



2020 Annual Comprehensive Financial Report

Pennsylvania Municipal Retirement System
Commonwealth of Pennsylvania

Fiscal years ended December 31, 2020 and 2019



2020

PENNSYLVANIA MUNICIPAL RETIREMENT SYSTEM **ANNUAL COMPREHENSIVE FINANCIAL REPORT**

Fiscal years ending December 31, 2020 and 2019

Barry L. Sherman, Chairman

Pennsylvania Municipal Retirement Board

Cory S. Adams, Vice Chairman

Pennsylvania Municipal Retirement Board

Timothy A. Reese, Chief Executive Officer

Pennsylvania Municipal Retirement Board

Report prepared by the Investment and Financial Management Division of the Pennsylvania Municipal Retirement System.

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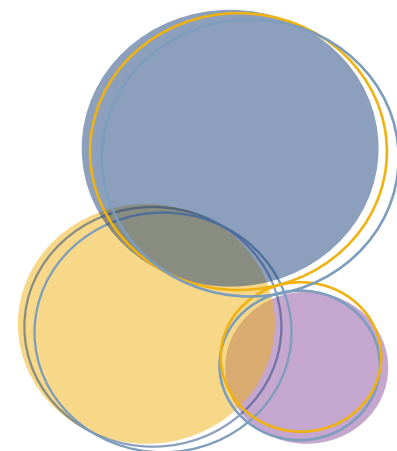
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INTRODUCTION



August 29, 2022

Dear Members,

I am pleased to share the Pennsylvania Municipal Retirement Systems' (PMRS) Annual Comprehensive Financial Report for the years ended December 31, 2020, and 2019. This report details PMRS' strong financial performance and standing despite the unique challenges associated with the COVID-19 pandemic.

As the largest single administrator of Pennsylvania local government retirement plans, the most important priority for the PMRS Board and staff is to protect and grow the retirement assets of our members – all of whom go to work every day to serve the citizens and communities across the commonwealth. At the end of 2020, PMRS' net position was \$3.167 billion, an increase of \$374.6 million or 13.4 percent from \$2.792 billion in 2019. Importantly, PMRS' total assets-to-liabilities ratio increased to 101.2 percent – maintaining our position as one of the few fully funded public pensions in the nation.

In 2020, PMRS administered approximately 1050 pension plans and served 17,159 members. Contributions to PMRS from employers and members totaled more than \$116 million and we paid nearly \$125 million in benefits. During the year 389 members retired – with annual average payments of more than \$19,500.

PMRS did experience operational issues – beyond those caused by the pandemic — related to our efforts to modernize our technology systems and better serve our members and employers. Issues implementing this new technology meant PMRS was unable to create and distribute financial reports that are necessary to our members and employers, including this report. It also slowed our ability to process account enrollments and changes.

To help resolve these issues, the board retained Timothy Reese as CEO in November 2020 to assess the organizational structure, mitigate technology issues, and develop a long-term plan to modernize the agency. As a former state treasurer, successful entrepreneur and senior executive for technology and finance companies he has the experience and leadership necessary to transform PMRS.

The PMRS Board understands and regrets the burdens this caused all our stakeholders, and we appreciate your ongoing patience.

The operational issues and pandemic both created significant challenges for PMRS staff as well, and I want to acknowledge their dedication in service to PMRS' mission. Likewise, I am grateful for the time and work of my fellow PMRS Board members, who all serve as volunteers

As always, please contact us if you have any questions or comments. We welcome your involvement and appreciate your support.

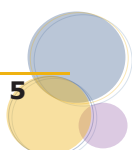
Thank you for your service to Pennsylvania and for allowing us to serve you.

Respectfully submitted,

A handwritten signature in black ink that reads "Barry L. Sherman".

Barry L. Sherman

PMRS Board Chairman



PMRS RETIREMENT BOARD

As of December 31, 2020



Barry Sherman, Chair
Represents retired members enrolled in PMRS



Cory S. Adams, Vice Chair
Represents PA State Association of Township Commissioners



Joe Torsella
State Treasurer (ex-officio)



Kathy Bockvar
Secretary of Commonwealth of PA (ex-officio)



John Cappawana
Represents Pennsylvania State Association of Boroughs



Tom Deitzler
Represents Pennsylvania Municipal Authorities Association



Robert McCarron
Represents active police officers enrolled in PMRS



Salvatore J. Panto Jr.
Represents Pennsylvania Municipal League



Jeff Pisarcik
Represents Pennsylvania State Association of County Commissioners



Jody Rebarchak
Represents Pennsylvania State Association of Township Commissioners



Mike Stender Jr.
Represents active firefighters enrolled in PMRS

PMRS ORGANIZATION CHART



PMRS VISION & MISSION

VISION

To be Pennsylvania local governments' pension administrator of choice.

MISSION

The Pennsylvania Municipal Retirement System seeks to help Pennsylvania's local governments, regardless of size or resources, secure the future retirement of their employees by providing comprehensive, cost-efficient and professional pension administration services through a pension plan tailored to the participants' and sponsors' requirements.

PMRS STAFF

EXECUTIVE STAFF

Chief Executive Officer

Timothy A. Reese

Chief Financial Officer

Charity Rosenberry

Chief Programs Officer

Heather Tyler

Assistant Secretary of Operations

Doug E. Baker



PROFESSIONAL CONSULTANTS

Actuary

Cheiron, McLean, VA
Kenneth Kent, FSA, FCA, MAAA, EA

Auditor

Zelenkofske Axelrod LLC, Harrisburg, PA
Cory Johnson, CPA, (Partner)

Investment Consultant

Dahab Associates, Inc., Bay Shore, NY
Richard E. Dahab, CFA, Chairman

Marquette, Chicago, IL
Lee Martin, PH.D., Managing Director

Custodian - PA State Treasury office

BNY Mellon, Pittsburgh, PA
Matthew J. Coburn, Relationship Manager

INVESTMENT MANAGERS

AMI Asset Management, Los Angeles, CA
Chris Sessing, CFA, Chief Investment Officer

Copeland Capital Management, Conshohocken, PA
Mark Giovanniello, CFA Chief Investment Officer

Eagle Capital Management, New York, NY
John Johnson, Managing Director

Emerald Advisers, Leola, PA
Kenneth Mertz II, CFA, President/Chief Investment Officer

Federated Investors, Pittsburgh, PA
Amy Michaliszyn, Senior Vice President

Forest Investment Associates, Atlanta, GA
Michal L. Clutter, Vice President

Hardman Johnston Global Advisors, Stamford, CT
James Pontone, Director and Portfolio Manager

HGK Asset Management, Inc., Jersey City, NJ
Matthew Kosara, CFA, Client Portfolio Manager

LSV Asset Management, Chicago, IL
Keith W. Bruch, CFA, Director of Client Portfolio Services

Nuveen Real Estate, New York, NY
Cindy Chen, Senior Director, Portfolio Manager

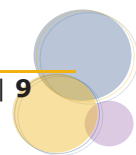
Polen Capital Management, Boca Raton, FL
Jim Haymes, CFA, Director of Institutional Relations

Prudential Financial, Inc., Madison, NJ
Jackie Brady, Executive Director

Smith, Graham & Co., New York, NY
Lynda Leslie, Managing Director, Marketing & Client Services

State Street Global Advisors, Boston, MA
Emiliano Rabinovich, Vice President

William Blair, Chicago, IL
Cliff Kalish, CFA



August 29, 2022

Pennsylvania Municipal Retirement Board
Pennsylvania Municipal Retirement System
P.O. Box 1165
Harrisburg, Pennsylvania 17108-1165

We are pleased to present the Pennsylvania Municipal Retirement System's (PMRS) Annual Comprehensive Financial Report (ACFR) for the years ended December 31, 2020 and 2019. This report is intended to provide financial, investment, actuarial, and statistical information in a single publication. The management of PMRS is solely responsible for the accuracy and completeness of this report. As required by the Pennsylvania Municipal Retirement Law, Act of 1974, P.L. 34, No. 15 (the Act) as amended, PMRS makes available the ACFR to our governing board, the members of the General Assembly of Pennsylvania, each participating municipal employer, and all other interested parties upon request. The ACFR is also published on the PMRS' website (www.pmrns.state.pa.us).

PMRS OVERVIEW

PMRS is an agent multiple-employer system, headquartered in Harrisburg, Pennsylvania. It is a state retirement agency created by act of the Pennsylvania General Assembly in 1974. Responsibility for the organization and administration of PMRS is vested in the 11-member Pennsylvania Municipal Retirement Board.

PMRS administers sound, cost-effective pension plans on a contracted basis for local government employees throughout the commonwealth. Our services include accounting services, actuarial valuations, employee consultation, record keeping, and asset management. Any Pennsylvania county, city, town, township, borough, municipal authority, or institution supported and maintained by a municipality may participate. The statistical section of this report lists all participating plans as of January 1, 2020.

PMRS offers two types of retirement plans: defined benefit (traditional pension) and cash balance; either plan can be used alone or in combination with each other. Plan sponsors determine key plan provisions allowable within federal guidelines and commonwealth law. These plan sponsor elections, combined with PMRS' standard plan provisions, determine each plan's unique design tailored to the plan sponsor's specific needs.

The plan design determines the type of plan and benefit options, the general level of plan funding requirements, the cost sharing between the employee and employer along with the employer's administrative complexity. For example, a standard comparative measure of a plan's retirement benefit level is income replacement which is the percentage of an employee's final average salary that will be replaced by a plan's annual retirement benefits. Income replacement in PMRS plans ranges from 15% to 80% for employees with 30 years of service. Another comparative measure is total plan costs as a percentage of the total salary of a plan's active employees. PMRS plan costs range from 2% to 30% of total salary. Finally, plan design determines the plan cost sharing which is the percentage of total plan costs paid by employers versus those paid by employees. Plan cost sharing for employees ranges from 0% to 60% of the plan's total cost while employer costs range from 40% to 100% of the plan's total cost.

ECONOMIC ENVIRONMENT

The COVID-19 pandemic resulted in the end of an 11-year economic expansion, accompanied by an economic and social panic unseen in the developed world in modern times. Extraordinary circumstances prevailed in both everyday life and financial markets. Containment measures, supply chain disruptions and financial stress combined to create demand and supply shocks throughout the global economy.

The first quarter saw federal responses to a projected sharp downturn. Initially, the Federal Reserve implemented a bond-buying program to inject liquidity as needed into the market. In March, Congress passed a massive \$2.2 trillion package, the Coronavirus Aid, Relief and Economic Security (CARES) Act offering

economic stability to businesses, states, municipalities, and families.

Nevertheless, Gross Domestic Product (GDP) fell by (4.8%) as the unemployment rate rose to 4.4%. The dollar weakened slightly against the euro and the Consumer Price Index (CPI) dropped by 1.5% compared to the previous quarter increase of 2.3%. The Federal Reserve cut interest rates leaving the U.S. fed funds rate at 0.25%.

In domestic equity markets, the first quarter recorded severe declines amid extreme daily swings which tripped the “circuit breakers” on multiple occasions for the first time in over 10 years. Core domestic equity benchmarks were down 14% - 36%. Small cap stocks fell more than large cap stocks while growth outperformed value across all market capitalizations and in every region of the world. International stocks declined more than U.S. stocks. In the first quarter, the quarterly gross rate of return for the PMRS’s portfolio showed a loss of 15.4%.

The second quarter was marked by unprecedented volatility as COVID-19 spread globally. Surprisingly, it also brought the best quarter for domestic equities in over twenty years. Aggressive fiscal action, the development of vaccines and other virus therapeutics contributed to the optimism that produced a faster-than-expected rebound in economic data and a strong performance in the market.

