the reduced benefit structure of Act 120. The annual savings from the reduced benefit structure continue to grow and exceeded \$90 million in FY 2016.

Act 120 also provided for an innovative shifting of investment risk to members through a "shared risk" concept. New members hired after July 1, 2011 now share a portion of the investment risk of the Fund, giving PSERS a defined contribution element. Under the "shared risk" concept, members share some of the risk when investments underperform. The member contribution rate will stay within the specified range allotted; but could increase or decrease by 0.5% every three years, dependent on investment performance of PSERS.

The first risk share measurement occurred in 2014. As a result of the Fund's 8.66% three year return through June 30, 2014 exceeding the investment performance hurdle mandated by Act 120, the member rate did not change. The next measurement to determine risk share will occur in FY 2017.

### **Pension Legislation Update**

Throughout FY2016, PSERS staff was 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 on plan design elements of legislative proposals.

Significant discussion on additional pension reform continues to take place. As of the date of this letter, there has been no consensus on pension reform and no pension legislation beyond Act 120 of 2010 has been enacted.

The current Legislative Session ends Sine Die (without a day remaining) at midnight, November 30, 2016. Any pension bills that have been introduced but not enacted will be disposed of at the end of the Legislative Session.

## **Major Initiatives**

### **Pension Administration System Upgrade**

The multi-year effort to upgrade the System's entire core client-server based pension administration system continues. This mission critical system is used by PSERS' staff members and employers to execute PSERS' primary pension administration functions for its members. These functions include, but are not limited to: enrolling new members; processing membership class elections; reporting and processing employee and employer contribution data; processing member demographic, salary, and service data; processing purchase of service, multiple service, disability, retirement, and refund applications; processing death benefits; supporting the Health Options Program; processing premium assistance applications and payments; issuing benefit payments related to the above activities; calculating and posting interest and delinquencies, and payments and receipts related to the above activities; providing self-service functionality to PSERS' members via the internet; calculating, submitting, and reporting tax information and dollars to the Internal Revenue Service (IRS); and reporting information to PSERS' actuary.

This upgrade from the existing "classic" version to a new "browser-based" version not only helps ensure the viability of PSERS' core pension administration system into the future, but also provides an enhanced "baseline" platform with built-in features that will make future enhancements much easier to implement. Enhancements included with the initial introduction of this upgraded pension administration will provide opportunities for members and employers to conduct transactions for themselves that would have previously required staff intervention. Some of these initial self-service features include: updating home mailing address, phone number and email information; setting preferences for receiving paper or electronic documents; electing Class T-E or T-F at qualification; electing multiple service membership; designating and updating beneficiaries; creating personalized retirement estimates by using an online calculator; viewing disbursements; calculating federal

tax withholding using an online calculator; viewing and updating pension payment tax withholding; viewing correspondence from PSERS such as letters, newsletters, Statement of Accounts, and 1099Rs; and receiving PSERS-related news and alerts. These changes will not only directly increase customer service opportunities, but will also generate financial savings while possibly enabling PSERS to redeploy staff to other critical needs as workloads shift.

### **Budgetary and Financial Governance**

PSERS submits its administrative budget request to the Governor's Office of the Budget each October to be reviewed and evaluated. Any changes proposed by the Governor's Budget Office are made and a final amount is provided to the Legislature for their consideration. The Legislature passes the final budget and submits it to the Governor for his signature, after which it becomes law. The administrative budget is not funded from the Commonwealth's General Fund, but rather from the earnings of the Fund itself. Historically, PSERS has underspent its approved budget, keeping more funds available to invest for PSERS' members.

PSERS continues to be prudent in its use of funds and managing its annual budget. In FY 2016, PSERS entered into a new agreement for its hardware and server maintenance resulting in significant savings. PSERS reduced mailings to members, producing savings in both printing and postage costs. Working with its actuary, PSERS continues to save actuarial fees by completing various analyses in-house. Other reductions were made to wages, overtime, travel, and training, all part of PSERS' ongoing efforts to control costs and improve operational efficiency.

PSERS participates in an independent, international benchmarking survey evaluating its costs and service performance in comparison to other similar public pension funds. Based on the most recent survey, PSERS had a 16% 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 \$7.3 million annually in administrative expenses compared to its peers.

In addition, during FY 2016, PSERS continued its ongoing efforts to recover funds from securities class action litigation. The System received \$2.8 million in settlements from these cases in FY 2016.

### **Reduction in Investment Manager Fees**

As fiduciaries, PSERS constantly monitors investment manager fees, as well as return expectations, investment risk, diversification, and cash flow needs.

For the third year in a row, PSERS' investment manager fees have declined. PSERS' investment expenses decreased by over \$142 million, from \$558 million in FY 2013 to \$416 million in FY 2016, which is a reduction of over 25%. This was accomplished by reducing external investment management fees through strategically decreasing PSERS' alternative investment and real estate allocations through secondary market sales, continued careful negotiation of fees, and by increasing the amount of assets being managed in-house by PSERS' internal investment professionals. PSERS currently manages \$19.2 billion or 34% of its assets internally.

Governor Wolf made reducing investment manager fees at the Commonwealth's pension systems a priority. PSERS continues to cooperate with Governor Wolf and his staff to look for ways to reduce investment fees in the future, including bringing additional asset classes in-house to be managed internally by PSERS' investment staff. This approach would lessen the need for external investment managers in those instances where the Board believes PSERS' internal staff could produce higher net investment returns with similar investment risk.

### **Customer Service**

PSERS has continued to make enhancements to its processes to operate more efficiently and provide quality customer service to our stakeholders.

PSERS continued its efforts to provide retirement benefits in an efficient manner through a one-step process. Approximately 87% of the retirement benefits processed in FY 2016 were paid in one-step. In the past, PSERS processed most initial retirements in two steps. The first step was the calculation and payment of an estimated monthly benefit and the second step was the calculation and payment of a finalized monthly benefit which occurred later.

## Introductory Section

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As a part of the ongoing effort to ensure the accuracy of member accounts, PSERS expanded its program of reviewing member accounts at periodic milestones and event triggers to ensure each detail of a member's account is accurately portrayed prior to the member applying for retirement. Nearly 24,000 accounts were reviewed in FY 2016, which included the milestone of all members identified as having 35 or more years of service.

PSERS continued the automatic billing of members who became qualified during the fiscal year and from whom contributions were not previously withheld. In FY 2016 alone, this enhancement streamlined the process for approximately 11,000 members who became qualified during the year.

In an effort to continually look for new areas of improving service and operations, PSERS engaged a third party consultant to conduct comprehensive studies of PSERS' disability benefit process, call center operations, and communications structure and efforts. The multiple studies are expected to result in many positive changes for enhanced customer service and operational efficiencies.

### **Technology Upgrade**

In October 2015, the technology platforms running all mission critical systems supporting the PSERS operation were moved from the DataPowerhouse location to a new Commonwealth Office of Administration/Office of Information Technology contract with Unisys known as the Pennsylvania Compute Services (PACS) located in Ashburn, Virginia. The project was a huge success and epitomized team excellence. Given the complexity, risk, and impact of the PACS migration, transitions like this are rarely as triumphant.

This project involved not only migrating production and test systems to new equipment, it also gave PSERS access to a modernized data facility equipped with the latest IT tools. After nearly two years of planning and preparation, the migration was performed over a long holiday weekend. Executing a 72-hour implementation plan that consisted of hundreds of steps and the coordination of scores of PSERS employees, vendors, and service providers, the transformation was completed within one hour of the originally projected time frame. Benefits include faster processing, state-of-the-art disk backups and disaster recovery, a better financial model, and enhanced security.

### **Financial Highlights**

The fair value of the System's fiduciary net position totaled \$50.2 billion as of June 30, 2016. The System is the 20th largest state-sponsored public defined benefit pension fund in the nation and the 31st largest among public and corporate pension funds in the nation. More specific information on the System's net position is detailed in the Statements of Fiduciary Net Position and Management's Discussion and Analysis included in the Financial Section of this report.

One of PSERS' mission critical objectives is the timely and accurate payment of benefits. In FY 2016, PSERS provided nearly \$6.8 billion in pension and healthcare benefits to its members.

The System's administrative budget request is appropriated by the PA General Assembly and funded by the investment income of the System. For FY 2016, the appropriation was \$44.0 million.

### **Funding**

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

The results of PSERS' latest published actuarial valuation (as of June 30, 2015) indicated that the rates of contribution payable by the members and employers, when taken together with the current assets of the System, are adequate to fund the actuarial liabilities for all benefits payable under the System at that date. The total funded status as of the latest actuarial valuation was 60.6%. Additional comparative information on the funded status of PSERS can be found in the Financial Section and in the Actuarial Section of this report.

PSERS' actuary, Buck Consultants LLC, completed a five-year experience study as required by the Retirement Code and presented the results at the June 10, 2016 Board meeting. Based on the recommendations of the actuary, the Board adopted revised demographic and economic assumptions effective with the June 30, 2016 actuarial valuation and results will be available at the end of the 2016 calendar year. The revised demographic assumptions include new mortality, retirement, and withdrawal assumptions and updated option factors to match the new mortality tables. The revised economic assumptions include reducing the salary growth from 5.50% to 5.00%, reducing inflation from 3.00% to 2.75%, and reducing the investment rate of return from 7.50% to 7.25%.

### **Investments**

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

Income from the investment portfolio represents the major source of revenue to the System, accounting for 65% of total revenues over the twenty-year period from FY 1997 to FY 2016. During FY 2016, net investment income was \$474 million. The investment portfolio, which is one part of the System's net position, totaled \$48.0 billion, at fair value, as of June 30, 2016. For FY 2016, the time-weighted net rate of return on the System's investments was 1.29%.

The investment portfolio is well diversified to emphasize a long-term investment approach. The overall objective of the System is to provide benefits to its members through a carefully planned and well-executed investment program. The return objectives are to: (i) realize a return that exceeds the Policy Index (the Policy Index is a custom benchmark, based on the Board-established asset allocation structure that seeks to generate a return that meets the actuarial rate of return assumption); and (ii) invest the assets to maximize returns for the level of risk taken. The risk objectives are to: (i) diversify the assets of the System to minimize the risk of losses within any one asset class, investment type, industry or sector distribution, maturity date, or geographic location; and (ii) invest the assets so that the probability of investment losses (as measured by the Policy Index) in excess of 15.0% in any one year is no greater than 2.5% (or two standard deviations below the expected return). Additional information on the System's investments is contained in the Investment Section of this report.

### **Federal and State Tax Status**

The System is a qualified trust fund under Section 401(a) of the Internal Revenue Code (IRC). As a result of the qualified status, the trust fund is entitled to an exemption, under Section 501(a) of the IRC, from federal income taxation on its investment earnings. Additionally, contributions made on behalf of the active members are tax deferred under Section 414(h) of the IRC. The trust fund and any benefits accruing to the members of PSERS are exempt from Pennsylvania state and municipal taxes.

#### **Act 93 of 2015**

On December 28, 2015, Governor Wolf signed into law House Bill Number 1332, Printer's Number 1814, as Act 93 of 2015. This legislation amends the Retirement Codes of the Public School Employees' Retirement System (PSERS) and the State Employees' Retirement System (SERS) to ensure that PSERS and SERS will remain a tax-qualified 401(a) governmental plan under the Internal Revenue Code (IRC).

### **Internal Controls and Reporting**

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

## Introductory Section

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

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

### **GASB 68 Pension Reporting for Employers**

In June 2016, PSERS sent information to its employers to assist them in complying with the Governmental Accounting Standards Board (GASB) Statement No. 68, *Accounting and Financial Reporting for Pensions*. 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 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.

### **Professional Services**

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

### **Other Information**

In compliance with the Retirement Code, actuarial tables and the computational procedures used by the System in calculating annuities and other benefits were published in the *Pennsylvania Bulletin* (Vol. 43, No. 18). This information can be found at <http://www.pabulletin.com/secure/data/vol43/43-18/841.html>.

### **System Awards**

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

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to PSERS for its Comprehensive Annual Financial Report for the fiscal year ended June 30, 2015. The Certificate of Achievement is a prestigious national award recognizing conformance with the highest standards for preparation of state and local government financial reports. To be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized comprehensive annual financial report whose contents conform to program standards. Such a comprehensive annual financial report must satisfy both generally accepted accounting principles and applicable legal requirements.

A Certificate of Achievement is valid for a period of one year. PSERS has received a Certificate of Achievement for 33 consecutive years from FY 1983 to FY 2015. A photograph of this award appears in the Introductory Section of this report. Its attainment represents a significant accomplishment by the System, whose Office of Financial Management holds general responsibility for the compilation and validity of the financial data presented in the Comprehensive Annual Financial Report.

The System believes the current report continues to conform to the Certificate of Achievement program requirements and will be submitting this report to GFOA to determine eligibility for the 2016 certificate.

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**Public Pension Coordinating Council Public Pension Standards Award**

The Public Pension Coordinating Council has awarded its Public Pension Standards Award to PSERS for 2015. This award is in recognition of meeting professional standards for plan design and administration as set forth in the Public Pension Standards.

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

**Institutional Investor Asset Management Award**

On April 28, 2016, at the Institutional Investor's 3rd annual Investor Intelligence Awards for Public Plan Sponsors, PSERS was presented with the Asset Management Award. This award is given to one asset allocator who demonstrates excellence in investing, long-term performance, and overall ability to construct and manage a complex portfolio.

The Investor Intelligence Awards were created to recognize the most outstanding and innovative Corporate and Public Plan sponsors and Endowments and Foundations in North America.

**Acknowledgements**

The preparation of this report reflects the combined efforts of PSERS' staff under the direction of the PSERS Board. It is intended to provide complete and reliable information in conformance with accepted standards and to document responsible stewardship of the System's assets.

Respectfully submitted,



Glen R. Grell  
Executive Director

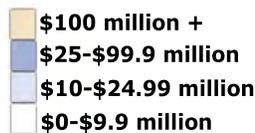


Brian S. Carl, CPA, CTP  
Chief Financial Officer

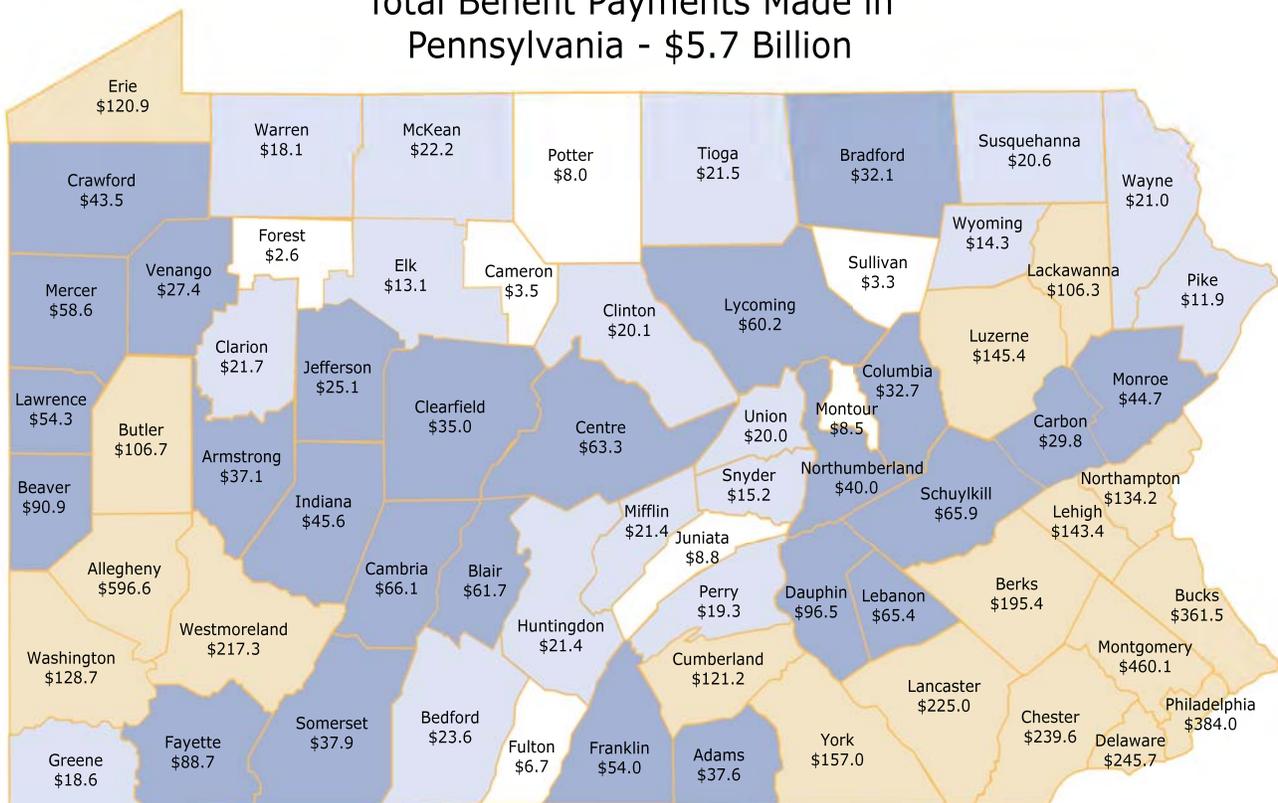
## Pension Benefit Disbursement by County Fiscal Year 2016 (Dollar Amounts in Millions)

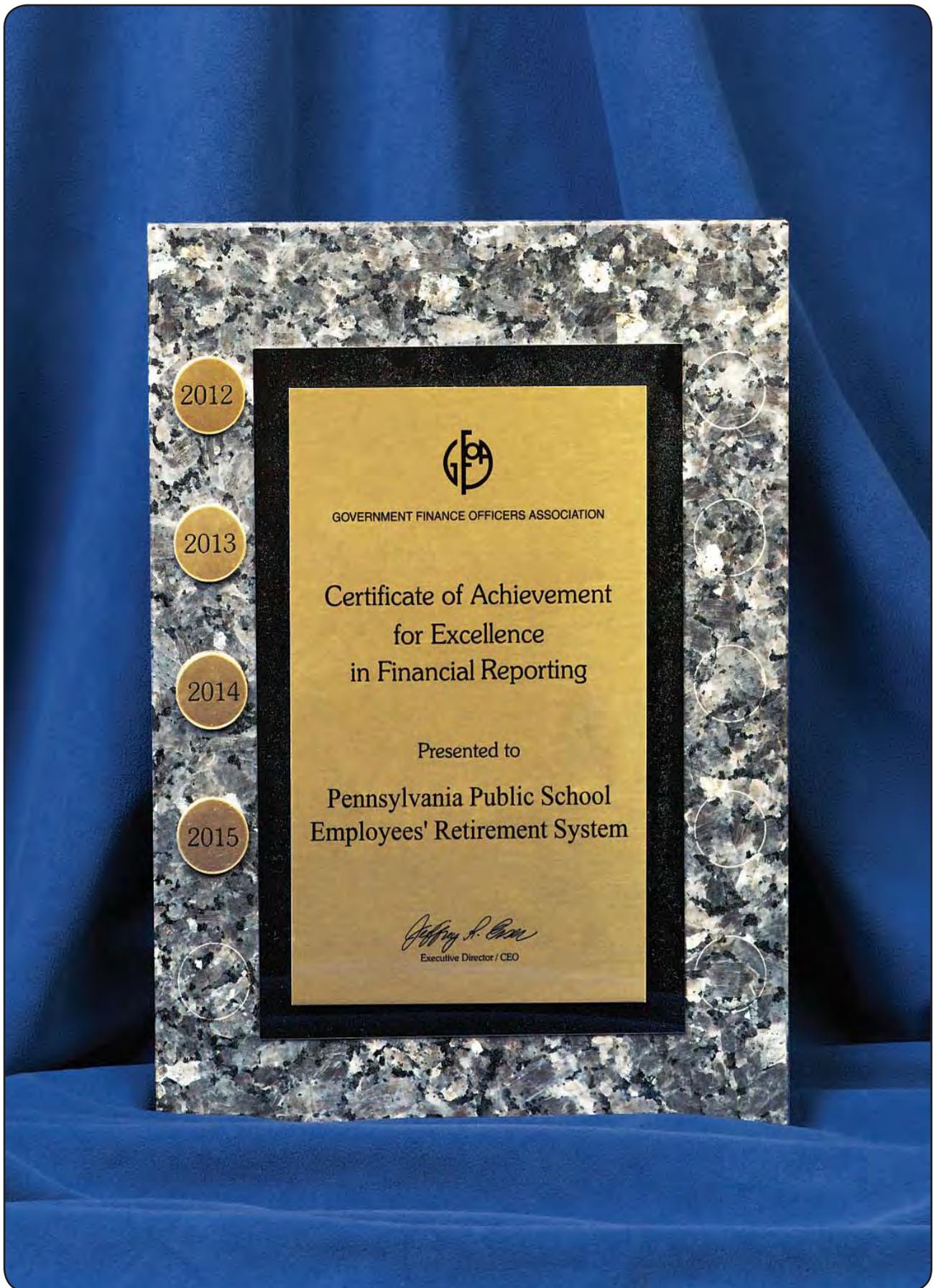
PSERS provides a stable source of revenue for local economies throughout Pennsylvania. Each year PSERS pays out billions in pension benefits to retired members who reside in Pennsylvania. In fiscal year 2016, PSERS pension disbursements to retirees totaled approximately \$6.3 billion. Of this amount approximately 90%, or \$5.7 billion, went directly into state and local economies. These pension disbursements are a significant economic driver that benefit the economy of the Commonwealth.

Top 10 Counties Based on Pension Benefit Disbursements (Dollars in Millions)	
Allegheny	\$596.6
Montgomery	\$460.1
Philadelphia	\$384.0
Bucks	\$361.5
Delaware	\$245.7
Chester	\$239.6
Lancaster	\$225.0
Westmoreland	\$217.3
Berks	\$195.4
York	\$157.0



### Total Benefit Payments Made in Pennsylvania - \$5.7 Billion







Public Pension Coordinating Council

*Public Pension Standards Award  
For Funding and Administration  
2015*

Presented to

***Pennsylvania Public School Employees'  
Retirement System***

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

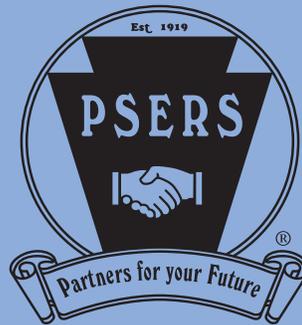
*Presented by the Public Pension Coordinating Council, a confederation of*

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

A handwritten signature in black ink that reads "Alan H. Winkle". The signature is written in a cursive style with a large, prominent 'A'.

Alan H. Winkle  
Program Administrator

# *Mission Statement*



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

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

adopted June 20, 2008

## Administrative Organization PSERS Board of Trustees



*Seated, front row:* Sally Keaveney, designee for Honorable Lawrence M. Farnese; Glen R. Grell, PSERS' Executive Director, Board Secretary; Melva S. Vogler, Board Chairman; Susan C. Lemmo; Honorable Timothy A. Reese; Deborah J. Beck

*Standing, second row:* Miriam Fox, designee for Honorable Joseph F. Markosek; Larry B. Breech (term ended June 10, 2016); Frederick T. Berestecky; James M. Sando; Honorable Stephen Bloom; Stacey Connors, designee for Honorable Patrick M. Browne; Nathan G. Mains

*Not pictured:* James R. Biery; Pedro A. Rivera, Virginia Lastner, and Ambassador Martin J. Silverstein

---

## PSERS Board of Trustees

### **Secretary of Education of the Commonwealth of Pennsylvania (ex officio)**

Mr. Pedro A. Rivera

### **Treasurer of the Commonwealth of Pennsylvania (ex officio)**

Honorable Timothy A. Reese

### **Executive Director of the Pennsylvania School Boards Association, Inc. (ex officio)**

Mr. Nathan G. Mains

### **Two members appointed by the Governor of the Commonwealth of Pennsylvania for a term of three years**

Mr. James R. Biery (term expired 12/31/15)\*

Ambassador Martin J. Silverstein (term expires 12/31/17)

### **Three members elected from among the Active Certified Contributors of the System for a term of three years**

Mr. Frederick T. Berestecky (term expires 12/31/16)

Ms. Susan C. Lemmo (term expires 12/31/18)

Mr. James M. Sando (term expires 12/31/17)

### **One member elected from among the Active Non-Certified Contributors of the System for a term of three years**

Ms. Deborah J. Beck (term expires 12/31/18)

### **One member elected from among the annuitants of the System for a term of three years**

Ms. Melva S. Vogler (term expires 12/31/16)

### **One member elected by the members of Pennsylvania Public School Boards from among their number for a term of three years**

Ms. Virginia Lastner (term expires 12/31/17)

### **Two members appointed by the Speaker of the House from the Pennsylvania House of Representatives, one representing the Majority Party and one representing the Minority Party**

Honorable Stephen Bloom (term expires 12/31/16)

Honorable Joseph F. Markosek (term expires 12/31/16)

### **Two members appointed by the President Pro Tempore of the Pennsylvania Senate, one representing the Majority Party and one representing the Minority Party**

Honorable Patrick M. Browne (term expires 12/31/16)

Honorable Lawrence M. Farnese (term expires 12/31/16)

\*Mr. Biery will remain on the Board until the Governor appoints a replacement, subject to Senate confirmation.

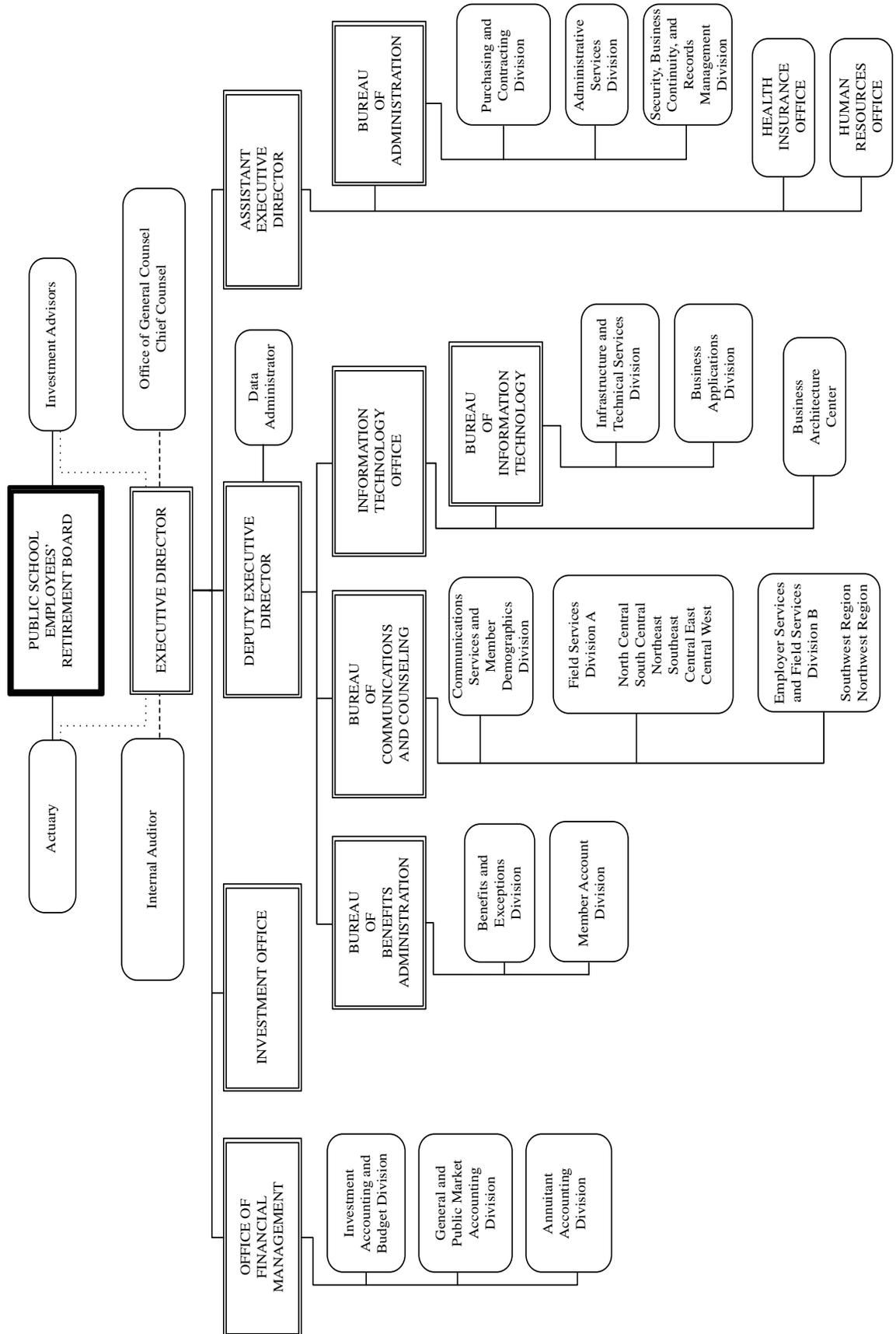
## 2016 Board Committees

<p style="text-align: center;"><b>Appeals/Member Services</b></p> <p style="text-align: center;">Ms. Beck, Chair Mr. Berestecky Representative Bloom Senator Farnese Ms. Lemmo Mr. Sando</p>	<p style="text-align: center;"><b>Audit/Budget</b></p> <p style="text-align: center;">Representative Bloom, Chair Ms. Beck Mr. Berestecky Mr. Mains Representative Markosek Treasurer Reese</p>	<p style="text-align: center;"><b>Bylaws/Policy</b></p> <p style="text-align: center;">Representative Markosek, Chair Ms. Beck Senator Browne Ms. Lemmo Mr. Mains Mr. Rivera</p>
<p style="text-align: center;"><b>Corporate Governance</b></p> <p style="text-align: center;">Senator Browne, Chair Mr. Biery Senator Farnese Representative Markosek Treasurer Reese Mr. Sando Ambassador Silverstein</p>	<p style="text-align: center;"><b>Elections</b></p> <p style="text-align: center;">Ambassador Silverstein, Chair Senator Browne Senator Farnese Ms. Lastner Ms. Lemmo Mr. Rivera</p>	<p style="text-align: center;"><b>Finance</b></p> <p style="text-align: center;">Mr. Mains, Chair Mr. Sando</p> <p style="text-align: center;">Committee is comprised of all Board Members</p>
<p style="text-align: center;"><b>Health Care</b></p> <p style="text-align: center;">Ms. Lemmo, Chair Ms. Beck Mr. Berestecky Mr. Biery Representative Bloom Ms. Lastner</p>	<p style="text-align: center;"><b>Personnel</b></p> <p style="text-align: center;">Treasurer Reese, Chair Mr. Berestecky Senator Farnese Mr. Mains Representative Markosek Mr. Sando</p>	<p style="text-align: center;"><b>Technology Steering</b></p> <p style="text-align: center;">Mr. Rivera, Chair Mr. Biery Senator Browne Ms. Lastner Mr. Sando Ambassador Silverstein</p>

NOTE: The chair of the Board of Trustees is a voting ex officio member of all Committees

# Organizational Chart of the Public School Employees' Retirement System

As of June 30, 2016



## Administrative Staff



James H. Grossman Jr.  
Chief Investment Officer



Glen R. Grell  
Executive Director



Terrill J. Sanchez  
Deputy Executive Director



Charles K. Serine  
Chief Counsel



Brian S. Carl  
Chief Financial Officer



Joseph E. Wasiak  
Assistant Executive Director



Richard R. Spinks  
Chief Technology Officer



Edward G. Rohrbaugh  
Director of Administration



Mark F. Schafer  
Director of Health  
Insurance



Eugene W. Robison  
Director of Communications  
and Counseling



Steven C. Goldstein  
Director of Information  
Technology



Tammy L. Meshey  
Director of Human  
Resources



Marla Cattermole  
Director of Benefits  
Administration



Alicia James  
Internal Auditor

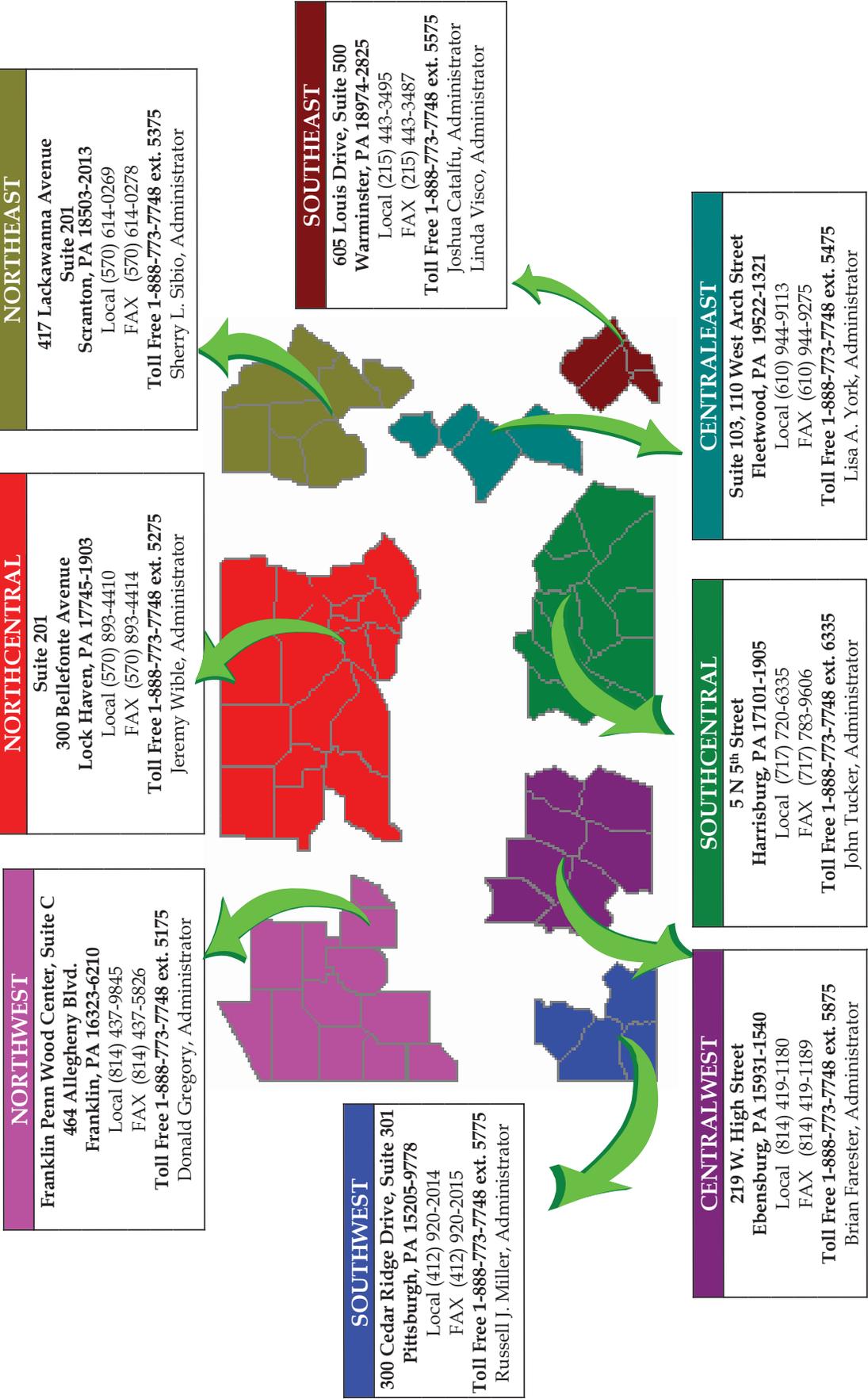


Tony Parisi  
Director of Government  
Relations



Evelyn M. Williams  
Press Secretary

**PSERS REGIONAL OFFICES**  
*Public School Employees' Retirement System of Pennsylvania*  
**PSERS FIELD SERVICES DIVISION**  
*Serving You in the 21<sup>st</sup> Century*



## PSERS Headquarters Building

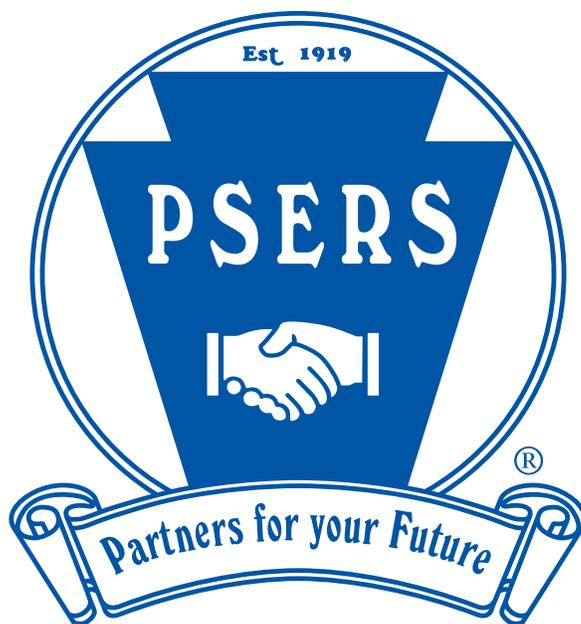


The administrative headquarters of the Public School Employees' Retirement System (PSERS) is located at 5 North Fifth Street in downtown Harrisburg, Pennsylvania within the State Capitol complex. Regional field offices are also maintained in Ebensburg, Fleetwood, Franklin, Lock Haven, Harrisburg, Pittsburgh,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

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

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## **Report of Independent Public Accountants**

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

### **Report on the Financial Statements**

We have audited the accompanying basic financial statements of the Commonwealth of Pennsylvania Public School Employees' Retirement System (PSERS), as of June 30, 2016 and 2015, and for the years then ended, and the related notes to the financial statements, which collectively comprise PSERS' basic financial statements as listed in the table of contents.