In the macro economy, GDP dropped by 32.9% as the unemployment rate rose to 11.2%. The dollar rose slightly against the euro. The CPI dropped by 0.6% and the Federal Reserve maintained interest rates leaving the U.S. fed funds rate at 0.25%.

In domestic equity markets, for the first time in three years, small cap stocks outperformed large cap stocks and growth markets continued to outperform their value counterparts. While both developed international and emerging market equities made substantial gains during the quarter, U.S. markets still outperformed all other major markets. The second quarter gross rate of return for the PMRS portfolio was 13.5%.

The third quarter saw an easing of lockdowns, loosening of restrictions and economic activity move towards normalcy. However, many questions remained for investors who exhibited a declined appetite for risk.

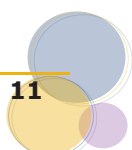
GDP increased by a remarkable 33.1%, the largest gain ever recorded. The unemployment rate fell to 7.9% and the dollar continued to rise against the euro. The CPI grew by 1.4% and the Federal Reserve held the U.S. fed funds rate at 0.25%.

All broad-based U.S. market indices rose in the third quarter. Growth equities continued to outpace value equities across all market capitalization sizes. International equities markets in the developed markets continued to grow, largely due in part to gains in global manufacturing and increased trading in world goods trade. Emerging markets also rose led by higher technology and consumer discretionary sectors. The third quarter gross rate of return for the PMRS portfolio was 5.5%.

In the fourth quarter, the economy continued to rebound from the COVID-19 pandemic, while still remaining below pre-pandemic levels. Economic growth was mixed: housing and capital markets surged while the labor market lagged. However, there was a large increase in the personal savings rate attributable to the CARES Act, which distributed about \$1 trillion in economic impact payments to individuals.

Fourth quarter GDP rose by 4.0% and unemployment decreased to 6.7% from the third quarter. The U.S. dollar continued to strengthen against the euro and CPI increased by 1.0% for the quarter. The Federal Reserve maintained interest rates leaving the U.S. fed funds rate at 0.25%.

The domestic equity markets continued to be strong. Value stocks topped their growth stocks during the quarter, but growth outperformed the value stocks by more than 35 percentage points overall during 2020. Global equities continued to rally in the fourth quarter. International stocks, both developed and emerging outpaced the U.S. markets. The quarterly gross rate of return for PMRS’ total portfolio was 13.2% in the fourth quarter bringing the year-to-date gross rate of return to 14.7%.



FINANCIAL INFORMATION

PMRS' financial statements were prepared in accordance with generally accepted accounting principles of the U.S. The financial statements and the required supplementary information in the report have been prepared in accordance with governmental accounting standards. The independent auditor's report is in the financial section on page 18 and the Management's Discussion and Analysis commences on page 20.

The accrual basis of accounting is used to record all financial transactions including assets, liabilities, revenues, and expenses. Gains and losses on sales and exchanges of investments are recognized on the transaction date. Significant accounting policies are detailed in the financial section under Notes to Financial Statements.

PMRS' net position was \$3.167 billion at December 31, 2020. PMRS' net position increased by \$374.6 million or 13.42% from \$2.792 billion at December 31, 2019. Net investment gain increased the net position by \$402.4 million. Contributions increased the net position by \$84.5 million. Transfers from other plans increased net position by \$31.9 million. Benefit payments, plan withdrawals, and administrative expenses reduced the net position by \$132.6 million. Additional information is detailed in the financial section under Statement of Fiduciary Net Position and Statement of Changes in Fiduciary Net Position located on pages 26 and 27.

PMRS has established internal control policies and procedures for the review and verification of all receipts and payments made to and from PMRS. In addition, PMRS staff prepared a yearly budget which must be adopted by the board. The budget is also presented to and reviewed by the Local Government Committees of the Pennsylvania House and Senate at least two months prior to the beginning of the year. The committees can approve the budget, reject it, or take no action by the end of the year, in which case, the proposed budget becomes final. Budgetary controls include monthly review and presentation by management with bimonthly board reviews. The 2020 administrative budget was adopted in September 2019 and set at \$8.9 million exclusive of investment fees. Administrative expenses (exclusive of investment fees) in 2020 amounted to \$6.3 million. More information on PMRS' expenses is included in the financial section of this report (Supplementary Schedule 1 – Administrative Expenses located on page 48).

ADDITIONS FOR FIDUCIARY NET POSITION

PMRS was established by law to pay pension benefits when due. It accumulates sufficient funds to pay benefits through employer contributions, employee contributions, and investment income. The following schedule presents a summary of additions to fiduciary net position for the year ended December 31, 2020 and shows the amount and percentage of increases and decreases in relation to the prior year ended December 31, 2019.

Municipal contributions are based on an actuarial valuation, using the Entry Age Normal Actuarial Cost Method, computed as a percentage of the total employee compensation of all active members during the period for which the amount is determined. Member contributions vary according to the type of pension plan.

SUMMARY OF ADDITIONS TO FIDUCIARY NET POSITION

As of December 31, 2020 and 2019
(amounts in thousands)

Additions To Fiduciary Net Position	2020	Percentage Of Total	2019	Dollar Increase (Decrease)	Percentage Increase (Decrease)
Contributions ¹	\$116,633	23.0%	\$85,683	\$30,950	36.1%
Net Investment income (loss)	390,643	77.0%	480,282	(89,639)	18.7%
Total	\$507,276	100.0%	\$565,965	\$(58,689)	10.4%

¹ Contributions included additional municipal employer contributions towards unfunded liability of \$2.1 million in 2020 and \$4.7 million in 2019, transfer from other plan administrator of \$31.9 million in 2020 and \$544 thousand in 2019 and transfers in lieu of contributions of \$460 thousand in 2020 and \$618 thousand in 2019.

Municipal and member contributions also include transfers from other plan administrators for new plans.

Total contributions increased by \$30.9 million or (36.12%) from \$85.6 million in 2019 to \$116.6 million in 2020. This is due to normal fluctuations in plan contributions and a large transfer from other plan administrators.

Net investment income (loss) is a combination of appreciation (depreciation) of fair value and earnings from equities, real estate, fixed income, and a short-term cash management fund, less investment expenses. The fair value of PMRS' investment portfolio increased from \$2.802 billion at December 31, 2019 to \$3.178 billion at December 31, 2020. Net investment income was \$390.6 million in 2020 compared to \$480.3 million in 2019. Investment income (loss) is primarily attributable to appreciation (depreciation) in fair values in the equity markets.

Each municipality is charged a \$20 assessment per member to help cover administrative expenses incurred by PMRS. Any fluctuation in assessment is caused by the number of members per municipality and can be affected by employee turnover or new plans being added or plans withdrawing from PMRS.

A breakdown of PMRS' additions to fiduciary net position including 10-year historical trend information is presented in Part I of the statistical section of this report.

DEDUCTIONS FROM FIDUCIARY NET POSITION

PMRS' primary deductions from fiduciary net position represent the purpose for which it was created: payment of plan benefits. The chart above presents a summary of PMRS' deductions from fiduciary net position for the year ended December 31, 2020 and shows the amount and percentage of increases or decreases in relation to the prior year ended December 31, 2019. The major deduction for 2020 was annuity benefits and terminations. Transfers to other plan administrators increased from \$0 in 2019 to \$1.7 million plan withdrawals in 2020.

SUMMARY OF DEDUCTIONS FROM FIDUCIARY NET POSITION

As of December 31, 2020 and 2019
(amounts in thousands)

Deductions To Fiduciary Net Position	2020	Percentage Of Total	2019	Dollar Increase (Decrease)	Percentage Increase (Decrease)
Annuity benefits and terminations	\$124,613	94%	\$118,409	\$6,204	-5.2%
Transfers to other plan administrators	1,730	1%	-	1,730	100.0%
Administrative expenses	6,302	5%	4,867	1,435	-29.5%
	\$132,645	100%	\$123,276	\$9,369	-7.6%

A breakdown of PMRS' deductions from fiduciary net position including 10-year historical trend information is presented in Part I of the Statistical Section of this report.

INVESTMENT HIGHLIGHTS

For the year ended December 31, 2020, the gross rate of return for the PMRS' total portfolio was 14.7%, ranking in the 33rd percentile of the Investment Metrics (IM) Public DB Net Return Universe. For the five years ended December 31, 2020, the gross rate of return was 11.4%, ranking in the top 6th percentile. Since inception in December 1985, the gross rate of return for the PMRS' total portfolio was 9.0%.

The gross rate of return by asset class for the year ended December 31, 2020 and the allocation of assets in the portfolio as of December 31, 2020 are as follows: large cap equity returned 21.0% (26.0% of the portfolio);

LETTER OF TRANSMITTAL

small cap equity returned 17.1% (17.0%); developed international equity returned 18.0% (16.0%); emerging markets equity returned 18.3% (10.3%); real estate returned 2.0% (15.6%); and fixed income returned 7.6% (12.6 %). At December 31, 2020, the allocation of assets in the portfolio for cash equivalents was 2.6%.

FUNDING

PMRS' level of funding is based on the actuarial reserve method. Funds are derived from the excess of revenues over expenses and are accumulated by PMRS to meet current and future benefit obligations to retirees and beneficiaries. As the funding level increases, the assets accumulate and strengthen the investment income potential. PMRS' net position increased by \$374.6 million or 13.4% from \$2.792 billion at December 31, 2019 to \$3.167 billion at December 31, 2020. The "Funded Status of Actuarial Liabilities" was calculated based on the most recent actuarial valuation dated January 1, 2020. The actuarial value of assets funded ratio increased from 100.4% at January 1, 2019 to 101.2% as of the last valuation date of January 1, 2020. As a result, PMRS went from a \$8.8 million surplus as of January 1, 2019 to a surplus of \$30.4 million as of January 1, 2020. The surplus is primarily due to favorable investment gains during 2020. Additional information on PMRS' actuarial value, liabilities, and funding progress can be found in the Actuarial and Financial Sections of this report. As an agent multiple-employer Public Employee Retirement System, PMRS reports to each of the plans it administers, providing the governing authority of plans with complete actuarial, accounting, and funding data. Detailed information of PMRS' aggregate plan funding can be found in the actuarial section of this report beginning on page 61.

MAJOR INITIATIVES

Plan Administration Software Project

When this software enhancement began in early 2016, it was estimated to be an 18-24 month project. It has now become a seven-year project. The first phase in January 2020 started the use of the enhanced software for the daily administration of PMRS retirement plan program.

The second phase occurred in 2021, improving the administrative functionality of the enhanced software. This phase includes correcting conversion issues, expanding plans' provision options, improving calculation functions, creating a case management workflow, and developing automated communications for members.

Phase three will focus on implementation of the plan sponsor portal and automating the transfer of financial data to the accounting system. This phase will start to onboard employers with online access and training to upload most information currently submitted by paper. This includes employee salary, contributions, and employment status. Configuration of the portals is underway, and a pilot is expected to start in late 2022 or early 2023. Automation of financial data, occurring in 2022, will improve the accuracy and timeliness and eliminate manual downloads and uploads between the system's data transfer and manipulation of the data.

The final phase will implement a member portal and is on the project schedule for 2023. This will enable members to change personal information, such as address, banking information and beneficiaries online. Also included will be the ability to create on-demand retirement estimates.

Accounting Software Project

The accounting software project was planned in two phases, implementation of Microsoft Dynamics 365 core accounting functions and implementation of additional modules such as procurement, budgeting, and fixed assets. Reconciliation issues between the pension administration system and the accounting system delayed phase two implementation, however, the core accounting functions, fixed assets and procurement modules went live in 2021. The final phase of this project will be completed in 2022 with the automated transfer of general ledger data between the pension administration system and the accounting system. Implementation of additional modules will be delayed until 2023.

Electronic Content Management (ECM)

The ECM system will provide enhanced document search and retrieval for converted electronic files, online

access to new and existing stored information by plan sponsors and plan members within the pension administration system, and secure integration of PMRS financial records with the Microsoft Dynamics 365 accounting system. The software will be installed and configured for use with the pension administration system and the accounting system. The production environment was completed in early 2021 and the disaster recovery environment was completed in late 2021. Workflows for enrollments, plan sponsor documents, and members will be implemented in 2022 as well as importing historical electronic files.

Disaster Recovery

As of the time PMRS started using the updated pension software and financial system in January 2020, PMRS had all critical technology systems hosted off-site, in a secure facility providing PMRS with expert database management. All staff have laptop devices enabling PMRS to operate from any internet available location for an unlimited period.

IRS Compliant Plan Documents

During 2019, PMRS continued to implement a comprehensive overhaul of plan documents to become fully IRS compliant. All existing plan documents were compliant with IRS requirements in 2020. However this is an ongoing process in which the IRS operates on a six-year cycle. In practice this means PMRS must restate its plan documents every six years.

Professional Services

Professional consultants are appointed by the board to perform services essential to the efficient operations of PMRS. 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 PMRS. The investment performance of PMRS is reviewed by the investment consultant on a quarterly basis. The consultants providing services to PMRS are listed in the Financial and Investment sections of this report.

System Awards

PMRS believes the current report continues to conform to the Government Finance Officers Association of the United States and Canada (GFOA) Certificate of Achievement program requirements. PMRS was awarded this prestigious national award for its Annual Comprehensive Financial Report for the year ended December 31, 2018. However the extended software implementation issues exceeded usefulness of GFOA input to improve the next report. As with the 2019 report, we will not be submitting this report to the GFOA for the 2020 award.

Acknowledgments

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

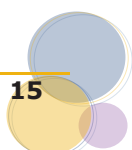
Respectfully submitted,



Timothy A. Reese
PMRS Chief Executive Officer



Richard M. Cardamone, CPA, CGMA
PMRS Chief Financial Officer



SUMMARY OF PLAN PROVISIONS

INTRODUCTION

PMRS offers a variety of pension plan benefit structures. Municipalities may design their own benefit structures that meet the individual needs of the municipality and its employees.

SUPERANNUATION AND EARLY ANNUITY ELIGIBILITY BENEFITS

Under an optional plan design, a municipality may choose any age or service requirement permitted under its particular municipal code. Early retirement under the optional plan may also be designed to meet the needs of the municipality. There are two approaches to accumulating retirement benefits.

Under the cash balance approach, the benefit accrues based on the level of contributions and the investment earnings credited to the fund. The defined benefit approach is a formula-based structure based on the years of service to the municipality, the benefit accrual rate and the final average salary of the employee.

DISABILITY ANNUITY ELIGIBILITY BENEFITS

The majority of plans have a disability benefit that allows a member who is unable to work because of serious injury or illness to apply for a disability annuity. The application and required medical documentation will be reviewed by the board and PMRS medical examiners to determine whether the member is eligible for the disability benefit. A disability caused directly from a job-related activity is classified as a service-connected disability. A disability that is not caused by job activity is termed a nonservice disability. Conditions for disability benefits are defined in the municipality's contract. PMRS basic plans provide for (1) a service-connected disability annuity of 50% of the disabled individual's final average salary offset by worker's compensation, and (2) a non-service disability with a minimum of 10 years service and a 30% final average salary annuity.

VESTING ANNUITY ELIGIBILITY BENEFITS

Conditions for vesting are defined in the municipality's plan document. A member who terminates service before retirement and is eligible to vest may elect to leave their accumulated contributions in PMRS and defer receipt of benefits until normal or early retirement age. Then, when the member receives the vested benefits, the payment will include the member contributions and the municipal contributions.

BENEFIT PAYMENT OPTIONS

Depending on the municipality's contractual agreement, employees may elect to receive their monthly retirement allowance from a list of options.

Typical options are as follows:

- Single life annuity provides a continual income throughout the annuitant's lifetime with no beneficiary benefit
- Reduced lifetime benefit with remaining lump sum value of account to beneficiary
- Joint and 100% survivorship annuity
- Joint and 50% survivorship annuity
- 10-year certain single life annuity
- 20-year certain single life annuity
- Lump-sum payment of member contribution account

DEATH BENEFIT ELIGIBILITY

A death benefit provides some continuation of payment or presentation of benefits to a beneficiary given certain eligibility requirements of the covered individual. If an active member or vestee who satisfies death benefit eligibility dies, the death benefit goes into effect provided the municipality has included this feature in its plan.

TERMINATION OF SERVICE

A member always receives the accumulated deductions and interest earned at the regular interest rate which is currently 5.25%. Depending upon the municipality's benefit structure, the member might also receive excess investment monies upon withdrawal. If a member terminates employment and goes to work for another municipality which is a member of PMRS, the employee may transfer the service credits unimpaired to the new municipal employer.



FINANCIAL



Zelenkofske Axlerod LLC

CERTIFIED PUBLIC ACCOUNTANTS

EXPERIENCE | EXPERTISE | ACCOUNTABILITY

Pennsylvania Municipal Retirement Board
Pennsylvania Municipal Retirement System
Harrisburg, Pennsylvania

INDEPENDENT AUDITOR'S REPORT

Report on the Financial Statements

We have audited the accompanying financial statements of the Pennsylvania Municipal Retirement System (the System), as of and for the years ended December 31, 2020 and 2019, and the related notes to the financial statements, which collectively comprise the System's financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

The System's 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 opinions on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

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

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

Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of System, as of December 31, 2020 and 2019, and the respective changes in financial position, for the year then ended in accordance with accounting principles generally accepted in the United States of America.



Zelenkofske Axlerod LLC

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Pennsylvania Municipal Retirement Board
Pennsylvania Municipal Retirement System

Other Matters

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis, schedules of investment returns, allocated share of the net pension liability, allocated share of the net OPEB liability, and pension and OPEB contribution schedules, as listed in the table of contents, be presented to supplement the financial statements. Such information, although not a part of the financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the 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 financial statements, and other knowledge we obtained during our audit of the financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the System's financial statements. The Schedule 1 – Administrative Expenses, Schedule 2 – Investment Expenses, and Schedule 3 – Payments to Consultants ("supplementary schedules") and the introduction, investments, actuarial and statistical sections, as listed in the table of contents, are presented for purposes of additional analysis and are not a required part of the financial statements.

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

The introduction, investments, actuarial and statistical sections, as listed in the table of contents, have not been subjected to auditing procedures applied in the audit of the financial statements, and accordingly we do not express an opinion or provide any assurance on them.

Zelenkofske Axlerod LLC

ZELENKOFKSKE AXELROD LLC

Harrisburg, Pennsylvania
August 29, 2022

This section presents management's discussion and analysis of PMRS' financial performance for the years ended December 31, 2020, 2019 and 2018. It is presented as required supplementary information to the financial statements.

OVERVIEW OF FINANCIAL STATEMENTS

PMRS administers sound, cost-effective pension plans on a contracted basis for local government. Our services include accounting, actuarial valuations, employee consultation and record keeping, and asset management. Any Pennsylvania county, city, town, township, borough, municipal authority, or institution supported and maintained by a municipality may participate. The statistical section of this report lists all participating plans as of December 31, 2020.

The Statement of Fiduciary Net Position provides a snapshot of the financial position of PMRS at December 31, 2020, including comparative amounts for the prior year. The Statement of Changes in Fiduciary Net Position summarizes PMRS' financial activities that occurred for the year ended December 31, 2020, 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 financial statements.

The Required Supplementary Information following the Notes to the Financial Statements provides schedules of investment returns, pension liability, and net other post-employment benefit (OPEB) liability.

The remaining supplementary schedules provide additional detailed information concerning the administrative expenses, investment expenses and payments to consultants. Supplementary information is considered useful in understanding and evaluating the financial activities of PMRS.

FINANCIAL HIGHLIGHTS

- PMRS' net position increased by \$374.6 million or by 13.4% from \$2.792 billion at December 31, 2019, to \$3.167 billion at December 31, 2020. PMRS' net position increased by \$442.7 million or by 18.8% from \$2.349 billion at December 31, 2018, to \$2.792 billion at December 31, 2019. Changes in fair value are recognized as part

of the net appreciation (depreciation) in the fair value of investments.

- The actuarial value of assets funded ratio increased from 100.4% at January 1, 2019, to 101.2% as of the last valuation date of January 1, 2020. PMRS went from an \$8.8 million surplus on an actuarial value of assets basis as of January 1, 2019, to a surplus of \$30.4 million as of January 1, 2020.
- The market value of assets funded ratio increased from 93.2% at January 1, 2019, to 107.3% as of the last valuation date of January 1, 2020. The deficit decreased from \$107.8 million as of January 1, 2019, to a surplus of \$190.6 million as of January 1, 2020. This change was primarily due to the market gains during 2020.
- The market value of assets did not exceed the reserves as of January 1, 2019. As of January 1, 2020, the market value of assets exceeded the reserves by \$160.2 million. Upon publication of the 2019 Annual Comprehensive Financial Report, the actuary presented to the board the calculations defined in Board Policy Statement 05-2 related to excess interest. The board declined the distribution of excess interest for 2019.
- The portfolio gross rate of return for the year ended December 31, 2020 was 14.6% compared to 21.1% and (4.1%) for the years ended December 31, 2019 and 2018, respectively.
- Contributions increased by \$30.9 million or 36.1% from \$85.6 million in 2019 to \$116.6 million in 2020 representing growth in the form of transfers from other plans of \$31.9 million for the year. Contributions increased by \$1.1 million or 1.3% from \$84.5 million in 2018 to \$85.6 million in 2019 representing relatively flat growth for the year.
- Annuity benefits and terminations increased \$6.2 million or 5.2% from \$118.4 million in 2019 to \$124.6 million in 2020. Annuity benefits and terminations increased \$10.8 million or 10.0% from \$107.6 million in 2018 to \$118.4 million in 2019. The fluctuations in annuity benefits and terminations from 2018 to 2019 were primarily due to an increased number of retirees and annuity benefits as well as annuity increases (cost-of-living adjustments) that may be applied

each year.

- Transfers to other plan administrators increased from \$0 in 2019 to \$1.7 million in 2020 due to plan withdrawals. Transfers from other plan administrators increased from \$544 thousand in 2019 to \$31.9 million in 2020 due to new plan admissions.
- Administrative expenses increased by \$1.4 million or 28.5% in 2020 from \$4.9 million in 2019 to \$6.3 million in 2020 primarily due to an increase in personnel and contracted services in 2020. Administrative expenses decreased by \$903,542 or 15.7% in 2019 from \$5.8 million in 2018 to \$4.9 million in 2019 primarily due to a decrease in personnel expenses in 2019. Administrative expenses were within PMRS' budgeted amounts for all three years.

RECLASSIFICATIONS

A reclassification of expenses has been made to the prior period on Schedule 1 – Administrative Expenses. Specifically, certain OPEB expenses in 2019 were inadvertently recorded in the insurance expenses. A total of \$144,331 was reclassified between the two categories, resulting in the OPEB expense decreasing by \$144,331 to (\$466,357) and insurance expenses increasing to \$336,558. There was no impact on the Statement of Changes in Fiduciary Net Position. The expense is recorded in the proper classification in 2020.

A reclassification has been made to the prior period reserve accounts to fully fund the retiree reserve liability as of June 30, 2019 per the Actuarial Valuation as of January 1, 2020. The reclassification was an increase of \$6,537,466 to the Retired Members' Reserve Account and a decrease to the Undistributed Earnings Reserve Account.