### **Management's Responsibility for the Financial Statements**

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

### **Auditor's Responsibility**

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

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

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

### **Opinion**

In our opinion, the basic financial statements referred to above present fairly, in all material respects, the respective financial position of PSERS, as of June 30, 2016 and 2015, and the respective changes in its financial position thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America (GAAP).



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**Other Matters**

*Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the Management's Discussion and Analysis and Required Supplementary Schedule of Changes in the Employer Net Pension Liability, Schedule of Employer Net Pension Liability, Schedule of Employer Contributions, Schedule of Investment Returns, Schedule of Funding Progress and related notes to Required Supplementary Schedules be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with evidence sufficient to express an opinion or provide any assurance.

*Other Information*

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise PSERS' basic financial statements. The Schedule of Operating Expenses, Summary of Investment Expenses, Schedule of Payments to Non-Investment Consultants, and the Introductory, Investment, Actuarial, and Statistical Sections are presented for purposes of additional analysis and are not a required part of the basic financial statements.

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

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

Hunt Valley, Maryland  
September 26, 2016

## Management's Discussion and Analysis

Management's Discussion and Analysis (MD&A) of the Commonwealth of Pennsylvania Public School Employees' Retirement System (PSERS, System, Fund) for the fiscal year ended June 30, 2016 (FY 2016) provides a narrative summary of PSERS' financial position and performance, including highlights and comparative data. The MD&A is presented as required supplementary information to the financial statements and should be read in conjunction with the financial statements, the notes to financial statements, and the supplementary schedules.

### Overview of Financial Statements

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

The *Statements of Fiduciary Net Position* provide a snapshot of the financial position of PSERS at June 30, 2016, including comparative amounts for the prior year.

The *Statements of Changes in Fiduciary Net Position* summarize PSERS' financial activities that occurred during the fiscal period from July 1, 2015 to June 30, 2016, including comparative amounts for the prior year.

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

The *Required Supplementary Schedules* immediately following the notes to financial statements provide five schedules illustrating the Changes in the Employer Net Pension Liability, Employer Net Pension Liability, Employer Contributions, Investment Returns, and Funding Progress.

The remaining supplementary schedules provide additional detailed information concerning the operating expenses, investment expenses, payments to non-investment consultants, and the employer contributions. These

schedules emphasize the long-term nature of the pension and premium assistance plans and show the progress of PSERS in accumulating assets sufficient to pay benefits when due. All of this supplementary information is considered useful in understanding and evaluating the financial activities of PSERS.

### Financial Highlights

- The time-weighted rate of return on investments was 1.29% for FY 2016, 3.04% for the fiscal year ended June 30, 2015 (FY 2015), and 14.91% for the fiscal year ended June 30, 2014 (FY 2014). The annualized rate of return since the Great Recession was 9.16%, which exceeded the 7.5% actuarial investment rate. Unless otherwise noted, all rates of return are net of fees.
- PSERS' total net position decreased by \$1.7 billion from \$51.9 billion at June 30, 2015 to \$50.2 billion at June 30, 2016. The change in total net position from June 30, 2014 to June 30, 2015 was a decrease of \$1.4 billion from \$53.3 billion at June 30, 2014 to \$51.9 billion at June 30, 2015. This decrease in both years was due in large part to deductions for benefits and administrative expenses exceeding net investment income plus member and employer contributions.
- Total employer contributions increased from \$2.7 billion in FY 2015 to \$3.3 billion in FY 2016. This increase was primarily attributable to an increase in the total employer contribution rate from 21.40% in FY 2015 to 25.84% in FY 2016 in accordance with Act 120 of 2010.
- Total PSERS' benefit expense increased slightly from \$6.6 billion in FY 2015 to \$6.8 billion in FY 2016. The average monthly benefit and the number of members receiving benefits increased in FY 2016. New retirements during FY 2016 decreased by approximately 7% from FY 2015.

### Progress of Act 120 on PSERS' Funding

On November 23, 2010, the Governor signed HB 2497 into law. The legislation is now known as Act 120 of 2010. Act 120 preserves the benefits of existing members and includes a series of actuarial and funding changes to PSERS and benefit reductions for individuals who become new members of PSERS on or after July 1, 2011. The Act created two new membership classes, T-E and T-F. T-E and T-F members are "shared-risk," meaning that their

**Management’s Discussion and Analysis (continued)**

employee contributions can increase or decrease due to investment performance.

Act 120 addressed the pending employer contribution rate spike projected for FY 2013 by smoothing the projected rate increases over a five- to nine-year time period. Instead of a large rate spike in one year, under Act 120, the employer contribution rate has increased steadily each year from the 5.64% in effect when Act 120 became law to the 25.84% rate in the FY 2016. During that time, PSERS’ Annual Required Contribution (ARC) percentage under Governmental Accounting Standards Board (GASB) standards increased from 27% to 80%. On July 1, 2016, PSERS began receiving 100% of actuarially required contributions for the first time in 15 years. This marks a significant milestone in PSERS’ contribution history and establishes a path to full funding.

The employer normal cost of Act 120 members is less than 3% of payroll which is over 65% less than the normal cost for pre-Act 120 members. As the

percentage of T-E and T-F membership grows, the annual cost of benefits continues to decline steadily.

**Funded Status and State Accumulation Account**

PSERS uses an actuarial reserve type of funding that is financed by member contributions, employer contributions, and earnings from invested assets. Figure 1 illustrates a thirty-year history of PSERS’ funded status. An independent actuarial valuation of PSERS’ actuarial assets and liabilities is performed annually. As part of this valuation, the progress toward funding pension obligations of PSERS is measured by comparing the actuarial value of assets to the actuarial accrued liability. This measurement is referred to as the funded ratio or funded status. The most recent actuarial valuation reports that PSERS is 60.6% funded as of June 30, 2015. The funded ratio decreased from 62.0% as of June 30, 2014 due to employer contributions below the actuarially recommended level and an increase in the actuarial accrued liability, offset by a slight increase in

**Analysis of Fiduciary Net Position**

(Dollar Amounts in Thousands)

<b>Summary of Fiduciary Net Position</b>	<b>FY 2016</b>	<b>Increase (Decrease)</b>	<b>FY 2015</b>	<b>Increase (Decrease)</b>	<b>FY 2014</b>
<b>Assets:</b>					
Receivables	\$ 3,196,024	\$ 860,107	\$ 2,335,917	\$ 929,888	\$ 1,406,029
Investments	47,997,984	(2,581,047)	50,579,031	(2,349,076)	52,928,107
Securities lending collateral pool	2,092,729	885,559	1,207,170	610,234	596,936
Capital assets	22,871	57	22,814	(37)	22,851
<b>Total Assets</b>	<b>53,309,608</b>	<b>(835,324)</b>	<b>54,144,932</b>	<b>(808,991)</b>	<b>54,953,923</b>
<b>Deferred outflows of resources</b>	<b>11,324</b>	<b>7,429</b>	<b>3,895</b>	<b>3,895</b>	<b>-</b>
<b>Liabilities:</b>					
Payables and other liabilities	1,076,373	19,834	1,056,539	(38,524)	1,095,063
Obligations under securities lending	2,092,729	885,559	1,207,170	610,234	596,936
<b>Total Liabilities</b>	<b>3,169,102</b>	<b>905,393</b>	<b>2,263,709</b>	<b>571,710</b>	<b>1,691,999</b>
<b>Deferred inflows of resources</b>	<b>1,268</b>	<b>1,224</b>	<b>44</b>	<b>44</b>	<b>-</b>
<b>Net Position</b>	<b>\$ 50,150,562</b>	<b>\$ (1,734,512)</b>	<b>\$ 51,885,074</b>	<b>\$ (1,376,850)</b>	<b>\$ 53,261,924</b>
<b>Summary of Changes in Fiduciary Net Position</b>					
<b>Additions:</b>					
Contributions	\$ 4,292,083	\$ 593,910	\$ 3,698,173	\$ 621,295	\$ 3,076,878
Participant premiums and CMS	359,166	34,875	324,291	28,792	295,499
Net investment income	474,047	(854,836)	1,328,883	(5,769,139)	7,098,022
<b>Total Additions</b>	<b>5,125,296</b>	<b>(226,051)</b>	<b>5,351,347</b>	<b>(5,119,052)</b>	<b>10,470,399</b>
<b>Deductions:</b>					
Benefit expense	6,779,577	165,423	6,614,154	196,699	6,417,455
Administrative expenses	80,231	7,731	72,500	5,783	66,717
<b>Total Deductions</b>	<b>6,859,808</b>	<b>173,154</b>	<b>6,686,654</b>	<b>202,482</b>	<b>6,484,172</b>
<b>Changes in Net Position</b>	<b>\$ (1,734,512)</b>	<b>\$ (399,205)</b>	<b>\$ (1,335,307)</b>	<b>\$ (5,321,534)</b>	<b>\$ 3,986,227</b>

**Management’s Discussion and Analysis (continued)**

the actuarial value of assets, which is based on a ten-year smoothing period.

The results of operations for FY 2016 will be reflected in the actuarial valuation for the year ended June 30, 2016. Due to the normal lag time for completion of the actuarial valuation, the resulting funded status will be available at the end of the 2016 calendar year and will be reported in the financial statements for the fiscal year ending June 30, 2017 (FY 2017). Based on the investment performance for the ten-year period ended June 30, 2016, which is below the investment rate of return assumption during that time period, and employer contributions below the actuarially recommended level, the funded ratio at June 30, 2016 is expected to decrease.

PSERS’ State Accumulation Account deficit increased from June 30, 2015 to June 30, 2016 (See Note 3). One-year investment returns below the return assumption and employer contributions below the normal cost plus interest contributed to the deficit increase. Increased employer contributions, as mandated by Act 120, and investment earnings will be used to reduce the deficit in this account in the future.

**Investments**

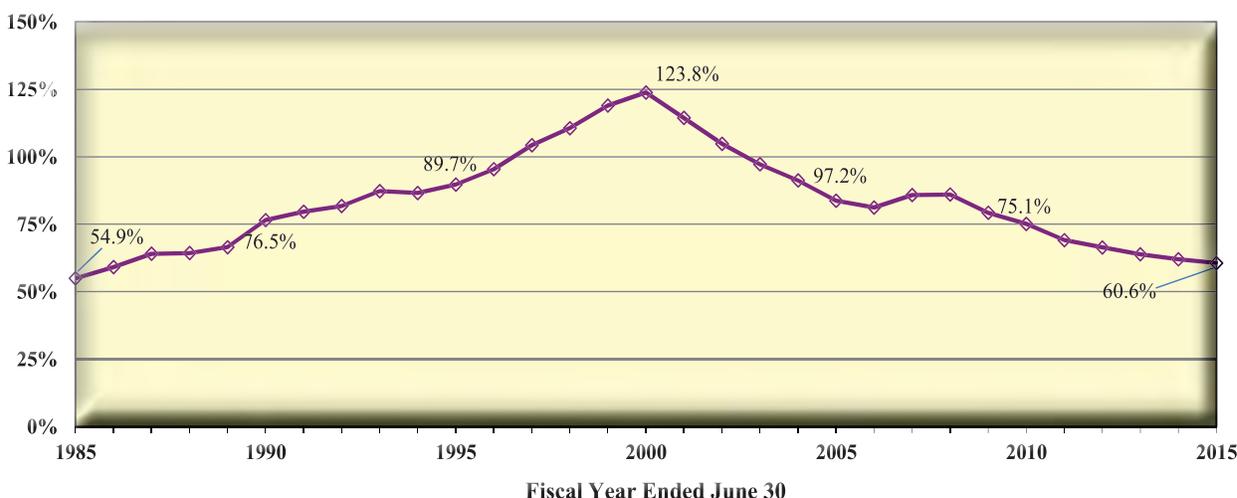
PSERS is a long-term investor and manages the pension fund with long-term objectives in mind. A primary element of PSERS’ investment philosophy is diversification among various asset classes, which is the best way to achieve its goals. PSERS makes estimates of future long-term market returns and establishes an asset allocation plan taking into account the risk associated with each asset class as well as the financial objectives of the Fund.

Economically, the fiscal year was a tale of two halves. The first seven and a half months (July 1, 2015 to February 11, 2016) were weak, marked by a Fed rate hike in December, expectations of multiple interest rate hikes in 2016, and risk assets falling in price. The MSCI All Country World Index, a global equity index, fell by 16.6% during this period, only to rebound 13.0% from the middle of February to June 30, 2016, for a total return of negative 3.1% for the fiscal year. Commodities fell by 27.9% during the first seven and a half months, but rebounded 20.3% during the remainder of the year for a total return of negative 13.3%. U.S. long-term treasuries were up 14.0% during the first half and continued to rise another 4.6% during the second half for a total return of 19.3%.

The U.S. economy has shown continued, albeit slow, growth this past fiscal year. Low interest rates have provided a low cost of borrowing so that the economy, housing, and employment conditions can continue to improve. The U.S. real Gross Domestic Product (GDP) increased an average of 1.2% per quarter during the past fiscal year with a range of 0.8% to 2.0%. Housing during the past fiscal year has shown continued improvement, up around 4.6% as measured by the S&P Case-Shiller 20-City Home Price Index.

Economic conditions continue to be very weak in Europe as aggressive European Central Bank policies have been unable to generate any significant improvements in economic growth, employment, and inflation. The United Kingdom (U.K.) held a non-binding referendum to determine if the U.K. would remain in or leave the European Union (EU), where the U.K. had been a member since being admitted in 1973. The polls all suggested prior to the vote that the U.K. would remain; however, its citizens voted to leave. Global risk markets (equities, commodities, credit) heavily sold

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



**Management’s Discussion and Analysis (continued)**

off for a couple of days immediately following the vote; however, they rebounded quickly. The long-term impacts have yet to be determined. While the Euro Area economy is weak, Japan’s economy may be even weaker. As of the first quarter 2016 (the latest data available), Japan’s real GDP increased by 0.1% over the past year. China had robust growth compared to the other developed regions of the world. China’s real GDP increased by 6.7% over the past year, slightly slower than the 7.0% pace as of June 2015. Inflation in China has remained relatively stable over the past year at 1.8% compared to 1.4% last year.

For FY 2016, PSERS’ time-weighted rate of return on investments was 1.29% which trailed PSERS’ total fund Policy Index of 2.00% for the same time period. A time-weighted rate of return considers investment performance of a hypothetical dollar invested from the beginning of an investment period to the period’s end. The Policy Index is a custom benchmark, which is based on the Board-established asset allocation structure, that seeks to generate a return that meets the actuarial rate of return assumption. Net investment income of \$0.5 billion in FY 2016 decreased from a net investment income of \$1.3 billion in FY 2015 due to a lower total return.

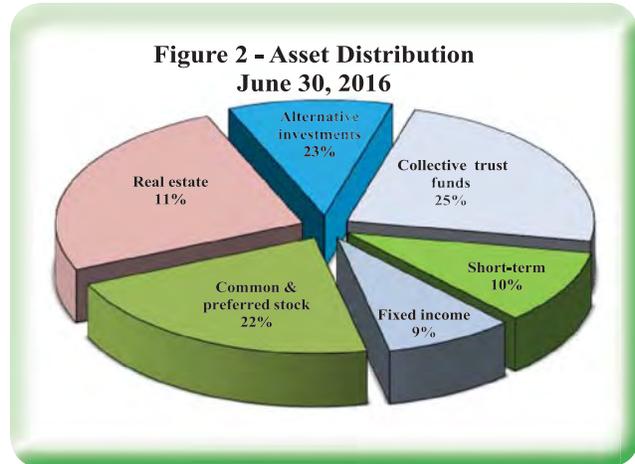
The time-weighted annualized rate of return over the past three- and five-year periods ended June 30, 2016 was 6.24% and 6.01%, respectively. The time-weighted returns for the three- and five-year periods exceeded the total fund Policy Index returns for those periods by 105 and 150 basis points, respectively. The annualized time-weighted rate of return for the ten- and twenty-five-year periods ended June 30, 2016 was 4.94% and 8.18%, respectively.

PSERS’ long-term actuarial investment rate of return assumption was 7.50% during FY 2016. PSERS’ Board lowered the return assumption from 7.50% to 7.25% effective with the June 30, 2016 actuarial valuation which will be completed in December 2016.

The asset distribution of PSERS’ investment portfolio at June 30, 2016, 2015, and 2014, at fair value, and including postemployment healthcare assets, is presented in Figure 2 and Table 1.

**FY 2016**

- **Short-term investments** (cash and cash equivalents) increased by \$1.2 billion from \$3.8 billion at June 30, 2015 to \$5.0 billion at June 30, 2016. Due to a reallocation of exposure from other asset classes, PSERS increased its short-term investments during FY 2016.
- **Fixed income investments** decreased by \$1.0 billion from \$5.1 billion at June 30, 2015 to \$4.1 billion at June 30, 2016 mostly due to manager terminations and



reallocation of exposure to other asset classes during FY 2016.

- **Common and preferred stock investments** decreased by \$0.9 billion from \$11.4 billion at June 30, 2015 to \$10.5 billion at June 30, 2016. The decrease in this asset category was mainly due to lower market value increases in domestic and global stock investments compared to the prior fiscal year.
- **Collective trust funds** decreased by \$1.0 billion from \$13.1 billion at June 30, 2015 to \$12.1 billion at June 30, 2016 mostly due to reallocation of exposure from other asset classes.
- **Real estate investments** decreased by \$1.2 billion from \$6.4 billion at June 30, 2015 to \$5.2 billion at June 30, 2016 due to the sale of limited partnership interests to third parties and to significant partnership distributions which exceeded contributions to new and existing partnerships partially offset by valuation increases in partnership portfolio holdings.
- **Alternative investments** increased by \$0.4 billion from \$10.8 billion at June 30, 2015 to \$11.2 billion at June 30, 2016 due to contributions to new and existing partnerships combined with valuation increases in partnership portfolio holdings which exceeded significant partnership distributions.

**FY 2015**

- **Short-term investments** (cash and cash equivalents) decreased by \$0.5 billion from \$4.3 billion at June 30, 2014 to \$3.8 billion at June 30, 2015. Due to a reallocation of exposure from other asset classes, PSERS decreased its short-term investments during FY 2015.
- **Fixed income investments** decreased by \$0.4 billion from \$5.5 billion at June 30, 2014 to \$5.1 billion at June 30, 2015 mostly due to manager terminations and reallocation of exposure to other asset classes during FY 2015.
- **Common and preferred stock investments** increased by \$0.5 billion from \$10.9 billion at June 30, 2014 to

## Management's Discussion and Analysis (continued)

\$11.4 billion at June 30, 2015. The rise in this asset category was mainly the result of strong returns for domestic equity, international equity, and master limited partnerships, as well as the continual reallocation of exposure from other asset classes to master limited partnerships.

- **Collective trust funds** rose by \$1.3 billion from \$11.8 billion at June 30, 2014 to \$13.1 billion at June 30, 2015 mostly due to reallocation of exposure from other asset classes.
- **Real estate investments** decreased by \$0.8 billion from \$7.2 billion at June 30, 2014 to \$6.4 billion at June 30, 2015 due to significant partnership distributions which exceeded contributions to new and existing partnerships partially offset by valuation increases in partnership portfolio holdings.
- **Alternative investments** decreased by \$2.4 billion from \$13.2 billion at June 30, 2014 to \$10.8 billion at June 30, 2015 partially due to the sale of limited partnership interests to third parties and to significant partnership distributions which exceeded contributions to new and existing partnerships partially offset by valuation increases in partnership portfolio holdings.

total employer contribution rate from 16.93% in FY 2014 to 21.40% in FY 2015.

Total member contributions increased from \$984.6 million in FY 2015 to \$989.3 million in FY 2016. The increase was mainly due to an increase in member contributions from active member payroll and purchase of service. Total member contributions increased from \$966.9 million in FY 2014 to \$984.6 million in FY 2015. The increase was mainly due to a \$12.7 million increase in member contributions from active member payroll. Additionally, there was a \$5.0 million rise in purchase of service contributions.

As a result of an increase in member purchase of service contributions and an increase in the receivables of member contributions from active member payroll, in the last quarter of FY 2015 to the last quarter of FY 2016, member contribution receivables increased from \$329.2 million at June 30, 2015 to \$336.8 million at June 30, 2016. The increase in the employer contribution rate from FY 2015 to FY 2016, resulted in the employer contribution receivables rising from \$785.0 million at June 30, 2015 to \$961.6 million at June 30, 2016.

## Securities Lending

The System's net income from securities lending activities increased from \$9.0 million in FY 2015 to \$11.9 million in FY 2016 as volume increased with the third party lending agent with whom PSERS entered into a new agreement late in FY 2015.

## Contributions

Employer contributions increased from \$2.7 billion in FY 2015 to \$3.3 billion in FY 2016 due to the increase in the total employer contribution rate from 21.40% in FY 2015 to 25.84% in FY 2016. Total employer contributions increased from \$2.1 billion in FY 2014 to \$2.7 billion in FY 2015. This increase was primarily attributable to an increase in the

## Investment Income

Net investment income decreased from \$1.3 billion in FY 2015 to \$0.5 billion in FY 2016, which is consistent with the decrease in the time-weighted investment rate of return from 3.04% for FY 2015 to 1.29% for FY 2016. Net investment income decreased from \$7.1 billion in FY 2014 to \$1.3 billion in FY 2015, which is consistent with the decrease in the time-weighted investment rate of return from 14.91% for FY 2014 to 3.04% for FY 2015. As depicted in Figure 3, investment earnings provided 65% of PSERS' funding over the past 20 years. Net investment income also includes investment expenses as a deduction. The "Total PSERS' Benefits and Expenses" section that follows includes an analysis of investment expenses.

**Table 1 - Investment Balances by Asset Class**

Asset Class	(Dollar Amounts in Thousands)					
	2016	%	2015	%	2014	%
Short-term	\$ 4,980,721	10.4	\$ 3,780,778	7.5	\$ 4,331,188	8.2
Fixed income	4,052,513	8.4	5,085,921	10.0	5,532,214	10.4
Common and preferred stock	10,456,298	21.8	11,420,135	22.6	10,851,457	20.5
Collective trust funds	12,143,184	25.3	13,102,950	25.9	11,795,390	22.3
Real estate	5,166,068	10.8	6,386,295	12.6	7,230,493	13.7
Alternative investments	11,199,200	23.3	10,802,952	21.4	13,187,365	24.9
<b>Total</b>	<b>\$ 47,997,984</b>	<b>100.0</b>	<b>\$ 50,579,031</b>	<b>100.0</b>	<b>\$ 52,928,107</b>	<b>100.0</b>

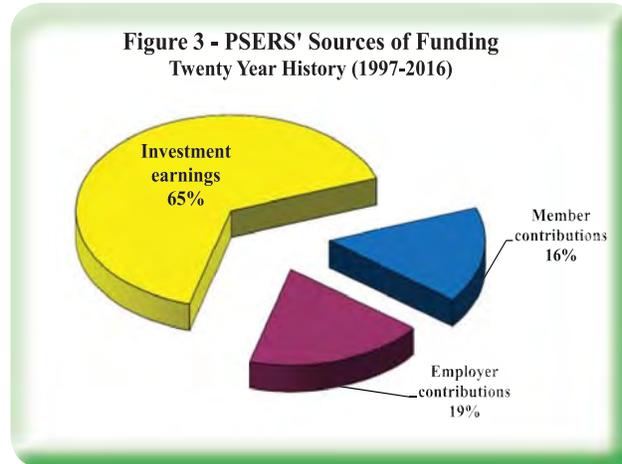
Management’s Discussion and Analysis (continued)

Total PSERS’ Benefits and Expenses

The primary source of expense during FY 2016 was for the payment of benefits approximating \$6.8 billion. The breakdown consisted of \$6.3 billion for Pension, \$108.3 million for Premium Assistance, and \$311.0 million for HOP benefits. Figure 5 illustrates the significant portion of expenses attributable to benefit payments.

Total PSERS’ benefit expense increased from \$6.6 billion in FY 2015 to \$6.8 billion in FY 2016. The increase is attributable to an ongoing increase to the average monthly benefit and an increase in the number of members receiving benefits. Pension benefits payable decreased from \$560.3 million at June 30, 2015 compared to \$520.5 million at June 30, 2016. This decrease was mainly attributable to lower fourth quarter retirements in FY 2016 as compared to the same period in FY 2015. New retirements during FY 2016 decreased by approximately 7% from FY 2015. Total PSERS’ benefit expense increased from \$6.4 billion in FY 2014 to \$6.6 billion in FY 2015. The increase is attributable to an ongoing increase to the average monthly benefit and an increase in the number of members receiving benefits. Pension benefits payable increased from \$531.6 million at June 30, 2014 compared to \$560.3 million at June 30, 2015. This increase was due to the payment of the federal withholding tax earlier in FY 2014. This was partially offset by lower fourth quarter retirements in FY 2015 as compared to the same period in FY 2014. New retirements during FY 2015 increased by approximately 9% from FY 2014.

Investment expenses decreased by \$39.4 million from \$455.2 million in FY 2015 to \$415.8 million in FY 2016 mainly due to a decrease in management fees in the absolute return and real estate asset classes, partially offset



by an increase in risk parity fees. The fee decrease in the absolute return asset class is mainly attributable to higher performance fees due to the stronger performance this asset class had for FY 2015. The decrease in the real estate class is partially attributable to the sale of certain limited partnership interests and to changes in fee structure brought on by partnerships maturing. The risk parity fee increase was attributable to a higher allocation in this asset class. As a percentage of total benefits and expenses, investment expense has decreased from 6.9% in FY 2014 to 5.7% in FY 2016. Investment expenses decreased by \$27.0 million from \$482.2 million in FY 2014 to \$455.2 million in FY 2015 mainly due to a decrease in management fees in the absolute return and alternative investment asset classes. These decreases were slightly offset by an increase in management fees in the fixed income and risk parity asset classes and consultant and legal fees. The fee decrease in the absolute return asset class is mainly attributable to higher performance fees due to the stronger performance this asset class had for FY 2014. The decrease in the

Below is a thirty-year history of PSERS’ contribution rates:

Figure 4 - History of PSERS' Contribution Rates as a Percent of Payroll\*



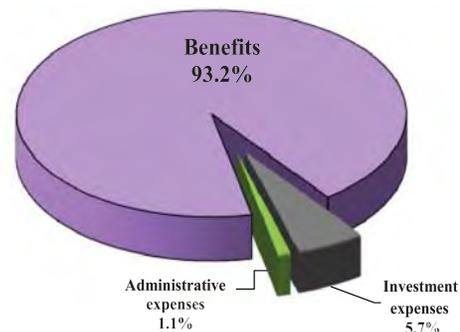
\* Includes Premium Assistance

**Management's Discussion and Analysis (continued)**

alternative investment class is partially attributable to the sale of certain limited partnership interests and to changes in fee structure brought on by partnerships maturing. As a percentage of total benefits and expenses, investment expense has decreased from 8.2% in FY 2013 to 5.7% in FY 2016.

Administrative expenses increased by \$7.7 million from \$72.5 million during FY 2015 compared to \$80.2 million during FY 2016. This rise was mainly attributable to the increase in administrative costs for HOP due to increased membership. Administrative expenses increased by \$5.8 million from \$66.7 million during FY 2014 compared to \$72.5 million during FY 2015. This rise was mainly attributable to the implementation of GASB 68, as discussed in Note 7 of the Notes to the Financial Statements. A contributing factor was the increase in administrative costs for HOP due to increased membership.

**Figure 5 - Total PSERS' Benefits and Expenses**  
Fiscal Year Ended June 30, 2016



**Management’s Discussion and Analysis (continued)**

**Postemployment Healthcare**

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

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**Health Insurance Premium Assistance Program  
(Premium Assistance)**

**Financial Highlights**

- Total net position increased by \$3.9 million in FY 2016 due to an increase in employer contributions driven by the increase in active member payroll. This increase was slightly offset by a decrease in the contribution rate from 0.90% for FY 2015 to 0.84% for the FY 2016. The change from June 30, 2014 to June 30, 2015 was an increase of \$8.6 million due to an increase in employer contributions driven by the increase in active member payroll. This increase was slightly offset by a decrease in the contribution rate from 0.93% for FY 2014 to 0.90% for the FY 2015.
- Investments increased from \$86.0 million at June 30, 2015 to \$88.9 million at June 30, 2016 mainly due to the increase in net position.

**Contributions**

Total employer contributions for Premium Assistance decreased from \$116.8 million in FY 2015 to \$113.3 million in FY 2016 due to the decrease in the employer contribution rate from FY 2015 to FY 2016. The contribution rate decreased from 0.90% in FY 2015 to 0.84% in FY 2016. This decrease was moderately offset by an increase in active member payroll.

**Investment Income**

Total investment income for Premium Assistance increased slightly from \$0.2 million for FY 2015 to \$0.5 for FY 2016.

**Benefits and Expenses**

Overall deductions for Premium Assistance increased from \$108.4 million in FY 2015 to \$109.9 million in FY 2016. This increase is primarily due to the increase in number of members receiving premium assistance benefits.

**Health Options Program (HOP)**

**Financial Highlights**

- Total net position increased by \$15.0 million in FY 2016 primarily due to the rise in premiums that outpaced the rise in expenses. The change from June 30, 2014 to June 30, 2015 is also primarily due to the rise in premiums that outpaced the rise in expenses.
- Total receivables increased from \$39.1 million at June 30, 2015 to \$52.8 million at June 30, 2016. The increase is tied primarily to higher premiums due to an increase in participation in the HOP and due to a large increase in the 2015 calendar year for the Centers for Medicare and Medicaid Services (CMS) reinsurance receivable estimate.
- Investments increased slightly from \$186.3 million at June 30, 2015 to \$193.3 million at June 30, 2016.
- Total liabilities increased 12.3% from \$46.4 million at June 30, 2015 to \$52.1 million at June 30, 2016. The increase is mainly due to increased participation in the program causing an increase in claims payable and administrative expense payable.

**Participant and CMS Premiums**

Total participant CMS premiums for HOP increased from \$324.3 million in FY 2015 to \$359.2 million in FY 2016. This increase is representative of the 10.3% increase in plan participation.

**Investment Income**

Investment income for HOP increased slightly from \$0.2 million for FY 2015 to \$0.3 million for FY 2016 due to the increase in investments.

**Benefits and Expenses**

Overall deductions for HOP increased from \$315.3 million in FY 2015 to \$344.4 million in FY 2016. This increase is primarily due to the increase in number of members enrolled in the HOP combined with an increase in the administrative costs.

**Management's Discussion and Analysis (continued)****Premium Assistance****Summary of Fiduciary Net Position**

(Dollar Amounts in Thousands)

<b>Assets:</b>	<b>FY 2016</b>	<b>Increase (Decrease)</b>	<b>FY 2015</b>	<b>Increase (Decrease)</b>	<b>FY 2014</b>
Receivables	\$ 36,452	\$ 594	\$ 35,858	\$ (12,644)	\$ 48,502
Investments	88,887	2,892	85,995	21,896	64,099
<b>Total Assets</b>	<b>125,339</b>	<b>3,486</b>	<b>121,853</b>	<b>9,252</b>	<b>112,601</b>
<b>Liabilities:</b>					
Payables and other liabilities	776	(434)	1,210	669	541
<b>Total Liabilities</b>	<b>776</b>	<b>(434)</b>	<b>1,210</b>	<b>669</b>	<b>541</b>
<b>Net Position</b>	<b>\$ 124,563</b>	<b>\$ 3,920</b>	<b>\$ 120,643</b>	<b>\$ 8,583</b>	<b>\$ 112,060</b>

**Summary of Changes in Fiduciary Net Position**

<b>Additions:</b>	<b>FY 2016</b>	<b>Increase (Decrease)</b>	<b>FY 2015</b>	<b>Increase (Decrease)</b>	<b>FY 2014</b>
Contributions	\$ 113,307	\$ (3,501)	\$ 116,808	\$ (1,060)	\$ 117,868
Net investment income	542	327	215	145	70
<b>Total Additions</b>	<b>113,849</b>	<b>(3,174)</b>	<b>117,023</b>	<b>(915)</b>	<b>117,938</b>
<b>Deductions:</b>					
Benefit expenses	108,273	1,975	106,298	2,101	104,197
Administrative expenses	1,656	(486)	2,142	112	2,030
<b>Total Deductions</b>	<b>109,929</b>	<b>1,489</b>	<b>108,440</b>	<b>2,213</b>	<b>106,227</b>
<b>Changes in Net Position</b>	<b>\$ 3,920</b>	<b>\$ (4,663)</b>	<b>\$ 8,583</b>	<b>\$ (3,128)</b>	<b>\$ 11,711</b>

**Health Options Program****Summary of Fiduciary Net Position**

(Dollar Amounts in Thousands)

<b>Assets:</b>	<b>FY 2016</b>	<b>Increase (Decrease)</b>	<b>FY 2015</b>	<b>Increase (Decrease)</b>	<b>FY 2014</b>
Receivables	\$ 52,759	\$ 13,693	\$ 39,066	\$ 11,202	\$ 27,864
Investments	193,330	7,038	186,292	(1,111)	187,403
<b>Total Assets</b>	<b>246,089</b>	<b>20,731</b>	<b>225,358</b>	<b>10,091</b>	<b>215,267</b>
<b>Liabilities:</b>					
Payables and other liabilities	52,150	5,702	46,448	930	45,518
<b>Total Liabilities</b>	<b>52,150</b>	<b>5,702</b>	<b>46,448</b>	<b>930</b>	<b>45,518</b>
<b>Net Position</b>	<b>\$ 193,939</b>	<b>\$ 15,029</b>	<b>\$ 178,910</b>	<b>\$ 9,161</b>	<b>\$ 169,749</b>

**Summary of Changes in Fiduciary Net Position**

<b>Additions:</b>	<b>FY 2016</b>	<b>Increase (Decrease)</b>	<b>FY 2015</b>	<b>Increase (Decrease)</b>	<b>FY 2014</b>
Participant and CMS premiums	\$ 359,166	\$ 34,875	\$ 324,291	\$ 28,792	\$ 295,499
Net investment income	299	147	152	(39)	191
<b>Total Additions</b>	<b>359,465</b>	<b>35,022</b>	<b>324,443</b>	<b>28,753</b>	<b>295,690</b>
<b>Deductions:</b>					
Benefit expenses	310,979	23,724	287,255	27,502	259,753
Administrative expenses	33,457	5,430	28,027	2,052	25,975
<b>Total Deductions</b>	<b>344,436</b>	<b>29,154</b>	<b>315,282</b>	<b>29,554</b>	<b>285,728</b>
<b>Changes in Net Position</b>	<b>\$ 15,029</b>	<b>\$ 5,868</b>	<b>\$ 9,161</b>	<b>\$ (801)</b>	<b>\$ 9,962</b>

**Statements of Fiduciary Net Position**  
**June 30, 2016 and 2015**  
(Dollar Amounts in Thousands)

	2016			
	Postemployment Healthcare			Totals
	Pension	Premium Assistance	Health Options Program	
<b>Assets:</b>				
Receivables:				
Members	\$ 333,289	\$ 3,427	\$ 46	\$ 336,762
Employers	930,286	31,276	-	961,562
Investment income	415,987	233	39	416,259
Investment proceeds	1,426,968	-	-	1,426,968
CMS Part D and prescriptions	-	-	52,578	52,578
Interfund	-	1,029	-	1,029
Miscellaneous	283	487	96	866
<b>Total Receivables</b>	<b>3,106,813</b>	<b>36,452</b>	<b>52,759</b>	<b>3,196,024</b>
Investments, at fair value:				
Short-term	4,698,504	88,887	193,330	4,980,721
Fixed income	4,052,513	-	-	4,052,513
Common and preferred stock	10,456,298	-	-	10,456,298
Collective trust funds	12,143,184	-	-	12,143,184
Real estate	5,166,068	-	-	5,166,068
Alternative investments	11,199,200	-	-	11,199,200
<b>Total Investments</b>	<b>47,715,767</b>	<b>88,887</b>	<b>193,330</b>	<b>47,997,984</b>
Securities lending collateral pool	2,092,729	-	-	2,092,729
Capital assets (net of accumulated depreciation \$28,096)	22,871	-	-	22,871
<b>Total Assets</b>	<b>52,938,180</b>	<b>125,339</b>	<b>246,089</b>	<b>53,309,608</b>
<b>Deferred outflows of resources</b>	<b>11,324</b>	<b>-</b>	<b>-</b>	<b>11,324</b>
<b>Liabilities:</b>				
Accounts payable and accrued expenses	174,820	203	3,250	178,273
Benefits payable	520,462	72	22,079	542,613
Participant premium advances	-	-	26,821	26,821
Investment purchases and other liabilities	327,136	501	-	327,637
Obligations under securities lending	2,092,729	-	-	2,092,729
Interfund payable	1,029	-	-	1,029
<b>Total Liabilities</b>	<b>3,116,176</b>	<b>776</b>	<b>52,150</b>	<b>3,169,102</b>
<b>Deferred inflows of resources</b>	<b>1,268</b>	<b>-</b>	<b>-</b>	<b>1,268</b>
<b>Net position restricted for pension and postemployment healthcare benefits</b>	<b>\$ 49,832,060</b>	<b>\$ 124,563</b>	<b>\$ 193,939</b>	<b>\$ 50,150,562</b>