GASB STANDARDS

During the year ended December 31, 2019, PMRS adopted GASB Statement No. 95, Postponement of the Effective Dates of Certain Authoritative Guidance, issued in May 2020. The primary objective of this statement is to provide temporary relief to governments and other stakeholders resulting from the COVID-19 pandemic. That objective is accomplished by postponing the effective dates of certain provisions in Statements and Implementation Guides that first became effective or are scheduled to

become effective for periods beginning after June 15, 2018, and later. The application of Statement No. 95 delays the effective date of GASB Statement No. 84, Fiduciary Activities by one year.

The GASB issued Statement No. 84, Fiduciary Activities, in January 2017. The objective of this statement is to improve guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. The requirements of this statement are effective, as amended by GASB Statement 95 above, for fiscal years beginning after December 15, 2018.

After evaluating GASB Statement No. 84, it has been determined that PMRS operates as a fiduciary trust and is presenting information in accordance with the requirements.

The GASB issued Statement No. 87, Leases, in June 2017. This statement establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. Under this statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources. The requirements of this statement as amended by GASB 95 are effective for financial statements for fiscal years beginning after June 15, 2021 and all reporting periods thereafter.

PMRS plans to implement the statement in the December 31, 2021 ACFR.

The GASB issued Statement No. 90, Majority Equity Interests – An Amendment of GASB Statements No. 14 and No. 61, in August 2018. The primary objectives of this statement are to improve the consistency and comparability of reporting a government's equity interest in a legally separate organization and to improve the relevance of financial statement information for certain component units. However, paragraph 6 states that "If a special purpose government engaged only in fiduciary activities, a fiduciary fund, or an endowment (including permanent and term endowments) or permanent funds holds a majority equity interest in a legally separate organization that meets the definition of an investment, that majority equity interest should be measured in accordance with the requirements in paragraph 64 of Statement 72."

MANAGEMENT'S DISCUSSION & ANALYSIS

Statement 72, paragraph 64 provides that investments should be measured at fair value. The paragraph continues “An investment is a security or other asset that (a) a government holds primarily for the purpose of income or profit and has a present service capacity based solely on its ability to generate cash or to be sold to generate cash.”

The requirements of Statement No. 90, as amended by GASB Statement No. 95, are effective for reporting periods beginning after December 15, 2019.

After evaluating GASB Statement No. 90, it has been determined that PMRS operates as a fiduciary trust and is presenting information in accordance with the requirements.

The GASB issued Statement No. 92, Omnibus 2020, in January 2020. The objective of this statement is to enhance comparability in accounting and financial reporting and to improve the consistency of authoritative literature. This statement establishes accounting and financial report requirements for specific issues related to leases, intra-equity transfers of assets, post-employment benefits, government acquisitions, risk financing and insurance-related activities of public entity risk pools, fair value measurements, and derivative instruments. The requirements of this statement as amended by GASB 95 are effective for reporting periods beginning after June 15, 2021.

After evaluating GASB Statement No. 92, it has been determined that PMRS is presenting information in accordance with the requirements.

The GASB issued Statement No. 96, Subscription-Based Information Technology Arrangements, in May 2020. Under this statement, a government generally should recognize a right-to-use subscription asset—an intangible asset—and a corresponding subscription liability. A government should recognize the subscription liability at the commencement of the subscription term, which is when the subscription asset is placed into service. The requirements of this statement are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter.

PMRS plans to implement the statement in the December 31, 2021 ACFR.

FUNDED STATUS

PMRS uses an actuarial reserve method of funding

that is financed by member contributions, employer contributions and earnings from invested assets. Actuarial valuations are performed biennially for PMRS' member municipalities as prescribed by Act 205 (Act 293 for county plans).

The January 1, 2020 actuarial liabilities are explicitly calculated for the county plans as of that date. The liabilities for the cash balance plans are based on the member and municipal account balances as of December 31, 2019, as provided by PMRS, as well as the explicit liabilities associated with retirees for these plans. The liabilities for the municipal (i.e. non-county) defined benefit plans (i.e., municipal and authority defined benefit plans) are explicitly valued every odd calendar year and are based on the January 1, 2019 actuarial liabilities. These liabilities are rolled-forward in total, the explicit retiree liabilities are determined as of January 1, 2020, and the active and terminated vested liabilities are adjusted accordingly. Any material changes to the plan provisions are also reflected.

As part of a valuation, the progress toward funding pension obligations of the retirement system 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 PMRS is 101.2% funded as of January 1, 2020.

INVESTMENTS

PMRS is a long-term investor, and the board manages the assets with long-term objectives in mind. A primary element of PMRS' investment philosophy is that diversification among various asset classes is the best way to achieve its goals. PMRS makes estimates of future long-term market returns and establishes an asset allocation plan considering the risk associated with each asset class as well as the financial objectives of the fund.

For the year ended December 31, 2020, PMRS' gross rate of return was 14.6%. The gross rate of return over the past three and five years ended December 31, 2020 was 10.0% and 11.4%, respectively.

SHORT TERM

Short-term investments increased by \$37.5 million or 86.1% from \$43.6 million at December 31, 2019 to \$81.1 million at December 31, 2020. Short-term investments decreased by \$25.3 million or 36.8%

from \$68.9 million at December 31, 2018 to \$43.6 million at December 31, 2019. The annual fluctuations represent the normal cash flow necessary to meet operating expenses.

FIXED INCOME

Fixed income decreased by \$3.1 million or 0.8% from \$403.0 million at December 31, 2019 to \$399.9 million at December 31, 2020. The decrease is primarily due to unfavorable market appreciation. Fixed income increased by \$55.8 million or 16.1% from \$347.2 million at December 31, 2018 to \$403.0 million at December 31, 2019 which is primarily due to market appreciation.

COMMON AND PREFERRED STOCK

Common and preferred stock including international stock increased by \$346 million or 18.6% from \$1.856 billion at December 31, 2019 to \$2.202 billion at December 31, 2020 primarily due to changes in fair value. Common and preferred stock including international stock increased by \$396 million or 27.2% from \$1.460 billion at December 31, 2018 to \$1.856 billion at December 31, 2019 primarily due to changes in fair value.

REAL ESTATE

Real estate decreased by \$3.9 million or 0.8% from \$500.0 million at December 31, 2019 to \$496.1 million at December 31, 2020 primarily due to changes in fair value. Real estate increased by \$13.7 million or 2.8% from \$486.3 million at December 31, 2018 to \$500.0 million at December 31, 2019 primarily due to changes in fair value.

CONTRIBUTIONS AND INVESTMENT INCOME

Total contributions increased by \$30.9 million or 36.2% from \$85.6 million at December 31, 2019 to \$116.6 million at December 31, 2020. The majority of the increase in total contributions comes from transfers from other plan administrators, which increased by \$31.4 in 2020 from \$544 thousand at December 31, 2019 to \$31.9 million at December 31, 2020. Total contributions increased by \$1.1 million in 2019 or 1.3% from \$84.5 million at December 31, 2018 to \$85.6 million at December 31, 2019.

Municipal contributions decreased in 2020 by \$1.2 million or 2%, reflecting decreasing municipal contributions toward unfunded liabilities, from \$60.4 million at December 31, 2019 to \$59.2 million

at December 31, 2020. Municipal contributions decreased by \$836 thousand in 2019 from \$61.3 million in 2018 to \$60.4 million in 2019.

Member contributions increased by \$867 thousand or 3.4% from \$24.3 million at December 31, 2019 to \$25.2 million at December 31, 2020. Member contributions increased \$1.3 million in 2019 from \$23 million at December 31, 2018. Additional contributions in 2020 transfers from other plans of \$31.9 million.

Net investment gain was \$390.6 million in 2020 compared to \$480.3 million in 2019 compared to net investment loss of (\$113.2) million in 2018. Investment income (loss) is primarily attributable to appreciation (depreciation) in fair values in the equity markets.

Investment expenses decreased by \$593 thousand or 4.8% from \$12.32 million in 2019 to \$11.73 million in 2020. Fluctuations in the fair market value of assets account for annual differences in the investment expenses. Investment expenses were \$12.31 million in 2018. The investment expenses are based on the fair value of the quarterly average balance of investments under management.

PENSION PLAN BENEFITS AND EXPENSES

Annuity benefits and terminations were \$124.6 million in 2020 compared to \$118.4 million in 2019 and \$107.6 million in 2018. Annuity benefits and terminations increased in all three years primarily due to an increased number of retirees and annuity benefits as well as annuity increases (cost-of-living adjustments) that may be applied each year. Annuity benefits excluding death payments were \$115.4 million in 2020 compared to \$105.6 million in 2019 and \$97.1 million in 2018.

Transfers from other plan administrators increased in 2020 to \$31,924,791 compared to \$544,153 in 2019 and \$0 in 2018 due to fluctuations new plan admissions. Transfers to other plan administrators increased in 2020 to \$1,730,317 compared to \$0 in 2019 and \$159,701 in 2018 due to fluctuations in plan withdrawals.

Administrative expenses were \$6.3 million in 2020 compared to \$4.9 million in 2019 and \$5.8 million in 2018.

FINANCIAL CONTACT

PMRS' financial statements are designed to present users with a general overview of PMRS' finances and to demonstrate the trustee's accountability. If there are questions about the report or additional information is required, contact the Chief Financial Officer, Pennsylvania Municipal Retirement System at P.O. Box 1165, Harrisburg, PA 17108-1165.



FINANCIAL STATEMENTS

INVESTMENT BALANCES BY ASSET CLASS

As of December 31, 2020, 2019 and 2018
(amounts in thousands)

Asset class	2020	Percentage of Portfolio	2019	Percentage of Portfolio	2018	Percentage of Portfolio
Short term and other investments	\$81,079	2.6%	\$43,558	1.6%	\$68,881	2.9%
Fixed income	399,942	12.6%	403,053	14.4%	347,219.00	14.7%
Equity index funds, common and preferred stocks	1,367,622	43.0%	1,147,093	40.9%	936,426.00	39.6%
International stock	834,083	26.2%	708,911	25.3%	523,297.00	22.2%
Real estate	496,099	15.6%	500,027	17.8%	486,313.00	20.6%
	<u>\$3,178,825</u>	<u>100.0%</u>	<u>\$2,802,642</u>	<u>100.0%</u>	<u>\$2,362,136</u>	<u>100.0%</u>

SUMMARY OF FIDUCIARY NET POSITION

As of December 31, 2020, 2019 and 2018
(amounts in thousands)

Analysis of Fiduciary Net Position	2020	2019	2018
Assets			
Receivables	\$6,678	\$6,946	\$4,244
Investments	3,178,825	2,802,642	2,362,136
Capital assets	252	330	383
Prepaid asset	70	58	-
Total assets	<u>\$3,185,825</u>	<u>\$2,809,976</u>	<u>\$2,366,763</u>
Deferred outflows of resources	2,048	1,721	1,245
Liabilities			
Deferred inflows of resources	17,966	15,822	15,805
	3,208	3,806	2,823
Fiduciary net position	<u>\$3,166,699</u>	<u>\$2,792,069</u>	<u>\$2,349,380</u>

SUMMARY OF CHANGES IN FIDUCIARY NET POSITION

As of December 31, 2020, 2019 and 2018
(amounts in thousands)

Analysis of Changes in Fiduciary Net Position	2020	2019	2018
Additions			
Contributions	\$116,633	\$85,683	\$84,555
Net investment income (loss)	390,647	480,263	(113,221)
Miscellaneous income	(4)	19	-
Total additions	<u>\$507,276</u>	<u>\$565,965</u>	<u>\$(28,666)</u>
Deductions			
Annuity benefits and terminations	124,613	118,409	107,644
Transfers to other plan administrators	1,730	-	159
Administrative expenses	6,302	4,867	5,771
Total deductions	<u>\$132,645</u>	<u>\$123,276</u>	<u>\$113,574</u>
Changes in fiduciary net position	<u>\$374,631</u>	<u>\$442,689</u>	<u>\$(142,240)</u>

FINANCIAL STATEMENTS

STATEMENTS OF FIDUCIARY NET POSITION

As of December 31, 2020 and 2019

	2020	2019
Assets		
Receivables		
Plan members	\$2,200,548	\$2,307,066
Municipal employers	1,243,239	970,033
Accrued investment income	1,967,284	2,140,899
Investment sales receivable	1,250,106	1,510,858
Other receivable	16,720	16,720
Total receivables	\$6,677,897	\$6,945,576
Investments, at fair value		
Short-term and other investments	81,079,270	43,557,561
U.S. government fixed income pooled funds	281,958,821	283,709,057
Corporate bond pooled funds	117,982,769	119,344,015
Equity index funds, common and preferred stocks	1,367,622,266	1,147,093,058
Real estate	496,099,531	500,027,435
International equities	834,083,219	708,911,164
Total investments	\$3,178,825,876	\$2,802,642,290
Capital assets (net of accumulated depreciation of \$319,010 and \$241,247 at 2020 and 2019 respectively)	252,257	330,021
Prepaid assets	70,849	58,306
Total assets	\$3,185,826,879	\$2,809,976,193
Deferred outflows of resources	2,047,620	1,721,099
Liabilities		
Accounts payable and accrued expenses	8,204,897	5,299,472
Net pension liability	4,500,579	4,781,405
Net other post employment benefit obligation liability	4,055,000	3,332,000
Investment purchases payable	1,205,949	2,409,175
Total liabilities	\$17,966,425	\$15,822,052
Deferred inflows of resources	3,208,355	3,806,101
Net position restricted for pensions	\$3,166,699,719	\$2,792,069,139

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

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION

As of December 31, 2020 and 2019

Additions	2020	2019
Contributions		
Municipal Employers	\$59,259,272	\$60,450,153
Plan Members	25,199,715	24,332,531
Transfers from other plan administrators	31,924,791	544,153
Assessments	248,889	356,500
Total Contributions	\$116,632,667	\$85,683,337
Investment income		
From investing activities:		
Net appreciation (depreciation) in fair value of investments	368,975,048	454,527,190
Short-term and other investments	315,920	1,197,670
Equity index funds, common and preferred stocks	11,441,467	13,030,157
Real estate	18,780,054	17,921,921
International equities	2,860,446	5,905,355
Total investment income (loss)	\$402,372,935	\$492,582,293
Investment expenses	(11,725,970)	(12,318,985)
Total net investment income (loss)	\$390,646,965	\$480,263,308
Miscellaneous income	(3,734)	19,023
Total additions	\$507,275,898	\$565,965,667
Deductions		
Annuity benefits and terminations	124,613,259	118,409,245
Transfers to other plan administrators	1,730,317	-
Administrative expenses	6,301,742	4,867,059
Total deductions	132,645,318	\$123,276,304
Net increase (decrease)	374,630,580	442,689,364
Net position restricted for pensions		
Balance, beginning of year	2,792,069,139	2,349,379,775
Balance, end of year	\$3,166,699,719	\$2,792,069,139

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

NOTES TO FINANCIAL STATEMENTS

(1) ORGANIZATION AND DESCRIPTION OF PMRS

Organization

The Pennsylvania Municipal Retirement System (PMRS) was created by the Pennsylvania General Assembly in 1974 with the passage of the Pennsylvania Municipal Retirement Law, Act of 1974, P.L. 34, No. 16 (the Act). PMRS acts as an agent multiple-employer system, and its designated purpose is to administer sound, cost-effective pensions for local government employees. Responsibility for the organization and administration of PMRS is vested in the 11-member Pennsylvania Municipal Retirement Board. Under the Act, each individual municipality has authority to establish or amend its respective benefits and employee contribution rates, subject to PMRS' board approval. Employer contributions are actuarially determined by PMRS' actuary.

Membership in PMRS is optional for Pennsylvania's local governments. When a municipality joins PMRS, its full-time employees contractually become members. Part-time, seasonal, and temporary employees, as well as elected officials, may also become members through contractual agreement. The following tables reflect municipal membership and individual membership as of January 1, 2020 and 2019.

Pension Benefits

PMRS has the broad authority to allow a municipality to design its own retirement benefit structure. Alternatively, PMRS has two basic benefit structures: one for municipal employees

INDIVIDUAL MEMBERSHIP

	2020	2019
ACTIVE MEMBERS		
Defined Benefit Plans		
Municipal	6,994	7,005
Police	849	813
Firefighters	127	131
TOTAL	7,970	7,949
Cash Balance Plans		
Municipal	1,469	1,416
Police	20	22
Firefighters	13	8
TOTAL	1,502	1,446
Total Active Members	9,472	9,395
RETIREES AND BENEFICIARIES		
Retirees	5,781	5,550
Beneficiaries	654	639
Total Retirees and Beneficiaries	6,435	6,189
INACTIVE PARTICIPANTS WITH RIGHTS TO DEFERRED PENSION (VESTED)		
Defined Benefit	882	853
Cash Balance	323	315
Total Vested	1,205	1,168
Defined Benefit	27	32
Cash Balance	20	8
Total Non- Vested	47	40
Total Individual Memberships	17,159	16,792

PARTICIPATING LOCAL GOVERNMENT EMPLOYERS

As of December 31, 2020

	2020		2019	
	Defined Benefit	Cash Balance	Defined Benefit	Cash Balance
County	4	0	4	0
City	18	0	18	0
Borough	145	63	146	62
Township of the first class	19	4	19	4
Township of the second class	166	157	166	156
Authority and other units	168	81	169	81
Police	192	18	191	18
Firefighters	10	2	10	2
Total	722	325	723	323

(Article II of the Act) and one for uniformed employees, police and firefighters (Article III of the Act). Certain elected officials are not permitted to become PMRS members, as outlined in individual municipal ordinances. Under these two structures, members are eligible for monthly retirement benefits upon reaching the age of 65 and 55, under Articles II and III, respectively, or upon accumulating 24 years of service. Under Articles II and III of the Act, vesting occurs after 12 years of service. Such benefits under Articles II and III are generally equal to (a) the actuarial value of the members' contributions and (b) the municipal annuity that is based on a percentage of a member's salary or compensation. The benefit structures also provide death, disability, and early retirement benefits. These benefit provisions and all other requirements are established under Articles II and III of the Act. Under Article IV of the Act, municipalities may provide for benefits different from those available under Articles II and III. Vesting provisions, if any, under Article IV may vary.

Automatic post-retirement benefit increases are optional in plan contracts. Some member municipalities include the automatic increase; others occasionally grant an ad hoc cost-of-living (COLA) increase. A post-retirement benefit increase may also be granted through PMRS' excess interest award (see Note 3 for an explanation of excess interest).

Member municipalities wishing to amend benefits contact PMRS' staff to discuss desired amendments and to obtain an actuarial cost study. Amendments are drafted by PMRS' staff, reviewed by chief counsel's office, adopted by the municipality, and submitted to PMRS' board for formal approval.

(2) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Basis of Accounting

PMRS' financial statements are prepared on the accrual basis of accounting. Employee and employer contributions are recognized in the period in which the contributions are due. Benefits and refunds are recognized when due and payable in accordance with the terms of each plan. Expenses are recorded when the corresponding liabilities are incurred.

Use of Estimates in Preparing Financial Statements

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make

estimates and assumptions that affect the reported amounts of assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of additions and deductions during the reported period. Actual results could differ from those estimates.

Reclassifications

A reclassification of expenses has been made to the prior period on Schedule 1 – Administrative Expenses. Specifically, certain Other Post-employment Benefits (OPEB) expenses in 2019 were inadvertently recorded in the insurance expenses. A total of \$144,331 was reclassified between the two categories, resulting in the OPEB expense decreasing by \$144,331 to (\$466,357) and insurance expenses increasing to \$336,558 in 2019. There was no impact on the Statement of Changes in Fiduciary Net Position. The expense is recorded in the proper classification in 2020.

A reclassification has been made to the prior period reserve accounts to fully fund the retiree reserve liability as of December 31, 2019 per the Actuarial Valuation as of January 1, 2020. The reclassification was an increase of \$6,537,466 to the Retired Members' Reserve Account and a decrease to the Undistributed Earnings Reserve Account.

Investments

Investments are reported at fair value. Fair value is the amount that an investor 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. Short-term investments are reported at amortized cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. Equity index funds are valued at the net asset value of units held based on the value of the underlying investments as determined by quoted market prices. Fixed income index funds are valued at the net asset value of units held based on yields currently available on comparable securities of issuers with similar credit ratings of the underlying investments. Real estate investments are valued at the net asset value. Purchases and sales of investments are recorded on a trade date basis. Interest income is recorded on an accrual basis and dividends are recorded on the ex-dividend date.

NOTES TO FINANCIAL STATEMENTS

Capital Assets

Capital assets consist of office furniture and equipment, software, and leasehold improvements. Capital assets are recorded at cost and depreciated using the straight-line method over the following useful lives:

Office Furniture	7 years
Office Equipment	4 years
Software	3 years
Leasehold Improvements	10 years

Pensions for Employees of PMRS

Employees of PMRS are members of the Pennsylvania State Employees' Retirement System (SERS).

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 SERS and additions to/deductions from SERS' fiduciary net position have been determined on the same basis as they are reported by SERS (see Note 6 for additional information regarding SERS). PMRS' net pension liability, deferred outflows of resources, and deferred inflows of resources are reported on the Statement of Fiduciary Net Position. The pension expense is reported in administrative expenses on the Statement of Changes in Fiduciary Net Position and is detailed on the Schedule of Administrative Expenses Supplementary Schedule.

Postemployment Benefits Other Than Pensions

PMRS participates in the commonwealth's Retired Employee Health Program. For purposes of measuring the net OPEB liability, deferred outflows of resources, deferred inflows of resources, and OPEB expense, information about the fiduciary net position of the commonwealth and additions to/deductions from the commonwealth's fiduciary net position have been determined on the same basis as they are reported by the commonwealth (see Note 7 for additional information). PMRS' net OPEB liability, deferred outflows of resources, and deferred inflows of resources are reported on the Statement of Fiduciary Net Position. The OPEB expense is reported in administrative expenses on the Statement of Changes in Fiduciary Net Position and is detailed on the Schedule of Administrative Expenses Supplementary Schedule in the Retiree Health

Benefits account.

Compensated Absences

PMRS uses the accrual basis of accounting for measuring vacation leave, sick leave, and other compensated absence liabilities. Employees of PMRS are paid for accumulated vacation leave upon termination or retirement. Retiring employees of PMRS that meet service, age, or disability requirements are paid between 30% and 50% of sick days available at retirement, up to 161 maximum days paid. As of December 31, 2020 and 2019, \$452,333 and \$392,152, respectively, were accrued for unused vacation and sick leave for PMRS' employees and included in accounts payable and accrued expenses on the Statement of Fiduciary Net Position.

Federal Income Taxes

PMRS 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, the trust fund and any benefits accruing to the members of PMRS are exempt from Pennsylvania state and municipal taxes.

It should be noted that the Internal Revenue Service (IRS) announced and initiated a renewed focus on the tax qualification of public pension funds in 2008. In response to that action, PMRS has implemented a six-year continuous review cycle of all plans to proactively to address this IRS initiative.

New Accounting Pronouncements Adopted

During the year ended December 31, 2019, PMRS adopted GASB Statement No. 95, Postponement of the Effective Dates of Certain Authoritative Guidance, issued in May 2020. The primary objective of this statement is to provide temporary relief to governments and other stakeholders resulting from the COVID-19 pandemic. That objective is accomplished by postponing the effective dates of certain provisions in statements and implementation guides that first became effective or are scheduled to become effective for periods beginning after June 15, 2018, and later. The application of Statement No. 95 delays the effective date of GASB Statement No. 84, Fiduciary Activities by one year.