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

**Statements of Fiduciary Net Position**  
**June 30, 2016 and 2015**  
(Dollar Amounts in Thousands)

	<b>2015</b>			
	Postemployment Healthcare			Totals
	Pension	Premium Assistance	Health Options Program	
<b>Assets:</b>				
Receivables:				
Members	\$ 325,285	\$ 3,852	\$ 35	\$ 329,172
Employers	754,873	30,163	-	785,036
Investment income	149,175	41	18	149,234
Investment proceeds	1,031,297	-	-	1,031,297
CMS Part D and prescriptions	-	-	38,938	38,938
Interfund	-	929	-	929
Miscellaneous	363	873	75	1,311
<b>Total Receivables</b>	<b>2,260,993</b>	<b>35,858</b>	<b>39,066</b>	<b>2,335,917</b>
Investments, at fair value:				
Short-term	3,508,491	85,995	186,292	3,780,778
Fixed income	5,085,921	-	-	5,085,921
Common and preferred stock	11,420,135	-	-	11,420,135
Collective trust funds	13,102,950	-	-	13,102,950
Real estate	6,386,295	-	-	6,386,295
Alternative investments	10,802,952	-	-	10,802,952
<b>Total Investments</b>	<b>50,306,744</b>	<b>85,995</b>	<b>186,292</b>	<b>50,579,031</b>
Securities lending collateral pool	1,207,170	-	-	1,207,170
Capital assets (net of accumulated depreciation \$26,153)	22,814	-	-	22,814
<b>Total Assets</b>	<b>53,797,721</b>	<b>121,853</b>	<b>225,358</b>	<b>54,144,932</b>
<b>Deferred outflows of resources</b>	<b>3,895</b>	<b>-</b>	<b>-</b>	<b>3,895</b>
<b>Liabilities:</b>				
Accounts payable and accrued expenses	147,235	319	1,700	149,254
Benefits payable	560,319	191	20,308	580,818
Participant premium advances	-	-	24,440	24,440
Investment purchases and other liabilities	300,398	700	-	301,098
Obligations under securities lending	1,207,170	-	-	1,207,170
Interfund payable	929	-	-	929
<b>Total Liabilities</b>	<b>2,216,051</b>	<b>1,210</b>	<b>46,448</b>	<b>2,263,709</b>
<b>Deferred inflows of resources</b>	<b>44</b>	<b>-</b>	<b>-</b>	<b>44</b>
<b>Net position restricted for pension and postemployment healthcare benefits</b>	<b>\$ 51,585,521</b>	<b>\$ 120,643</b>	<b>\$ 178,910</b>	<b>\$ 51,885,074</b>

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

**Statements of Changes in Fiduciary Net Position**  
**Years Ended June 30, 2016 and 2015**  
(Dollar Amounts in Thousands)

	2016			
	Pension	Postemployment Healthcare		Totals
		Premium Assistance	Health Options Program	
<b>Additions:</b>				
Contributions:				
Members	\$ 989,266	\$ -	\$ -	\$ 989,266
Employers	3,189,510	113,307	-	3,302,817
<b>Total contributions</b>	<b>4,178,776</b>	<b>113,307</b>	<b>-</b>	<b>4,292,083</b>
Participant premiums	-	-	308,132	308,132
Centers for Medicare & Medicaid Services premiums	-	-	51,034	51,034
Investment income:				
From investing activities:				
Net appreciation (depreciation) in fair value of investments	(160,712)	(154)	-	(160,866)
Short-term	17,418	734	337	18,489
Fixed income	145,326	-	-	145,326
Common and preferred stock	311,356	-	-	311,356
Collective trust funds	3,168	-	-	3,168
Real estate	246,217	-	-	246,217
Alternative investments	314,270	-	-	314,270
Total investment activity income	877,043	580	337	877,960
Investment expenses	(415,706)	(38)	(38)	(415,782)
Net income from investing activities	461,337	542	299	462,178
From securities lending activities:				
Securities lending income	13,187	-	-	13,187
Securities lending expense	(1,318)	-	-	(1,318)
Net income from securities lending activities	11,869	-	-	11,869
Total net investment income	473,206	542	299	474,047
<b>Total Additions</b>	<b>4,651,982</b>	<b>113,849</b>	<b>359,465</b>	<b>5,125,296</b>
<b>Deductions:</b>				
Benefits	6,340,256	108,273	310,979	6,759,508
Refunds of contributions	20,069	-	-	20,069
Administrative expenses	45,118	1,656	33,457	80,231
<b>Total Deductions</b>	<b>6,405,443</b>	<b>109,929</b>	<b>344,436</b>	<b>6,859,808</b>
<b>Net increase (decrease)</b>	<b>(1,753,461)</b>	<b>3,920</b>	<b>15,029</b>	<b>(1,734,512)</b>
<b>Net position restricted for pension and postemployment healthcare benefits:</b>				
Balance, beginning of year	51,585,521	120,643	178,910	51,885,074
Balance, end of year	\$ 49,832,060	\$ 124,563	\$ 193,939	\$ 50,150,562

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

**Statements of Changes in Fiduciary Net Position**  
**Years Ended June 30, 2016 and 2015**  
(Dollar Amounts in Thousands)

	<b>2015</b>			
	Pension	Postemployment Healthcare		Totals
		Premium Assistance	Health Options Program	
<b>Additions:</b>				
Contributions:				
Members	\$ 984,634	\$ -	\$ -	\$ 984,634
Employers	2,596,731	116,808	-	2,713,539
<b>Total contributions</b>	<b>3,581,365</b>	<b>116,808</b>	<b>-</b>	<b>3,698,173</b>
Participant premiums	-	-	281,855	281,855
Centers for Medicare & Medicaid Services premiums	-	-	42,436	42,436
Investment income:				
From investing activities:				
Net appreciation (depreciation) in fair value of investments	511,997	(128)	-	511,869
Short-term	8,940	376	186	9,502
Fixed income	167,788	-	-	167,788
Common and preferred stock	279,940	-	-	279,940
Collective trust funds	2,117	-	-	2,117
Real estate	345,250	-	-	345,250
Alternative investments	458,658	-	-	458,658
<b>Total investment activity income</b>	<b>1,774,690</b>	<b>248</b>	<b>186</b>	<b>1,775,124</b>
Investment expenses	(455,140)	(33)	(34)	(455,207)
<b>Net income from investing activities</b>	<b>1,319,550</b>	<b>215</b>	<b>152</b>	<b>1,319,917</b>
From securities lending activities:				
Securities lending income	9,934	-	-	9,934
Securities lending expense	(968)	-	-	(968)
<b>Net income from securities lending activities</b>	<b>8,966</b>	<b>-</b>	<b>-</b>	<b>8,966</b>
<b>Total net investment income</b>	<b>1,328,516</b>	<b>215</b>	<b>152</b>	<b>1,328,883</b>
<b>Total Additions</b>	<b>4,909,881</b>	<b>117,023</b>	<b>324,443</b>	<b>5,351,347</b>
<b>Deductions:</b>				
Benefits	6,199,681	106,298	287,255	6,593,234
Refunds of contributions	20,920	-	-	20,920
Administrative expenses	42,331	2,142	28,027	72,500
<b>Total Deductions</b>	<b>6,262,932</b>	<b>108,440</b>	<b>315,282</b>	<b>6,686,654</b>
<b>Net increase (decrease)</b>	<b>(1,353,051)</b>	<b>8,583</b>	<b>9,161</b>	<b>(1,335,307)</b>
<b>Net position restricted for pension and postemployment healthcare benefits:</b>				
<b>Balance, beginning of year</b>	<b>52,980,115</b>	<b>112,060</b>	<b>169,749</b>	<b>53,261,924</b>
<b>Effect of change in accounting principle</b>	<b>(41,543)</b>	<b>-</b>	<b>-</b>	<b>(41,543)</b>
<b>Balance, beginning, as restated</b>	<b>52,938,572</b>	<b>112,060</b>	<b>169,749</b>	<b>53,220,381</b>
<b>Balance, end of year</b>	<b>\$ 51,585,521</b>	<b>\$ 120,643</b>	<b>\$ 178,910</b>	<b>\$ 51,885,074</b>

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

**Notes to Financial Statements**

**Years Ended June 30, 2016 and 2015**

**1. Organization and Description of the System**

**(A) Organization**

The System was established on July 18, 1917, under the provisions of Pamphlet Law 1043, No. 343 as a governmental cost-sharing multiple-employer plan that provides retirement allowances and other benefits to its members. Membership in the System is mandatory for nearly all qualifying public school employees in the Commonwealth of Pennsylvania (Commonwealth). As of June 30, 2016, there were 781 participating employers, generally school districts. Membership as of June 30, 2015, the most recent year for which actual amounts are available, is presented in Table 2.

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

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

Independent Fiscal Office (IFO) providing an estimate of the cost and actuarial effect of the proposed change.

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

**(B) Pension Plan**

**i. Pension Benefits**

Under the provisions of the 1975 revision of the Code by the Pennsylvania General Assembly, members are eligible for monthly retirement benefits upon reaching (a) age 62 with at least 1 year of credited service; (b) age 60 with 30 or more years of credited service; or (c) 35 or more years of service regardless of age. Act 120 of 2010 (Act 120) preserves the benefits of existing members and introduced benefit reductions for individuals who become new members on or after July 1, 2011. Act 120 created two new membership classes, Membership Class T-E (Class T-E) and Membership Class T-F (Class T-F). To qualify for normal retirement, Class T-E and Class T-F members must work until age 65 with a minimum of 3 years of service or attain a total combination of age and service that is equal to or greater than 92 with a minimum of 35 years of service. The Internal Revenue Code (IRC) limitation on the annual benefits for a defined benefit plan was \$210,000 for 2016 and 2015.

Benefits are generally equal to 2% or 2.5%, depending upon membership class, of the member’s final average salary (as defined in the Code) multiplied by the number of years of credited service. For members whose membership started prior to July 1, 2011, after completion of five years of service, a member’s right to the defined benefits is vested and early retirement benefits may be elected. For Class T-E and Class T-F members, the right to benefits is vested after ten years of service. Active members may purchase

**Table 2 - Membership as of June 30, 2015**

Currently employed members:		
Vested	192,925	
Nonvested	66,943	
<b>Total currently employed members</b>		<b>259,868</b>
Retirees and beneficiaries currently receiving benefits	219,775	
Inactive members and vestees entitled to but not receiving benefits	21,909	
<b>Total retirees and other members</b>		<b>241,684</b>
<b>Total number of members</b>		<b>501,552</b>

**Notes to Financial Statements (continued)**

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

**PSERS members whose membership started prior to July 1, 2011:**

Membership Class T-C	Active Members hired before July 22, 1983	5.25%
Membership Class T-C	Active Members hired on or after July 22, 1983	6.25%
Membership Class T-D	Active Members hired before July 22, 1983	6.50%
Membership Class T-D	Active Members hired on or after July 22, 1983	7.50%

**PSERS members whose membership started on or after July 1, 2011 (Act 120 members):**

Membership Class T-E*		7.50%
Membership Class T-F**		10.30%

\* Shared risk program could cause future contribution rates to fluctuate between 7.5% and 9.5%

\*\* Shared risk program could cause future contribution rates to fluctuate between 10.3% and 12.3%

credit for various types of school and non-school service on a lump-sum, installment purchase basis, or through an actuarially calculated benefit reduction. Class T-E and Class T-F members must purchase Non Qualifying Part Time service and most other types of non-school or non-state service credit at full actuarial cost. Class T-E and Class T-F members must purchase credit for Non Qualifying Part Time service within 365 days of enrollment in the system.

In addition to regular retirement benefits, the System also provides for disability retirement benefits and death benefits. Participants are eligible for disability retirement benefits after completion of five years of credited service. Such benefits are generally equal to 2% or 2.5%, depending upon membership class, of the member's final average salary (as defined in the Code) multiplied by the number of years of credited service, but not less than one-third of such salary nor greater than the benefit the member would have had at normal retirement age. Members over normal retirement age may apply for disability benefits.

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

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

All members are fully vested in their individual balance in the Members' Savings Account which is described in Note 3. All non-vested members may receive a refund of their individual balance of member contributions and interest

from the Members' Savings Account upon termination of public school employment. Vested members who enrolled prior to July 1, 2011 may elect to receive a return of their accumulated contributions and interest upon their retirement which results in a reduced monthly annuity. Vested Class T-E and Class T-F members cannot withdraw their accumulated contributions and interest from the Members' Savings Account upon their retirement.

**ii. Contributions**

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

Contribution rates for active members are set by law (redefined with the provisions of Act 9 of 2001 and Act 120) and are dependent upon membership class. The IRC limitation on the annual compensation of active members for a defined benefit plan was \$265,000 for 2015 and 2016.

Active members who enrolled between July 1, 2001, the effective date of Act 9, and June 30, 2011 are Membership Class T-D (Class T-D). The contribution rates for all members in Class T-D were effective January 1, 2002.

**Notes to Financial Statements (continued)**

For Act 120 members, all new members automatically become Class T-E members. New members, however, have a one-time opportunity to elect Class T-F within 45 days of receiving written notification from PSERS. Failure to elect Class T-F at time of original eligibility will make the member ineligible for Class T-F forever. Act 120 introduced a shared risk program that could affect Class T-E and Class T-F members' contribution rates in future fiscal years. With the shared risk program Class T-E and Class T-F 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 or Class T-F; but could increase or decrease by 0.5% every three years starting July 1, 2015, dependent on investment performance of PSERS. The member contribution rate will never go below the base rate of 7.5% for Class T-E and 10.3% for Class T-F members, or above 9.5% for Class T-E and 12.3% for Class T-F members.

The total contribution rate for the employers and the Commonwealth was 25.84% and 21.40% (25.00% and 20.50% for pension component) of qualified compensation for the years ended June 30, 2016 and 2015, respectively.

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

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

The rate cap remains at 4.5% until the rate cap no longer applies, i.e., the rise in the employer contribution rate is less than the rate cap in effect at that time. Once the rate caps no longer apply, the employer normal cost becomes the contribution rate floor.

According to requirements established in Act 29 of 1994, the Commonwealth reimburses school entity employers a portion of the employer contributions paid to the System. All school entity employers are reimbursed by the Commonwealth at least 50% of the total employer contributions based on the total contribution rate. The Commonwealth reimburses certain school entity employers at a rate greater than 50% based upon non-pension criteria which stipulate that the entity must have a Commonwealth Department of Education calculated Market Value / Personal Income Aid Ratio in excess of .5000. The Commonwealth remits 50% of the total employer contributions for employers other than school entities directly to the System. All contributions from employers and the Commonwealth

are shown as employer contributions on the Statements of Changes in Fiduciary Net Position.

**(C) Postemployment Healthcare Plans**

**i. Health Insurance Premium Assistance Program**

**(a) Premium Assistance Benefits**

The System provides a Health Insurance Premium Assistance Program (Premium Assistance) for all eligible annuitants who qualify and elect to participate. Under this program, employer contribution rates for Premium Assistance are established to provide reserves in the Health Insurance Account that are sufficient for the payment of Premium Assistance benefits for each succeeding year. Effective January 1, 2002, under the provisions of Act 9 of 2001, participating eligible annuitants are entitled to receive premium assistance payments equal to the lesser of \$100 per month or their out-of-pocket monthly health insurance premium. To receive premium assistance, eligible annuitants must obtain their health insurance through either their school employer or the PSERS' Health Options Program. As of June 30, 2016 there were no assumed future benefit increases to participating eligible annuitants in the Premium Assistance program.

**(b) Contributions**

A portion of each employer and Commonwealth contribution to the System is set aside for the funding of Premium Assistance. The Premium Assistance contribution rate is set at a level necessary to establish reserves sufficient to provide Premium Assistance payments for all participating eligible members for the subsequent fiscal year. The portion of the total contribution rate for employers and the Commonwealth used to fund Premium Assistance was 0.84% and 0.90% for the years ended June 30, 2016 and 2015, respectively.

**(c) Funding Status and Annual Required Contributions (ARC)**

As of June 30, 2015, the most recent actuarial valuation, the plan was 8.8% funded. The actuarial accrued liability for benefits was \$1.368 billion, and the actuarial value of assets was \$120.6 million, resulting in an unfunded accrued liability of \$1.247 billion. The covered payroll of active members was \$12.7 billion and the ratio of the unfunded actuarial accrued liability to the covered payroll was 9.8%.

For fiscal year ended June 30, 2016, the ARC was \$129.5 million. The actual employer contributions for fiscal year ended June 30, 2016 was \$113.3 million resulting in a 88%

## Notes to Financial Statements (continued)

contributed rate. The ratio of assets to Actuarial Accrued Liabilities (AAL) was 8.8%, 8.2%, and 7.2% for fiscal years ended June 30, 2015, 2014, and 2013, respectively. Assets have increased in relation to AAL from fiscal year ended June 30, 2013 to 2014 and increased from fiscal year ended June 30, 2014 to 2015.

The Schedule of Funding Progress and the Schedule of Employer Contributions included as Required Supplementary Information following the notes to the financial statements provide multiple year presentations about whether the actuarial value of plan assets is increasing or decreasing relative to the actuarial accrued liability for benefits over time.

### (d) Actuarial Assumptions and Methods

The health insurance liability and funding provisions of the PSERS Code differ from the GASB disclosure requirements. As a result, there are different determinations of actuarial liability and contribution requirements for GASB accounting purposes and for Commonwealth funding purposes. For purposes of funding, the actuarial liability equals the assets in the Premium Assistance account, and the contribution required is the amount necessary to establish reserves sufficient to provide Premium Assistance payments to all participating eligible annuitants during the fiscal year that immediately follows the year the employer contribution is made. For GASB accounting purposes, the actuarial liability has been determined under the entry age normal actuarial cost method, and the ARC is equal to the entry age normal cost for health insurance plus an amount that will amortize the entry age unfunded actuarial liability for health insurance over a period of 30 years using level dollar open amortization. The entry age actuarial cost method was selected for this calculation because it meets the GASB parameters for determining actuarial liability and normal cost, and is the cost method specified by the PSERS Code for the PSERS pension plan.

Each annual actuarial valuation for Premium Assistance includes calculations that are based on the Premium Assistance benefits provided under the terms of the substantive plan in effect at the time of each valuation. The valuations involve estimates of the value of reported amounts and assumptions about the probability of events far into the future. The actuarial calculations for Premium Assistance reflect a long-term perspective. Actuarially determined amounts are subject to continual revision as results are compared to past expectations and new estimates are made about the future. Other significant actuarial assumptions employed by the actuary as of June 30, 2015, the date of the most recent actuarial valuation were:

- Investment return - 7.50%, includes inflation at 3.00%
- Salary growth - 5.50%, which reflects an allowance for inflation of 3.00%, real wage growth of 1%, and merit or seniority increases of 1.50%
- Multiple decrement tables - mortality, vesting, retirement age, and withdrawal estimates are based upon tables provided by the actuary

### ii. Health Options Program

The Health Options Program (HOP) is a PSERS-sponsored voluntary health insurance program for the sole benefit of annuitants of PSERS, spouses of annuitants, survivor annuitants and their dependents who participate in HOP. The HOP is funded exclusively by the premiums paid by its participants for the benefit coverage they elect. HOP offers several health plans. Participants may select among a self-funded Medicare supplement plan, two Medicare Rx plans, and multiple Medicare Advantage plans for those eligible for Medicare. Participants not eligible for Medicare have a choice of a self-funded high deductible indemnity plan and multiple managed care plans. Medicare Advantage and managed care plans are available to retirees residing in the plan's service area. The Medicare Advantage and managed care plans are provided by private insurance companies or managed care organizations and benefits are fully insured. The Medicare supplement and high deductible plans are self-funded and claims are adjudicated by a third party administrator. The Medicare Rx Options and the prescription drug benefit of the high deductible plan for those not eligible for Medicare are also self-funded. HOP uses a pharmacy benefits manager to administer the benefits. Effective January 1, 2006, PSERS entered into an Employer/ Union Entity contract with the Centers for Medicare and Medicaid Services (CMS) to operate a voluntary Medicare Prescription Drug Plan (PDP). Monthly premiums are received from CMS covering the 76,207 participants in the PDP. An independent actuarial consulting firm sets the rates for the self-funded benefits. The HOP maintains reserves for claims that are Incurred But Not Reported (IBNR) and for claim fluctuation for the self-funded benefit plans. At June 30, 2016 and 2015 PSERS recorded \$14,701,000 and \$13,571,000, respectively, in IBNR. The IBNR is included in benefits payable. The PSERS pension fund assets are not available to fund or satisfy obligations of the HOP.

**Notes to Financial Statements (continued)**

**2. Summary of Significant Accounting Policies**

**(A) Basis of Accounting**

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

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

**(B) Investments**

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

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

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

Investment expenses consist of investment manager fees and those administrative expenses directly related to the System's investment operations. Investment proceeds receivable generally includes unsettled investment sales and unsettled investment purchases are included in investment purchases and other liabilities. At June 30, 2016 investment proceeds receivable also includes \$1,067,000,000 in receivables due to the sale of limited partnership and real estate interests during FY 2015 and FY 2016.

**(C) Capital Assets**

Capital assets consist primarily of data processing equipment, software, and internally developed computer software recognized as intangible assets. Capital assets are depreciated using the straight-line method over an estimated useful life of five years. Intangible assets are amortized using the straight-line method over an estimated useful life of twenty years for assets purchased prior to July 1, 2012 and 5 years for assets purchased after June 30, 2012.

**(D) Benefits Payable**

Benefits payable identifies the obligations of the System, on an accrual basis, at the end of the fiscal year. It includes the estimated retirement and death benefits payable, premium assistance benefits payable, and the HOP IBNR claims for its participants.

**(E) Pensions for Employees of the System**

For purposes of measuring the net pension liability, deferred outflows of resources, deferred inflows of resources, and pension expense, information about the fiduciary net position of the Pennsylvania State Employees' Retirement System (SERS) and additions to/deductions from SERS' fiduciary net position have been determined on the same basis as they are reported by SERS, please refer to Note 7 for additional information regarding SERS. PSERS' net pension liability for its employees to SERS is reported in Accounts payable and accrued expenses. The pension expense is reported in administrative expenses and is detailed on the Schedule of Operating Expenses Supplementary Schedule.

**(F) Compensated Absences**

The System uses the accrual basis of accounting for measuring vacation leave, sick leave, and other compensated absences liabilities. Employees of the System are paid for accumulated vacation leave upon termination or retirement. Retiring employees of the System that meet service, age, or disability requirements are paid between 30% and 100% of sick days available at retirement, up to 161 maximum days paid. As of June 30, 2016 and 2015, \$3,226,000 and \$3,647,000, respectively, were accrued for unused vacation and sick leave for the System's employees and are included in "Accounts payable and accrued expenses" on the Statements of Fiduciary Net Position.

**(G) Participant Premium Advances**

Premium advances in the fiscal years ended June 30, 2016 and 2015 are for HOP premiums related to health care coverage to be provided in calendar years 2016 and 2015, respectively.

**Notes to Financial Statements (continued)****(H) Federal Income Taxes**

The Internal Revenue Service (IRS) issued a determination letter dated September 30, 2013 which stated that the plan and its underlying trust qualify under the provisions of Section 501(a) of the Internal Revenue Code (IRC) and therefore are exempt from federal income taxes.

**(I) Risk Management**

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

**(J) Reclassifications**

Certain 2015 amounts have been reclassified in conformity with the 2016 presentation. These reclassifications had no effect on net position restricted for pension benefits or the change in fiduciary net position.

**(K) Members Receivables**

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

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

**(L) Interfund Transactions and Balances**

Interfund transfers of assets take place on a regular recurring basis between Pension and Premium Assistance. The

The following is a summary of the members receivables at June 30, 2016 and 2015:

	(Dollar Amounts in Thousands)	
	2016	2015
<b>Pension:</b>		
Member contributions	\$ 71,708	\$ 74,488
Purchase of service	255,509	245,180
Other	6,072	5,617
<b>Total Members Receivables</b>	<b>\$ 333,289</b>	<b>\$ 325,285</b>

transfers occur upon receipt of employer contributions and payment of benefits or expenses. The interfund receivables and payables related to interfund activity are classified under receivables and liabilities on the financial statements.

**(M) Adoption of New Accounting Standards**

During the fiscal year ended June 30, 2016 the System adopted GASB Statement No. 72, *Fair Value Measurement and Application* which addresses accounting and financial reporting issues related to fair value measurements.

During the fiscal year ended June 30, 2016, the System adopted GASB Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68*. Upon examination of GASB 73, it was determined to have no current impact on PSERS.

During the fiscal year ended June 30, 2015 the System adopted GASB Statement No. 68, *Accounting and Financial Reporting for Pensions* which replaces the requirements of GASB Statement Nos. 25 and 50 related to pension plans that are administered through trusts or equivalent arrangements.

During the fiscal year ended June 30, 2015 the System adopted GASB Statement No. 69, *Government Combinations and Disposals of Government Operations*. Upon examination of GASB 69, it was determined to have no current impact on PSERS.

During the fiscal year ended June 30, 2015 the System adopted GASB Statement No. 71, *Pension Transition for Contributions Made Subsequent to the Measurement Date* which is to be applied simultaneously with the provisions of GASB Statement No. 68.

**(N) Change in Accounting Principle**

Due to the implementation of GASB Statement No. 68, the beginning net position restricted for pension and

**Notes to Financial Statements (continued)**

postemployment healthcare benefits for the fiscal year ended June 30, 2015 was restated by \$(41,543,000). The purpose of the restatement was to record the beginning net pension liability of \$(42,989,000) and the beginning deferred outflows of resources for contributions subsequent to the measurement date of \$1,446,000 to SERS.

**3. Description of Accounts**

The Code requires the System to maintain the following accounts which represent reserves held for future and current benefit payments as follows and as illustrated in Table 3.

**(A) State Accumulation Account**

The State Accumulation Account is credited with contributions from the Commonwealth and the employers. Additionally, interest earnings of the System (after crediting the Members’ Savings Account with 4% interest and the reserve for retirement with 5.50% statutory interest) are credited to this account. Each year, the necessary amounts, as determined by the actuary for the payment of retirement, disabilities, and death benefits, are transferred from the State Accumulation Account to the Annuity Reserve Account increasing the reserve credit to the 7.50% valuation assumption rate determined by the actuary. All administrative expenses necessary for the operation of the System, except for Premium Assistance and HOP expenses, are paid from the State Accumulation Account.

**(B) Members’ Savings Account**

The Members’ Savings Account is credited with all contributions made by active members of the System. Interest is added to the member’s individual account at an annual rate of 4%.

Upon death or retirement of a member, the accumulated contributions plus interest are transferred to the Annuity Reserve Account for subsequent payment of benefits.

**(C) Annuity Reserve Account**

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

	<b>2016</b>	<b>2015</b>
<b>Pension:</b>		
State Accumulation Account	\$ (18,726,300)	\$ (15,751,974)
Members’ Savings Account	14,907,731	14,079,658
Annuity Reserve Account	53,650,628	53,257,837
	<b>\$ 49,832,060</b>	<b>\$ 51,585,521</b>
<b>Postemployment Healthcare:</b>		
Health Insurance Account	\$ 124,563	\$ 120,643
Health Insurance Program Account	193,939	178,910
	<b>\$ 318,502</b>	<b>\$ 299,553</b>

**(D) Health Insurance Account**

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

**(E) Health Insurance Program Account**

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

**4. Investments**

**(A) Summary of Investments**

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

The Board invests the funds of the System using the Prudent Investor Standard, as articulated in the Code, which means “the exercise of that degree of judgment, skill and care under the circumstances then prevailing which persons of prudence, discretion, and intelligence who are familiar with such matters exercise in the management of their own affairs

## Notes to Financial Statements (continued)

not in regard to speculation, but in regard to the permanent disposition of the fund, considering the probable income to be derived therefrom as well as the probable safety of their capital.” The Board has adopted its investment policy to formally document investment objectives and responsibilities. This policy, as well as applicable state law, establishes guidelines for permissible investments of the System.

### (B) Fair Value of Investments

#### i. Fair Value Levels

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

- **Level 1 inputs:** Level 1 inputs are quoted prices (unadjusted) for identical assets or liabilities in active markets. A quoted price for an identical asset or liability in an active market (e.g., an equity security traded on a major exchange) provides the most reliable fair value measurement and, if available, should be used to measure fair value in that particular market.
- **Level 2 inputs:** The categorization of an asset/liability as Level 1 requires that it is traded in an active market. If an instrument is not traded in an active market, it may fall to Level 2. Level 2 inputs are inputs that are observable, either directly or indirectly, but do not qualify as Level 1.
- **Level 3 inputs:** Reporting entities may use unobservable inputs to measure fair value if relevant observable inputs are not available, thereby allowing for situations in which there is little, if any, market activity for the asset or liability at the measurement date. These unobservable inputs are considered Level 3.

Debt, equity, and derivative instrument securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities. Debt securities classified in Level 2 of the fair value hierarchy are valued using a matrix pricing technique. Matrix pricing is used to value securities based on the securities’ relationship to benchmark quoted prices and recently printed security specific trading levels. Short-term securities are carried at cost, which approximates fair value, unless they have published market prices or quotations from national securities exchanges or securities pricing services, in which case they are valued at the published market price. Fixed income securities and common and preferred stocks are generally valued based on published market prices and

quotations from national securities exchanges or securities pricing services. Securities which are not traded on a national securities exchange are valued by the respective fund manager or other third parties based on similar sales.

Directly-owned real estate investments are primarily valued based on appraisals performed by independent appraisers and, for properties not appraised, the present value of the projected future net income stream is used. Real estate owned investments are reported net of related debt borrowed against the market value of the property. As of June 30, 2016 and 2015, \$132,000,000 in line of credit advances were netted against the related property valuation and are classified as Level 1. The line of credit balance is due on March 3, 2017. The line is payable at an interest rate equivalent to LIBOR plus 85 basis points and is collateralized by certain fixed income investments of the System.

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

The Premium Assistance investment assets have the following recurring fair value measurements as of June 30, 2016:

- PSERS Short-Term Investment Fund of \$23,944,000 is valued using pricing quoted in active markets for those securities (Level 1 inputs).
- Other domestic short-term investments of \$64,943,000 are valued using a matrix pricing model (Level 2 inputs).

The HOP investment assets have the following recurring fair value measurements as of June 30, 2016:

- PSERS Short-Term Investment Fund of \$89,125,000 is valued using pricing quoted in active markets for those securities (Level 1 inputs).
- Other domestic short-term investments of \$104,205,000 are valued using pricing quoted in active markets for those securities (Level 1 inputs).

## Notes to Financial Statements (continued)

At June 30, 2016, the System had the following recurring fair value measurements.

## Investments and Derivative Instruments Measured at Fair Value

(Dollar Amounts in Thousands)

	2016	Fair Value Measurements Using		
		Level 1	Level 2	Level 3
<b>Pension investments:</b>				
<b>Investments by fair value level</b>				
<b>Short term:</b>				
PSERS Short-Term Investment Fund	\$ 4,459,476	\$ 4,459,476	\$ -	\$ -
Other domestic short-term	132,603	129,859	-	2,744
International short-term	106,425	105,455	970	-
	<u>4,698,504</u>	<u>4,694,790</u>	<u>970</u>	<u>2,744</u>
<b>Fixed income:</b>				
Domestic asset-backed and mortgage-backed securities	1,450,885	-	1,450,885	-
U.S. government and agency obligations	923,896	909,123	14,773	-
Domestic corporate and taxable municipal bonds	1,195,561	-	1,195,561	-
International fixed income	482,171	-	481,327	844
	<u>4,052,513</u>	<u>909,123</u>	<u>3,142,546</u>	<u>844</u>
<b>Common and preferred stock:</b>				
Domestic common and preferred stock	5,331,356	5,329,831	-	1,525
International common and preferred stock	5,124,942	5,124,867	-	75
	<u>10,456,298</u>	<u>10,454,698</u>	<u>-</u>	<u>1,600</u>
<b>Directly-owned real estate</b>	<u>330,599</u>	<u>(132,000)</u>	<u>-</u>	<u>462,599</u>
<b>Total investments by fair value level</b>	<u>19,537,914</u>	<u>\$ 15,926,611</u>	<u>\$ 3,143,516</u>	<u>\$ 467,787</u>
<b>Investments measured at the net asset value (NAV)</b>				
<b>Collective trust funds</b>	<u>12,143,184</u>			
<b>Equity real estate</b>	<u>4,835,469</u>			
<b>Alternative investments:</b>				
Private equity	5,792,265			
Private debt	4,441,297			
Venture capital	965,638			
	<u>11,199,200</u>			
<b>Total investments measured at the NAV</b>	<u>28,177,853</u>			
<b>Total investments measured at fair value</b>	<u>\$ 47,715,767</u>			
<b>Investment derivative instruments</b>				
Futures	\$ 32,019	\$ 32,019	\$ -	\$ -
Total return type swaps	302,321	302,321	-	-
Foreign exchange contracts	(9,932)	(9,932)	-	-
<b>Total investment derivative instruments</b>	<u>\$ 324,408</u>	<u>\$ 324,408</u>	<u>\$ -</u>	<u>\$ -</u>

## Notes to Financial Statements (continued)

The valuation method for investments measured at the net asset value (NAV) per share (or its equivalent) as of June 30, 2016 is presented in the following table.

<b>Investments measured at the NAV</b>				
(Dollar Amounts in Thousands)				
	<u>Fair Value</u>	<u>Unfunded Commitments</u>	<u>Redemption Frequency</u>	<u>Redemption Notice Period</u>
<b>Collective trust funds (a)</b>	<b>\$ 12,143,184</b>	\$ 160,000	see note (a)	0 - 90 Days
<b>Equity real estate (b)</b>	<b>4,835,469</b>	2,205,905	see note (b)	
<b>Alternative investments:</b>				
Private equity (c)	5,792,265	3,404,544	see note (c)	
Private debt (d)	4,441,297	3,175,050	see note (d)	
Venture capital (e)	965,638	422,282	see note (e)	
	<u>11,199,200</u>			
<b>Total investments measured at the NAV</b>	<b>\$ 28,177,853</b>			

## ii. Investments at Net Asset Value (NAV)

- (a) Collective trust fund investments (CTF) consist primarily of domestic and international institutional funds. The fair value of CTF is based on the reported share value of the respective fund. CTF are managed by state chartered banks for which various state banking departments have regulatory oversight and investment advisors for which regulatory agencies such as the Securities and Exchange Commission have regulatory oversight. Investments that are not subject to this oversight are subject to annual independent audits. Redemption frequency for these assets range from monthly, to quarterly, to annual. One asset has a 2-year hard lock that expires on December 31, 2017.
- (b) Equity real estate includes 75 real estate funds that invest primarily in U.S., Latin American, European and Asian commercial real estate. Fund investments can be made across the capital structure of each property venture. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. Distributions from each fund may be received as: 1) cash flows from operations or 2) return of capital from dispositions. It is expected that the underlying assets of the funds will be liquidated over the next 7 to 12 years.
- (c) Private equity includes 74 U.S. buyout funds and 35 international buyout funds that invest mostly in private companies across a variety of industries (although they may invest in public companies from time to time). The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. The nature of private equity investments is that distributions are received through the liquidation of the underlying assets of the fund. The expected holding period of a private equity portfolio company is 3 to 7 years.
- (d) Private debt includes 61 private investment funds that invest across the fixed income capital structure primarily in North America and Western Europe. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. Instead, the nature of the investments in this type is that distributions are received through the orderly liquidation of the underlying assets of the fund throughout the stated term of the fund. It is expected that the underlying assets of the funds will be liquidated over the next 3 to 7 years.
- (e) Venture capital includes 36 U.S. based private funds that finance young, relatively small, rapidly growing companies, typically in either the health care or information technology sectors. The fair value of the investments in this type have been determined using the NAV per share (or its equivalent) of the System's ownership interest in partners' capital. These investments cannot be easily redeemed. The nature of venture capital investments is that distributions are received through the liquidation of the underlying assets of the fund. It is expected that the underlying assets of the funds will be liquidated over the next 5 to 10 years.

**Notes to Financial Statements (continued)**

**(C) Deposit and Investment Risk Disclosures**

**i. Deposits**

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

The System, through its third party administrator, maintains certain bank deposits for the operation of its voluntary HOP. These deposits are not required to be collateralized by statute or policy. These deposits totaled \$104,205,000 and \$97,483,000 at June 30, 2016 and 2015, respectively, and are under the custody of M&T Bank which has an A rating by Standard and Poor’s (S&P) and an Aa2 rating by Moody’s Investor Services (Moody’s).

**ii. Investment Risks**

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

**(a) Concentration of Credit Risk**

Concentration of credit risk is the risk of loss attributed to the magnitude of the System’s investment in a single issuer. As of June 30, 2016 and 2015 the System had no single issuer that exceeded 5% of total investments. Investments issued or explicitly guaranteed by the U.S. government and investments in mutual funds, external investment pools, and other pooled investments were excluded.