The GASB issued Statement No. 87, Leases, in June 2017. This statement establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to

use an underlying asset. Under this statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources. The requirements of this statement as amended by GASB 95 are effective for financial statements for fiscal years beginning after June 15, 2021 and all reporting periods thereafter.

PMRS plans to implement the statement in the December 31, 2021 ACFR.

The GASB issued Statement No. 96, Subscription-Based Information Technology Arrangements, in May 2020. Under this statement, a government generally should recognize a right-to-use subscription asset—an intangible asset—and a corresponding subscription liability. A government should recognize the subscription liability at the commencement of the subscription term, which is when the subscription asset is placed into service. The requirements of this statement are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter.

PMRS plans to implement the statement in the December 31, 2021 ACFR.

PMRS implemented GASB Statement No.98, The Annual Comprehensive Financial Report, issued in October 2021. This statement establishes the term annual comprehensive financial report and its acronym ACFR. That new term and acronym replaces instances of comprehensive annual financial report and its acronym in generally accepted accounting principles for state and local governments. PMRS adopted this nomenclature for the 2019 financial report.

(3) CONTRIBUTIONS AND RESERVES

Contributions

Contributions to PMRS are made by members and municipalities. Under Articles II and III of the Act, members are required to contribute 3% to 8% of their salaries. The amount a member contributed under Article IV of the Act is based upon a contracted plan provision and is principally expressed as a percent of compensation or salary. The contributions required of municipalities are based upon an actuarial valuation, using the Entry Age Normal Actuarial Cost Method, computed as a percentage of the total compensation of all active members during the period for which the amount is determined. The required contributions from municipalities for the years ended December 31, 2020 and 2019 consisted of the following:

The actual contributions were 113.7% of the required

	2020	2019
Municipality normal cost ¹	\$59,494,681	\$60,450,152
Amortization of unfunded actuarial accrued liability	(7,169,315)	(9,203,187)
Total²	\$52,325,366	\$51,246,965

¹Municipality normal cost includes additional municipal employer contributions towards unfunded liability of \$2.1 million and \$4.6 million in 2020 and 2019 respectively.

²Total does not include \$20 per member assessment fee to municipalities.

contributions in 2020 and 118.0% of the required contributions in 2019.

The total contributions to PMRS in 2020 were \$116.6 million of which \$59.3 million and \$25.2 million were made by municipal employers and plan members, respectively. Included in the municipal contributions are \$31.9 million transfers from other plan administrators and \$249 thousand from assessments. Total contributions to PMRS in 2019 were \$85.7 million of which \$60.5 million and \$24.3 million were made by municipal employers and plan members, respectively, \$544 thousand from other plan administrators and \$357 thousand was from assessments.

The difference between the municipalities' required and actual contributions is generally due to various factors including additional contributions towards unfunded liability, plan takeovers, and the municipalities transferring state aid money to PMRS as required under the Municipal Pension Plan Funding Standard and Recovery Act of 1984 (Act 205).

Each municipality is charged a \$20 assessment fee per member to help cover administrative expenses incurred by PMRS. The remaining costs of administering the plan are financed by investment income.

Contributions Required and Contributions Made

PMRS' funding policy requires actuarially determined annual required contributions of plan member municipalities at rates that accumulate sufficient assets to pay benefits when due. PMRS' actuary used the Entry Age Normal Cost Actuarial Method to determine plan liabilities and normal cost. Under this method, a normal cost is calculated that would fund each employee's benefits during the employee's career as a level percentage of pay

NOTES TO FINANCIAL STATEMENTS

At each valuation date, the unfunded actuarial accrued liability is calculated as the present value of all plan benefits, less the present value of future normal cost accruals, less current assets (actuarial value).

The normal cost rate is applied to the projected payroll, and projected employee contributions are deducted. Actuarial gains (or losses) are reflected by decreases (or increases) in the unfunded actuarial accrued liability. Under Act 205, and amended under Act 44¹, the unfunded accrued liability is amortized as a level dollar amount over the lesser of:

1.
 - a. 30 years with respect to the initial liability as of 1/1/1985 (or first valuation);
 - b. 20 years with respect to actuarial gains and losses;
 - c. 15 years with respect to changes due to actuarial assumptions;
 - d. 20 years with respect to changes due to plan provisions (if state mandated);
 - e. 10 years with respect to changes in benefits for currently active members, and one year of retired members (if local benefit changes), or,
2. the average assumed working lifetime of active employees as of the date the liability was established. If there are no active employees, the unfunded liability is amortized one year after the liability was established.

Significant actuarial assumptions used to compute the actuarially determined contribution requirement include (a) an investment rate of return of 5.25% per year (net of investment expenses and certain administrative expenses) compounded annually, (b) projected salary increases ranging from 2.8% to 7.05%, including 2.8% per year compounded annually for inflation, with an additional age-based component to reflect merit/seniority, (c) post-retirement cost-of-living increases of 2.8% per year until the maximum is reached (optional in contracts), (d) pre-retirement mortality based on RP2000 Non-Annuitant Mortality Table projected 15 years with Scale AA for males and females and an additional setback of 5 years for females, (e) healthy post-retirement mortality based on RP2000 Annuitant Combined Mortality Table projected 5 years with Scale AA for males and projected 10 years with Scale AA for females, and (f) disabled post-retirement mortality based on the RP2000 Combined Mortality

¹ Act 44 of 2009 made amendments to Act 205 which changes certain amortization periods. These changes affect the cost calculations for PMRS' plans as of January 1, 2011.

Table with a set forward of 10 years. These actuarial assumptions were first adopted for the January 1, 2016, actuarial valuation based on the most recent experience study for the period covering January 1, 2009 through December 31, 2013 and, as such, will be reflected in the Actuarially Determined Contributions for calendar year 2020. The January 1, 2017, 2018 and 2019 valuation results are based on actuarial assumptions used for the January 1, 2016 valuation and the updated investment rate of return assumption. The January 1, 2016, valuation results reflect a 5.5% interest rate of return assumption, while the January 1, 2017, 2018, 2019, and 2020 valuation results reflect the 5.25% interest rate of return assumption adopted by the PMRS board in November 2016.

The amortization method uses level dollar for plan bases and average for Aggregate Gain/Loss, 10% of surplus is credited against aggregate cost where applicable, based on an open amortization period. The remaining amortization period at December 31, 2020 and 2019 was 10-30 years.

Reserve Accounts

As of December 31, 2020 and 2019, the reserve account balances were as follows:

The act defines the following funds to be maintained

	2020	2019
Members' Reserve Account	\$494,275,157	\$485,374,472
Municipal Reserve Account	974,897,043	942,893,353
Retired Members' Reserve Account	1,282,886,644	1,190,972,776
DROP Participant Reserve Account	728,956	873,195
Disability Reserve Account	738,929	687,614
Undistributed Earnings Reserve Account	413,172,990	171,267,727
Total	\$3,166,699,719	\$2,792,069,137

by PMRS:

Members' Reserve Account

The Members' Reserve Account is credited with all contributions made by active members of PMRS. Interest is credited to each member's individual account at an annual rate determined by the board. PMRS' regular interest rate for the years ended December 31, 2020 and 2019 was 5.25%. In addition

to regular interest, PMRS may also award excess interest. PMRS did not award excess interest for 2019.

Upon retirement or disability of an active member, the member's accumulated contributions plus interest are transferred to the Retired Members' Reserve for subsequent benefit payments. Withdrawals of the contributions of members not eligible for benefits are paid from this reserve. The account is fully funded as of December 31, 2020.

Municipal Reserve Accounts

Separate municipal accounts are maintained for each municipality. The Municipal Reserve Account is credited with each municipality's contributions toward the superannuation retirement and death benefits of its members. Interest is credited to each separate municipal account at an annual rate determined by the board. PMRS' regular interest rate for the years ended December 31, 2020 and 2019 was 5.25%. In addition to regular interest, PMRS may also award excess interest. PMRS did not award excess interest for 2019. The account is fully funded as of December 31, 2020.

Retired Members' Reserve Account

The Retired Members' Reserve Account represents the amounts transferred from the Members' Reserve Account, the Municipal Accounts, and the Disability Reserve Account. All retirement benefits and retirees' death benefits are paid from this reserve. Interest is credited to the Retired Members' Account at an annual rate determined by the board. PMRS' regular interest for the years ended December 31, 2020 and 2019 was 5.25%. In addition to regular interest, PMRS may also award excess interest. PMRS did not awarded excess interest for 2019. The account is fully funded as of December 31, 2020.

DROP Participant Reserve Account

Deferred Retirement Option Program (DROP) is an optional form of payment upon a member's retirement. The DROP Participant Reserve Account is credited with all monthly annuity payments payable to a DROP participant. The monthly DROP interest is dependent on the monthly rate of return credited to the Liquid Asset Pool as determined by the State Treasurer. The DROP interest credited each month shall not be less than 0% nor more than 0.367% per month and shall not exceed the statutory limit of 4.5% annually. The average monthly yield for 2020 ranged from 0.14% to 1.77% with 0.81% as the average for

the 12-month period. The average monthly yield for 2019 ranged from 1.83% to 2.56% with 2.36% as the average for the 12-month period. The first DROP participant enrolled on July 31, 2012. The account is fully funded as of December 31, 2020.

Disability Reserve Account

The Disability Reserve Account is credited with the contributions made by municipalities toward the disability retirement of member employees. The disability reserves are limited to 150% of the largest value of transfers to the Retired Members' Reserve Account over the most recent three years. Interest is credited to the disability account at an annual rate determined by the board. PMRS' regular interest rate for the years ended December 31, 2020 and 2019 was 5.25%. The account is fully funded as of December 31, 2020.

Undistributed Earnings Reserve Account

In addition to regular interest, PMRS may also award excess interest. Excess interest is investment earnings on PMRS' assets in excess of that required for allocation to regular interest and administrative expenses. Excess interest awards are determined annually by the board with advice from PMRS' actuary and in accordance with board policy statement rule number 05-2. The excess interest is distributed to the Members' Reserve Accounts, the Municipal Reserve Accounts, and the Retired Members' Reserve Account as directed by the municipalities. The PMRS board decided not to award excess interest for 2019.

(4) INVESTMENTS

Members of the board are trustees of PMRS' assets. They have exclusive responsibility for the management of such assets and have full power to invest PMRS' assets, subject to the terms, conditions, limitations, and restrictions imposed by the commonwealth law upon fiduciaries. The board is governed by the "prudent investor" rule in establishing investment policy. The "prudent investor" rule requires the exercise of that degree of judgment, skill, and care under the circumstances then prevailing which investors 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 permanent disposition of the funds, considering the probable income to be derived there from, as well as safety of their capital.

The board has adopted its Statement of Investment Policy to formally document investment objectives

NOTES TO FINANCIAL STATEMENTS

and responsibilities. This policy, as well as applicable state law, establishes guidelines for permissible investments of PMRS. The pension plan's policy regarding the allocation of invested plan assets is established and may be amended by the board. The board established its allocation goals as follows:

The board prohibits: (1) purchasing of commodities,

Domestic equities (large capitalized firms)	25%
Domestic equities (small capitalized firms)	15%
International equities (developed markets)	15%
International equities (emerging markets)	10%
Fixed income	15%
Real estate	12.5%
Timberland	7.5%

mineral rights except those mineral rights that come with the purchase of timberland, and warrants except those previously authorized, (2) short selling and the purchasing of securities on margin, and (3) selling or buying options or futures contracts on either fixed income or equity instruments. Unleveraged derivatives used to dampen risk, execute an unleveraged strategy, or reallocate assets within a portfolio quickly may be used by a manager provided the exposure to derivatives does not exceed 5% of the manager's portfolio at market value. Leveraged derivatives of any nature or the use of derivatives to create leverage are strictly prohibited. Notwithstanding the above, warrants received in corporate restructuring may be retained at the manager's discretion.

The board achieves day-to-day management of the investment portfolio through investment managers. Restrictions concerning diversification within each manager and among managers are provided by the adopted Investment Policy.

Money-Weighted Rate of Return

For the years ended December 31, 2020 and 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 13.8% and 20.9%, respectively. The money-weight of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Fair Value of Investments

PMRS 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 the fair value in that particular market.
- Level 2 inputs: The categorization of an asset/liability as Level 1 requires that it be 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.

Equity securities classified in Level 1 of the fair value hierarchy are valued using prices quoted in active markets for those securities.

Investments valued at the net asset value (NAV) per share (or its equivalent) include investments considered to be Alternative Investments defined by the American Institute of Certified Public Accountants (AICPA). The definition includes investments for which a readily determinable fair value does not exist (that is, investments not listed on national exchanges or over-the-counter markets, or for which quoted market prices are not available from sources such as financial publications, exchanges, or NASDAQ). These types of investments include real estate and commingled index funds and can be held within any of the asset classes used by PMRS based on underlying portfolio holdings and analysis of risk and return relationships. The commingled index funds are open-ended funds and may be used in equity or fixed income asset classes. They are funds made up of underlying securities that have readily available fair values (publicly traded stocks and bonds). PMRS owns units

NOTES TO FINANCIAL STATEMENTS

of these funds rather than the individual securities. Contributions or withdrawals from these funds can be made as needed, generally with daily or monthly liquidity, with a notice period of one to fifteen days.

PMRS has short-term and other investments that are not measured at fair value or NAV. PMRS invests in the commonwealth's Treasury Department Pool 99 and Pool 124 short-term investment pools. These pools consist exclusively of fixed income securities,

primarily of short duration, which are held either directly or through the Consolidated Cash Pool, an investment instrument used to invest short-term monies. PMRS' portion is valued at cost plus accrued interest, which approximates fair value.

PMRS had the following investments at December 31, 2020 and 2019:

Deposit and Investment Risks

INVESTMENTS

As of December 31, 2020

Investments By Fair Value Level	2020	Level 1	Level 2	Level 3
Common and preferred stock	\$1,365,389,361	\$1,365,389,361	\$-	\$-
Total investments by Fair Value Level	1,365,389,361	1,365,389,361	-	-
		UNFUNDED	REDEMPTION	REDEMPTION
Investments Measured at Net Asset Value (NAV)		COMMITMENTS	FREQUENCY	NOTICE PERIOD
Commingled funds - debt	399,941,590	-	Daily, monthly	1-15 days
Commingled funds - equity	836,316,124	-	Daily, monthly	1-15 days
Real estate	496,099,531	-	Not eligible	Not eligible
Total investments measured at NAV	\$1,732,357,245	-		
INVESTMENTS AT OTHER THAN FAIR VALUE				
Short-term and other investments	81,079,270			
Total investments at other than Fair Value	81,079,270			
Total investments	\$3,178,825,876			

INVESTMENTS

As of December 31, 2019

Investments By Fair Value Level	2019	Level 1	Level 2	Level 3
Common and preferred stock	\$1,252,286,282	\$1,252,286,282	-	-
Total investments by Fair Value Level	1,252,286,282	1,252,286,282	-	-
		UNFUNDED	REDEMPTION	REDEMPTION
Investments Measured at Net Asset Value (NAV)		COMMITMENTS	FREQUENCY	NOTICE PERIOD
Commingled funds - debt	403,053,072	-	Daily, monthly	1-15 days
Commingled funds - equity	603,717,940	-	Daily, monthly	1-15 days
Real estate	500,027,435	40,000,000	Not eligible	Not eligible
Total investments measured at NAV	1,506,798,447	40,000,000		
INVESTMENTS AT OTHER THAN FAIR VALUE				
Short-term and other investments	43,557,561			
Total investments at other than Fair Value	43,557,561			
Total investments	\$2,802,642,290			

NOTES TO FINANCIAL STATEMENTS

PMRS' deposits and 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. 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 Statement of Fiduciary Net Position.

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of PMRS' investments in a single issuer. As of December 31, 2020 and 2019, PMRS 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.

Custodial Credit Risk – Deposits

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

Custodial Credit Risk – Investments

Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty to a transaction, PMRS would not be able to recover the value of investments or collateral securities that are in the possession of an outside party. In accordance with a contractual relationship between the commonwealth's Treasury Department and its custodial agent, substantially all investments, where securities are used as evidence of the investment, are held by the custodian in book-entry form in PMRS' name. Those investments are defined as insured or registered investments for which the securities are held by PMRS 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 commingled funds, which include real estate.

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 Moody's Investors Service (Moody's), Standard and Poor's (S&P), and Fitch Ratings (Fitch).

Only those bonds issued by the federal government and its agencies or foreign government bonds denominated in U.S. dollars rated "AA" or higher, and only those corporate bonds which are rated, and which ratings are no lower than the "A" or better by at least two of the three NRSRO listed above shall be purchased in accordance with PMRS' investment guidelines. Should any bond drop below investment quality ("BA" or lower), the manager shall divest the holding or report in writing to PMRS within thirty (30) days from the day the security's rating has fallen below the acceptable rating as to why the security remains a safe investment for the portfolio. When an index fund is used to meet PMRS' commitment to the fixed income allocation, the underlying securities of the index shall not have to comply with the specific requirements of this paragraph.

For securities exposed to credit risk in the fixed income portfolio, the following table discloses aggregate fair value by credit quality rating category at December 31, 2020 and 2019.

CREDIT RISK

	2020	2019
Quality Rating	Fair Value	Fair Value
Aaa ¹	\$279,399,195	\$290,883,402
Aa1 ¹	12,798,131	13,220,141
A1 ¹	47,473,067	43,489,426
Baa1 ¹	60,191,209	55,460,103
Below Baa1 ¹	39,994	-
NR2 ²	81,119,264	43,557,561
Total	\$481,020,860	\$446,610,633

¹ The fixed income portfolio is currently 100% passive. The fair value distributed among the credit ratings is calculated based on percentages reported by the index fund provider.

² Not rated securities include short-term and other investments.

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. PMRS measures interest rate risk using duration. Duration is a measure of the

NOTES TO FINANCIAL STATEMENTS

sensitivity of the price (the value of principal) of a fixed income investment to a change in interest rates and is expressed as a number of years. The higher the duration, the greater the changes in fair value when interest rates change.

At December 31, 2020 and 2019, PMRS' fixed income portfolio had the following effective duration:

Foreign Currency Risk

2020 INTEREST RATE RISK

Investment Type	Fair Value	Effective Duration
Commingled funds - debt	\$399,941,590	6.23
Short-term and other investments	81,079,270	0.1
Total	\$481,020,860	

2019 INTEREST RATE RISK

Investment Type	Fair Value	Effective Duration
Commingled funds - debt	\$403,053,072	5.88
Short-term and other investments	43,557,561	0.1
Total	\$446,610,633	

Foreign currency risk is the risk that fluctuations in the exchange rates will adversely affect the fair value of an investment. As part of PMRS' program to manage risk and enhance returns, PMRS invests in non-U.S. markets.

At December 31, 2020 and 2019, PMRS had the

following non-U.S. currency exposure:

(5) SECURITIES LENDING

2020 FOREIGN CURRENCY RISK

Currency Name	Equity	Short Term	Total
Euro	\$84,905,333	\$-	\$84,905,333
Japanese Yen	61,628,252	-	\$61,628,252
Hong Kong Dollar	38,999,735	-	\$38,999,735
Pound Sterling	18,027,061	-	\$18,027,061
Swedish Krona	13,335,785	-	\$13,335,785
Australian Dollar	9,714,626	-	\$9,714,626
South Korean Won	9,106,004	-	\$9,106,004
Canadian Dollar	8,560,469	-	\$8,560,469
Norwegian Krone	8,094,672	-	\$8,094,672
Danish Krone	7,498,111	-	\$7,498,111
Total	\$259,870,048	\$-	\$259,870,048

2019 FOREIGN CURRENCY RISK

Currency Name	Equity	Short Term	Total
Euro	\$75,398,492	\$27	\$75,398,518
Japanese Yen	53,451,567	-	53,451,567
Hong Kong Dollar	27,620,519	-	27,620,519
British Pound Sterling	26,316,821	2	26,316,823
Norwegian Krone	8,065,086	-	8,065,086
South Korean Won	7,617,836	-	7,617,836
Swedish Krona	6,604,996	-	6,604,996
Swiss Franc	6,233,277	-	6,233,277
Australian Dollar	5,719,480	-	5,719,480
Canadian Dollar	-	720	720
Total	\$217,028,074	\$749	\$217,028,823

In accordance with a contract between the commonwealth's Treasury Department and its custodian, PMRS may participate in a securities lending program. Under this program, the custodian, acting as the lending agent, lends securities (equities, fixed income, and money market instruments) to independent brokers, dealers, and banks, acting as borrowers in exchange for collateral. Collateral is required at 102% of the fair value of the securities lent except for equity securities of non-U.S. corporations, for which collateral of 105% is required. Collateral is marked-to-market daily. If the fair value of collateral held falls below the minimum guidelines for securities loaned, additional collateral is obtained. The lending



NOTES TO FINANCIAL STATEMENTS

agent invests the cash collateral in accordance with reinvestment guidelines approved by the commonwealth’s Treasury Department. The lending agency cannot pledge or sell collateral securities received unless the borrower defaults.

As of December 31, 2020 and 2019, PMRS had no credit risk exposure to borrowers because participation in the securities lending program was halted in 2008.

(6) PENSION PLAN FOR EMPLOYEES OF PMRS

SERS’ Plan Description

PMRS contributes to the State Employees’ Retirement System (SERS), a cost-sharing multiple-employer defined benefit pension plan established by the commonwealth to provide pension benefits for employees of the 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. Article II of the commonwealth’s constitution assigns the authority to establish and amend the benefit provision of the plan to the General Assembly.

SERS’ Benefits Provided to Employees of PMRS

SERS provides a pension defined benefit plan, including retirement, death, and disability benefits, for employees of state government and certain independent agencies. SERS member retirement benefits may consist of defined benefit and/or defined contribution benefits. The member’s benefits are mainly derived from their class of service, which is generally determined at the original date of hire. For defined benefit plans the benefits are determined by taking years of credited service, multiplied by final average salary, multiplied by 2%, multiplied by the class of service multiplier.

Alternatively, SERS provides a hybrid plan which is a mix of defined benefit pension plan and defined contribution investment plan. The defined benefit plan provides member benefits based on years of service and salary. The defined contribution plan allows the member to pick the investment vehicle and assume the associated risk. The amount of retirement depends on the accumulated contributions and investment returns.

According to the State Employees’ Retirement Code (SERC), all obligations of SERS will be assumed by

the commonwealth should SERS terminate.

Contributions to SERS

Section 5507 of the SERC (71 Pa C.S. §5507) requires the commonwealth and other employers whose employees are SERS members to make contributions to the fund on behalf of all active members and annuitants necessary to fund the liabilities and provide the annuity reserves required to pay benefits. SERS funding policy, as set by the SERS board, provides for periodic active member contributions at statutory rates. The SERS funding policy also provides for periodic employer contributions at actuarially determined rates based on SERS funding valuation, expressed as a percentage of annual retirement covered payroll, such that they, along with employee contributions and an actuarially determined rate of investment return are adequate to accumulate assets to pay benefits.