**(b) Custodial Credit Risk**

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, the System would not be able to recover the value of investment or collateral securities that are in the possession of an outside party. In accordance with a contractual relationship between

The following table discloses aggregate market value by credit quality rating category. Many securities have ratings from more than one NRSRO and sometimes those ratings differ from one NRSRO to another. The data listed below uses the rating (expressed as S&P equivalent) available from Fitch, Moody’s and/or S&P that indicates the lowest credit quality at June 30, 2016 and 2015.

Quality Rating	(Dollar Amounts in Thousands)	
	2016 Fair Value	2015 Fair Value
AAA	\$ 638,124	\$ 624,399
AA	153,353	417,854
A	238,902	398,294
BBB	455,746	693,513
BB and Below	254,925	309,954
NR*	10,592,798	13,638,198
<b>Total Exposed to Credit Risk</b>	<b>12,333,848</b>	<b>16,082,212</b>
<b>US Government Guaranteed**</b>	<b>1,331,821</b>	<b>1,578,899</b>
<b>Total Fixed Income and Short-Term Investments</b>	<b>\$ 13,665,669</b>	<b>\$ 17,661,111</b>

\* Not Rated securities include \$4,632,435 and \$8,794,411 in collective trust funds and \$4,572,545 and \$3,321,807 in PSERS Short Term Investment Fund assets at June 30, 2016 and 2015 respectively.

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

the Commonwealth’s Treasury Department and its custodial agent, substantially all investments, where securities are used as evidence of the investment, are held by the custodian in book-entry form in the System’s name. Those investments are defined as insured or registered investments for which the securities are held by the System or its agent and, therefore, have a very minimal level of custodial credit risk. The remaining investments, which do not have securities that are used as evidence of the investment, are primarily in collective trust funds and limited partnerships, which include real estate and alternative investments.

**(c) Credit Risk**

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The credit risk of a debt instrument is measured by nationally recognized statistical rating organizations (NRSRO) such as Fitch Investor Services (Fitch), Moody’s, and S&P. Annually, the Board establishes an asset allocation plan. This plan manages the overall credit risk of the fixed income asset class through a clearly defined long-term asset allocation policy. This policy establishes a long-term target allocation of the fixed income asset class at 23.0% of the investment portfolio. The fixed income target allocation consists of:

## Notes to Financial Statements (continued)

For derivatives exposed to credit risk, the table below presents aggregate market value by the least favorable credit rating provided by NRSROs at June 30, 2016 and 2015.

Quality Rating	(Dollar Amounts in Thousands)	
	2016	2015
	Fair Value	Fair Value
A	\$ 281,337	\$ (15,821)
BBB	20,984	(2,179)
<b>Total Swaps-Total Return</b>	<b>\$ 302,321</b>	<b>\$ (18,000)</b>

- An allocation of 5.0% of the portfolio has been made to the U.S. core plus segment of the fixed income asset class benchmarked to the Barclays Capital U.S. Aggregate Index. The U.S. core plus allocation is composed of primarily investment grade, relatively liquid, public domestic bonds with an overall weighted-average NRSRO credit rating of A or better.
- An allocation of 6.0% of the portfolio has been made to the high yield segment of the fixed income asset class benchmarked to the Barclays Capital U.S. High Yield Index. The high yield allocation is composed of less liquid public non-investment grade fixed income securities with an overall weighted-average NRSRO credit rating of B- or better.
- An allocation of 6.0% of the portfolio has been made to the Treasury Inflation-Protected Securities (TIPS) segment of the fixed income asset class benchmarked to the Barclays Capital U.S. TIPS Index and composed of primarily government issued TIPS with an overall weighted-average NRSRO credit rating of AA or better. The portfolio manager is permitted to leverage the portfolio using TIPS total return swaps up to 3:1.
- An allocation of 1.0% of the portfolio has been made to the non-U.S. developed markets fixed income asset class benchmarked to the Barclays Capital Global Aggregate GDP-weighted Developed Market ex-U.S. (Unhedged) Index composed of primarily investment grade, relatively liquid non-U.S. public bonds with an overall weighted-average NRSRO credit rating of A or better.
- An allocation of 2.0% of the portfolio has been made to the emerging markets fixed income asset class benchmarked to the Barclays Capital EM Local Currency-Government-MV Weighted (Unhedged) -10% Country Cap Index composed of primarily investment grade, relatively liquid non-U.S. public bonds with an overall weighted-average NRSRO credit rating of BB- or better.
- An allocation of 3.0% of the portfolio has been made to cash benchmarked to the Merrill Lynch U.S. Treasury Bill 0-3 Months Index composed of primarily investment grade, relatively liquid U.S. and non-U.S. public bonds with an overall weighted-average NRSRO credit rating of AA or better.

At June 30, 2016 and 2015, the System's fixed income portfolio had the following option-adjusted durations by fixed income sector:

Investment Type	(Dollar Amounts in Thousands)			
	2016		2015	
	Option-Adjusted Duration	Fair Value	Option-Adjusted Duration	Fair Value
Domestic asset-backed and mortgage-backed securities	0.9	\$ 1,450,885	1.0	\$ 1,269,736
U.S. government and agency obligations	8.2	923,896	6.7	1,399,117
Domestic corporate and taxable municipal bonds	3.2	1,195,561	2.9	1,594,524
International fixed income	6.5	482,171	5.5	822,544
Collective trust funds	3.8	4,632,435	3.7	8,794,411
PSERS Short-Term Investment Fund	0.1	4,572,545	0.1	3,410,615
<b>Total</b>	<b>2.6*</b>	<b>\$ 13,257,493</b>	<b>3.0*</b>	<b>\$ 17,290,947</b>

\* Fixed income investment managers enter into futures contracts to adjust the durations of their portfolios as a whole rather than any particular investment type within the portfolio. In total, the futures contracts have adjusted PSERS' total portfolio duration upward by 0.1 at June 30, 2016 and 2015. The total portfolio option-adjusted duration is calculated by weighting each investment type by fair value.

**Notes to Financial Statements (continued)**

At June 30, 2016 and 2015, the System had the following foreign currency exposures for its derivatives (except for foreign exchange contracts which are included in Note 5):

Currency	(Dollar Amounts in Thousands)	
	2016	2015
	Notional Value	Notional Value
Euro	\$ 300,680	\$ 212,058
Japanese yen	122,950	136,159
British pound sterling	108,612	140,441
Canadian dollar	54,550	45,424
Australian dollar	32,856	41,481
Hong Kong dollar	7,425	4,056
<b>Total Futures Contracts and Total Return Swaps</b>	<b>\$ 627,073</b>	<b>\$ 579,619</b>

**(d) Interest Rate Risk**

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

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

**(e) Foreign Currency Risk**

Foreign currency risk is the risk that fluctuations in exchange rates will adversely affect the fair value of an investment. As part of the System's program to manage risk and enhance returns, the System invests in non-U.S. markets. Investment managers in non-U.S. equity and global fixed income may hedge their non-U.S. foreign currency exposure back to U.S. dollars.

**(D) Securities Lending**

During the year ended June 30, 2015, the System entered into a securities lending program with a third party agent. Under this program, the lending agent loans securities (equities, fixed income, and money market instruments) to independent brokers and dealers in exchange for U.S. dollar cash collateral in an amount not less than 102% of the fair value of any securities loaned except for non-U.S. corporations for which 105% of the fair value is required. Collateral is marked-to-market daily. If the fair value of the collateral held falls below the minimum guidelines

for securities loaned, additional collateral is obtained. The lending agent invests the cash collateral in accordance with reinvestment guidelines approved by the System.

As of June 30, 2016 and 2015, the System had no credit risk exposure to borrowers because the amounts the System owed the borrowers exceeded the amounts the borrowers owed the System. Under the securities lending program, the lending agent provides indemnification to the System if a borrower fails to return borrowed securities (and the collateral is inadequate to replace the loaned securities) or fails to pay income distributions on them. The lending agent also provides indemnification to the System if investment of cash collateral results in investment loss. There were no losses during the fiscal years ended June 30, 2016 and 2015 resulting from a default of the borrowers or the lending agent.

All securities loans can be terminated on demand by either the System or the borrower, although the average term of the loan is one day. There were no term loans as of June 30, 2016 and 2015.

Cash collateral is invested in a short-term collateral investment pool that is managed by the lending agent, is segregated from all other clients of the lending agent, and is not subject to custodial credit risk. The System's income from securities lending represents its pro-rata share from participating in the program. The weighted-average maturity of the investments in the pool was one day at June 30, 2016 and 2015. During the fiscal years ended June 30, 2016 and 2015, the mismatch between the maturities of the investments made with cash collateral and the maturities of the securities loans may have posed some interest rate risk to the System. In the event of a default, the lending agent may use the collateral to replace the loaned securities.

As of June 30, 2016, the fair value of loaned securities was \$2,046,869,000. The fair value of the associated collateral was \$2,092,729,000, all of which was cash. As of June 30, 2015, the fair value of loaned securities was

## Notes to Financial Statements (continued)

Non-U.S. currency exposures at June 30, 2016 and 2015:

2016						
(Dollar Amounts in Thousands)						
Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Euro	\$ 906,601	\$ 104,468	\$ 1,787,026	\$ 36,889	\$ (1,879,668)	\$ 955,316
British pound sterling	878,211	34,096	124,921	27,078	(768,640)	295,666
South Korean won	117,185	10,286	-	182	(3,834)	123,819
Taiwan new dollar	100,552	-	-	3,067	(4,738)	98,881
Indian rupee	75,260	7,328	-	4,043	(2,037)	84,594
South African rand	56,661	7,626	-	(90)	1,917	66,114
Danish krone	133,456	808	-	1,051	(73,384)	61,931
Mexican new peso	44,094	15,302	-	407	(2,680)	57,123
Brazil real	33,249	16,468	-	269	(14,432)	35,554
Other non-U.S. currencies	2,514,294	135,675	27	72,313	(2,647,952)	74,357
<b>Total</b>	<b>\$ 4,859,563</b>	<b>\$ 332,057</b>	<b>\$ 1,911,974</b>	<b>\$ 145,209</b>	<b>(5,395,448)</b>	<b>\$ 1,853,355</b>

2015						
(Dollar Amounts in Thousands)						
Currency	Equity	Fixed Income	Alternative Investments & Real Estate	Short-Term*	Currency Hedge	Total Fair Value
Euro	\$ 1,134,258	\$ 106,466	\$ 2,163,559	\$ 32,433	\$ (2,069,019)	\$ 1,367,697
South Korean won	123,179	37,570	-	241	(5,305)	155,685
British pound sterling	1,137,744	35,406	60,984	45,979	(1,154,757)	125,356
Taiwan new dollar	107,355	-	-	(2)	(1,188)	106,165
South African rand	59,842	40,085	-	262	(1,757)	98,432
Mexican new peso	23,208	49,808	-	9,664	75	82,755
Indian rupee	69,658	7,933	-	-	-	77,591
Brazil real	26,411	65,829	-	952	(18,192)	75,000
Hong Kong dollar	237,528	-	-	2,549	(176,248)	63,829
Other non-U.S. currencies	2,861,729	277,629	38	77,944	(3,130,990)	86,350
<b>Total</b>	<b>\$ 5,780,912</b>	<b>\$ 620,726</b>	<b>\$ 2,224,581</b>	<b>\$ 170,022</b>	<b>(6,557,381)</b>	<b>\$ 2,238,860</b>

\* Includes investment receivables and payables

\$1,179,064,000. The fair value of the associated collateral was \$1,207,170,000, all of which was cash.

## 5. Derivative and Other Similar Investments

The System enters into a variety of financial contracts, which include options and futures. The System also enters into foreign exchange positions, such as forward and spot contracts to obtain or hedge foreign currency exposure; swap agreements to gain exposure to certain sectors of the equity and fixed income markets; collateralized mortgage obligations (CMOs); other forward contracts; and U.S. Treasury STRIPS. The System is not a dealer, but an end-user of these instruments. The contracts are used primarily to enhance performance and/or reduce the volatility of the portfolio. The System is exposed to credit risk in the event of non-performance by counterparties to financial instruments.

The System generally enters into transactions only with high quality institutions. Legal risk is mitigated through selection of executing brokers and review of all documentation. The System is exposed to market risk, the risk that future changes in market conditions may make an instrument less valuable. Exposure to market risk is managed in accordance with risk limits set by senior management, through buying or selling instruments or entering into offsetting positions.

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

## Notes to Financial Statements (continued)

Table 4 - Notional Amounts of Derivatives

The table presented below summarizes the aggregate notional or contractual amounts for the System's derivative financial instruments at June 30, 2016 and 2015.

	(Dollar Amounts in Thousands)	
	2016	2015
<b>Futures contracts - long:</b>		
Treasury futures	\$ 1,960,030	\$ 1,835,560
U.S. equity futures	1,163,719	1,096,741
Non-U.S. equity futures	774,998	488,995
Commodity futures	325,440	381,855
Non-U.S. bond futures	255,428	128,229
<b>Futures contracts - short:</b>		
Treasury futures	78,100	27,541
U.S. equity futures	-	24,008
Non-U.S. bond futures	1,596	-
Foreign exchange forward and spot contracts, gross	5,558,947	8,302,553
Swaps - total return type	7,105,829	4,224,789

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

the right to access individual pledged securities, it must maintain the amount pledged by substituting other securities for those accessed. The value of securities pledged and the amount of cash held at June 30, 2016 and 2015 represent a restriction on the amount of assets available as of year-end for other purposes.

Option contracts provide the option purchaser with the right, but not the obligation, to buy or sell the underlying security at a set price during a period or at a specified date. The option writer is obligated to buy or sell the underlying security if the option purchaser chooses to exercise the option. The System generally uses exchange listed currency, index, stock, and futures options. The System held no option positions at June 30, 2016 and 2015.

The fair values of derivative instruments outstanding at June 30, 2016 and 2015 are classified by type and by the changes in fair value of the derivative instrument in the table below.

Investment Derivative Type	(Dollar Amounts in Thousands)			
	Change in Fair Value Gain/(Loss) FY 2016		Fair Value at June 30, 2016	
	Classification	Amount	Classification	Amount
Futures	Investment income	\$ 32,019	Receivable/(Payable)	\$ 32,019
Total return type swaps	Investment income	302,321	Receivable/(Payable)	302,321
Foreign exchange contracts	Investment income	(9,932)	Receivable/(Payable)	(9,932)
<b>Total</b>		<b>\$ 324,408</b>		<b>\$ 324,408</b>
Investment Derivative Type	Change in Fair Value Gain/(Loss) FY 2015			
	Change in Fair Value Gain/(Loss) FY 2015		Fair Value at June 30, 2015	
	Classification	Amount	Classification	Amount
Futures	Investment income	\$ (52,839)	Receivable/(Payable)	\$ (52,839)
Total return type swaps	Investment income	(18,000)	Receivable/(Payable)	(18,000)
Foreign exchange contracts	Investment income	(24,982)	Receivable/(Payable)	(24,982)
<b>Total</b>		<b>\$ (95,821)</b>		<b>\$ (95,821)</b>

## Notes to Financial Statements (continued)

The following table summarizes the System's foreign exchange contracts by currency at June 30, 2016 and 2015:

<b>2016</b>				
(Dollar Amounts in Thousands)				
<b>Currency</b>	<b>Buys</b>	<b>Unrealized Gain/(Loss)</b>	<b>Sells</b>	<b>Unrealized Gain/(Loss)</b>
Euro	\$ 19,838	\$ (117)	\$ 1,897,067	\$ 17,760
British pound sterling	13,225	(607)	781,865	67,533
Japanese yen	11,240	247	1,110,034	(68,467)
Brazilian real	5,778	92	20,210	(1,252)
Taiwan new dollar	5,495	16	10,233	(76)
Swedish krona	3,460	(26)	124,446	1,871
Canadian dollar	3,014	(4)	444,470	(5,649)
Hong Kong dollar	2,594	3	158,615	(156)
Indian rupee	2,120	(8)	4,157	4
Swiss franc	1,832	2	331,245	(5,772)
Singapore dollar	1,286	31	67,283	(1,806)
Israeli shekel	394	-	28,597	(132)
Danish krone	287	1	73,672	571
Australian dollar	76	-	350,030	(13,036)
Other non-US currencies	16,229	385	70,156	(1,340)
<b>Total</b>	<b>\$ 86,868</b>	<b>\$ 15</b>	<b>\$ 5,472,080</b>	<b>\$ (9,947)</b>

<b>2015</b>				
(Dollar Amounts in Thousands)				
<b>Currency</b>	<b>Buys</b>	<b>Unrealized Gain/(Loss)</b>	<b>Sells</b>	<b>Unrealized Gain/(Loss)</b>
Euro	\$ 251,588	\$ (906)	\$ 2,289,025	\$ 26,764
British pound sterling	152,820	912	1,307,577	(34,253)
Japanese yen	111,106	425	1,396,701	(23,285)
Australian dollar	109,548	(1,376)	473,944	(2,207)
Canadian dollar	96,932	(1,084)	637,493	2,994
New Zealand dollar	39,460	(1,303)	81,090	4,048
Swedish krona	37,599	(197)	187,052	215
Brazilian real	32,138	245	50,330	(68)
Polish zloty	20,668	(409)	11,252	129
Norwegian krone	12,187	(20)	50,613	666
Romanian leu	6,909	(6)	-	-
Philippine dollar	6,526	(76)	83	-
Swiss franc	5,535	24	483,605	3,211
Russian ruble	5,348	(273)	13,168	727
Singapore dollar	1,358	11	85,102	(549)
South Korean won	44	-	5,349	(15)
Hong Kong dollar	29	-	176,277	(7)
Danish krone	-	-	95,058	1,441
Israeli shekel	-	-	34,999	(567)
Turkish lira	-	-	5,517	(98)
Other non-US currencies	17,155	(84)	11,368	(11)
<b>Total</b>	<b>\$ 906,950</b>	<b>\$ (4,117)</b>	<b>\$ 7,395,603</b>	<b>\$ (20,865)</b>

**Notes to Financial Statements (continued)**

Foreign exchange contracts involve an agreement to exchange the currency of one country for the currency of another country at an agreed-upon price and settlement date. To reduce the risk of counterparty non-performance, the investment managers generally enter into these contracts with institutions regarded as meeting high standards of credit worthiness. The contracts reported in Table 4 primarily include forwards. The \$5,558,947,000 of foreign currency contracts outstanding at June 30, 2016 consist of “buy” contracts, which represent the U.S. dollar equivalents of commitments to purchase foreign currencies of \$86,868,000 and “sell” contracts, which represent U.S. dollar equivalents of commitments to sell foreign currencies of \$5,472,080,000. The \$8,302,553,000 of foreign currency contracts outstanding at June 30, 2015 consist of “buy” contracts of \$906,950,000 and “sell” contracts of \$7,395,603,000. The unrealized loss on contracts of \$(9,932,000) and \$(24,982,000) at June 30, 2016 and 2015, respectively, is included in the Statements of Fiduciary Net Position and represents the fair value of the contracts.

Swap agreements provide for periodic payments at predetermined future dates between parties based on the change in value of underlying securities, indexes, or interest rates. During the year ended June 30, 2016 and 2015, the System entered into total return type swaps. Under the total return type swap arrangements, the System receives the net return of certain equity securities or indexes in exchange for a short-term rate minus a spread or a predetermined fixed charge. The receivable (payable) on the total return type swap contracts of \$302,321,000 and \$(18,000,000) at June 30, 2016 and 2015, respectively, is included in the Statements of Fiduciary Net Position and represents the fair value of the contracts. The contracts have varying maturity dates ranging from August 3, 2016 to June 26, 2017.

The System also invests in mortgage-backed securities (MBS) such as CMOs and MBS forwards to maximize yields. These securities are sensitive to prepayments of mortgages, which may result from a drop in interest rates. The MBS forwards are subject to credit risk in the event of nonperformance by counterparties. The fair value of CMOs at June 30, 2016 and 2015 is \$477,412,000 and \$663,492,000, respectively.

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

Through certain collective trust funds, the System also indirectly holds various derivative financial instruments. The collective trust funds invest in futures and options thereon; forward foreign currency contracts; options; interest rate, currency, equity, index, and total return swaps; interest-only

STRIPS; and CMOs, to enhance the performance and/or reduce the volatility of their portfolios.

**6. Net Pension Liability of Participating Employers**

The components of the net pension liability of the participating employers at June 30, 2016 were as follows:  
(Dollar amounts in thousands)

Total pension liability	\$ 99,388,887
Plan fiduciary net position	(49,832,060)
Employer net pension liability	<u>\$ 49,556,827</u>
Plan fiduciary net position as a percentage of the total pension liability	<u>50.14%</u>

**Actuarial Assumptions**

The total pension liability as of June 30, 2016 was determined by rolling forward the System’s total pension liability as of June 30, 2015 to June 30, 2016 using the following actuarial assumptions, applied to all periods included in the measurement:

- Actuarial cost method - Entry Age Normal - level % of pay.
- Investment return - 7.25%, includes inflation at 2.75%.
- Salary growth - Effective average of 5.00%, comprised of inflation of 2.75% and 2.25% for real wage growth and for merit or seniority increases.
- Mortality rates were based on the RP-2014 Mortality Tables for Males and Females, adjusted to reflect PSERS’ experience and projected using a modified version of the MP-2015 Mortality Improvement Scale.
- PSERS’ Board approved new actuarial assumptions effective for the June 30, 2016 actuarial valuation. The new assumptions were used to calculate the net pension liability at June 30, 2016 and are reflected above.

**Investments**

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

The pension plan’s policy in regard to the allocation of invested plan assets is established and may be amended by the Board. Plan assets are managed with a long-term

## Notes to Financial Statements (continued)

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Global public equity	22.5%	5.3%
Fixed income	28.5%	2.1%
Commodities	8.0%	2.5%
Absolute return	10.0%	3.3%
Risk parity	10.0%	3.9%
Infrastructure/MLPs	5.0%	4.8%
Real estate	12.0%	4.0%
Alternative investments	15.0%	6.6%
Cash	3.0%	0.2%
Financing (LIBOR)	(14.0%)	0.5%
	<u>100.0%</u>	

objective of achieving and maintaining a fully funded status for the benefits provided through the pension.

For the year ended June 30, 2016, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 1.11%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested. The above was the Board's adopted asset allocation policy and best estimates of geometric real rates of return for each major asset class as of June 30, 2016.

#### Discount Rate

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

#### Sensitivity of the Net Pension Liability

Table 5 presents the net pension liability, calculated using the discount rate of 7.25%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower (6.25%) or 1-percentage point higher (8.25%) than the current rate:

Table 5 - Sensitivity of the Net Pension Liability

(Dollar amounts in thousands)

	1% Decrease	Current Discount Rate	1% Increase
	6.25%	7.25%	8.25%
Net pension liability \$	60,621,334	\$ 49,556,827	\$ 40,259,380

## 7. Pension Plan for Employees of the System

### (A) SERS' Plan Description

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

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

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

SERS member retirement benefits are generally determined by taking years of credited service times final average salary times 2% or 2.5%, depending on date of hire. The normal retirement age ranges from 50 - 65, depending on the membership class.

According to the State Employees' Retirement Code (SERC), all obligations of SERS will be assumed by the Commonwealth should SERS terminate.

### (C) Contributions to SERS

The contribution requirements of SERS plan members is mandated by Commonwealth statute. The member contribution rate for the majority of SERS' members is 6.25%. As of December 31, 2015 and 2014, the blended employer contribution rates were 22.77% and 18.29%, respectively. Contributions to SERS from PSERS were \$4.7 million for the year ended June 30, 2016.

**Notes to Financial Statements (continued)**

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

At June 30, 2016, PSERS reported a liability of \$55.9 million for its proportionate share of the net pension liability for the SERS plan in accounts payable and accrued expenses on the Statement of Fiduciary Net Position. The net pension liability was measured as of December 31, 2015, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of December 31, 2015. PSERS’ proportion of the net pension liability was calculated utilizing a projected-contribution method. At December 31, 2015, PSERS’ proportion was 0.30753415 percent.

For the year ended June 30, 2016, PSERS recognized pension expense of \$7.2 million in administrative expenses on the Statement of Fiduciary Net Position. At June 30, 2016, PSERS reported \$11.3 million of deferred outflows of resources and \$1.3 million of deferred inflows of resources. Of the \$11.3 million of deferred outflows of resources, PSERS recorded \$2.4 million for contributions subsequent to the measurement date which will be recognized as a reduction of the net pension liability in the year ended June 30, 2017. The other amounts reported as deferred outflows of resources and deferred inflows of resources will be recognized over a range of 5 to 5.6 years closed amortization periods, dependent on the type of deferral.

**(E) SERS’ Pension Plan Fiduciary Net Position**

Detailed information about SERS’ fiduciary net position is available in SERS’ Comprehensive Annual Financial Report which can be found on SERS’ website at [www.SERS.pa.gov](http://www.SERS.pa.gov).

**8. Postemployment Healthcare Plan for Employees of the System**

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

Employer costs for retiree healthcare benefits are charged as a component of payroll expenditures on a ‘pay-as-you-go’ basis. REHP funding is arranged between OA and the

Governor’s Budget Office. FY 2016 employer costs were charged at the rate of \$418/employee/bi-weekly pay period. Plan members who retired after June 30, 2005 contribute to the plan based on a percentage of their final annual gross base salary at the time of retirement. Plan member contribution rates vary based on their REHP enrollment date.

In August 2015, the Commonwealth released an Actuarial Valuation of its Post-Retirement Medical Plan with calculations made as of January 1, 2015. This valuation provided Other Postemployment Benefits (OPEB) reporting that was used for both FY 2014 and FY 2015. For FY 2015 and FY 2016, the System’s allocated Annual OPEB Cost (AOC) was \$5.2 million and \$5.3 million respectively. Based on the aggregate REHP qualifying contributions for FY 2015 and FY 2016, the net OPEB liability for the System was \$1.5 million and \$1.6 million, respectively.

The ARC/AOCs and OPEB for fiscal years 2016, 2015, and 2014 are illustrated in the following table:

(Dollar Amounts in Thousands)

Fiscal Year	Commonwealth ARC/AOC	PSERS’ ARC/AOC	PSERS’ Net OPEB
2016	\$ 1,169,885	\$ 5,307	\$ 1,607
2015	1,136,817	5,157	1,547
2014	898,330	4,099	948

**9. Litigation and Contingencies**

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

**10. Commitments**

As of June 30, 2016, PSERS had commitments for the future purchase of investments in alternative investments of \$7.0 billion and real estate of \$2.2 billion.

**11. Subsequent Events**

The System has performed an evaluation of subsequent events through September 26, 2016, the date the basic financial statements were available to be issued. No material events were identified by the System.



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

	<u>2016</u>	<u>2015</u>	<u>2014</u>
Total pension liability			
Service cost	\$ 1,932,401	\$ 1,926,539	\$ 2,139,037
Interest	7,028,292	6,857,497	6,523,484
Changes of benefit terms	-	-	-
Differences between expected and actual experience	(348,429)	(223,437)	-
Changes of assumptions	2,236,118	-	-
Benefit payments	(6,360,325)	(6,220,601)	(6,053,505)
Net change in total pension liability	<u>4,488,057</u>	<u>2,339,998</u>	<u>2,609,016</u>
Total pension liability - beginning	<u>94,900,830</u>	<u>92,560,832</u>	<u>89,951,816</u>
Total pension liability - ending (a)	<u>\$ 99,388,887</u>	<u>\$ 94,900,830</u>	<u>\$ 92,560,832</u>
Plan fiduciary net position			
Contributions - employer	\$ 3,189,510	\$ 2,596,731	\$ 1,992,084
Contributions - member	989,266	984,634	966,926
Net investment income	473,206	1,328,516	7,097,761
Benefit payments	(6,360,325)	(6,220,601)	(6,053,505)
Administrative expense	(45,118)	(42,331)	(38,712)
Other	-	-	-
Net Change in plan fiduciary net position	<u>(1,753,461)</u>	<u>(1,353,051)</u>	<u>3,964,554</u>
Plan fiduciary net position - beginning	<u>51,585,521</u>	<u>52,980,115</u>	<u>49,015,561</u>
Effect of change in accounting principle	-	(41,543)	-
Plan fiduciary net position - beginning, as restated	-	52,938,572	-
Plan fiduciary net position - ending (b)	<u>\$ 49,832,060</u>	<u>\$ 51,585,521</u>	<u>\$ 52,980,115</u>
Employer net pension liability - ending (a) - (b)	<u>\$ 49,556,827</u>	<u>\$ 43,315,309</u>	<u>\$ 39,580,717</u>

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

	2016	2015	2014
Total pension liability	\$ 99,388,887	\$ 94,900,830	\$ 92,560,832
Plan fiduciary net position	(49,832,060)	(51,585,521)	(52,980,115)
Employer net pension liability	<u>\$ 49,556,827</u>	<u>\$ 43,315,309</u>	<u>\$ 39,580,717</u>
Plan fiduciary net position as a percentage of the total pension liability	50.14%	54.36%	57.24%
Covered payroll	\$ 12,951,077	\$ 12,866,473	\$ 12,760,785
Employer net pension liability as a percentage of covered payroll	382.65%	336.65%	310.17%

**Required Supplementary Schedule 3**  
**Schedule of Employer Contributions**  
**(Unaudited – See Accompanying Auditor’s Report)**  
(Dollar Amounts in Thousands)

Pension			
	2016	2015	2014
Actuarially determined contribution	\$ 3,540,304	\$ 3,289,615	\$ 2,965,715
Contractually required contribution*	3,181,438	2,582,114	1,992,084
Contributions in relation to the actuarially determined contribution*	3,181,438	2,582,114	1,992,084
Contribution deficiency	<u>\$ 358,866</u>	<u>\$ 707,501</u>	<u>\$ 973,631</u>
Covered payroll	\$ 12,951,077	\$ 12,866,473	\$ 12,760,785
Contributions as a percentage of covered payroll	24.57%	20.07%	15.61%

\*Amounts for 2016 and 2015 exclude purchase of service contributions.

Premium Assistance			
Year Ended June 30	Annual Required Contributions	Actual Employer Contributions	Percentage Contributed
2016	\$ 129,494	\$ 113,307	88%
2015	127,576	115,978	91%
2014	121,260	117,471	97%

**Required Supplementary Schedule 4  
Schedule of Investment Returns  
(Unaudited – See Accompanying Auditor’s Report)**

	<b>2016</b>	2015	2014
Annual money-weighted rate of return, net of investment expense	<b>1.11%</b>	3.08%	14.98%

**Required Supplementary Schedule 5  
Schedule of Funding Progress\*  
(Unaudited – See Accompanying Auditor’s Report)  
(Dollar Amounts in Millions)**

<b>Premium Assistance</b>							
	(1)	(2)	(3)	(4)	(5)	(6)	
Valuation as of June 30	Actuarial Accrued Liabilities (AAL)	Actuarial Value of Assets	Unfunded Actuarial Accrued Liabilities UAAL (1) - (2)	Ratio of Assets to AAL (2) / (1)	Annualized Salaries	UAAL as a Percentage of Covered Payroll (3) / (5)	
2015	\$ 1,368.1	\$ 120.6	\$ 1,247.5	8.8%	\$ 12,678.2	9.8%	
2014	1,374.1	112.1	1,262.0	8.2%	12,620.9	10.0%	
2013	1,385.0	100.3	1,284.7	7.2%	12,577.1	10.2%	

\* The amounts reported above in the Schedule of Funding Progress do not include assets or liabilities for the HOP.

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## Notes to Required Supplementary Information for the Year Ended June 30, 2016

### *Changes in benefit terms*

None

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

The Investment Rate of Return was adjusted from 7.50% to 7.25%. The inflation assumption was decreased from 3.0% to 2.75%.

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

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

The GASB 67 accounting valuation can be found on PSERS' website at [www.psers.state.pa.us](http://www.psers.state.pa.us).

### *Method and assumptions used in calculations of actuarially determined contributions*

The actuarially determined contributions are calculated as of the June 30 preceding the fiscal year in which contributions are made. That is, the contribution calculated as of the June 30, 2015 actuarial valuation will be made during the fiscal year ended June 30, 2017. The following actuarial methods and assumptions were used to determine contribution rates reported in that schedule:

- Investment return - 7.50%, includes inflation at 3.00%
- Salary growth - Effective average of 5.50%, which reflects an allowance for inflation of 3.00%, real wage growth of 1%, and merit or seniority increases of 1.50%
- Benefit payments - no postretirement benefit increases assumed in the future
- Multiple decrement tables - mortality, vesting, retirement age, and withdrawal estimates are based upon tables provided by the actuary

### *10-year reporting requirements*

Required Supplementary Schedules 1-4, as related to pensions, are intended to show information for 10 years. Additional years will be displayed as they become available.

**Supplementary Schedule 1**  
**Schedule of Operating Expenses**  
**Year Ended June 30, 2016**  
(Dollar Amounts in Thousands)

	<u>Administrative Expenses</u>			<u>Total</u>
	<u>Pension</u>	<u>Post- employment Healthcare (1)</u>	<u>Investment Expenses (2)</u>	
<b>Personnel costs:</b>				
Salaries and wages	\$ 14,074	\$ 225	\$ 5,532	\$ 19,831
Employee benefits	5,922	682	1,187	7,791
<b>Total personnel costs</b>	<u>19,996</u>	<u>907</u>	<u>6,719</u>	<u>27,622</u>
<b>Operating costs:</b>				
Investment managers' fees	-	-	395,834	395,834
Custodian fees	-	-	2,331	2,331
Specialized services	562	32,663	862	34,087
Rental of real estate, electricity	2,134	218	341	2,693
Consultant and legal fees	2,505	1,320	7,948	11,773
Treasury and other Commonwealth services	2,210	-	387	2,597
Postage	1,207	-	-	1,207
Contracted maintenance and repair services	1,394	-	-	1,394
Office supplies	136	-	15	151
Rental of equipment and software	3,721	-	275	3,996
Printing	286	-	-	286
Travel and training	128	1	11	140
Telecommunications	420	-	-	420
Equipment (non-capital assets)	579	-	-	579
Miscellaneous expenses	728	4	1,059	1,791
<b>Total operating costs</b>	<u>16,010</u>	<u>34,206</u>	<u>409,063</u>	<u>459,279</u>
<b>Other charges:</b>				
Pension expense (3)	7,168	-	-	7,168
Depreciation	1,944	-	-	1,944
<b>Total other charges</b>	<u>9,112</u>	<u>-</u>	<u>-</u>	<u>9,112</u>
<b>Total operating expenses</b>	<u>\$ 45,118</u>	<u>\$ 35,113</u>	<u>\$ 415,782</u>	<u>\$ 496,013</u>

(1)Administrative expenses for Postemployment Healthcare includes \$1,656 related to Premium Assistance and \$33,457 related to Healthcare Health Options Program for the fiscal year ended June 30, 2016.

(2)Includes investment expenses of \$38 related to Postemployment Healthcare Premium Assistance and \$38 related to Health Options Program for the fiscal year ended June 30, 2016 and does not include \$5,092 in capitalized broker commissions for the fiscal year ended June 30, 2016.

(3)Pension expense of \$7.2 million represents the amount associated with GASB 68 and replaces the actual retirement contribution expense PSERS remits for its employees. Contribution expense of \$4.6 million for FY 2016 would have been classified as employee benefits in the above schedule.

**Supplementary Schedule 2**  
**Summary of Investment Expenses\***  
**Year Ended June 30, 2016**  
(Dollar Amounts in Thousands)

	<u>Investment Management</u>		<u>Other Expenses</u>	<u>Total</u>
	<u>Base</u>	<u>Performance</u>		
<b>External management:</b>				
Domestic equity	\$ 1,461	\$ 1,736	\$ -	\$ 3,197
International equity	18,455	5,831	-	24,286
Fixed income	77,901	3,895	-	81,796
Real estate	52,006	-	-	52,006
Alternative investments	99,492	-	-	99,492
Absolute return	80,209	24,055	-	104,264
Commodities	4,304	(272)	-	4,032
Master limited partnership	6,956	1,377	-	8,333
Risk parity	18,428	-	-	18,428
<b>Total external management</b>	<u>359,212</u>	<u>36,622</u>	<u>-</u>	<u>395,834</u>
<b>Total internal management</b>	<u>-</u>	<u>-</u>	<u>9,669</u>	<u>9,669</u>
<b>Total investment management</b>	<u>359,212</u>	<u>36,622</u>	<u>9,669</u>	<u>405,503</u>
Custodian fees	-	-	2,331	2,331
Consultant and legal fees	-	-	7,948	7,948
<b>Total investment expenses</b>	<u>\$ 359,212</u>	<u>\$ 36,622</u>	<u>\$ 19,948</u>	<u>\$ 415,782</u>

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

**Supplementary Schedule 3**  
**Schedule of Payments to Non-Investment Consultants**  
**Year Ended June 30, 2016**  
(Dollar Amounts Greater than \$100,000)

<b>Consultant</b>	<b>Fees</b>	<b>Services Provided</b>
CoreSource Inc.	\$ 23,460,388	Postemployment healthcare benefits administration and claims adjudication
Optum Rx, Inc.	6,806,395	Administration of postemployment healthcare benefits and prescription drug plan
ViTech Systems Group Inc.	5,500,000	Pension administration system services
The Segal Company, Inc.	2,588,395	Actuarial services and consulting for HOP and prescription drug plan
Healthways, Inc.	669,169	Administration of the Silver Sneakers Fitness Program
Buck Consultants LLC	644,679	Pension benefit actuarial services
Independent Pharmaceutical Consultants, Inc.	575,878	Pharmacy benefit consulting services
Gartner Group, Inc.	273,190	Information technology services
OST, Inc.	146,614	Webmaster consulting

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COMMONWEALTH OF PENNSYLVANIA  
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

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

October 27, 2016

Dear Members of The PSERS Board of Trustees:

It is a privilege to present to you the Investment Section of the Comprehensive Annual Financial Report for the fiscal year ended June 30, 2016.

### Authority and Fiduciary Standard

The Board has the responsibility to invest funds of the System in accordance with guidelines and limitations set forth in the Code and other applicable state law. As fiduciaries, the members of the Board and Staff must act solely in the interests of the members of the System and for the exclusive benefit of the System's members. In performance of their duties, the members of the Board and Staff who have been delegated with investment authority shall be held to the Prudent Investor Standard.

The Prudent Investor Standard, as articulated in the Code, means "the exercise of that degree of judgment, skill, and care under the circumstances then prevailing which persons of prudence, discretion, and intelligence who are familiar with such matters exercise in the management of their own affairs not in regard to speculation, but in regard to the permanent disposition of the fund, considering the probable income to be derived therefrom as well as the probable safety of their capital."

The Prudent Investor Standard requires a trustee to act prudently and with caution, discretion, loyalty, and care but does not restrict the assets in which the Board can invest. Under the Prudent Investor Standard, which recognizes modern portfolio theory, the Board's investment and management decisions with respect to individual assets shall be considered in the context of the portfolio as a whole and as part of an overall investment strategy, and not in isolation. No specific investment or course of action, taken alone, shall be considered inherently prudent or imprudent. This Standard recognizes the trade-off between risk and return.

### Policies and Objectives

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

**Return Objectives** – the System has a return objective of meeting or exceeding the targeted actuarial rate of return (ARR) over the long-term (i.e. 25 to 30 years). The targeted ARR was dropped to 7.25% from 7.50% effective July 1, 2016. In addition, the Board has the following broad objectives:

1. The assets of the System shall be invested to maximize the returns for the level of risk taken; and,
2. The System shall strive to achieve a net of fee return that exceeds the Policy Index (the Policy Index is a custom benchmark, based on the Board-established asset allocation structure that seeks to generate a return that meets the actuarial rate of return assumption).

### Risk Objectives

1. The assets of the System shall be diversified to minimize the risk of losses at the portfolio level and within any one asset class, investment type, industry or sector distribution, maturity date, or geographic location. Failure to do so could impair the System's ability to achieve its funding and long-term investment goals and objectives; and,
2. The System's assets shall be invested so that the probability of investment losses (as measured by the Policy Index) in excess of 15% in any one year is no greater than 2.5% (or two standard deviations below the expected return).

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

### **Operations**

The Board, via its Finance Committee, provides oversight of investment activities. The Finance Committee generally conducts six meetings per year and may meet more frequently as needed. Investment Office staff, as well as external investment advisors, Investment Accounting staff, and Internal Audit staff, assist the Board in achieving investment objectives and monitoring compliance with investment policies. For the fiscal year ended June 30, 2016, Aon Hewitt Investment Consulting, Inc. (Aon Hewitt) served as the general investment consultant to assist the Board and Staff in formalizing investment objectives, establishing an asset allocation plan, conducting investment advisor searches, reviewing performance, and commenting on compliance with investment policies. In addition, the Board retained Aksia, LLC as an absolute return consultant, Courtland Partners, Ltd. as a real estate consultant, and Portfolio Advisors, LLC as an alternative investment consultant. Alternative investments generally consist of investments in private debt, private equity, and venture capital limited partnerships. Investment Office staff implement the investment decisions within the guidelines established in the Investment Policy Statement, Objectives and Guidelines regarding asset allocation, manager selection, security selection, and other objectives directed by the Board.

The Board employs both external investment management firms and internal investment managers to manage the investment portfolio of the System. At fiscal year-end, 36 external public market investment management firms were managing \$12.4 billion in assets of the System, \$19.2 billion in assets were managed by the System's internal investment managers, and the remaining \$16.4 billion in assets were managed by numerous alternative investment and real estate investment managers. The performance of each external investment management firm and each internal manager is monitored quarterly against a pre-established benchmark as well as the performance of the manager's peer group.

### **Asset Allocation**

The Board reviews the long-term asset allocation targets of the System annually. The Board will consult with its actuary, consultants, Investment Office staff, 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 employers' (Commonwealth and school districts) financial strength; and,
- The Board's willingness and ability to take risk.

In approving the asset allocation for the System that is recommended by Investment Office staff and PSERS' general investment consultant, the Board considers capital market expectations for expected return, volatility, and asset class correlations as prepared by its general investment consultant. The current long-term, top-down asset allocation targets of the Board, based on targeted exposures, are discussed in the following paragraphs. Targeted exposures include positions obtained through derivative exposure with minimal capital requirements.

The current target allocation as of June 30, 2016, included an equity target allocation of 37.5% consisting of publicly traded stocks (21.5%) and private markets (16.0%). Specific publicly traded stock targets have been established for U.S. equity (8.5%) and non-U.S. equity (13.0%). Within the U.S. equity target, the portfolios are diversified between large and small capitalization investment mandates. The non-U.S. equity exposure includes both developed and emerging markets portfolios as well as large and small capitalization investment mandates. The non-U.S. developed markets equity exposure is 75% currency-hedged back to the U.S. Dollar. The primary vehicle used to invest funds in private markets is the limited partnership. The partnerships are established by individual management groups that have been selected by the System for

## Investment Section

the purpose of investing in and managing private equity, venture capital, and debt positions on behalf of PSERS and other limited partners.

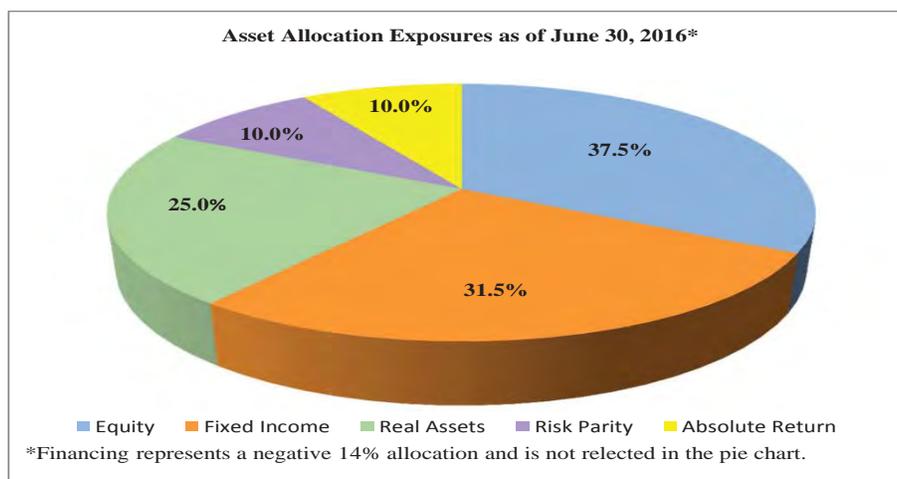
The fixed income target allocation of 31.5% consisted of investment grade exposure (8.5%), credit-related exposure (8.0%), inflation-protected exposure (12.0%) and cash (3.0%). Investment grade exposure consisted of U.S. core fixed income (5.0%), U.S. Long Treasuries (2.5%), and non-U.S. developed market fixed income (1.0%). Credit-related exposure consisted of high yield (6.0%) and emerging markets fixed income (2.0%). Inflation protected exposure consisted of leveraged global Inflation-Linked Securities (global ILS) which provides approximately two times exposure to global ILS. Within these categories, all sectors of the fixed income market are represented. The high yield exposure is primarily private debt. The cash consisted of short-duration, high quality government and investment grade securities. The Board, Investment Office Staff, and Aon Hewitt deemed it prudent to have an allocation to cash given the known and potential cash flow requirements of the System.

The real asset exposure of 25.0% consisted of real estate (12.0%), master limited partnerships (4.0%), infrastructure (1.0%) and commodities (8.0%). The real estate allocation consisted primarily of limited partnerships. The types of partnerships the System invests in include core, value-added, and opportunistic real estate limited partnerships. The commodities allocation consisted primarily of commodity futures and commodity-related publicly traded stocks. Commodities are included in the allocation for inflation protection and to diversify the System's total portfolio risk. The Master Limited Partnership (MLP) allocation consisted of publicly traded partnerships that own and operate assets such as natural gas, crude oil, refined products and pipelines, and storage facilities that are a vital part of the U.S. energy infrastructure. MLPs are included in the allocation due to their attractive current yields, strong growth potential, and ability to diversify the System's total portfolio risk. The Infrastructure allocation targets stable, defensive investments primarily within the energy, power, water, and transportation sectors. Infrastructure plays a strategic role within the System by providing steady returns and cash yields, defensive growth, inflation protection, capital preservation, and diversification benefits. Infrastructure consists of publicly traded companies.

The absolute return target allocation of 10.0% consisted primarily of investment managers retained by the System to generate positive returns over time that are independent of how the equity, fixed income, and commodity markets perform. Strategies implemented to achieve this target include, but are not limited to, global macro, event-driven, and relative value strategies such as insurance-linked securities and long/short credit. The absolute return program is included in the allocation to generate returns equal to or greater than LIBOR plus 3.5% with low volatility and low correlation to the public financial markets to diversify the System's total portfolio risk.

The risk parity allocation of 10.0% consisted primarily of global equities, global nominal bonds, global ILS, and commodities in an allocation that balances risk across these asset classes with structurally offsetting biases to the primary drivers of asset class returns - growth and inflation. Risk parity provides diversification and liquidity to the System.

Leverage was utilized at the asset allocation level to provide additional exposure to diversifying asset classes. The System utilized 14.0% leverage through use of derivative instruments that allow the System to gain asset class exposure with minimal margin requirements. Leverage is utilized in the fixed income, real asset, and risk parity allocations.

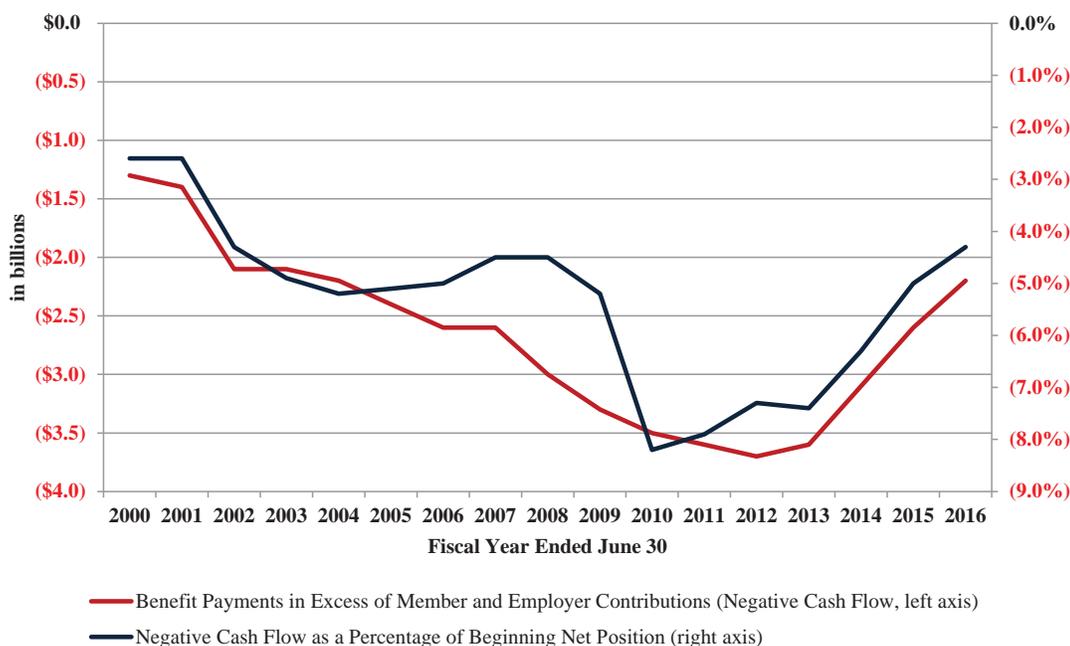


The System also participates in a securities lending program administered by Deutsche Bank AG. This program is designed to provide incremental income to the System by lending publicly traded securities in the System’s portfolio held by the System’s custodial bank, The Bank of New York Mellon, to securities dealers in exchange for cash collateral, which can be reinvested to generate income, or non-cash collateral plus a cash fee. This program generated \$11.9 million in net income during the year.

**Liquidity and Asset Allocation**

The System’s risk profile is, in part, driven by its liquidity needs. Over the past fifteen fiscal years, the System has paid out \$42.6 billion more in benefits than it has received in member and employer contributions (negative cash flow). In total, the negative cash flow of the System was over \$2.0 billion per year during this period. This annual funding deficiency has amounted to 4.0% or more of the beginning net position each year and represents the amount of investment return needed each year to make up the shortfall (i.e., if the System earned 4.0% in a given year with a 4.0% cash flow shortfall, then the net position of the plan would be unchanged). The large negative annual cash flow has improved significantly since fiscal year 2012 due to the implementation of Act 120 in 2010 (see chart below). Act 120 provided for increased employer contributions to the actuarially required contribution levels. The large annual cash flow shortfall, while much improved, will continue over the next few years and necessitates a larger liquidity position and lower risk profile than a retirement system that has smaller liquidity requirements.

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



**The Economy During The Past Fiscal Year**

*The U.S. Economy*

The U.S. economy has shown continued, albeit slow, growth this past fiscal year. The U.S. continues to have very accommodative monetary conditions as the Federal Reserve has maintained very low interest rates. The Federal Funds target rate increased by 0.25% during the past fiscal year (in December 2015) and has a range of 0.25% to 0.50%. Low

## Investment Section

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interest rates have provided a low cost of borrowing so that the economy, housing, and employment conditions can continue to improve. The U.S. real Gross Domestic Product (GDP) increased an average of 1.2% per quarter during the past fiscal year with a range of 0.8% to 2.0%. Housing during the past fiscal year has shown continued improvement, up around 4.6% as measured by the S&P Case-Shiller 20-City Home Price Index. The official unemployment rate (otherwise known as the U3 unemployment rate) fell during the fiscal year from 5.3% as of June 2015 to 4.9% as of June 2016, approaching what the Fed would consider full employment. The more encompassing U6 unemployment rate, which measures not only people without work seeking full-time employment (U3 unemployment rate) but also counts “marginally attached workers and those working part-time for economic reasons” remains elevated at 9.6% as of fiscal year end, down from 10.5% at the end of the last fiscal year but significantly above the low point over the past 10 years of 7.9% in December 2006. However, the U.S. Labor Participation Rate (LPR), which measures the total labor force as a percentage of the working age population, remains depressed relative to historical levels. The LPR modestly increased from 62.6% in June 2015 to 62.7% in June 2016. The LPR was as high as 67.3% in March 2000. If the LPR were at 2000 levels today, the official unemployment rate would probably be significantly higher.

Disappointing GDP growth and a significantly falling unemployment rate seem inconsistent on the surface. However, the combination is made possible by falling productivity in the U.S. Nonfarm business productivity (the goods and services produced each hour by American workers) decreased at a 0.5% seasonally adjusted annual rate in the second quarter of 2016 according to the U.S. Labor Department. According to BCA Research, an independent provider of global investment research, “if productivity growth had remained at its pre-crisis (pre-2008) trend, the unemployment rate today would still be close to its Great Recession peak (of around 10%).”

Inflation in the United States, even with improving economic conditions and very accommodative interest rates, remains well below the Fed’s target inflation rate of 2.0% as the burdens of high global debt create a more deflationary environment worldwide. The U.S. Core Consumer Price Index (CPI) was 1.0% year over year as of June 2016, an increase from the past year of 0.1% as of June 2015.

### *Select Non-U.S. Economies*

The Euro Area economy has shown modest improvement from last year but is still only showing tepid growth. As of the second quarter 2016, the Euro Area is growing at a 1.6% annual pace. The unemployment rate, while still elevated, has fallen to 10.1% as of June 2016 from 11.0% a year earlier. Inflation has been very anemic in Europe during the past year at 0.1% versus a 0.2% rate in the previous year. Economic conditions continue to be very weak in Europe as aggressive European Central Bank (ECB) policies have been unable to generate any significant improvements in economic growth, employment, and inflation. The ECB has cut the overnight rate to negative 0.4% (from negative 0.2% last year) and is purchasing \$88 billion (up from \$72 billion last year) a month in euro-denominated sovereign and corporate debt in an effort to put liquidity into the economy as well as ease financial conditions.

While the Euro Area economy is weak, Japan’s economy may be even weaker. As of the first quarter 2016 (the latest data available), Japan’s real GDP increased by 0.1% over the past year. Japan’s demographics are poor as the population ages which generally will not lead to robust growth. However, since the size of the working age population is decreasing, unemployment has been low and was 3.1% in June 2016, down from 3.5% last year. The inflation rate in Japan was negative 0.4% over the past year, down from positive 0.4% at the end of last year. Japanese policy makers continue to aggressively try to stimulate their economy through a combination of low interest rates (Bank of Japan policy rate is negative 0.1%), the purchase of higher risk assets by the Bank of Japan, coordinated diversification into higher risk assets by large public investors, and fiscal spending policies to encourage liquidity to move into riskier assets. Economic conditions remain stagnant and time will tell if the necessary economic and structural reforms can be put in place for a sustained period of economic prosperity.

China had robust growth compared to the other developed regions of the world. China’s real GDP increased by 6.7% over the past year, slightly slower than the 7.0% pace as of June 2015. Inflation in China has remained relatively stable over the past year at 1.8% compared to 1.4% last year. As noted last year, China is struggling to rebalance its economy from an investment-oriented economy to a consumer-oriented economy, while maintaining political stability. The Chinese government is continuing to target economic growth of between 6.5% and 7.0% over the foreseeable future.

The following table 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:

	Annualized Total Returns (%)			
	Net of Fees			
	Ended June 30, 2016			
	1 Year	3 Years	5 Years	10 Years
<b>PSERS Total Portfolio</b>	<b>1.29</b>	<b>6.24</b>	<b>6.01</b>	<b>4.94</b>
Total Fund Policy Index	2.00	5.19	4.51	3.92
Median Public Defined Benefit Plan (DBP) Fund Universe (Aon Hewitt Database)	0.26	6.36	6.27	5.49
<b>PSERS U.S. Equity Portfolios</b>	<b>3.79</b>	<b>11.47</b>	<b>11.83</b>	<b>7.23</b>
U.S. Equity Policy Index (1)	2.25	11.18	11.61	7.39
<b>PSERS Non-U.S. Equity Portfolios</b>	<b>-8.25</b>	<b>5.76</b>	<b>3.59</b>	<b>4.68</b>
Non-U.S. Equity Policy Index (2)	-9.38	5.25	2.50	3.50
<b>PSERS Fixed Income Portfolios (10)</b>	<b>6.42</b>	<b>6.02</b>	<b>5.98</b>	<b>7.40</b>
Fixed Income Policy Index (3)	6.32	3.82	3.60	6.34
<b>PSERS Commodity Portfolios (10)</b>	<b>-1.34</b>	<b>-4.01</b>	<b>-6.66</b>	<b>N/A</b>
Commodity Policy Index (4)	-4.58	-6.01	-8.13	N/A
<b>PSERS Absolute Return Portfolios</b>	<b>-3.43</b>	<b>2.43</b>	<b>2.88</b>	<b>5.12</b>
Absolute Return Policy Index (5)	4.01	5.08	6.04	7.02
<b>PSERS Risk Parity Portfolios (11)</b>	<b>0.01</b>	<b>5.40</b>	<b>N/A</b>	<b>N/A</b>
Risk Parity Policy Index (6)	5.13	6.69	N/A	N/A
<b>PSERS Master Limited Partnership (MLP) Portfolios</b>	<b>-18.75</b>	<b>-0.24</b>	<b>9.13</b>	<b>N/A</b>
Standard & Poor's MLP Index	-18.93	-5.44	3.36	N/A
<b>PSERS Real Estate (7) (10)</b>	<b>8.86</b>	<b>13.03</b>	<b>11.09</b>	<b>2.51</b>
Blended Real Estate Index (8)	5.71	10.41	10.14	6.76
<b>PSERS Alternative Investments (7)</b>	<b>3.44</b>	<b>6.65</b>	<b>7.93</b>	<b>9.63</b>
Burgiss Median, Vintage Year Weighted Index (9)	2.11	4.63	4.54	4.06

1. MSCI USA Investable Market Index effective April 1, 2009; previously was the Dow Jones Wilshire 5000 Index.
2. MSCI ACWI ex USA IMI with DM 75% Hedged to USD (Net) Index effective April 1, 2016. From October 1, 2014 to March 31, 2016, the index was the MSCI ACWI ex USA IMI with DM 100% Hedged to USD (Net) Index. From July 1, 2008 to September 30, 2014, the index was the MSCI All Country World (ACW) ex. USA Investable Market Index. Before July 1, 2008, the MSCI ACW ex. U.S. Index was used. The benchmark was 30% hedged to the U.S. dollar from July 1, 2006 to March 31, 2009.
3. Returns presented are a blend of the Barclays Capital U.S. Aggregate Index (17.5%), Barclays Capital Global Aggregate GDP Weighted Dev x U.S. (Unhedged) Index (3.5%), Barclays Capital Emerging Mkt 10% Country Cap Index (7.0%), Barclays Capital U.S. Treasury Long Index (8.8%), Barclays Capital U.S. High Yield Index (21.1%), and Barclays Capital U.S. TIPS Index (42.1%) effective April 1, 2016. Prior to July 1, 2013, the blend was Barclays Capital U.S. Universal Index (24.7%), JP Morgan GBI EM Global Diversified Index (9.4%), Barclays Capital U.S. High Yield Index (28.2%), Barclays Capital Multiverse Index (14.1%), and Blended Policy (Net Levered TIPS) (23.6%).
4. Returns presented are a blend of the Bloomberg Commodity Gold Index (37.5%) and the Bloomberg Commodity Index (62.5%). On July 1, 2014, the indices names were changed from DJ/UBS to Bloomberg. The returns have been adjusted for leverage.
5. Three month LIBOR +3.50% effective July 1, 2014. Previously, was based on the assumed actuarial rate of return for the Fund which was 8.0% from July 1, 2009 through June 30, 2011. The assumed rate changed to 7.5% on July 1, 2011 and was used as the Absolute Return Policy Index through June 30, 2014.
6. Effective July 1, 2014 returns presented are a blend of MSCI ACW Index (\$Net) (50%); Barclays Capital U.S. Treasury Index (75%); Barclays Capital World Inflation Linked Bond Index Hedged (55%); Bloomberg Commodity Index (Total Return) (15%); Bloomberg Gold Subindex (5%); and 3-Month LIBOR (-100%). The weights to these indices have varied in previous quarters. The returns have been adjusted for volatility.
7. Returns reported on a one-quarter lag, except for publicly traded real estate security investments.
8. Effective April 1, 2015, comprised of a blended benchmark consisting of the National Council of Real Estate Investment Fiduciaries (NCREIF) – Open End Diversified Core Equity (ODCE) Index and Burgiss Private iQ (for Value-Added Real Estate and Opportunistic Real Estate) reported on a one-quarter lag. For periods between April 1, 2010 and March 31, 2015, the benchmark was comprised of a blended benchmark of NCREIF-ODCE (core) and various private real estate benchmarks for Value-Added and Opportunistic (including NCREIF-Closed-End Value-Added (CEVA), NCREIF/Townsend and NCREIF-NPI) reported on a one-quarter lag. For all prior periods, the benchmark was comprised of a blended benchmark strategically split between public/private using various public REIT indices (FTSE EPRA/NAREIT Global Real Estate, Wilshire Real Estate Securities and Wilshire REIT) and NCREIF-NPI (for all non-core) reported on a one-quarter lag.
9. Burgiss Median, Vintage Year Weighted Index effective January 1, 2011. Previously, the Thompson ONE, Vintage Year Weighted Index was used. Returns reported on a one-quarter lag.
10. Returns are presented on an unleveraged basis for comparability purposes to the Policy Index.
11. Returns are presented on a volatility-adjusted basis for comparability purposes to the Policy Index.

### Investment Results

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

For the one-year period ended June 30, 2016, the System generated a total net of fee return of 1.29%. This return fell below the total fund Policy Index return of 2.00% by 71 basis points. Annualized total net of fee returns for the three-, five-, and ten-year periods ended June 30, 2016 were 6.24%, 6.01%, and 4.94%, respectively. The three-, five- and ten-year returns ended June 30, 2016 exceeded the total fund Policy Index returns by 105, 150, and 102 basis points, respectively.

The past fiscal year was a challenging year for the System with a net of fee performance of 1.29%. The following asset classes generated solid returns this past fiscal year:

- U.S. Long Treasuries, as represented by the Barclays Capital U.S. Treasury Long Index, were up 19.30%. Returns in long-term treasuries were driven by falling interest rates and increased demand for safe haven assets, especially from foreign investors who were looking for assets with positive yields;
- Gold, as represented by the Bloomberg Gold Index, was up 12.23%. Gold represents a safe haven asset that has benefited from global uncertainty and ultra-low and negative interest rates in many global markets;
- Real Estate, as represented by a blended benchmark consisting of the National Council of Real Estate Investment Fiduciaries (NCREIF) – Open End Diversified Core Equity (ODCE) Index and Burgiss Private iQ (for Value-Added Real Estate and Opportunistic Real Estate), was up 5.71%, as fundamentals were strong and capitalization rates fell driving real estate prices higher.

Significant detractors from performance this past fiscal year included:

- Master Limited Partnerships (MLPs), as represented by the Standard & Poor's MLP Index, were down 18.93% driven by falling oil prices and reduced expectations for ongoing growth; and
- Commodities, as represented by the Bloomberg Commodity Index, were down 13.34% led by a fall in oil prices. Crude oil futures fell from \$59.47 a barrel on June 30, 2015 to \$48.33 a barrel on June 30, 2016. Prices fell due to a large supply glut driven by increasing shale production in the U.S and slow global growth.

Diversification into asset classes such as non-U.S. equities, commodities, and MLPs were a drag on overall performance. As noted above, the best performing asset class this past fiscal year was U.S. long-term treasury bonds, up over 19%. Coming into the fiscal year, the 30-year U.S. Treasury bond yielded 3.12%, meaning that if an investor had purchased that bond on June 30, 2015 and held that bond to maturity, the investor's total annualized return would be 3.12%. Not many investors with return targets of 7.0%+ were holding a lot of long U.S. Treasuries due to their low absolute yields. However, yields fell during the fiscal year as the Fed backed away from expectations of multiple interest rate hikes which caused bond prices to rise and yields to fall. By June 30, 2016, the yield on the 30-year Treasury bond had fallen 0.83% to 2.29%, generating a total return for the year significantly higher than 3.12%. 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 doesn't know how actual events in the future will transpire relative to what is priced into the market. Diversification is a very humble approach to investing. If an investor knew with certainty which asset class would perform best the next month, quarter, or year, the investor would simply invest in that one asset class. However, without such perfect foresight, the downside risk of such a strategy could be devastating.

The fiscal year was a tale of two halves. The first seven and a half months (July 1, 2015 to February 11, 2016) were weak, marked by a Fed rate hike in December, expectations of multiple interest rate hikes in 2016, and risk assets falling in price. The MSCI All Country World Index, a global equity index, fell by 16.6% during this period, only to rebound 13.0% from the middle of February to June 30, 2016, for a total return of negative 3.1% for the fiscal year. Commodities fell by 27.9% during the first seven and a half months, but rebounded 20.3% during the remainder of the year for a total return of negative 13.3%. U.S. long-term treasuries were up 14.0% during the first half and continued to rise another 4.6% during the second half for a total return of 19.3%. Prior to February 11, 2016, the market was pricing in multiple Fed interest rate hikes for 2016. What changed on February 11, 2016? Fed Chair Janet Yellen gave her semi-annual testimony to Congress which was interpreted by the market as very dovish remarks, meaning the pace and number of interest rate increases priced into the market were too aggressive. This meant that the discount rate used to value assets was now too high and a falling discount rate generally translates into higher asset values. In addition, given the expectation that interest rates would

remain lower for longer periods of time, the prospects for economic growth improved which also needed to be priced into markets.

Finally, I'd be remiss not to mention a major global event that occurred on June 23, 2016, Brexit. The United Kingdom (U.K.) held a non-binding referendum on that day to determine if the U.K. would remain in or leave the European Union (EU), where the U.K. had been a member since being admitted in 1973. The repercussions of this vote would affect factors such as trade, regulation, and immigration. The polls all suggested prior to the vote that the U.K. would remain; however, the polls were wrong and its citizens voted to leave. Global risk markets (equities, commodities, credit) heavily sold off for a couple of days immediately following the vote; however, they rebounded quickly as it was questionable how significant the impact of these factors would be in the short-term. The long-term impacts have yet to be determined, including if the U.K. Parliament will ever vote to leave the EU, an option since the referendum was non-binding.

### Accomplishments

The biggest accomplishment of fiscal year 2016 was the sale of approximately \$1.6 billion in private real estate limited partnership interests in the secondary market. The purpose of this sale was to bring the amount invested in real estate investments down closer to the System's long-term allocation target of 12.0%. In addition, this sale will allow the System to be more liquid prospectively since the proceeds from the sale were re-invested in the public markets. The strength of the real estate market over the past seven years and strong investor demand for higher risk/higher expected return assets presented the Investment Office staff with the opportunity to execute a sale of this size (one of the largest real estate secondary sales in the world in calendar year 2015). I appreciate all of the efforts of our Board, Investment Office staff, the System's Legal staff, Greenhill Cogent, LP, our external financial advisor on this transaction, and Proskauer Rose LLP, our external legal advisor on this transaction.

Another significant accomplishment during the fiscal year was an increase in the amount of asset exposure managed internally from \$16.8 billion, or 30% of the System's exposures, to \$19.2 billion, or 34% of the System's exposures. By bringing more assets in-house, the System generates management fee savings. Using conservative assumptions, the management fees savings on managing \$19.2 billion in-house is approximately \$25 million per year. PSERS will endeavor to continue bringing assets in-house to manage in those areas where 1) staff believes active management can't reliably add value above index returns from both a risk and return perspective; 2) the System has the available investment and operations staff to take on additional assets; and, 3) staff has the expertise to competently manage those assets.

### Summary

It has been a challenging return environment as evidenced by the System's one-, three-, five-, and ten-year returns. However, since the first quarter after the Great Recession, PSERS' annualized net of fee return has been 9.16%, comfortably above the actuarial assumed rate of return of 7.5%. With cash rates below 1%, the System needs to take prudent risks to achieve its long-term goal of a 7.5% 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 premiums over the long-term. In the short-term, no one knows what will happen and the System can go through periods of time of sub-7.5% 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, real assets, risk parity and absolute return. In any given year, the System expects some assets to perform well, such as U.S. long-term treasuries, real estate, and gold did this past fiscal year, and some to not do as well, such as non-U.S. equities, MLPs and commodities did this past fiscal year. However, over the long run, the System expects each of its asset classes to generate a positive return commensurate with the risks taken. The future is uncertain, but PSERS believes it is well positioned to accomplish its objectives.



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

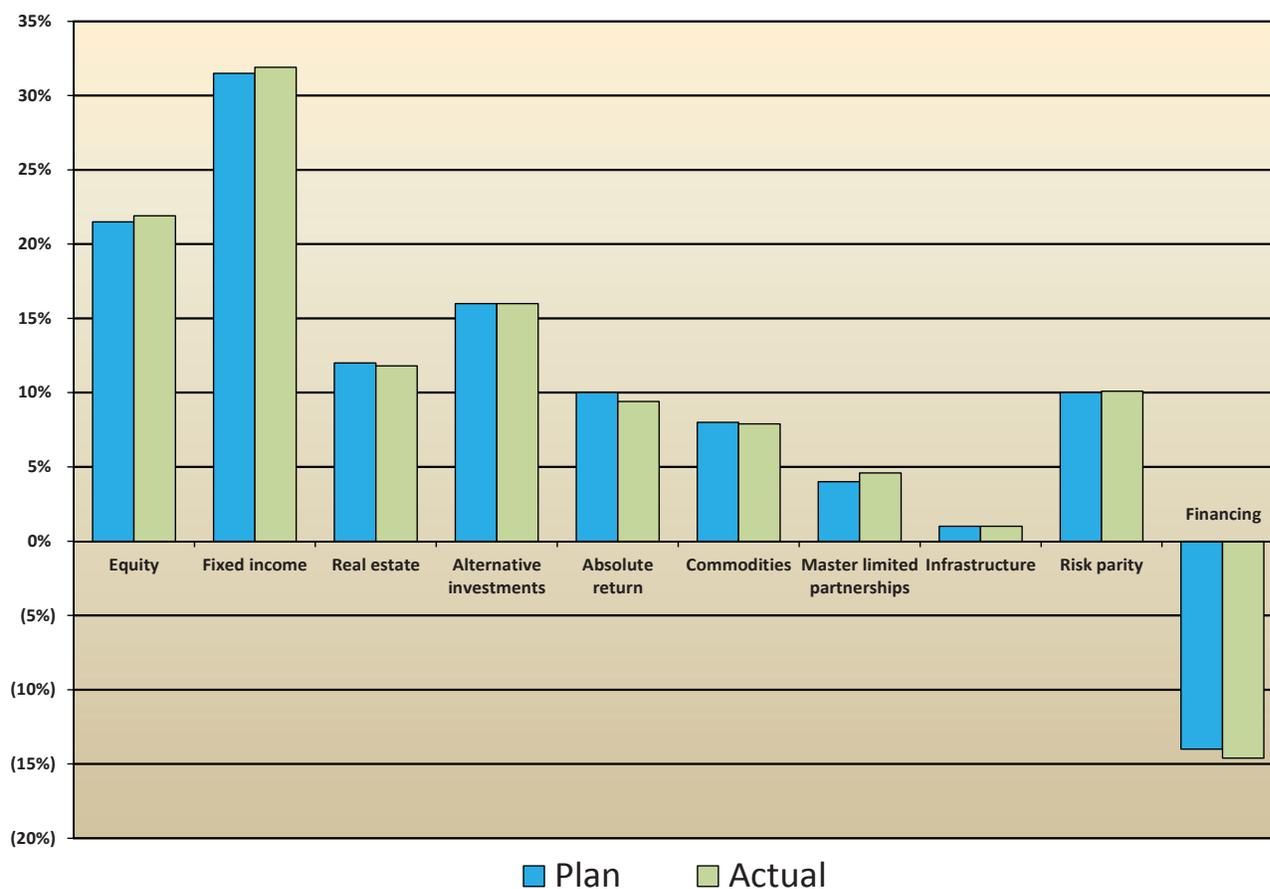
**Portfolio Summary Statistics**  
**Asset Allocation**  
**As of June 30, 2016**  
(Dollar Amounts in Thousands)

Pension investments	Fair Value	% Fair Value
<b>Common and preferred stock (Equity):</b>		
Large and mid cap stocks	\$ 4,175,206	8.5
Small cap stocks	734,098	1.5
Emerging markets stocks	1,475,077	3.0
<b>Total Non-U.S. equity</b>	<b>6,384,381</b>	<b>13.0</b>
Large cap stocks	2,907,002	5.9
Mid and small cap stocks	1,460,038	2.9
Microcap stocks	12,892	0.1
<b>Total U.S. equity</b>	<b>4,379,932</b>	<b>8.9</b>
<b>Total Common and preferred stock - Asset Allocation Basis</b>	<b>10,764,313</b>	<b>21.9</b>
<b>Fixed income:</b>		
Investment grade fixed income	6,208,925	12.6
High yield fixed income	3,791,347	7.7
<b>Total U.S. Fixed income</b>	<b>10,000,272</b>	<b>20.3</b>
Non-U.S. developed markets fixed income	3,966,936	8.0
Emerging markets fixed income	314,540	0.6
<b>Total Non-U.S. Fixed income</b>	<b>4,281,476</b>	<b>8.6</b>
<b>Cash and cash equivalents</b>	<b>1,482,118</b>	<b>3.0</b>
<b>Total Fixed income - Asset Allocation Basis</b>	<b>15,763,866</b>	<b>31.9</b>
<b>Real estate</b>	<b>5,792,403</b>	<b>11.8</b>
<b>Alternative investments:</b>		
Private equity	5,792,265	11.8
Private debt	1,116,937	2.3
Venture capital	965,637	1.9
<b>Total Alternative investments - Asset Allocation Basis</b>	<b>7,874,839</b>	<b>16.0</b>
<b>Absolute return</b>	<b>4,629,806</b>	<b>9.4</b>
<b>Commodities</b>	<b>3,868,367</b>	<b>7.9</b>
<b>Master limited partnerships</b>	<b>2,268,747</b>	<b>4.6</b>
<b>Infrastructure</b>	<b>506,862</b>	<b>1.0</b>
<b>Risk parity</b>	<b>4,963,721</b>	<b>10.1</b>
<b>Financing</b>	<b>(7,201,338)</b>	<b>(14.6)</b>
<b>Total Pension investments - Asset Allocation Basis</b>	<b>49,231,586</b>	<b>100.0</b>
Net Asset Allocation Adjustment*	(1,515,819)	
<b>Pension investments per Statement of Fiduciary Net Position</b>	<b>47,715,767</b>	
<b>Postemployment Healthcare investments</b>	<b>\$ 282,217</b>	<b>100.0</b>

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

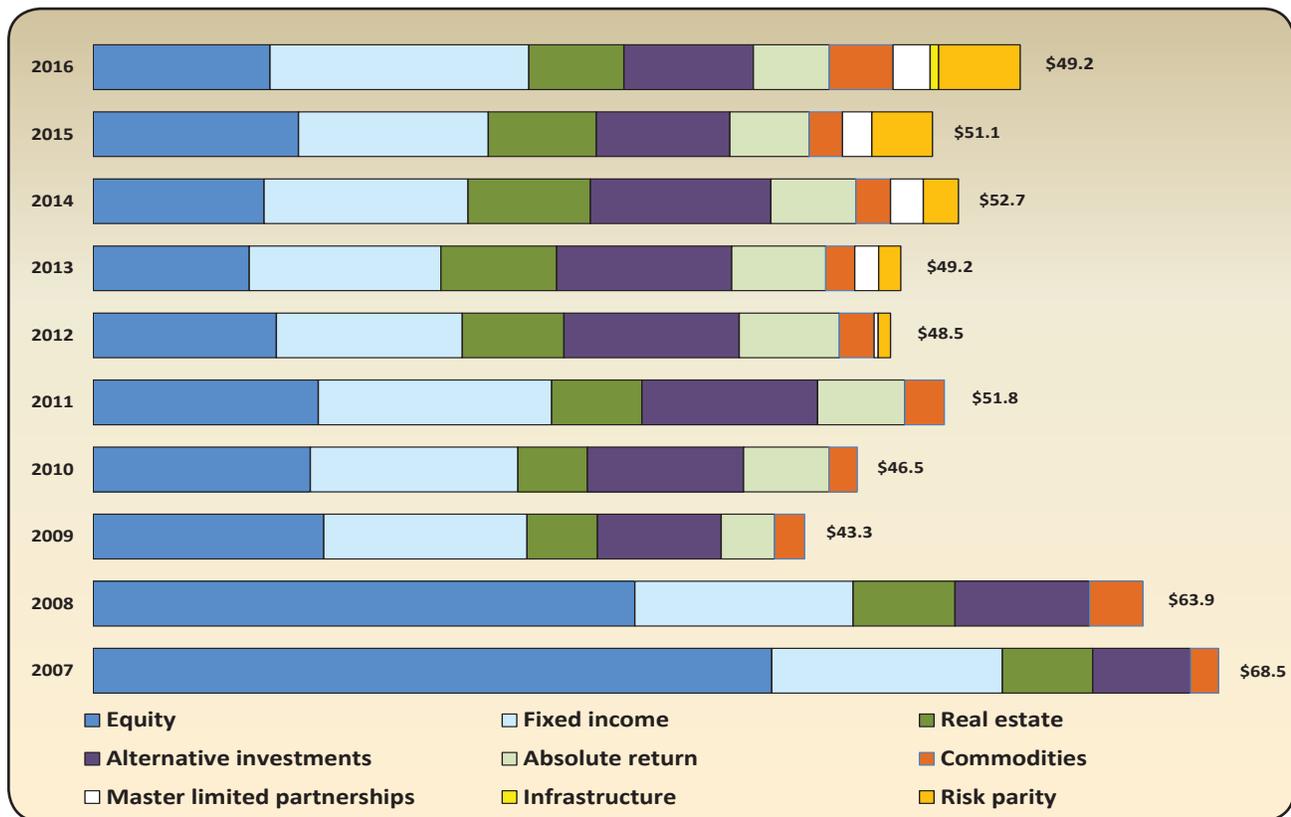
### Comparison of Actual Portfolio Distribution to Asset Allocation Plan As of June 30, 2016

Asset Category	Plan	Actual
Common and preferred stock (Equity)	21.5%	21.9%
Fixed income	31.5	31.9
Real estate	12.0	11.8
Alternative investments	16.0	16.0
Absolute return	10.0	9.4
Commodities	8.0	7.9
Master limited partnerships	4.0	4.6
Infrastructure	1.0	1.0
Risk parity	10.0	10.1
Financing	(14.0)	(14.6)
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>



## Portfolio Capital Distribution 10 Year Trend\*

(Fair Value - Dollar Amounts in Billions)



\*Financing is not reflected in the Portfolio Capital Distribution 10 Year Trend Chart.

The following lists of portfolio detail statistics present the ten largest holdings by descending order of fair value for the largest public market asset classes. Information on the complete holdings of the System can be downloaded from the PSERS website at [www.psers.state.pa.us](http://www.psers.state.pa.us).

### Common and Preferred Stock - Non-U.S. Equity 10 Largest Holdings in Descending Order by Fair Value As of June 30, 2016

(Dollar Amounts and Shares in Thousands)

Description	No. of Shares	Fair Value
BlackRock Emerging Markets Alpha Advantage Fund Ltd.- Class D	319	\$ 326,230
The 32 Capital Fund Ltd.	93	173,269
BlackRock Emerging Markets Alpha Advantage Fund Ltd.- Class P	35	107,872
Nestle SA	961	74,119
Royal Dutch Shell PLC	1,807	52,295
Roche Holding AG	169	44,487
Novartis AG	525	43,166
Taiwan Semiconductor Manufacturing Company	7,830	38,936
Novo Nordisk A/S	680	36,379
British American Tobacco PLC	555	35,925
<b>Total of 10 Largest Holdings</b>		<b>\$ 932,678</b>

**Common and Preferred Stock - U.S. Equity**  
**10 Largest Holdings in Descending Order by Fair Value**  
**As of June 30, 2016**  
(Dollar Amounts and Shares in Thousands)

Description	No. of Shares	Fair Value
SPDR Trust Unit Series 1	1,790	\$ 374,913
Enterprise Products Partners, L.P.	10,344	302,662
Security Capital Preferred Growth	13,039	213,350
Energy Transfer Partners, L.P.	5,053	192,369
Magellan Midstream Partners, L.P.	1,837	139,577
Energy Transfer Equity, L.P.	9,122	131,084
Plains All American Pipeline, L.P.	3,707	101,895
MPLX, L.P.	3,018	101,493
Williams Partners, L.P.	2,625	90,916
Buckeye Partners, L.P.	1,273	89,501
<b>Total of 10 Largest Holdings</b>		<b>\$ 1,737,760</b>

**Fixed Income**  
**10 Largest Holdings in Descending Order by Fair Value**  
**As of June 30, 2016**  
(Dollar Amounts and Shares in Thousands)

Description	No. of Shares	Fair Value
Bridgewater International Inflation-Linked Bond Fund	361	\$ 1,186,901
BlackRock US Extended Core Global Alpha Bond Fund Ltd.	448	884,897
Bridgewater Pure Alpha Fund II Ltd.	115	421,694
PIMCO Multi-Sector Strategy Fund Ltd.	346	404,624
Garda Inflation Opportunity Fund Class B	374	361,800
Bain Capital Distressed and Special Situations 2013 A, L.P.	N/A	311,913
Bain Capital Credit Managed Account, L.P.	N/A	305,612
ICG Europe Fund V, L.P.	N/A	220,531
Brigade Structured Credit Offshore Fund Ltd.	200	211,062
HayFin Special Opportunities Credit Fund Parallel, L.P.	N/A	199,889
<b>Total of 10 Largest Holdings</b>		<b>\$ 4,508,923</b>

**Absolute Return**  
**10 Largest Holdings in Descending Order by Fair Value**  
**As of June 30, 2016**  
(Dollar Amounts and Shares in Thousands)

Description	No. of Shares	Fair Value
Bridgewater Pure Alpha Fund II, Ltd.	240	\$ 759,957
Capula Global Relative Value Fund, Ltd.	3,000	402,507
Capula Tail Risk Fund Ltd.	4,466	394,232
Garda Fixed Income Relative Value Opportunity Fund Ltd.	291	365,908
PIMCO Global Credit Opportunity Offshore Fund Ltd.	122	272,119
PIMCO Absolute Return Strategy V Offshore Fund Ltd.	96	272,031
BlackRock Capital Structure Investments Offshore Fund Ltd.	198	260,191
Brigade Leveraged Capital Structures Offshore Ltd.	170	257,668
Palmetto Fund Ltd.	191	243,829
PIMCO Multi-Asset Volatility Offshore Fund Ltd.	223	240,507
<b>Total of 10 Largest Holdings</b>		<b>\$ 3,468,949</b>

**Postemployment Healthcare Investments**  
**10 Largest Holdings in Descending Order by Fair Value**  
**As of June 30, 2016**  
(Dollar Amounts in Thousands)

Description	Maturity Date	Interest Rate (%)	Par Value	Fair Value
PSERS Short-Term Investment Fund	Various	Various	\$ 113,069	\$ 113,069
Wilmington US Government MM	N/A	Various	64,006	64,006
FHLMC Multiclass Mtg K007 A1	12/25/19	3.342%	5,658	5,764
GNMA Guaranteed REMIC P/T 11-38 B	12/16/49	3.939%	5,000	5,162
Citibank Credit Card ISS A7	08/24/18	0.652%	5,000	5,000
Ford Credit Auto Owner TR C A4	10/15/18	1.250%	3,000	3,005
JPMorgan Chase & Co.	11/18/16	0.682%	3,000	3,003
CenterPoint Energy Transition Bond Co.	04/15/18	0.901%	2,878	2,877
Wells Fargo Bank, N.A.	09/19/16	0.817%	2,500	2,502
Province of Ontario Canada	07/22/16	1.000%	2,500	2,501
<b>Total of 10 Largest Holdings</b>				<b>\$ 206,889</b>

**Comparison of Investment Activity Income**  
**Fiscal Years Ended June 30, 2016 and 2015**  
(Dollar Amounts in Thousands)

<b>Investment Activity</b>	<b>2016</b>	<b>2015</b>
Net appreciation in fair value of investments	\$ (160,866)	\$ 511,869
Short-term	18,489	9,502
Fixed income	145,326	167,788
Common and preferred stock	311,356	279,940
Collective trust funds	3,168	2,117
Real estate	246,217	345,250
Alternative investments	314,270	458,658
<b>Total investment activity income</b>	<b>\$ 877,960</b>	<b>\$ 1,775,124</b>

Brokers' fees on equity investment transactions for the fiscal year ended June 30, 2016 were \$5.1 million. The System has commission recapture contracts with several brokers. These contracts generally stipulate that the brokers rebate a percentage of commissions earned on investment transactions directly to the System. During the fiscal year ended June 30, 2016, the System earned \$69,000 from the commissions recapture program. A list of the brokers receiving fees in excess of \$100,000 during the fiscal year follows:

**Summary Schedule of Brokers' Fees**  
**(Cumulative Fiscal Year Amounts Exceeding \$100,000)**  
**Fiscal Year Ended June 30, 2016**

<b>Broker Name</b>	<b>Fees Paid</b>	<b>Broker Name</b>	<b>Fees Paid</b>
Instinet Corporation	\$ 482,432	JP Morgan Chase & Company	\$ 173,831
Citigroup Global Markets Incorporated	389,381	Wells Fargo Securities	167,757
UBS Securities	294,462	Jones Trading	162,452
Fimat USA	231,167	Macquarie Bank Ltd.	162,411
Bank of America Merrill Lynch	197,805	Liquidnet Inc.	147,032
Morgan Stanley & Company	194,792	Daiwa Securities	138,972
Credit Suisse	193,971	Jefferies & Company Inc.	103,831
Goldman Sachs & Company	177,390		

**Professional Consultants**  
**External Investment Advisors**  
**As of June 30, 2016**

**Absolute Return Managers**

- ◆ Apollo Aviation Services II & III, LP
- ◆ Aeolus Capital Management, Ltd.
- ◆ BlackRock Financial Management, Inc.
- ◆ Brevan Howard Asset Management, LLP
- ◆ Bridgewater Associates, Inc.
- ◆ Brigade Capital Management
- ◆ Capula Investment Management, LLP
- ◆ Caspian Capital, LP
- ◆ Garda Asset Management, LLC
- ◆ Ellis Lake Capital, LLC
- ◆ Independence Reinsurance Partners, LP
- ◆ Nephila Capital, Ltd.
- ◆ Oceanwood Capital Management, Ltd.
- ◆ One William Street Capital Management, LP
- ◆ Pacific Investment Management Company
- ◆ Perry Capital, LLC

**Publicly-Traded Real Estate Securities Manager**

- ◆ Security Capital Research & Management, Inc.

**Non-U.S. Equity Managers**

- ◆ Acadian Asset Management, Inc.
- ◆ Baillie Gifford Overseas, Ltd.
- ◆ Batterymarch Financial Management, Inc.
- ◆ BlackRock Financial Management, Inc.
- ◆ Marathon Asset Management, LLP
- ◆ Oberweis Asset Management, Inc.
- ◆ Pyramis Global Advisors, Inc.
- ◆ Wasatch Advisors, Inc.

**Commodity Managers**

- ◆ Gresham Investment Management, LLC
- ◆ Pacific Investment Management Company
- ◆ Wellington Management Company, LLP

**U.S. Core Plus Fixed Income Managers**

- ◆ BlackRock Financial Management, Inc.
- ◆ Pugh Capital Management, Inc.
- ◆ SEI Investment Management Corporation

**High Yield Fixed Income Managers**

- ◆ Apollo Management International, LLP
- ◆ Avenue Capital Group
- ◆ BlackRock Financial Management, Inc.
- ◆ Brigade Capital Management
- ◆ Cerberus Institutional Partners, LP
- ◆ Haymarket Financial, LLP
- ◆ Intermediate Capital Group, PLC
- ◆ LBC Credit Partners
- ◆ Mariner Investment Group, LLC
- ◆ Oaktree Capital Management, LP

- ◆ Park Square Capital, LLP
- ◆ Radcliffe Capital Management, LP
- ◆ Sankaty Advisors, LLC
- ◆ Summit Partners
- ◆ The Carlyle Group
- ◆ TPG Partners, LP
- ◆ Varde Partners

**Non-U.S. Developed Markets Fixed Income Manager**

- ◆ AllianceBernstein, LP

**Emerging Markets Debt Managers**

- ◆ Franklin Templeton Investments

**Multi-Sector Fixed Income Manager**

- ◆ Pacific Investment Management Company

**Global Treasury Inflation - Protected Securities Managers**

- ◆ Bridgewater Associates, Inc.
- ◆ Garda Asset Management, LLC

**Passive Currency Hedging Overlay Program Manager**

- ◆ Pareto Investment Management, Ltd.

**Risk Parity Managers**

- ◆ AQR Capital Management, LLC
- ◆ BlackRock Financial Management, Inc.
- ◆ Bridgewater Associates, Inc.
- ◆ D.E. Shaw Investment Management, LLC

**Master Limited Partnership Advisors**

- ◆ Atlantic Trust Private Wealth Management
- ◆ Harvest Fund Advisors, LLC
- ◆ Salient Capital Advisors, LLC

**Real Estate Advisors**

- ◆ Charter Oak Advisors, Inc.
- ◆ GF Management, Inc.
- ◆ L&B Realty Advisors, LLP

**Real Estate Partnerships**

- ◆ AG Core Plus Realty Fund III, LP
- ◆ Almanac Realty Securities V & VI, LP
- ◆ Apollo Real Estate Finance Corp.
- ◆ AREFIN Co-Invest Corp.
- ◆ Ares European Real Estate Fund III, LP
- ◆ Ares U.S. Real Estate Fund VII, LP
- ◆ AvalonBay Value Added Fund I, LP
- ◆ Avenue Real Estate Fund, LP
- ◆ Bell Institutional Fund IV & V, LP
- ◆ BlackRock Asia Property Fund III, LP
- ◆ BlackRock Europe Property Fund III, LP

**Professional Consultants (Continued)**

- ◆ Blackstone Real Estate Debt Strategies II, LP
  - ◆ Blackstone Real Estate Partners V, VI, & VII, LP
  - ◆ Blackstone Real Estate Partners Europe III & IV, LP
  - ◆ BPG/PSERS Co-Investment Fund, LP
  - ◆ Broadway Partners Real Estate Fund II & III, LP
  - ◆ Brookfield Strategic Real Estate Partners I & II, LP
  - ◆ Cabot Industrial Value Fund III & IV, LP
  - ◆ Carlyle Realty Partners III, IV, V, & VI, LP
  - ◆ DLJ Real Estate Capital Partners II, LP
  - ◆ DRA Growth and Income Fund VI & VII, LLC
  - ◆ Exeter Core Industrial Club Fund II, LP
  - ◆ Exeter Industrial Value Fund II, LP
  - ◆ Fortress Investment Fund I, IV, & V, LP
  - ◆ Hines U.S. Office Value Added Fund, LP
  - ◆ JP Morgan Strategic Property Fund
  - ◆ LAI Real Estate Investors, LLC
  - ◆ Latitude Management Real Estate Capital III, Inc.
  - ◆ Legg Mason Real Estate Capital I & II, Inc.
  - ◆ LEM Real Estate High Yield Debt and Preferred Equity Fund III, LP
  - ◆ LEM Real Estate Mezzanine Fund II, LP
  - ◆ Paramount Group, Inc.
  - ◆ Peabody Global Real Estate Partners
  - ◆ Pramerica Real Estate Capital VI, LP
  - ◆ PRISA
  - ◆ RCG Longview Debt Fund IV & V, LP
  - ◆ RCG Longview Equity Fund, LP
  - ◆ Senior Housing Partnership Fund IV, LP
  - ◆ Silverpeak Legacy Partners I, LP
  - ◆ Stockbridge Real Estate Fund I, II, & III, LP
  - ◆ Strategic Partners II, III, & IV RE, LP
  - ◆ UBS (US) Trumbull Property Fund, LP
- Farmland Advisor**
- ◆ Prudential Agricultural Group
- Private Equity/Venture Capital Partnerships**
- ◆ ABS Capital Partners II, LP
  - ◆ Actis Emerging Markets 3, LP
  - ◆ Actis Global 4, LP
  - ◆ Adams Capital Management, LP
  - ◆ Aisling Capital Partners II, III & IV, LP
  - ◆ Allegheny New Mountain Partners, LP
  - ◆ Apax Europe VII, LP
  - ◆ Bain Capital Asia Fund II & III, LP
  - ◆ Bain Capital Fund XI, LP
  - ◆ Baring Asia Private Equity Fund III, IV, & V, LP
  - ◆ Blue Point Capital Partners I, II, & III, LP
  - ◆ Bridgepoint Capital II, LP
  - ◆ Bridgepoint Europe I, II, III, IV & V, LP
  - ◆ Capital International Private Equity Fund V & VI, LP
  - ◆ Catterton Growth Partners I, II & III, LP
  - ◆ Catterton Partners V, VI, & VII, LP
  - ◆ Co-Investment Fund 2000, LP
  - ◆ Co-Investment Fund II, LP
  - ◆ Coller International Partners VI & VII, LP
  - ◆ Credit Suisse Intl. Equity Partners, LP
  - ◆ Crestview Partners I & II, LP
  - ◆ Cross Atlantic Technology Fund I & II, LP
  - ◆ CVC Capital Partners Asia Pacific III, LP
  - ◆ CVC European Equity Partners V, LP
  - ◆ DCPF VI Oil and Gas Co-Investment Fund, LP
  - ◆ Denham Commodity Partners VI, LP
  - ◆ DLJ Merchant Banking Partners III, LP
  - ◆ Dubin Clark Fund II, LP
  - ◆ Equistone Partners Europe Fund VE, LP
  - ◆ Evergreen Pacific Partners I & II, LP
  - ◆ First Reserve Fund XI & XII, LP
  - ◆ Goldpoint Partners Co-Investment Fund V, LP
  - ◆ Greenwich Street Capital Partners II, LP
  - ◆ HgCapital 7, LP
  - ◆ HGGC Fund II
  - ◆ Incline Equity Partners III, LP
  - ◆ Irving Place Capital Partners II & III, LP
  - ◆ Jefferson Partners Fund IV, LP
  - ◆ KBL Healthcare Ventures, LP
  - ◆ KRG Capital Fund II, LP
  - ◆ Landmark Equity Partners IV, V, XIII, & XIV, LP
  - ◆ Landmark Mezzanine Partners, LP
  - ◆ Lexington Capital Partners I, LP
  - ◆ Lindsay, Goldberg & Bessemer, LP
  - ◆ LLR Equity Partners I, II, III, & IV, LP
  - ◆ Milestone Partners II, III, & IV, LP
  - ◆ Morgan Stanley Dean Witter Capital Partners IV, LP
  - ◆ North Haven Private Equity Asia Fund IV, LP
  - ◆ NEPA Venture Fund II, LP
  - ◆ New Mountain Partners I & III, LP
  - ◆ New York Life Capital Partners I, II, III, & IV, LP
  - ◆ NGP Natural Resources X, LP
  - ◆ Novitas Capital I & II, LP
  - ◆ Odyssey Investment Partners, LLC
  - ◆ Orchid Asia V, LP
  - ◆ PAI Europe IV & V, LP
  - ◆ Palladium Equity Partners II-A & IV, LP
  - ◆ Partners Group Secondary 2008, 2011 & 2015, LP
  - ◆ Permira IV, LP
  - ◆ Perseus-Soros Bio-Pharmaceutical Fund, LP
  - ◆ Platinum Equity Capital Partners I, II, & III, LP
  - ◆ PNC Equity Partners I & II, LP
  - ◆ Psilos Group Partners III, LP
  - ◆ Quadrangle Capital Partners I, LP
  - ◆ Quaker BioVentures I & II, LP
  - ◆ SCP Private Equity Partners I & II, LP
  - ◆ StarVest Partners I & II, LP
  - ◆ StepStone International Investors III, LP
  - ◆ Sterling Capital Partners, LP
  - ◆ Sterling Venture Partners, LP
  - ◆ Strategic Feeder, LP
  - ◆ Strategic Partners II, III, III-B, & III-VC, IV, IV-VC, V, VI, & VII, LP

## Investment Section

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### Professional Consultants (Continued)

- ◆ Summit Partners Growth Equity Fund VIII, LP
- ◆ Summit Partners Venture Capital Fund III & IV, LP
- ◆ Tenaya Capital IV-P, V-P, & VI, LP
- ◆ The Energy & Minerals Group
- ◆ The Fifth Cinven Fund No. 1, LP
- ◆ The Fourth Cinven Fund
- ◆ Trilantic Capital Partners IV, LP
- ◆ Trilantic Capital Partners V (North America), LP
- ◆ U.S. Equity Partners II, LP

### Private Debt Partnerships

- ◆ Apollo Investment Fund VIII, LP
- ◆ Avenue Asia Special Situations Fund II, III, & IV, LP
- ◆ Avenue Europe Special Situations Fund, LP
- ◆ Avenue Special Situations Fund IV, V, & VI, LP
- ◆ Cerberus Institutional Partners, II, III, IV, V & VI, LP
- ◆ Clearlake Capital Partners IV, LP
- ◆ Gleacher Mezzanine Fund I & II
- ◆ Gold Hill Venture Lending, LP
- ◆ GSC Partners CDO Investors IV, LP
- ◆ GSC Recovery II & III, LP
- ◆ New York Life Investment Management Mezzanine Partners I & II, LP
- ◆ OCM Opportunities Fund VII & VII-B, LP
- ◆ Searchlight Capital II, LP
- ◆ Venor Special Situations Fund II, LP
- ◆ Versa Capital Fund I, II & III, LP
- ◆ Windjammer Senior Equity Fund III & IV, LP

### Alternative Investment Consultant

- ◆ Portfolio Advisors, LLC

### Custodian Bank

- ◆ The Bank of New York Mellon Corporation

### Securities Lending Agent

- ◆ Deutsche Bank AG

### Absolute Return Consultant

- ◆ Aksia, LLC

### Investment Accounting Application Service Provider

- ◆ Financial Control Systems, Inc.

### Investment Evaluator and General Investment Consultant

- ◆ Aon Hewitt Investment Consulting, Inc.

### Proxy Voting Agent

- ◆ Glass, Lewis & Co., LLC

### Real Estate Investment Consultant

- ◆ Courtland Partners, Ltd.

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January 15, 2016

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

Re: Actuary's Certification Letter

Members of the Board:

An actuarial valuation of the Pennsylvania Public School Employees' Retirement System (Retirement System or PSERS) is performed annually to measure the ongoing costs of the Retirement System and the progress towards the funding goals of the Retirement System over time. The most recent actuarial valuation was completed as of June 30, 2015. The financing objective of the Retirement System is to:

- Fully fund all current costs based on the normal contribution rate determined under the funding method,
- Liquidate the unfunded accrued liability based on level percentage of pay amortization schedules required by the Public School Employees' Retirement Code, 24 Pa. C.S. §8101 et. seq. (Retirement Code) as amended by Act 2010-120, which requires amortization over 24 years of the unfunded accrued liability as of June 30, 2010, and of each change in the unfunded accrued liability due to actuarial experience after the June 30, 2010 valuation. Any increases in the unfunded liability arising from legislation enacted after June 30, 2010, are to be amortized over 10 years; and
- As directed by Act 2010-120, use pension rate collars to moderate the rise of annual employer pension contribution rates to reach the full actuarially determined contribution funding level in a budgetarily sound manner and within a financially responsible period of time. Effective with the fiscal year during which the pension rate collar no longer applies, the employer contribution rate will be the actuarially determined pension contribution rate, subject to a new minimum employer contribution rate that will be the employer pension normal cost rate.

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

Based on the June 30, 2015, actuarial valuation, a total contribution rate of 30.03% (29.20% Pension plus 0.83% Premium Assistance) of payroll payable by employers for FY2016/2017, when taken together with the contributions payable by the members, current assets, and expected future asset returns, is sufficient to achieve the financing objective. The Act 2010-120 maximum employer pension contribution rate for fiscal year 2016/2017 is 29.5%, which exceeds the actuarially determined pension rate. In accordance with Act 2010-120, since the employer pension rate collar does not constrain the actuarially determined rate for fiscal year 2016/2017, the Act 2010-120 pension rate collar is no longer effective for future valuations. The Act 120 minimum employer pension rate is the employer pension normal cost rate of 8.31%.

The valuation takes into account all of the promised benefits to which members are entitled as of June 30, 2015, including pension and survivor benefits, and as required by the Retirement Code as the basis for the contribution rate for fiscal year 2016/2017. There were no legislative or administrative changes made to the benefits payable by PSERS since the prior valuation.



As required under Section 8502(j) of the Retirement Code, experience studies are performed for PSERS every five years, the most recent having been made as of June 30, 2010. This valuation was prepared on the basis of the demographic and economic assumptions that were recommended on the basis of the July 1, 2005 – June 30, 2010 Experience Review and approved by the Board of Trustees at its March 11, 2011, meeting.

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

The actuarial assumptions and methods used by PSERS for financial reporting meet the requirements set forth in Governmental Accounting Standards Board (GASB) Statements No. 67 and are unchanged from the prior valuation. The actuarial cost method used for GASB Statement No. 67 disclosures differ from the actuarial cost method used for funding purposes in that the market value of assets has been used instead of an actuarial value of assets. The actuarial assumptions and methods for the GASB 25 disclosure are the same as those used for pension funding, except that the GASB 25 amortization payment will be determined on the basis of 30-year level-dollar funding. GASB 25 disclosures are no longer required to be reported due to GASB 67. However, PSERS is voluntarily providing GASB 25 disclosures for historical perspective as PSERS transitions to GASB 67. The Health Insurance funding provisions of the Retirement Code differ from the GASB 43 disclosure requirements. For funding purposes, the actuarial liability equals the assets in the health insurance account, and a contribution is determined to provide for solvency of the account through the third fiscal year following the valuation date. For GASB 43 purposes, the Health Insurance actuarial liability and normal cost requirements are determined under the entry age actuarial cost method, with 30-year level-dollar funding. (The entry age actuarial cost method meets the GASB 43 requirements for determining actuarial liability and normal cost and is the cost method specified by the Retirement Code for the PSERS pension plan.)

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

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

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

The following supporting schedules in the Actuarial Section were prepared by Buck Consultants:

- Summary of Results of Actuarial Valuation as of June 30, 2015
- History and Projection of Contribution Rates and Funded Ratios
- Summary of Actuarial Assumptions and Methods
- Schedule of Active Member Valuation Data
- Schedule of Retired Members and Beneficiaries Added To and Removed From Rolls



- Solvency Test
- Analysis of Past Financial Experience - Reconciliation of Employer Contribution Rates

In addition, Buck Consultants prepared the “Schedule of Changes in the Employer Net Pension Liability,” “Schedule of Employer Net Pension Liability,” “Schedule of Employer Contributions” and the “Schedule of Funding Progress” in the Financial Section.

This report was prepared solely for the Pennsylvania Public School Employees’ Retirement System for the purposes herein stated and may not be appropriate to use for other purposes. Buck does not intend to benefit and assumes no duty or liability to other parties who receive this work. Use of this report for any other purposes or by anyone other than PSERS and its auditors may not be appropriate and may result in mistaken conclusions because of failure to understand applicable assumptions, methods, or inapplicability of the report for that purpose. The attached pages should not be provided without a copy of this cover letter. You should ask Buck to review any statement you wish to make on the results contained in this report. Buck will accept no liability for any such statement made without prior review by Buck.

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

Respectfully submitted,  
Buck Consultants

A handwritten signature in black ink that reads "David L. Driscoll".

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

A handwritten signature in black ink that reads "Edward Quinn".

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

A handwritten signature in black ink that reads "Salvador Nakar".

Salvador Nakar, MAAA, EA  
Senior Consultant

**SUMMARY OF RESULTS OF ACTUARIAL VALUATION  
AS OF JUNE 30, 2015  
(\$ Amounts in Thousands)**

Item	June 30, 2015	June 30, 2014
<b>Member Data</b>		
1. Number of Members		
a) Active Members	259,868	263,312
b) Vesteest*	21,909	20,467
c) Annuitants, Beneficiaries and Survivor Annuitants**	219,775	213,900
d) Total	501,552	497,679
2. Annualized Salaries (\$ Amounts in Thousands)***	\$ 12,678,213	\$ 12,620,862
3. Annual Annuities (\$ Amounts in Thousands)	\$ 5,520,620	\$ 5,339,477
<b>Valuation Results</b>		
4. Present Value of Future Pension Benefits		
a) Active Members	\$ 61,134,713	\$ 60,153,320
b) Inactive Members and Vesteest	1,613,862	1,521,474
c) Annuitants, Beneficiaries and Survivor Annuitants	52,739,489	51,425,295
d) Total	\$ 115,488,064	\$ 113,100,089
5. Present Value of Future Pension Normal Cost		
a) Active Members	\$ 10,232,272	\$ 9,786,167
b) Employer	10,679,082	10,960,939
c) Total	\$ 20,911,354	\$ 20,747,106
6. Pension Accrued Liability		
a) Active Members (4a) – (5c)	\$ 40,223,359	\$ 39,406,214
b) Inactive Members and Vesteest	1,613,862	1,521,474
c) Annuitants, Beneficiaries and Survivor Annuitants	52,739,489	51,425,295
d) Total	\$ 94,576,710	\$ 92,352,983
7. Health Insurance Assets for Premium Assistance	\$ 120,643	\$ 112,060
8. Total Accrued Liability for Funding (6) + (7)	\$ 94,697,353	\$ 92,465,043
9. Actuarial Value of Assets	\$ 57,361,589	\$ 57,343,859
10. Funded Status (9) / (8)	60.6%	62.0%
11. Unfunded Accrued Liability (8) – (9)	\$ 37,335,764	\$ 35,121,184
12. Total Normal Cost Rate	15.83%	15.87%
13. Member Contribution Rate	7.52%	7.49%
14. Employer Normal Cost Rate (12) – (13)	8.31%	8.38%
<b>Employer Annual Funding Requirement</b>		
15. Employer Contribution Rate Calculated by Actuary	<b>Fiscal 2016/2017</b>	<b>Fiscal 2015/2016</b>
a) Normal	8.31%	8.38%
b) Unfunded Accrued Liability	20.89%	19.44%
c) Preliminary Pension Rate	29.20%	27.82%
d) Act 120 Employer Pension Rate Collar	29.50%	25.00%
e) Health Insurance	0.83%	0.84%
f) Total Rate = Minimum [(15)(c), (15)(d)] + (15)(e)	30.03%	25.84%

\* Excludes 115,277 and 112,097 inactive members as of June 30, 2015 and June 30, 2014, respectively, who are no longer participating and are valued for their accumulated deductions only.

\*\* Excludes 1,446 and 1,459 beneficiaries as of June 30, 2015 and June 30, 2014, respectively, who are only entitled to a pending lump sum distribution.

\*\*\* The salaries shown represent an annual rate of pay for members who were in active service on the valuation date.

**HISTORY AND PROJECTION OF CONTRIBUTION RATES AND FUNDED RATIOS<sup>1</sup>**

Fiscal Year Ending June 30	Appropriation Payroll (thousands)	Contribution Rates <sup>2</sup>							
		Employee	Employer Normal Cost	Employer Unfunded Liability	Preliminary Employer Pension	Final Employer Pension <sup>6</sup>	Employer Health Insurance	Total Employer	Funded Ratio
2006	\$ 11,505,093	7.16%	7.61%	(4.28%)	3.33%	4.00%	0.69%	4.69%	81.2%
2007 <sup>3</sup>	11,821,951	7.21	6.62	(0.95)	5.67	5.72	0.74	6.46	85.8
2008	12,881,244	7.25	6.68	(0.24)	6.44	6.44	0.69	7.13	86.0
2009	12,500,000	7.29	6.68	(3.37)	3.31	4.00	0.76	4.76	79.2
2010 <sup>4</sup>	12,899,000	7.32	7.35	(3.72)	3.63	4.00	0.78	4.78	75.1
2011 <sup>4,5</sup>	13,510,000	7.34	8.08	(0.50)	7.58	5.00	0.64	5.64	69.1
2012	14,112,000	7.37	8.12	10.15	18.27	8.00	0.65	8.65	66.4
2013 <sup>7</sup>	14,297,000	7.40	8.66	12.99	21.65	11.50	0.86	12.36	63.8
2014	13,720,000	7.43	8.57	15.25	23.82	16.00	0.93	16.93	62.0
2015	13,482,000	7.46	8.46	17.51	25.97	20.50	0.90	21.40	60.6
2016	13,375,000	7.49	8.38	19.44	27.82	25.00	0.84	25.84	58.2
2017	13,549,000	7.52	8.31	20.89	29.20	29.20	0.83	30.03	56.8
2018	13,658,010	7.52	8.14	23.07	31.21	31.21	0.83	32.04	56.1
2019	14,012,675	7.52	7.98	24.47	32.45	32.45	0.82	33.27	58.6
2020	14,385,408	7.53	7.81	25.59	33.40	33.40	0.80	34.20	60.1
2021	14,775,522	7.53	7.66	25.06	32.72	32.72	0.79	33.51	61.2
2022	15,181,732	7.53	7.51	25.23	32.74	32.74	0.77	33.51	62.6
2023	15,592,952	7.53	7.36	25.63	32.99	32.99	0.76	33.75	64.1
2024	16,006,876	7.53	7.21	25.89	33.10	33.10	0.74	33.84	65.5
2025	16,425,303	7.53	7.06	26.16	33.22	33.22	0.72	33.94	67.3
2026	16,849,867	7.53	6.90	26.56	33.46	33.46	0.72	34.18	69.2
2027	17,269,991	7.53	6.74	26.87	33.61	33.61	0.69	34.30	71.2

1. The projection of contribution rates is based on the assumption that there are no changes in demographic assumptions, no changes in benefit provisions, and no actuarial gains or losses other than gains or losses on the actuarial value of assets that result from recognizing currently deferred gains or losses on the market value of assets.
2. In general, the Preliminary Employer Pension Rate equals the sum of the rates for the Employer Normal Cost and the Unfunded Liability; and the Final Employer Pension Rate is the greater of the Preliminary Pension Rate and any Pension Rate Floor or Collar stated in the Retirement Code. The Total Employer Rate is the sum of the Final Employer Pension Rate and the Employer Health Insurance Rate.
3. Revised actuarial assumptions based on a five-year experience review ending June 30, 2005 were used to determine the contributions for the fiscal year ended June 30, 2007. Since the benefit changes under Act 2001-9 had not been in effect throughout the entire period covered by the study the Board decided, at its December 2005 meeting, to delay making any changes to the retirement rate assumptions until further data became available. The 5.72% Final Employer Pension Rate equals the 6.46% Total Employer Rate certified by the Board at that meeting, minus the 0.74% Employer Health Insurance Rate. The 5.67% Preliminary Employer Pension Rate equals the sum of the Employer Normal Cost and Unfunded Liability rates. The Normal Cost and Unfunded Liability rates were calculated by the actuary in January 2006, based on the package of assumptions adopted at the December 2005 meeting.
4. At its January 2009 meeting, the Board voted to reduce the interest rate from 8.50% to 8.25% for the June 30, 2008 valuation and to 8.00% for subsequent valuations.
5. Act 2010-46 recertified the fiscal year ended June 30, 2011 pension rate from 7.58% to 5.00%.
6. The Final Employer Pension rate is limited by the Act 2010-120 pension rate collars for fiscal years 2012 through 2016.
7. Revised actuarial assumptions based on a five-year experience review ended June 30, 2010 were used to determine the contributions for the fiscal year ending June 30, 2013 and thereafter, which include an interest rate of 7.50%.

## DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS

### ASSUMPTIONS

**Investment Rate of Return:** 7.50% per annum, compounded annually (adopted as of June 30, 2011). The components are 3.00% for inflation and 4.50% for the real rate of return. Actuarial equivalent benefits are determined based on 4% (since 1960).

**Discount Rate for GASB 67 Accounting:** 7.50% as of June 30, 2014 and June 30, 2015. Rates were determined in accordance with the methods prescribed in GASB Statement No. 67.

**Separation from Service:** Illustrative rates of assumed separation from service are shown in the following table (adopted as of June 30, 2011).

Age	Annual Rate of:						
	Non-Vested Withdrawal	Withdrawal		Death	Disability	Early Retirement*	Superannuation Retirement
		Less Than 10 Years of Service	10 or More Years of Service				
<b>MALES</b>							
25	12.50%	5.50%	2.00%	0.037%	0.024%		
30	10.50	3.20	2.00	0.038	0.024		
35	11.00	3.00	1.50	0.056	0.100		
40	13.00	3.50	1.25	0.090	0.180		
45	13.00	3.50	1.25	0.121	0.180		25.00%
50	13.00	3.50	1.70	0.173	0.280		25.00
55	11.00	3.50	3.00	0.245	0.430	15.00%	30.00
60	10.50	3.50	4.50	0.363	0.580	12.00	28.00
65				0.592	0.100		20.00
69				0.810	0.100		18.00
<b>FEMALES</b>							
25	13.00%	8.50%	5.00%	0.018%	0.030%		
30	13.00	6.50	4.00	0.019	0.040		
35	13.00	5.50	3.00	0.022	0.060		
40	10.90	4.50	1.50	0.035	0.100		
45	10.90	4.00	1.50	0.055	0.150		30.00%
50	10.90	3.75	1.75	0.085	0.200		30.00
55	10.90	3.75	3.00	0.133	0.380	15.00%	30.00
60	10.90	4.50	5.50	0.197	0.380	15.00	30.00
65				0.301	0.130		25.00
69				0.428	0.130		20.00

\* Early Retirement – Age 55 with 25 years of service, but not eligible for Superannuation retirement.

**DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS  
(Continued)**

**Death after Retirement:** The RP-2000 Combined Healthy Annuitant Tables (Male and Female) with age set back 3 years for both genders for healthy annuitants and for dependent beneficiaries. The RP-2000 Combined Disabled Tables (Male and Female) with age set back 7 years for males and set back 3 years for females for disabled annuitants. (A unisex table based on the RP-2000 Combined Healthy Annuitant Tables (Male and Female) with age set back 3 years for both genders assuming the population consists of 25% males and 75% females is used to determine actuarial equivalent benefits.) No specific additional provision has been made to reflect possible future improvements in mortality.

**Salary Increase:** Effective average of 5.50% per annum, compounded annually (adopted as of June 30, 2011). The components are 3.00% for inflation, 1% for real wage growth and 1.5% for merit or seniority increases. Representative values are as follows:

Age	Annual Rate of Salary Increase
20	10.75%
30	8.25
40	6.25
50	4.25
55	3.75
60	3.75
65	3.75
70	3.75

**Payroll Growth:** 3.50% per annum.

**MISCELLANEOUS**

**Option 4 Elections:** 100% of Class T-C and Class T-D members are assumed to elect a refund of contributions and a reduced annuity.

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

**Health Insurance**

**Elections:** 64% of eligible retirees are assumed to elect premium assistance. This decreased from the 65% used in the prior valuation.

**Administrative Expenses:** Assumed equal to 2% of contributions made during the year.

**METHODS**

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

**Asset Valuation Method:** A ten-year moving market average (five-year moving market average prior to June 30, 2010) value of assets that recognizes the 7.50% (8.00% prior to June 30, 2011, 8.25% prior to June 30, 2009, and 8.50% prior to June 30, 2008) actuarial expected investment return immediately and spreads the difference between the actual return on the market value of assets and the expected return on the actuarial value of assets over a period of ten years. The averaging period is being phased-in from fiscal year 2006.

**Actuarial Cost Method for Pension Funding:** Entry Age Normal Cost Method (modified slightly as of June 30, 2005 to use a pay-weighted average normal contribution rate). The results of each June 30 valuation normally determine the employer contribution rate for the second succeeding fiscal year. Act 120 revised the funding method effective with the June 30, 2010 valuation. Act 120 mandated that the outstanding balance of the unfunded accrued liability as of June 30, 2010, including changes in the unfunded accrued liability due to the funding reforms of Act 120, be amortized over a 24-year period, as a level percent of pay, beginning July 1, 2011. Future valuation gains and losses, and changes in the unfunded accrued liability resulting from changes in actuarial assumptions and methods, are amortized over a 24-year period, as a level percent of pay. Future increases in the unfunded accrued liability due to legislation will be amortized over a 10-year period, as a level percent of pay. Act 120 also modified the employer pension contribution requirements by imposing collars on the rate at which employer contributions may rise from year to year. For the fiscal years ending June 30, 2012, June 30, 2013, and on or after June 30, 2014 the pension contribution rate can be no more than 3%, 3.5% and 4.5%, respectively, of total compensation of all active members, greater than the prior year's final contribution rate. Beginning with the fiscal year in which the actuarially required contribution rate is less than the collared rate, the final contribution rate is the

**DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS**  
(Continued)

actuarially determined contribution rate, provided that the final contribution rate is not less than the employer normal contribution rate.

**Actuarial Cost Method for GASB 67 Accounting for Pensions:** Same as for pension funding except that the market value of assets is used instead of an actuarial value of assets.

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

**Actuarial Cost Method for GASB 43 Accounting for Health Insurance:** The actuarial liability is determined under the entry age actuarial cost method, and the Annual Required Contribution (ARC) for the second fiscal year that follows the valuation date is equal to the entry age

normal cost for health insurance plus an amount that will amortize the entry age unfunded actuarial liability for health insurance over a period of 30 years.

**DATA**

**Census and Assets:** The valuation was based on members of the Retirement System as of June 30, 2015 and does not take into account future members. All census data was supplied by the Retirement System and was subject to reasonable consistency checks. The actuary adjusts the data to account for service and pay earned by members on or before the valuation that is not reported by the Retirement System until after the actuarial valuation is performed. Asset data was supplied by the Retirement System.

**SCHEDULE OF ACTIVE MEMBERS**  
**VALUATION DATA**

Valuation as of June 30	Number of Participating Employers	Number of Active Members	Annual Compensation (Thousands)	Average Compensation	% Increase in Average
2015	784	259,868	\$ 12,678,213	\$ 48,787	1.02%
2014	784	263,312	12,620,862	47,931	1.92
2013	782	267,428	12,577,105	47,030	1.17
2012	773	273,504	12,714,371	46,487	0.52
2011	747	279,152	12,910,043	46,247	1.99
2010	747	282,041	12,788,847	45,344	1.26
2009	742	279,701	12,524,593	44,779	2.43
2008	739	272,690	11,921,469	43,718	1.16
2007	739	264,023	11,410,257	43,217	(0.33)
2006	733	263,350	11,419,049	43,361	5.22

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

Valuation Date as of June 30	Added to Rols		Removed from Rols		Rols at End of Year		% Increase in Annual Allowance	Average Annual Allowance
	Number	Annual Allowance (Millions)	Number	Annual Allowance (Millions)	Number	Annual Allowance* (Millions)		
2015	15,017	\$ 297.3	9,142	\$ 91.7	219,775	\$ 5,520.6	3.39%	\$ 25,119
2014	15,225	300.5	8,878	84.9	213,900	5,339.5	3.74	24,962
2013	16,404	377.6	10,866	83.7	207,553	5,147.1	5.63	24,800
2012	14,579	332.7	7,186	66.6	202,015	4,872.9	4.78	24,122
2011	16,228	453.7	6,540	76.4	194,622	4,650.8	7.17	23,897
2010	12,649	372.8	5,678	77.6	184,934	4,339.6	8.59	23,466
2009	9,651	314.9	5,228	74.4	177,963	3,996.3	4.85	22,456
2008	10,911	345.3	5,397	73.9	173,540	3,811.5	8.18	21,963
2007	10,612	307.5	4,399	56.0	168,026	3,523.4	7.60	20,970

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

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

Valuation Date as of June 30	Added to Rols		Removed from Rols		Rols at End of Year		% Increase in Annual Premium Assistance	Average Annual Premium Assistance
	Number*	Annual Premium Assistance (Millions)	Number*	Annual Premium Assistance (Millions)	Number*	Annual Premium Assistance (Millions)		
2015	6,516	\$ 5.0	3,635	\$ 2.8	143,254	\$ 110.0	0.46%	\$ 1,200
2014	4,969	3.9	2,289	1.8	140,373	109.5	0.37	1,200
2013	6,759	5.4	2,364	1.9	137,693	109.1	3.31	1,200
2012	5,751	4.6	1,372	1.1	133,298	105.6	3.43	1,200
2011	8,185	6.5	2,074	1.6	128,919	102.1	4.93	1,200
2010	6,709	5.3	2,323	1.8	122,808	97.3	3.73	1,200
2009	6,285	5.0	3,079	2.4	118,422	93.8	2.74	1,200
2008	8,792	7.0	6,050	4.8	115,216	91.3	2.47	1,200
2007	7,072	5.6	2,637	2.1	112,474	89.1	4.09	1,200

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

**SOLVENCY TESTS**  
**COMPARATIVE SUMMARY OF ACCRUED LIABILITY AND**  
**ACTUARIAL VALUE OF ASSETS**  
(\$ Amounts in Thousands)

**PENSIONS**

Valuation as of June 30	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets		
					(1)	(2)	(3)
2015	\$ 14,079,658	\$ 52,739,489	\$ 27,757,563	\$ 57,240,946	100%	82%	0%
2014	13,554,229	51,425,295	27,373,459	57,231,799	100	85	0
2013	13,089,342	49,979,444	26,883,030	57,353,262	100	89	0
2012	12,535,442	47,511,912	27,713,306	58,227,622	100	96	0
2011	12,242,308	45,648,780	27,749,295	59,141,131	100	100	5
2010	11,850,031	40,284,383	26,871,014	59,306,848	100	100	27
2009	11,087,345	37,112,318	27,321,073	59,781,575	100	100	42
2008	10,532,683	34,617,953	25,695,001	60,922,157	100	100	61
2007	10,183,433	31,603,788	24,708,649	57,057,838	100	100	62
2006	9,571,668	29,117,164	25,938,529	52,464,726	100	100	53

**POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS**

Valuation as of June 30	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Member Employer Financed	Actuarial Value of Assets	Portion of Accrued Liability Covered by Valuation Assets		
					(1)	(2)	(3)
2015	\$ 0	\$ 957,954	\$ 410,135	\$ 120,643	N/A	13%	0%
2014	0	959,079	415,033	112,060	N/A	12	0
2013	0	961,701	423,332	100,349	N/A	10	0
2012	0	934,506	430,161	93,753	N/A	10	0
2011	0	909,076	430,368	111,258	N/A	12	0
2010	0	767,587	394,632	116,831	N/A	15	0
2009	0	759,891	399,164	105,114	N/A	14	0
2008	0	749,070	383,941	95,785	N/A	13	0
2007	0	684,677	373,415	97,292	N/A	14	0
2006	0	684,435	371,719	92,777	N/A	14	0

The solvency test compares the actuarial accrued liabilities by various categories with the System's actuarial value of assets.

**ANALYSIS OF PAST FINANCIAL EXPERIENCE  
RECONCILIATION OF EMPLOYER CONTRIBUTION RATES**

Fiscal Year Ending June 30	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008
Effective Prior Year Contribution Rate	25.84%	21.40%	16.93%	12.36%	8.65%	5.64%	4.78%	4.76%	7.13%	6.46%
Prior Year Adjustment for Legislation	2.82	5.47	7.82	10.15	10.27	2.58	(0.37)	(0.69)	N/A	(0.05)
<b>Net Change Due to:</b>										
Change in Normal Rate	(0.07)	(0.08)	(0.11)	(0.09)	(0.22)	0.04	0.00	(0.02)	0.00	0.06
Payroll Growth and Liability Experience	0.14	0.58	0.68	0.72	(0.21)	0.40	(0.03)	0.33	(0.88)	0.47
Investment Loss/(Gain)	0.83	0.66	0.81	0.78	0.59	1.94	2.04	(1.71)	(2.25)	0.24
Health Insurance Contribution Change	(0.01)	(0.06)	(0.03)	0.07	0.21	0.01	(0.14)	0.02	0.07	(0.05)
Assumption/Method Change	N/A	N/A	N/A	N/A	3.04	N/A	1.94	1.72	N/A	N/A
Act 40 4.00% Floor*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.37	0.69	N/A
Act 120 Funding Reforms	N/A	N/A	N/A	N/A	N/A	8.31	N/A	N/A	N/A	N/A
Amortization of Prior Legislation Deferrals	0.48	0.69	0.77	0.76	0.18	N/A	N/A	N/A	N/A	N/A
<b>Legislation Deferrals:</b>										
Act 46 Rate Cap**	N/A	N/A	N/A	N/A	N/A	N/A	(2.58)	N/A	N/A	N/A
Act 120 Collar***	N/A	(2.82)	(5.47)	(7.82)	(10.15)	(10.27)	N/A	N/A	N/A	N/A
Actual Contribution Rate:	30.03%	25.84%	21.40%	16.93%	12.36%	8.65%	5.64%	4.78%	4.76%	7.13%

\* Act 2003-40 amended the Retirement Code to increase the Employer Pension Rate Floor from 1% to 4%.

\*\* Act 2010-46 recertified the fiscal year ending June 30, 2011 pension rate from 7.58% to 5.00%.

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

**SCHEDULE OF FUNDING PROGRESS FOR PENSIONS\***

(\$ Amounts in Thousands)

Valuation as of June 30	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	Unfunded Accrued Liability as a Percentage of Covered Payroll
2015	\$ 57,240,946	\$ 94,576,710	\$ 37,335,764	60.5%	\$ 12,678,213	294.5%
2014	57,231,799	92,352,983	35,121,184	62.0	12,620,862	278.3
2013	57,353,262	89,951,816	32,598,554	63.8	12,577,105	259.2
2012	58,227,622	87,760,660	29,533,038	66.3	12,714,371	232.3
2011	59,141,131	85,640,383	26,499,252	69.1	12,910,043	205.3
2010	59,306,848	79,005,428	19,698,580	75.1	12,788,847	154.0
2009	59,781,575	75,520,736	15,739,161	79.2	12,524,593	125.7
2008	60,922,157	70,845,637	9,923,480	86.0	11,921,469	83.2
2007	57,057,838	66,495,870	9,438,032	85.8	11,410,257	82.7
2006	52,464,726	64,627,361	12,162,635	81.2	11,419,049	106.5

\* The amounts reported above include assets and liabilities for Pensions.

The schedule above is not required by current GASB standards. PSERS is voluntarily providing this information for historical perspective as PSERS transitions to GASB Statement No. 67.

**SCHEDULE OF FUNDING PROGRESS FOR  
POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS\*\***

**GASB STATEMENT NO. 43 DISCLOSURE**

(\$ Amounts in Thousands)

Valuation as of June 30	Actuarial Value of Assets	Actuarial Accrued Liability	Unfunded Actuarial Accrued Liability	Funded Ratio	Covered Payroll	Unfunded Accrued Liability as a Percentage of Covered Payroll
2015	\$ 120,643	\$ 1,368,089	\$ 1,247,446	8.8%	\$ 12,678,213	9.8%
2014	112,060	1,374,112	1,262,052	8.2	12,620,862	10.0
2013	100,349	1,385,033	1,284,684	7.2	12,577,105	10.2
2012	93,753	1,364,667	1,270,914	6.9	12,714,371	10.0
2011	111,258	1,339,444	1,228,186	8.3	12,910,043	9.5
2010	116,831	1,162,219	1,045,388	10.1	12,788,847	8.2
2009	105,114	1,159,055	1,053,941	9.1	12,524,593	8.4
2008	95,785	1,133,011	1,037,226	8.5	11,921,469	8.7
2007	97,292	1,058,092	960,800	9.2	11,410,257	8.4
2006	92,777	1,056,154	963,377	8.8	11,419,049	8.4

\*\* The amounts reported above include assets and liabilities for Health Insurance Premium Assistance. The health insurance liabilities for GASB 43 disclosure have been calculated under the entry age normal cost method, which provides liabilities that differ from those determined under the funding requirements of the Retirement Code.

**SCHEDULE OF EMPLOYER CONTRIBUTIONS FOR PENSIONS**  
 (\$ Amounts in Thousands)

<b>Fiscal Year Ended June 30</b>	<b>Annual Required Contribution</b>	<b>Actual Employer Contribution</b>	<b>Percentage Contributed</b>
2015	\$ 3,760,827	\$ 2,596,731	69%
2014	3,410,373	1,986,384	58
2013	3,110,429	1,434,815	46
2012	2,629,244	1,001,140	38
2011	2,436,602	647,000	27
2010	1,928,278	527,212	27
2009	1,761,295	503,227	29
2008	1,852,238	753,532	41
2007	1,708,821	659,545	39
2006	1,328,373	456,878	34

The Annual Required Contribution (ARC) presented above was determined as part of the actuarial valuation as of two years prior to the dates indicated (i.e., the ARC for the fiscal year ended June 30, 2015 was determined by the valuation completed as of June 30, 2013 which was based on an 7.50% interest rate).

Additional information as of the latest actuarial valuation follows:

Valuation Date:	6/30/2015
Actuarial Cost Method:	Entry Age
Amortization Method:	Level Dollar, Open
Remaining Amortization Period:	30 Years
Asset Valuation Method:	10 Year Smoothed Market
Actuarial Assumptions:	
-Investment Rate of Return*	7.50%
-Projected Salaried Increases*	5.50%
*Includes Inflation at:	3.00%

The schedule above is not required by current GASB standards. PSERS is voluntarily providing this information for historical perspective as PSERS transitions to GASB Statement No. 67.

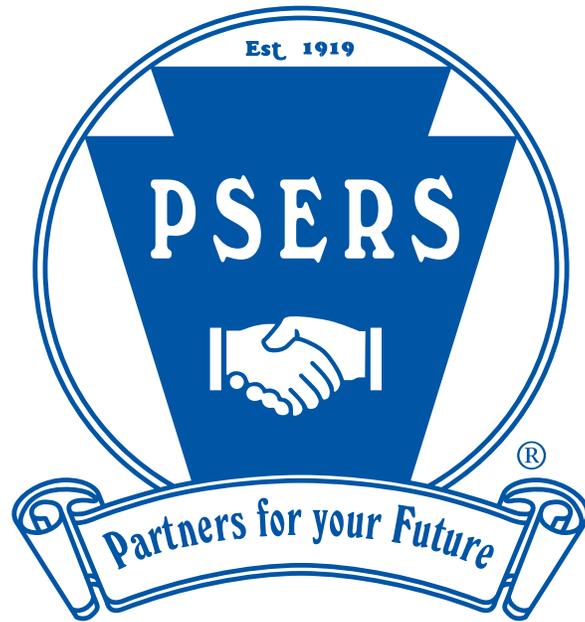
**SCHEDULE OF EMPLOYER CONTRIBUTIONS FOR  
POSTEMPLOYMENT BENEFITS OTHER THAN PENSIONS  
GASB STATEMENT NO. 43 DISCLOSURE  
(\$ Amounts in Thousands)**

Fiscal Year Ended June 30	Annual Required Contribution	Actual Employer Contribution	Percentage Contributed
2015	\$ 128,489	\$ 116,808	91%
2014	121,260	117,471	97
2013	113,016	107,993	96
2012	102,104	80,936	79
2011	119,320	88,796	74
2010	117,187	102,703	88
2009	109,531	92,493	84
2008	101,352	81,317	80
2007	94,970	86,763	91

The Annual Required Contribution (ARC) beginning with the fiscal year ended June 30, 2009 was determined as part of the actuarial valuation as of two years prior to the date indicated (i.e., the ARC for the fiscal year ended June 30, 2015 was determined by the valuation completed as of June 30, 2013, which was based on a 7.50% interest rate). Prior to the fiscal year which ended June 30, 2009, the ARC was determined as part of the actuarial valuation as of one year prior to the dates indicated.

Additional information as of the latest actuarial valuation follows:

Valuation Date:	6/30/2015
Actuarial Cost Method:	Entry Age
Amortization Method:	Level Dollar, Open
Remaining Amortization Period:	30 Years
Asset Valuation Method:	Market
Actuarial Assumptions:	
-Investment Rate of Return*	7.50%
-Projected Salaried Increases*	5.50%
*Includes Inflation at:	3.00%



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# STATISTICAL SECTION

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## Statistical Section Narrative

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

### Financial Trends

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

The following Financial Trend Schedules are presented:

- Schedule of Trend Data
- Total Changes in Fiduciary Net Position - Pension
- Total Changes in Fiduciary Net Position - Postemployment Healthcare Plans

The following Financial Trend Graphs are presented:

- Additions to Fiduciary Net Position - Pension
- Additions to Fiduciary Net Position - Postemployment Healthcare Plans
- Deductions from Fiduciary Net Position - Pension
- Deductions from Fiduciary Net Position - Postemployment Healthcare Plans

### Demographic and Economic Information

Some of the following schedules listed are dependent upon an actuarial valuation. For those schedules, the most recent information is presented as of the year ended June 30, 2015, the date of PSERS' most current actuarial valuation completed at the time of publication.

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

### Operating Information

- Ten Largest Employers
- Schedule of Employers

**Schedule of Trend Data**  
(Dollar Amounts in Thousands)\*

For years ended June 30	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007
<b>Contribution Rates:</b>										
Total Pension %	25.00	20.50	16.00	11.50	8.00	5.00	4.00	4.00	6.44	5.72
Health Care Insurance Premium Assistance %	.84	.90	.93	.86	.65	.64	.78	.76	.69	.74
Total Employer %	25.84	21.40	16.93	12.36	8.65	5.64	4.78	4.76	7.13	6.46
Average Member %	7.49	7.46	7.43	7.40	7.37	7.34	7.32	7.29	7.25	7.21
Total Employer Contributions	3,302,817	2,713,539	2,109,952	1,555,078	1,085,927	747,753	638,034	608,372	834,849	746,308
Average Annual Member Compensation \$ *	49,989	48,787	47,931	47,030	46,487	46,247	45,344	44,779	43,718	43,217
Market Value of Assets \$	49,957,000	51,706,000	53,092,000	49,116,000	48,628,000	51,311,000	45,715,000	43,101,000	62,569,000	67,438,000
Actuarial Value of Assets \$	**	57,362,000	57,344,000	57,454,000	58,321,000	59,252,000	59,424,000	59,887,000	61,018,000	57,155,000
Accrued Actuarial Liability \$	**	95,945,000	92,465,000	90,052,000	87,854,000	85,752,000	79,122,000	75,626,000	70,941,000	66,593,000
Funded Ratio %	**	60.6	62.0	63.8	66.4	69.1	75.1	79.2	86.0	85.8
Total Benefits & Refunds \$	6,779,577	6,614,154	6,417,455	6,373,363	5,992,979	5,617,247	5,269,175	4,931,854	4,941,681	4,320,440
Average Pension \$ *	25,203	25,119	24,962	24,799	24,122	23,897	23,466	22,456	21,963	20,970
Annuitants & Beneficiaries	224,828	219,775	213,900	207,553	202,015	194,622	184,934	177,963	173,540	168,026
Active Members	257,080	259,868	263,312	267,428	273,504	279,152	282,041	279,701	272,690	264,023
Retirements	10,135	10,813	9,888	12,468	12,228	11,546	9,255	8,753	9,701	10,106

\* All dollar amounts are in thousands, except Average Annual Member Compensation and Average Pension.  
 \*\* Data for these categories relate to the actuarial valuation for fiscal year ended June 30, 2016. Results for this valuation were not available at publication date.

## Total Changes in Fiduciary Net Position - Pension

### 10 Year Trend

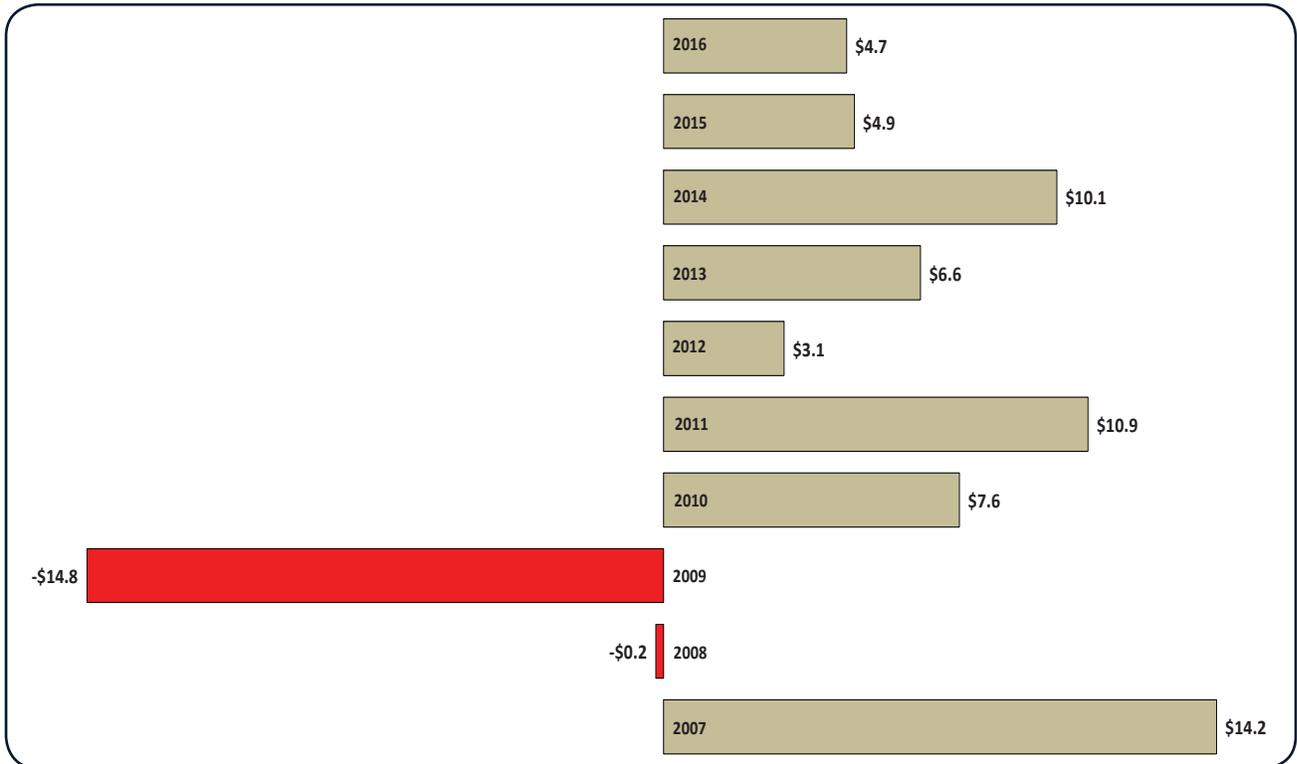
(Dollar Amounts in Thousands)

Year Ended June 30	Additions to Fiduciary Net Position					Deductions from Fiduciary Net Position					Net Increase / (Decrease)	
	Member Contributions	Employer Contributions	Net Investment Income	Total Additions		Annuities	Lump-Sums	Refunds of Contributions	Administrative*	Net Transfers**		Total Deductions
2016	\$ 989,266	\$ 3,189,510	\$ 473,206	\$ 4,651,982		\$ 5,522,662	\$ 815,131	\$ 20,069	\$ 45,118	\$ 2,463	\$ 6,405,443	\$ (1,753,461)
2015	984,634	2,596,731	1,328,516	4,909,881		5,356,085	840,167	20,920	42,331	3,429	6,262,932	(1,353,051)
2014	966,926	1,992,084	7,097,761	10,056,771		5,166,777	862,018	22,823	38,712	1,887	6,092,217	3,964,554
2013	991,087	1,446,402	4,126,002	6,563,491		4,905,200	1,111,692	24,461	37,480	2,893	6,081,726	481,765
2012	952,887	1,004,584	1,093,319	3,050,790		4,691,250	964,056	24,675	34,242	2,765	5,716,988	(2,666,198)
2011	1,042,707	658,511	9,246,091	10,947,309		4,322,520	958,703	17,695	37,028	9,844	5,345,790	5,601,519
2010	952,047	535,331	6,113,679	7,601,057		4,095,334	866,888	16,720	12,105	7,015	4,998,062	2,602,995
2009	911,118	515,889	(16,201,701)	(14,774,694)		3,885,286	754,011	20,369	35,639	7,947	4,703,252	(19,477,946)
2008	879,598	753,532	(1,782,628)	(149,498)		3,623,652	1,012,688	28,713	35,863	17,157	4,718,073	(4,867,571)
2007	855,322	659,545	12,694,327	14,209,194		3,189,004	855,431	18,180	35,239	6,010	4,103,864	10,105,330

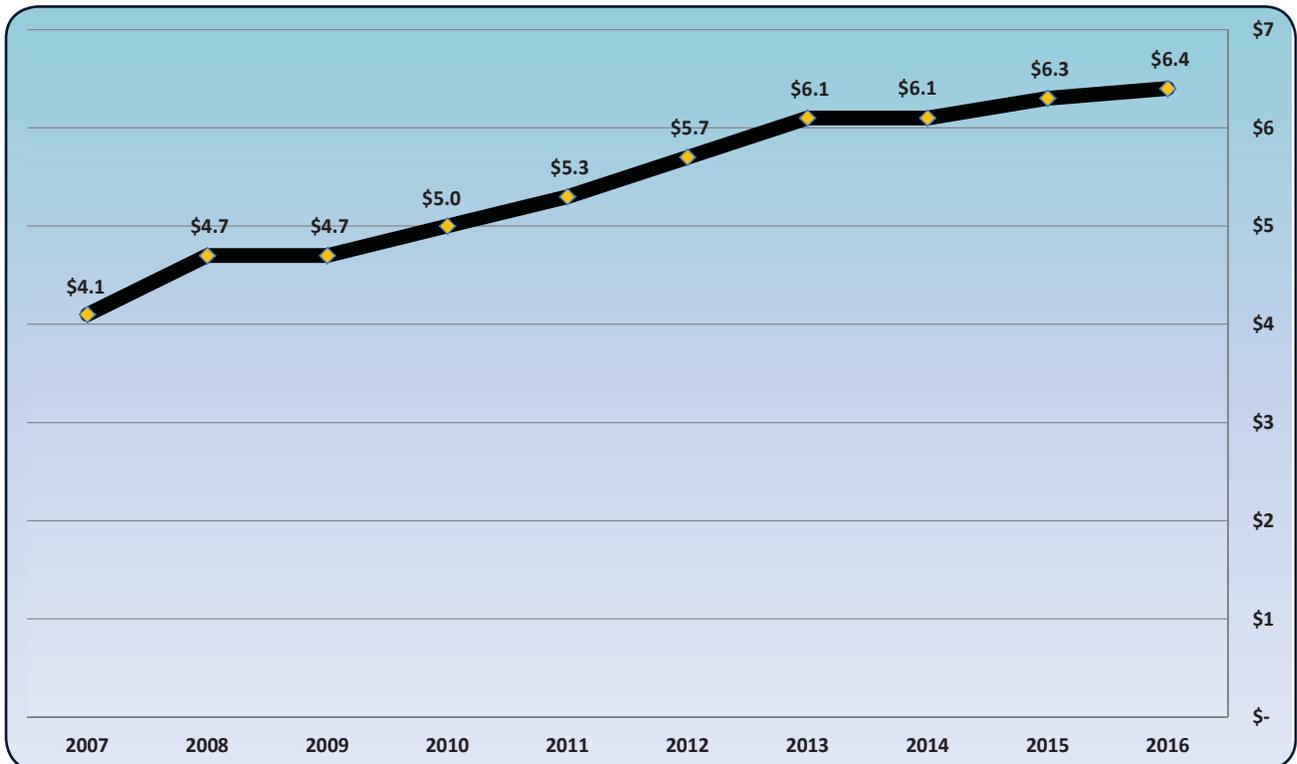
\* Reporting of administrative expenses for fiscal year ended June 30, 2010 includes effects of the capitalization of intangible assets as a result of PSERS' implementation of GASB Statement No. 51 *Accounting and Financial Reporting for Intangible Assets*.

\*\* Net transfers to the Commonwealth of Pennsylvania State Employees' Retirement System.

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



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



## Total Changes in Fiduciary Net Position - Postemployment Healthcare Plans 10 Year Trend

(Dollar Amounts in Thousands)

### Premium Assistance

Year Ended June 30	Additions to Fiduciary Net Position			Deductions from Fiduciary Net Position			Net Increase / (Decrease)
	Employer Contributions	Net Investment Income	Total Additions	Benefits	Administrative	Total Deductions	
2016	\$ 113,307	\$ 542	\$ 113,849	\$ 108,273	\$ 1,656	\$ 109,929	\$ 3,920
2015	116,808	215	117,023	106,298	2,142	108,440	8,583
2014	117,868	70	117,938	104,197	2,030	106,227	11,711
2013	108,676	110	108,786	100,078	2,112	102,190	6,596
2012	81,343	423	81,766	97,206	2,065	99,271	(17,505)
2011	89,242	691	89,933	93,518	1,988	95,506	(5,573)
2010	102,703	869	103,572	89,911	1,944	91,855	11,717
2009	92,493	1,861	94,354	83,206	1,819	85,025	9,329
2008	81,317	2,755	84,072	84,335	1,244	85,579	(1,507)
2007	86,763	2,573	89,336	82,031	2,790	84,821	4,515

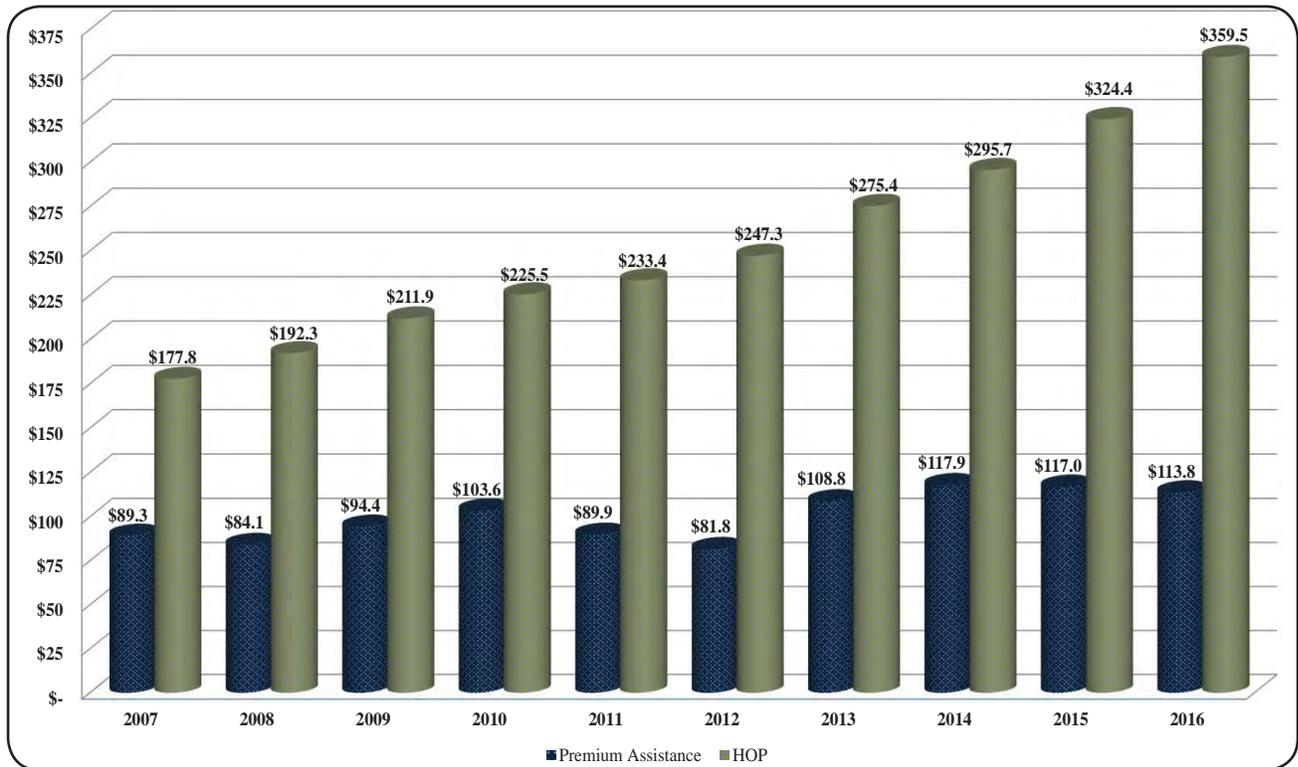
### Health Options Program

Year Ended June 30	Additions to Fiduciary Net Position			Deductions from Fiduciary Net Position			Net Increase / (Decrease)
	Participant Premiums	CMS Contributions	Net Investment Income	Benefits	Administrative	Total Deductions	
2016	\$ 308,132	\$ 51,034	\$ 299	\$ 310,979	\$ 33,457	\$ 344,436	\$ 15,029
2015	281,855	42,436	152	287,255	28,027	315,282	9,161
2014	257,740	37,759	191	259,753	25,975	285,728	9,962
2013	234,516	40,698	226	229,039	22,644	251,683	23,757
2012	213,642	33,462	237	213,027	20,213	233,240	14,101
2011	201,014	32,080	310	214,967	18,729	233,696	(292)
2010	191,184	33,901	440	193,307	16,443	209,750	15,775
2009	178,801	31,556	1,528	181,035	13,817	194,852	17,033
2008	159,563	28,426	4,288	175,136	12,143	187,279	4,998
2007	144,185	27,789	5,821	169,784	12,453	182,237	(4,442)

## Additions to Fiduciary Net Position - Postemployment Healthcare Plans

### 10 Year Trend

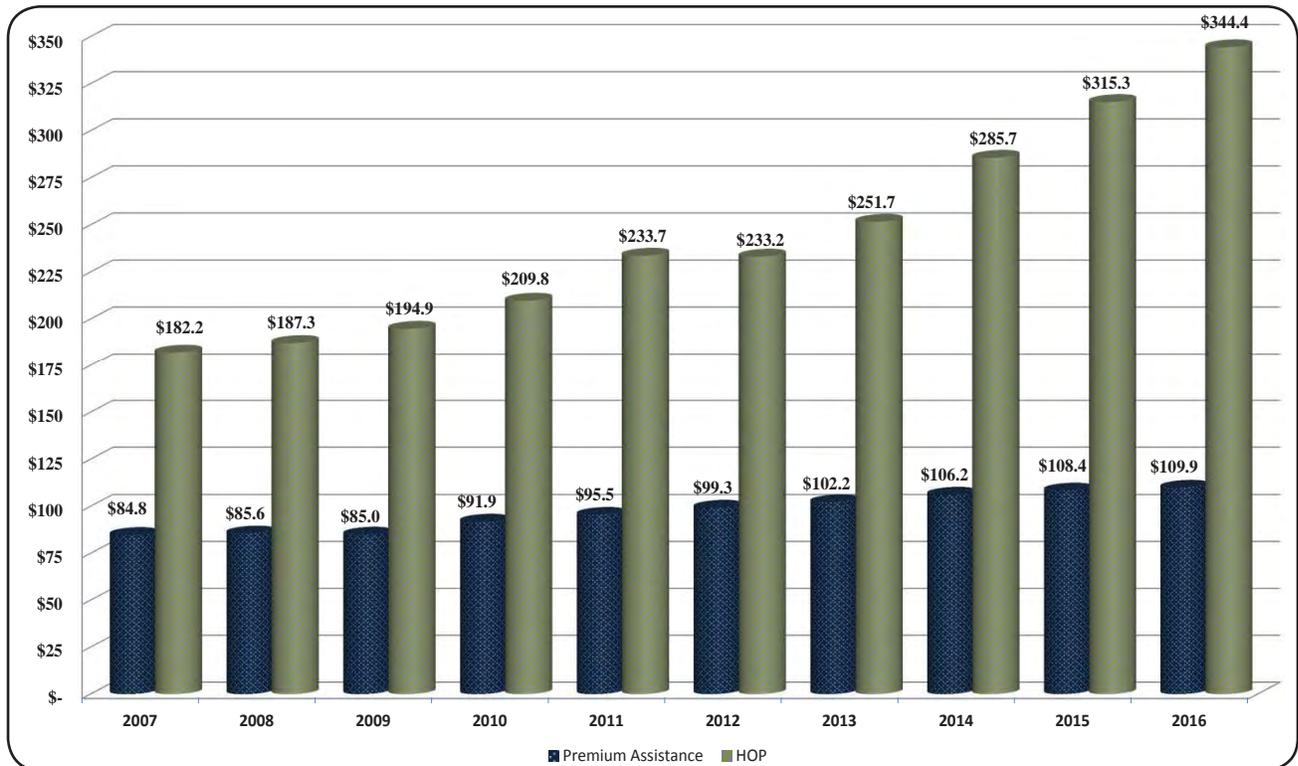
(Dollar Amounts in Millions)



## Deductions from Fiduciary Net Position - Postemployment Healthcare Plans

### 10 Year Trend

(Dollar Amounts in Millions)



**Summary Membership Data  
10 Year Trend \***

For year ended June 30	Male			Female			Total Number of Active Members
	Average Age	Average Service	Average Annual Salaries	Average Age	Average Service	Average Annual Salaries	
2015	44.6	11.5	\$ 54,269	45.0	11.0	\$ 46,720	259,868
2014	44.5	11.2	53,248	45.0	10.9	45,918	263,312
2013	44.4	11.1	52,413	44.9	10.7	45,005	267,428
2012	44.3	10.9	51,751	44.9	10.6	44,513	273,504
2011	44.1	10.8	51,678	44.6	10.3	44,209	279,152
2010	44.2	10.9	50,770	44.6	10.3	43,306	282,041
2009	44.4	11.2	50,613	44.7	10.3	42,606	279,701
2008	44.5	11.4	49,818	44.7	10.4	41,440	272,690
2007	44.5	11.7	49,220	44.7	10.5	40,958	264,023
2006	44.6	12.0	49,153	44.7	10.7	41,155	263,350

\* Actuarial Valuation for year ended June 30, 2015 is most current valuation completed at publication date.

**Summary Annuity Data  
10 Year Trend \*\***

For year ended June 30	Number of Annuitants & Beneficiaries	Total Annual Annuities***	Average Annual Annuity
2015	219,775	\$ 5,520,620	\$ 25,119
2014	213,900	5,339,477	24,962
2013	209,204	5,147,060	24,603
2012	202,015	4,872,918	24,122
2011	194,622	4,650,798	23,897
2010	184,934	4,339,639	23,466
2009	177,963	3,996,000	22,456
2008	173,540	3,812,000	21,963
2007	168,026	3,523,000	20,970
2006	161,813	3,274,000	20,236

\*\* Actuarial Valuation for year ended June 30, 2015 is most current valuation completed at publication date.

\*\*\* Total Annual Annuities dollar amounts expressed in thousands.

## Pension Benefit and Refund Deductions from Fiduciary Net Position 10 Year Trend

(Dollar Amounts in Thousands)

For year ended June 30	Retirements *									
	Normal	Early	Disability	Pension Lump Sum Benefits	Survivor and Beneficiary	Net Transfers***	Total Pension Benefits Deductions	Refunds	Total Pension Benefits and Refund Deductions	
2016	\$ 3,203,542	\$ 2,007,372	\$ 182,320	\$ 686,988	\$ 257,571	\$ 2,463	\$ 6,340,256	\$ 20,069	\$ 6,360,325	
2015	3,088,036	1,986,684	177,693	709,240	234,599	3,429	6,199,681	20,920	6,220,601	
2014	2,953,187	1,928,614	167,676	741,386	237,932	1,887	6,030,682	22,823	6,053,505	
2013	2,811,906	1,845,269	161,995	933,049	264,673	2,893	6,019,785	24,461	6,044,246	
2012	2,629,151	1,758,581	149,000	887,244	231,330	2,765	5,658,071	24,675	5,682,746	
2011	2,420,883	1,664,903	141,273	847,482	206,682	9,844	5,291,067	17,695	5,308,762	
2010	2,273,819	1,600,435	136,174	733,333	218,461	7,015	4,969,237	16,720	4,985,957	
2009	2,110,018	1,538,421	130,820	666,827	193,211	7,947	4,647,244	20,369	4,667,613	
2008	4,636,340	**	**	**	**	17,157	4,653,497	28,713	4,682,210	
2007	4,044,435	**	**	**	**	6,010	4,050,445	18,180	4,068,625	

\* Data presented in Normal column for years 2007 to 2008 are aggregate amounts for all Retirement Types.

\*\* Detailed data is not available.

\*\*\* Net transfers to the Commonwealth of Pennsylvania State Employees' Retirement System.

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

Years of Credited Service									
< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	Total

**Fiscal year ended June 30, 2015**

Normal and Early	4,360	17,744	24,820	20,719	20,682	24,379	45,677	36,248	5,532	<b>200,161</b>
	\$ 94	\$ 186	\$ 359	\$ 772	\$ 1,344	\$ 2,153	\$ 3,218	\$ 4,222	\$ 4,564	<b>\$ 2,169</b>
Disability	-	1,841	2,134	1,686	1,534	1,332	550	19	9	<b>9,105</b>
	\$ -	\$ 762	\$ 980	\$ 1,306	\$ 1,937	\$ 2,773	\$ 3,602	\$ 3,235	\$ 2,353	<b>\$ 1,584</b>
Beneficiary and Survivor	-	5,481	619	621	628	648	1,067	1,018	427	<b>10,509</b>
	\$ -	\$ 1,219	\$ 271	\$ 399	\$ 611	\$ 883	\$ 1,221	\$ 1,420	\$ 1,497	<b>\$ 1,089</b>

**Fiscal year ended June 30, 2014**

Normal and Early	4,232	16,238	24,007	20,109	20,068	23,694	45,272	35,798	5,468	<b>194,886</b>
	\$ 94	\$ 183	\$ 346	\$ 743	\$ 1,292	\$ 2,097	\$ 3,186	\$ 4,181	\$ 4,448	<b>\$ 2,157</b>
Disability	-	1,812	2,038	1,624	1,495	1,316	557	20	8	<b>8,870</b>
	\$ -	\$ 752	\$ 954	\$ 1,266	\$ 1,888	\$ 2,712	\$ 3,598	\$ 3,216	\$ 2,240	<b>\$ 1,560</b>
Beneficiary and Survivor	-	4,733	672	674	678	697	1,124	1,100	466	<b>10,144</b>
	\$ -	\$ 1,192	\$ 256	\$ 397	\$ 606	\$ 875	\$ 1,213	\$ 1,392	\$ 1,455	<b>\$ 1,052</b>

**Fiscal year ended June 30, 2013**

Normal and Early	4,051	14,757	23,095	19,499	19,506	22,897	44,704	35,277	5,384	<b>189,170</b>
	\$ 93	\$ 179	\$ 331	\$ 708	\$ 1,243	\$ 2,041	\$ 3,151	\$ 4,142	\$ 4,354	<b>\$ 2,146</b>
Disability	-	1,749	1,950	1,554	1,455	1,283	547	17	10	<b>8,565</b>
	\$ -	\$ 729	\$ 925	\$ 1,249	\$ 1,843	\$ 2,654	\$ 3,546	\$ 3,163	\$ 2,311	<b>\$ 1,532</b>
Beneficiary and Survivor	-	5,659	724	729	728	745	1,191	1,190	503	<b>11,469</b>
	\$ -	\$ 814	\$ 254	\$ 387	\$ 620	\$ 854	\$ 1,195	\$ 1,368	\$ 1,442	<b>\$ 866</b>

**Fiscal year ended June 30, 2012**

Normal and Early	3,881	13,459	22,313	18,971	18,919	21,855	43,662	34,024	5,170	<b>182,254</b>
	\$ 111	\$ 176	\$ 317	\$ 680	\$ 1,202	\$ 1,972	\$ 3,105	\$ 4,078	\$ 4,196	<b>\$ 2,110</b>
Disability	-	1,698	1,882	1,517	1,397	1,257	531	15	9	<b>8,306</b>
	\$ -	\$ 694	\$ 875	\$ 1,166	\$ 1,748	\$ 2,583	\$ 3,465	\$ 2,917	\$ 2,147	<b>\$ 1,467</b>
Beneficiary and Survivor	-	5,234	772	784	780	797	1,261	1,281	546	<b>11,455</b>
	\$ -	\$ 702	\$ 245	\$ 390	\$ 603	\$ 850	\$ 1,175	\$ 1,341	\$ 1,412	<b>\$ 811</b>

**Fiscal year ended June 30, 2011**

Normal and Early	3,695	12,263	21,497	18,343	18,199	21,042	42,507	33,045	5,045	<b>175,636</b>
	\$ 114	\$ 174	\$ 305	\$ 656	\$ 1,158	\$ 1,921	\$ 3,064	\$ 4,041	\$ 4,133	<b>\$ 2,091</b>
Disability	-	1,629	1,798	1,473	1,366	1,216	523	15	9	<b>8,029</b>
	\$ -	\$ 680	\$ 839	\$ 1,136	\$ 1,686	\$ 2,548	\$ 3,476	\$ 2,878	\$ 2,147	<b>\$ 1,441</b>
Beneficiary and Survivor	-	4,389	817	819	804	842	1,322	1,362	602	<b>10,957</b>
	\$ -	\$ 652	\$ 239	\$ 372	\$ 583	\$ 842	\$ 1,170	\$ 1,322	\$ 1,383	<b>\$ 796</b>

\* Actuarial valuation for year ended June 30, 2015 is the most current valuation completed at the publication date.

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

	Years of Credited Service									Total
	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+	

**Fiscal year ended June 30, 2010**

Normal and Early	4,695	11,529	20,812	17,777	17,356	19,973	40,625	30,716	4,755	<b>168,238</b>
	\$ 1,023	\$ 349	\$ 287	\$ 613	\$ 1,093	\$ 1,839	\$ 3,004	\$ 3,933	\$ 3,896	\$ <b>2,037</b>
Disability	-	1,633	1,761	1,453	1,352	1,227	517	18	11	<b>7,972</b>
	\$ -	\$ 694	\$ 819	\$ 1,098	\$ 1,654	\$ 2,513	\$ 3,475	\$ 2,563	\$ 1,958	\$ <b>1,424</b>
Beneficiary and Survivor	-	2,604	772	735	755	773	1,192	1,280	613	<b>8,724</b>
	\$ -	\$ 1,008	\$ 217	\$ 336	\$ 525	\$ 770	\$ 1,075	\$ 1,200	\$ 1,241	\$ <b>872</b>

**Fiscal year ended June 30, 2009**

Normal and Early	4,395	10,474	20,503	17,544	17,134	19,821	39,700	28,187	4,448	<b>162,206</b>
	\$ 376	\$ 178	\$ 279	\$ 602	\$ 1,090	\$ 1,828	\$ 2,966	\$ 3,780	\$ 3,720	\$ <b>1,945</b>
Disability	-	1,566	1,713	1,417	1,313	1,205	485	12	2	<b>7,713</b>
	\$ -	\$ 661	\$ 802	\$ 1,103	\$ 1,658	\$ 2,507	\$ 3,461	\$ 3,318	\$ 2,348	\$ <b>1,412</b>
Beneficiary and Survivor	-	1,824	788	744	767	786	1,207	1,304	624	<b>8,044</b>
	\$ -	\$ 838	\$ 218	\$ 336	\$ 524	\$ 770	\$ 1,070	\$ 1,201	\$ 1,248	\$ <b>820</b>

**Fiscal year ended June 30, 2008**

Normal and Early	4,054	9,541	20,539	17,450	16,748	19,166	38,331	27,318	4,509	<b>157,656</b>
	\$ 355	\$ 165	\$ 270	\$ 584	\$ 1,032	\$ 1,733	\$ 2,904	\$ 3,732	\$ 3,629	\$ <b>1,896</b>
Disability	-	1,468	1,664	1,364	1,280	1,178	466	14	1	<b>7,435</b>
	\$ -	\$ 876	\$ 949	\$ 1,205	\$ 1,854	\$ 2,714	\$ 3,707	\$ 3,681	\$ 4,550	\$ <b>1,595</b>
Beneficiary and Survivor	789	402	964	874	879	917	1,381	1,522	721	<b>8,449</b>
	\$ 1,127	\$ 121	\$ 223	\$ 347	\$ 533	\$ 783	\$ 1,083	\$ 1,223	\$ 1,255	\$ <b>817</b>

**Fiscal year ended June 30, 2007**

Normal and Early	2,812	8,675	20,554	17,448	16,304	18,664	37,422	25,100	5,382	<b>152,361</b>
	\$ 54	\$ 149	\$ 256	\$ 553	\$ 971	\$ 1,662	\$ 2,821	\$ 3,574	\$ 3,488	\$ <b>1,820</b>
Disability	-	1,437	1,689	1,370	1,307	1,154	430	11	1	<b>7,399</b>
	\$ -	\$ 595	\$ 770	\$ 1,044	\$ 1,569	\$ 2,476	\$ 3,466	\$ 3,576	\$ 4,550	\$ <b>1,356</b>
Beneficiary and Survivor	94	430	1,025	930	936	980	1,453	1,628	790	<b>8,266</b>
	\$ 47	\$ 119	\$ 218	\$ 342	\$ 530	\$ 768	\$ 1,075	\$ 1,201	\$ 1,234	\$ <b>767</b>

**Fiscal year ended June 30, 2006**

Normal and Early	2,723	7,810	20,380	17,198	15,979	18,140	35,227	23,660	5,465	<b>146,582</b>
	\$ 53	\$ 147	\$ 249	\$ 537	\$ 945	\$ 1,611	\$ 2,747	\$ 3,474	\$ 3,397	\$ <b>1,756</b>
Disability	-	1,375	1,655	1,339	1,261	1,136	398	10	1	<b>7,175</b>
	\$ -	\$ 579	\$ 750	\$ 1,023	\$ 1,510	\$ 2,429	\$ 3,422	\$ 3,549	\$ 4,550	\$ <b>1,320</b>
Beneficiary and Survivor	88	413	1,000	902	911	951	1,404	1,572	815	<b>8,056</b>
	\$ 47	\$ 116	\$ 212	\$ 327	\$ 516	\$ 742	\$ 1,027	\$ 1,154	\$ 1,182	\$ <b>739</b>

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

Years of Credited Service									
	< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+

**Fiscal year ended June 30, 2015**

Number of retired members	393	2,099	1,649	1,469	1,381	1,412	1,286	961	234
Final Average Salary	\$ 17,942	\$ 30,693	\$ 37,628	\$ 47,743	\$ 57,560	\$ 67,961	\$ 76,491	\$ 80,236	\$ 79,194
Monthly Benefit	\$ 113	\$ 264	\$ 637	\$ 1,274	\$ 2,031	\$ 2,929	\$ 3,995	\$ 4,884	\$ 5,402

**Fiscal year ended June 30, 2014**

Number of retired members	426	1,957	1,442	1,195	1,098	1,191	1,209	894	187
Final Average Salary	\$ 18,745	\$ 31,795	\$ 35,935	\$ 45,981	\$ 56,674	\$ 64,895	\$ 74,770	\$ 78,322	\$ 82,919
Monthly Benefit	\$ 126	\$ 267	\$ 605	\$ 1,242	\$ 2,043	\$ 2,795	\$ 3,973	\$ 4,811	\$ 5,835

**Fiscal year ended June 30, 2013**

Number of retired members	404	1,967	1,662	1,386	1,471	1,680	2,013	1,517	298
Final Average Salary	\$ 22,052	\$ 30,966	\$ 36,735	\$ 46,773	\$ 55,331	\$ 67,805	\$ 77,241	\$ 83,353	\$ 85,981
Monthly Benefit	\$ 156	\$ 280	\$ 658	\$ 1,265	\$ 1,988	\$ 2,956	\$ 4,161	\$ 5,200	\$ 6,066

**Fiscal year ended June 30, 2012**

Number of retired members	384	1,716	1,395	1,226	1,373	1,440	1,998	1,704	319
Final Average Salary	\$ 19,074	\$ 30,273	\$ 35,706	\$ 44,534	\$ 54,305	\$ 64,007	\$ 74,534	\$ 80,285	\$ 80,899
Monthly Benefit	\$ 126	\$ 286	\$ 635	\$ 1,216	\$ 1,977	\$ 2,815	\$ 4,097	\$ 5,033	\$ 5,630

**Fiscal year ended June 30, 2011**

Number of retired members	380	1,591	1,323	1,131	1,247	1,418	2,309	2,023	281
Final Average Salary	\$ 17,212	\$ 30,174	\$ 34,363	\$ 44,577	\$ 52,788	\$ 64,398	\$ 73,905	\$ 79,420	\$ 79,799
Monthly Benefit	\$ 98	\$ 315	\$ 645	\$ 1,238	\$ 1,908	\$ 2,893	\$ 4,031	\$ 4,981	\$ 5,491

**Fiscal year ended June 30, 2010**

Number of retired members	312	1,294	989	826	947	1,035	1,992	1,731	218
Final Average Salary	\$ 21,528	\$ 28,957	\$ 34,500	\$ 42,207	\$ 52,104	\$ 63,290	\$ 72,258	\$ 79,239	\$ 80,405
Monthly Benefit	\$ 312	\$ 269	\$ 634	\$ 1,140	\$ 1,906	\$ 2,833	\$ 3,979	\$ 4,963	\$ 5,550

**Fiscal year ended June 30, 2009**

Number of retired members	259	1,213	857	753	835	902	1,959	1,757	165
Final Average Salary	\$ 18,802	\$ 27,718	\$ 31,600	\$ 39,456	\$ 48,973	\$ 61,459	\$ 71,256	\$ 76,947	\$ 77,351
Monthly Benefit	\$ 106	\$ 230	\$ 556	\$ 1,063	\$ 1,726	\$ 2,764	\$ 3,915	\$ 4,834	\$ 5,343

**Fiscal year ended June 30, 2008**

Number of retired members	253	1,304	903	857	798	1,038	2,318	1,936	139
Final Average Salary	\$ 18,146	\$ 26,404	\$ 31,479	\$ 38,271	\$ 47,220	\$ 57,595	\$ 70,232	\$ 75,942	\$ 75,041
Monthly Benefit	\$ 104	\$ 210	\$ 556	\$ 1,010	\$ 1,647	\$ 2,551	\$ 3,863	\$ 4,775	\$ 5,164

**Fiscal year ended June 30, 2007**

Number of retired members	274	1,348	920	884	836	1,163	2,702	2,105	142
Final Average Salary	\$ 17,233	\$ 26,678	\$ 29,390	\$ 38,155	\$ 45,934	\$ 56,810	\$ 68,962	\$ 73,165	\$ 77,381
Monthly Benefit	\$ 85	\$ 231	\$ 502	\$ 1,011	\$ 1,591	\$ 2,534	\$ 3,800	\$ 4,604	\$ 5,421

**Fiscal year ended June 30, 2006**

Number of retired members	256	1,184	816	889	788	1,063	2,654	1,908	132
Final Average Salary	\$ 16,172	\$ 25,512	\$ 28,360	\$ 35,156	\$ 43,902	\$ 54,791	\$ 66,976	\$ 72,236	\$ 75,847
Monthly Benefit	\$ 88	\$ 222	\$ 475	\$ 947	\$ 1,536	\$ 2,467	\$ 3,725	\$ 4,571	\$ 5,255

\* Actuarial valuation for year ended June 30, 2015 is the most current valuation completed at the publication date.

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

Years of Credited Service								
< 5	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40+

**Fiscal year ended June 30, 2015**

Number of retired members		9	23	375	505	779	729	632	154
Final Average Salary		\$ 43,082	\$ 49,673	\$ 55,760	\$ 61,127	\$ 71,418	\$ 79,086	\$ 80,931	\$ 78,375
Monthly Benefit		\$ 98	\$ 100	\$ 100	\$ 98	\$ 99	\$ 99	\$ 98	\$ 99

**Fiscal year ended June 30, 2014**

Number of retired members		20	24	279	402	628	723	549	127
Final Average Salary		\$ 44,134	\$ 45,734	\$ 50,908	\$ 61,032	\$ 67,662	\$ 74,376	\$ 80,928	\$ 85,627
Monthly Benefit		\$ 99	\$ 100	\$ 99	\$ 99	\$ 98	\$ 99	\$ 98	\$ 100

**Fiscal year ended June 30, 2013**

Number of retired members		10	29	345	521	945	1,169	937	191
Final Average Salary		\$ 39,856	\$ 61,571	\$ 51,758	\$ 57,669	\$ 69,854	\$ 76,812	\$ 83,780	\$ 84,225
Monthly Benefit		\$ 99	\$ 100	\$ 99	\$ 100	\$ 98	\$ 98	\$ 98	\$ 100

**Fiscal year ended June 30, 2012**

Number of retired members		8	18	259	342	594	819	666	128
Final Average Salary		\$ 33,448	\$ 38,655	\$ 45,382	\$ 54,454	\$ 64,728	\$ 74,849	\$ 79,041	\$ 77,220
Monthly Benefit		\$ 100	\$ 69	\$ 100	\$ 100	\$ 99	\$ 98	\$ 97	\$ 99

**Fiscal year ended June 30, 2011**

Number of retired members		24	39	325	475	853	1,543	1,402	207
Final Average Salary		\$ 41,609	\$ 51,763	\$ 48,062	\$ 54,261	\$ 67,086	\$ 74,658	\$ 79,436	\$ 77,751
Monthly Benefit		\$ 100	\$ 100	\$ 98	\$ 99	\$ 97	\$ 96	\$ 97	\$ 98

**Fiscal year ended June 30, 2010**

Number of retired members		20	21	227	381	597	1,371	1,253	165
Final Average Salary		\$ 36,052	\$ 48,277	\$ 45,245	\$ 55,323	\$ 65,244	\$ 73,207	\$ 80,413	\$ 80,328
Monthly Benefit		\$ 100	\$ 100	\$ 98	\$ 98	\$ 98	\$ 97	\$ 97	\$ 100

**Fiscal year ended June 30, 2009**

Number of retired members		32	33	202	353	555	1,324	1,273	129
Final Average Salary		\$ 30,120	\$ 44,926	\$ 44,889	\$ 49,416	\$ 62,449	\$ 72,314	\$ 76,742	\$ 79,676
Monthly Benefit		\$ 100	\$ 96	\$ 99	\$ 98	\$ 97	\$ 95	\$ 96	\$ 97

**Fiscal year ended June 30, 2008**

Number of retired members		32	36	242	336	609	1,686	1,435	114
Final Average Salary		\$ 31,419	\$ 41,391	\$ 41,714	\$ 49,709	\$ 59,708	\$ 70,486	\$ 75,903	\$ 72,718
Monthly Benefit		\$ 97	\$ 100	\$ 99	\$ 99	\$ 97	\$ 95	\$ 95	\$ 96

**Fiscal year ended June 30, 2007**

Number of retired members		29	36	271	370	741	1,986	1,609	101
Final Average Salary		\$ 36,165	\$ 39,981	\$ 37,907	\$ 46,781	\$ 59,682	\$ 69,722	\$ 73,808	\$ 78,288
Monthly Benefit		\$ 9	\$ 99	\$ 98	\$ 99	\$ 96	\$ 93	\$ 93	\$ 98

**Fiscal year ended June 30, 2006**

Number of retired members		35	29	288	343	713	1,931	1,491	113
Final Average Salary		\$ 27,700	\$ 40,994	\$ 37,316	\$ 43,608	\$ 56,647	\$ 68,662	\$ 72,726	\$ 74,851
Monthly Benefit		\$ 97	\$ 100	\$ 97	\$ 98	\$ 98	\$ 93	\$ 92	\$ 92

\* Actuarial valuation for year ended June 30, 2015 is the most current valuation completed at the publication date.

**Ten Largest Employers**  
**Current Year and Nine Years Ago**  
 (Based on number of reported members)

**As of June 30, 2016**

Employer	Number of Reported Members	Percentage of Total
1. Philadelphia City School District	16,810	6.31%
2. Pittsburgh School District	4,107	1.54%
3. Central Bucks School District	2,788	1.05%
4. North Penn School District	2,180	0.82%
5. Allentown City School District	2,121	0.80%
6. Bethlehem Area School District	1,903	0.71%
7. Reading School District	1,801	0.68%
8. Council Rock School District	1,781	0.67%
9. Lower Merion School District	1,647	0.62%
10. Downingtown Area School District	1,646	0.62%

**As of June 30, 2007**

Employer	Number of Reported Members	Percentage of Total
1. Philadelphia City School District	27,722	10.50%
2. Pittsburgh School District	5,809	2.20%
3. Central Bucks School District	2,376	0.90%
4. Reading School District	2,112	0.80%
5. Allentown City School District	2,086	0.79%
6. North Penn School District	1,848	0.70%
7. Bethlehem Area School District	1,822	0.69%
8. Pocono Mountain School District	1,584	0.61%
9. Erie City School District	1,558	0.60%
10. Pennsbury School District	1,531	0.59%

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## Schedule of Employers As of June 30, 2016 School Districts

**A** \_\_\_\_\_

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

**B** \_\_\_\_\_

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

Brockway Area  
Brookville Area  
Brownsville Area  
Burgettstown Area  
Burrell  
Butler Area

**C** \_\_\_\_\_

California Area  
Cambria Heights  
Cameron County  
Camp Hill  
Canon-McMillan  
Canton Area  
Carbondale Area  
Carlisle Area  
Carlynton  
Carmichaels Area  
Catasauqua Area  
Centennial  
Central Bucks  
Central Cambria  
Central Columbia  
Central Dauphin  
Central Fulton  
Central Greene  
Central Valley  
Central York  
Chambersburg Area  
Charleroi Area  
Chartiers Houston  
Chartiers Valley  
Cheltenham Township  
Chester-Upland  
Chestnut Ridge  
Chichester  
Clairton City  
Clarion Area  
Clarion-Limestone Area  
Claysburg-Kimmel  
Clearfield Area  
Coatesville Area  
Cocalico  
Colonial  
Columbia Borough  
Commodore Perry  
Conemaugh Township Area  
Conemaugh Valley  
Conestoga Valley  
Conewago Valley  
Conneaut  
Connellsville Area

Conrad Weiser Area  
Cornell  
Cornwall-Lebanon  
Corry Area  
Coudersport Area  
Council Rock  
Cranberry Area  
Crawford Central  
Crestwood  
Cumberland Valley  
Curwensville Area

**D** \_\_\_\_\_

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

**E** \_\_\_\_\_

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

**F** \_\_\_\_\_

Fairfield Area  
Fairview  
Fannett Metal  
Farrell Area

## Statistical Section

### Schedule of Employers (Continued)

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

#### G \_\_\_\_\_

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

#### H \_\_\_\_\_

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

#### I \_\_\_\_\_

Indiana Area  
Interboro  
Iroquois

#### J \_\_\_\_\_

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

#### K \_\_\_\_\_

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

#### L \_\_\_\_\_

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

#### M \_\_\_\_\_

Mahanoy Area  
Manheim Central  
Manheim Township  
Marion Center Area  
Marple Newtown  
Mars Area

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

#### N \_\_\_\_\_

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

Schedule of Employers (Continued)

Northeast Bradford	Pocono Mountain	Solanco
Northeastern York	Port Allegany	Somerset Area
Northern Bedford County	Portage Area	Souderton Area
Northern Cambria	Pottsgrove	South Allegheny
Northern Lebanon	Pottstown	South Butler County
Northern Lehigh	Pottsville Area	South Eastern
Northern Potter	Punxsutawney Area	South Fayette Township
Northern Tioga	Purchase Line	South Middleton
Northern York County		South Park
Northgate	<b>Q</b> _____	South Side Area
Northwest Area	Quaker Valley	South Western
Northwestern	Quakertown Community	South Williamsport Area
Northwestern Lehigh		Southeast Delco
Norwin	<b>R</b> _____	Southeastern Greene
	Radnor Township	Southern Columbia Area
<b>O</b> _____	Reading	Southern Fulton
Octorara Area	Red Lion Area	Southern Huntingdon County
Oil City Area	Redbank Valley	Southern Lehigh
Old Forge	Reynolds	Southern Tioga
Oley Valley	Richland	Southern York County
Oswayo Valley	Ridgway Area	Southmoreland
Otto-Eldred	Ridley	Spring Cove
Owen J. Roberts	Ringgold	Spring Grove Area
Oxford Area	Riverside	Springfield
	Riverside Beaver County	Springfield Township
<b>P</b> _____	Riverview	Spring-Ford Area
Palisades	Rochester Area	State College Area
Palmerton Area	Rockwood Area	Steel Valley
Palmyra Area	Rose Tree Media	Steelton-Highspire
Panther Valley		Sto-Rox
Parkland	<b>S</b> _____	Stroudsburg Area
Pen Argyl Area	Saint Clair Area	Sullivan County
Penn Cambria	Saint Marys Area	Susquehanna Community
Penn Hills	Salisbury Township	Susquehanna Township
Penn Manor	Salisbury-Elk Lick	Susquenita
Penncrest	Saucon Valley	
Penn-Delco	Sayre Area	<b>T</b> _____
Pennridge	Schuylkill Haven Area	Tamaqua Area
Penns Manor	Schuylkill Valley	Titusville Area
Penns Valley Area	Scranton	Towanda Area
Pennsbury	Selinsgrove Area	Tredyffrin-Easttown
Penn-Trafford	Seneca Valley	Trinity Area
Pequea Valley	Shade Central City	Tri-Valley
Perkiomen Valley	Shaler Area	Troy Area
Peters Township	Shamokin Area	Tulpehocken Area
Philadelphia City	Shanksville-Stonycreek	Tunkhannock Area
Philipsburg-Osceola Area	Sharon City	Turkeyfoot Valley Area
Phoenixville Area	Sharpsville Area	Tuscarora
Pine Grove Area	Shenandoah Valley	Tussey Mountain
Pine-Richland	Shenango Area	Twin Valley
Pittsburgh	Shikellamy	Tyrone Area
Pittston Area	Shippensburg Area	
Pleasant Valley	Slippery Rock Area	
Plum Borough	Smethport Area	

## Statistical Section

### Schedule of Employers (Continued)

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#### U \_\_\_\_\_

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

#### V \_\_\_\_\_

Valley Grove  
Valley View

#### W \_\_\_\_\_

Wallenpaupack Area  
Wallingford-Swarthmore

Warren County  
Warrior Run  
Warwick  
Washington  
Wattsburg Area  
Wayne Highlands  
Waynesboro Area  
Weatherly Area  
Wellsboro Area  
West Allegheny  
West Branch Area  
West Chester Area  
West Greene  
West Jefferson Hills  
West Middlesex Area  
West Mifflin Area  
West Perry  
West Shore  
West York Area  
Western Beaver County  
Western Wayne  
Westmont Hilltop  
Whitehall-Coplay

Wilkes-Barre Area  
Wilkesburg Borough  
William Penn  
Williams Valley  
Williamsburg Community  
Williamsport Area  
Wilmington Area  
Wilson  
Wilson Area  
Windber Area  
Wissahickon  
Woodland Hills  
Wyalusing Area  
Wyoming Area  
Wyoming Valley West  
Wyomissing Area

#### Y \_\_\_\_\_

York City  
York Suburban  
Yough

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### Area Vocational Technical Schools

A. W. Beattie Career Center  
Admiral Peary AVTS  
Beaver County AVTS  
Bedford County Technical Center  
Berks CTC  
Bethlehem AVTS  
Bucks County Technical High School  
Butler County AVTS  
Carbon Career & Technical Institute  
Career Institute of Technology  
Central Montco Technical High School  
Central PA Institute of Science &  
Technology  
Central Westmoreland CTC  
Clarion County Career Center  
Clearfield County CTC  
Columbia-Montour AVTS  
Crawford County CTC  
CTC of Lackawanna County  
Cumberland-Perry AVTS  
Dauphin County Technical School  
Delaware County AVTS  
Eastern Center for Arts & Technology  
Eastern Westmoreland CTC  
Erie County Technical School  
Fayette County AVTS  
Forbes Road CTC  
Franklin County CTC  
Fulton County AVTS

Greater Altoona CTC  
Greater Johnstown AVTS  
Greene County CTC  
Huntingdon County CTC  
Indiana County Technology Center  
Jefferson County-DuBois AVTS  
Lancaster County CTC  
Lawrence County CTC  
Lebanon County CTC  
Lehigh Career & Technical Institute  
Lenape Tech  
Lycoming CTC  
Mercer County Career Center  
Middle Bucks Institute of Technology  
Mifflin County Academy of Science &  
Technology  
Mon Valley CTC  
Monroe Career & Tech Institute  
North Fayette County AVTS  
North Montco Technical Career Center  
Northern Tier Career Center  
Northern Westmoreland CTC  
Northumberland County AVTS  
Parkway West CTC  
Reading-Muhlenberg CTC  
Schuylkill Technology Center  
Somerset County Technology Center  
Steel Center AVTS  
SUN Area Technical Institute

Susquehanna County CTC  
Upper Bucks County AVTS  
Venango Technology Center  
West Side AVTS  
Western Area CTC  
Western Center for Technical Studies  
Wilkes-Barre Area CTC  
York County School of Technology

**Schedule of Employers (Continued)**

**Intermediate Units**

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

**Colleges / Universities**

State System of Higher Education	Bucks County Community College	Westmoreland County Community College
• Bloomsburg University	Butler County Community College	
• California University	Community College of Allegheny County	
• Cheyney University	Community College of Beaver County	
• Clarion University of Pennsylvania	Community College of Philadelphia	
• East Stroudsburg University	Delaware County Community College	
• Edinboro University	Harrisburg Area Community College	
• Indiana University	Lehigh Carbon Community College	
• Kutztown University	Luzerne County Community College	
• Lock Haven University	Montgomery County Community College	
• Mansfield University	Northampton County Community College	
• Millersville University	Penn State University	
• Shippensburg University	Pennsylvania College of Technology	
• Slippery Rock University	Pennsylvania Highlands Community College	
• West Chester University	Reading Area Community College	

**Other**

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

**Charter Schools (C S)**

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

## Statistical Section

### Schedule of Employers (Continued)

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