SERS’ Pension Plan Investments

The long-term expected real rate of return on pension plan investments is determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of manager fees 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 adjusting for expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in SERS current and target asset allocation as of December 31, 2019 and 2018 are summarized in the following tables: eThe State

2019 LONG-TERM EXPECTED REAL RATE OF RETURN

Asset Class	Target Allocation	Long-Term Expected Rate Of Return
Private equity	16%	7.25%
Global public equity	48%	5.15%
Real estate	12%	5.26%
Multi-strategy	10%	4.44%
Fixed income	11%	1.26%
Cash	3%	-
Total	100%	

2018 LONG-TERM EXPECTED REAL RATE OF RETURN

Asset Class	Target Allocation	Long-Term Expected Rate Of Return
Private equity	16%	7.25%
Global public equity	48%	5.15%
Real estate	12%	5.26%
Multi-strategy	10%	4.44%
Fixed income	11%	1.26%
Cash	3%	-
Total	100%	



Employees Retirement Board (SERB) reviews the Defined Benefit Plan's investment return assumption in light of economic conditions every year. In June 2019, the SERB approved a reduction in the Defined Benefit Plan investment rate of return to 7.125% for 2019 from 7.25% for 2018.

Proportionate Share of SERS' Net Pension Liability, Pension Expense, Deferred Outflows of Resources and Deferred Inflows of Resources

PMRS' proportion of the net pension liability was calculated using a projected-contribution method. PMRS' proportionate share of the SERS' net pension liability was measured as of December 31, 2019 and 2018, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation at December 31, 2019 and 2018.

The following methods and assumptions were used in the actuarial valuation at December 31, 2019 and 2018:

ACTUARIAL ASSUMPTIONS

Investment rate of return	7.125% and 7.25% net of manager fees including inflation, respectively in 2019 and 2018
Projected salary increases	Average of 5.60% with range of 3.70% - 8.90% including inflation
Inflation	2.60%
Mortality rate	Projected RP-2000 Mortality Tables adjusted for actual plan experience and future improvement
Cost-of-living adjustments	None (ad hoc)
Asset valuation method	Fair (market) value

Every five years, SERS is required to conduct an actuarial experience study to determine whether the assumptions used in its annual actuarial valuations remain accurate based on current and anticipated demographic trends and economic conditions. The 18th Investigation of Actuarial Experience study for the period 2011 – 2015 was released in March 2016. The actuary, under the oversight of the SERB, reviewed the economic assumptions (such as employee turnover, retirement, disability, and death rates).

The SERB adopted the actuarial assumptions set forth in the 18th Investigation of Actuarial Experience study at its March 2016 meeting. The study can be viewed as www.SERS.pa.gov.

On December 31, 2020 PMRS reported a net pension liability of \$4.5 million and \$4.8 million at December 31, 2019 for its proportionate share of the net pension liability for the SERS plan on the Statement of Fiduciary Net Position. The net pension liability was measured as of December 31, 2019 and 2018, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation as of that measurement date. On December 31, 2020, PMRS' proportion was 0.02475839% and 0.02295329% at December 31, 2019.

For the years ended December 31, 2020 and 2019, PMRS recognized pension expenses of \$631,698 and \$615,492 respectively, in administrative expenses on the Statement of Changes in Fiduciary Net Position. On December 31, 2020 and 2019, PMRS reported

NOTES TO FINANCIAL STATEMENTS

deferred outflows of resources and deferred inflows of resources from the following sources:

2020 SCHEDULE OF DEFERRED OUTFLOWS AND INFLOWS

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Differences between expected and actual experience	\$56,114	\$30,484
Changes of assumptions	173,430	-
Differences between projected and actual investment earnings on pension plan investments	-	320,977
Difference between employer contributions and proportionate share of contributions	5,921	5,827
Changes in proportion	287,296	124,067
Contributions subsequent to measurement date	576,308	-
Total	\$1,099,069	\$481,355

2019 SCHEDULE OF DEFERRED OUTFLOWS AND INFLOWS

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Differences between expected and actual experience	\$71,753	\$51,812
Changes of assumptions	127,388	-
Differences between projected and actual investment earnings on pension plan investments	465,201	-
Difference between employer contributions and proportionate share of contributions	8,611	1,145
Changes in proportion	39,776	215,144
Contributions subsequent to measurement date	514,987	-
Total	\$1,227,716	\$268,101

The amount reported as deferred outflows of resources at December 31, 2020 and 2019 includes contributions subsequent to the measurement date of \$576,308 and \$514,987, respectively, which are recognized as a reduction of the net pension liability in the years ended December 31, 2021 and 2020. The amounts reported as deferred outflows of resources and deferred inflows of resources at December 31, 2020 will be recognized in pension expense as follows:

Year Ending December 31	
2021	\$(25,926)
2022	(8,417)
2023	116,140
2024	(67,370)
2025	26,979
Thereafter	-
Total	\$41,406

Sensitivity of PMRS' Proportionate Share of SERS' Net Pension Liability to Changes in the Discount Rate

The following presents PMRS' proportionate share of the SERS' net pension liability as well as what PMRS' proportional share of the SERS' net pension liability would be if it were calculated using a discount rate that is one percentage point lower or one percentage point higher than the current discount rate.

2020 SENSITIVITY OF PMRS' PROPORTIONATE SHARE OF SERS' NET PENSION LIABILITY TO CHANGES IN THE DISCOUNT RATE

	1% Decrease	Discount Rate	1% Increase
Net Pension Liability	\$5,718,722	\$4,500,580	\$3,457,704

2019 SENSITIVITY OF PMRS' PROPORTIONATE SHARE OF SERS' NET PENSION LIABILITY TO CHANGES IN THE DISCOUNT RATE

	1% Decrease	Discount Rate	1% Increase
	(6.25%)	(7.25%)	(8.25%)
Net Pension Liability	\$5,871,175	\$4,781,405	\$3,847,532

SERS' Pension Plan Fiduciary Net Position

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

(7) POSTEMPLOYMENT HEALTHCARE PLAN FOR EMPLOYEES OF PMRS

PMRS participates in the commonwealth's Retired Employees Health Program (REHP). The REHP is a single-employer defined benefit OPEB plan that includes commonwealth agencies and some component units. The REHP is established as a trust equivalent arrangement. The REHP is administered by the Pennsylvania Employees Benefit Trust Fund (PEBTF), which acts as a third-party administrator under an administrative agreement with the commonwealth. The REHP is provided as part of collective bargaining agreements with most commonwealth labor unions. All policy decisions and types and levels of benefits for the REHP fall under the purview of the commonwealth's Executive Board, and the Secretary of Administration. The REHP does not have a governing board.

Benefits Provided

The commonwealth sponsors the REHP for eligible retirees and their dependents to receive subsidized health coverage for the retiree's lifetime.

Contributions to Commonwealth

REHP employer contribution requirements are established by the commonwealth's Office of Administration and the Office of the Budget. All employing agencies and certain plan members contributed \$230 per bi-weekly pay period for each current REHP eligible active employee during the fiscal year ended June 30, 2020 and \$300 per bi-weekly pay period for each current REHP eligible active employee during the fiscal year ended June 30, 2019. Plan members who retired after June 30, 2005 contribute to the plan based on a percentage of their final gross base salary at the time of retirement. Plan

member contribution rates vary based on their REHP enrollment date.

Commonwealth's REHP Investments

The assets of the REHP are managed by the commonwealth's Treasury Department in an investment pool. The REHP investments are made based upon an interagency agreement, dated June 17, 2008, and the "prudent investor" standard set forth in the Commonwealth of Pennsylvania's fiscal code 72P.S. §30.1, amendment to the fiscal code, the principles of Prudent Investors Standards.

The long-term expected rate of return on REHP plan investment is determined using a risk premium review. This review compares the current relationship between fixed income and equity and their relationship over long periods of time to determine an expected rate of return. Other variables considered in the expected rates of return are a reversion to the mean for each asset class. Best estimates of arithmetic real rates of return for each asset class included in the target asset allocation as of June 30, 2020 and 2019 are summarized in the following tables.

2020 LONG-TERM EXPECTED REAL RATE OF RETURN

Asset Class	Target Allocation	Long-Term Expected Real Rate Of Return
U.S. equity	40%	5.6%
International equity	27%	5.8%
Fixed income	23%	1.7%
Real estate	8%	4.6%
Cash	1.5%	0.9%
Private Equity	0.5%	10.4%
Total	100%	

2019 LONG-TERM EXPECTED REAL RATE OF RETURN

Asset Class	Target Allocation	Long-Term Expected Real Rate Of Return
U.S. equity	47%	5.60%
International equity	20%	5.80%
Fixed income	25%	1.70%
Real estate	8%	4.60%
Cash	0%	0.90%
Total	100%	

NOTES TO FINANCIAL STATEMENTS

Change of Assumption

At December 31, 2020, PMRS reported a net OPEB liability of \$4.1 million and \$3.3 million at December 31, 2019 for its proportionate share of the net OPEB liability on the Statement of Fiduciary Net Position. The net OPEB liability was measured as of June 30, 2020 and 2019, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation as of that measurement date. At June 30, 2020, PMRS proportion of the net OPEB liability was 0.032919% and 0.032000% at June 30, 2019.

The discount rate changed from 3.5% as of June 30, 2019 to 2.21% as of June 30, 2020 and medical trend rates were updated to reflect plan expenses from 2017 to 2019.

Proportionate Share Of the Commonwealth's Net OPEB Liability, OPEB Expense, And Deferred Outflows Of Resources And Deferred Inflows Of Resources

PMRS' proportionate share of the commonwealth's net OPEB liability was measured as of June 30, 2020 and 2019, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation dated September 2020 and September 2019, respectively.

The total OPEB liability in the June 30, 2020 and 2019 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement.

	June 30, 2020	June 30, 2019
Discount rate	2.21%	3.50%
Investment rate of return	5.00%	5.00%
Inflation	2.60%	2.60%
Initial medical trend rate	6.6% / 6.1%	6.0% / 5.90%
Ultimate medical trend rate	4.10%	4.10%
Year ultimate trend rate reached	2075	2075

The RP-2000 Male and Female Combined Healthy Mortality Tables projected (using Projection Scale AA) to 2016 for males and to 2020 for females.

REHP has insufficient assets to meet next year's projected benefit payments, as prescribed by GASB Nos. 74 and 75, the discount rate will be based on the index rate for 20-year tax-exempt general obligation municipal bond index rate with an average rating of

AA/Aa or higher as of the measurement date. The commonwealth elected to determine the discount rate using the Bond Buyer 20-Bond General Obligation Index. The discount rate is 2.21% as of June 30, 2020 (3.50% as of June 30, 2019).

For the years ended December 31, 2020 and 2019, PMRS recognized OPEB expenses of (\$441,000) and \$472,000, respectively, in administrative expenses on the Statement of Changes in Fiduciary Net Position. At December 31, 2020 and 2019, PMRS reported deferred outflows of resources and deferred inflows of resources from the following sources:

2020 SCHEDULE OF DEFERRED OUTFLOWS AND INFLOWS

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Differences between expected and actual experience	\$4,000	\$1,946,000
Changes of assumptions	526,000	314,000
Differences between projected and actual earnings on plan investments	1,000	-
Change in proportionate share and differences between actual and proportionate share of employer contributions	325,000	467,000
Contributions subsequent to measurement date	92,551	-
Total	\$948,551	\$2,727,000

NOTES TO FINANCIAL STATEMENTS

2019 SCHEDULE OF DEFERRED OUTFLOWS AND INFLOWS

	Deferred Outflows Of Resources	Deferred Inflows Of Resources
Differences between expected and actual experience	\$-	\$2,478,000
Changes of assumptions	107,000	462,000
Differences between projected and actual earnings on plan investments	-	6,000
Change in proportionate share and differences between actual and proportionate share of employer contributions	240,000	592,000
Contributions subsequent to measurement date	146,383	-
Total	\$493,383	\$3,538,000

The amount reported as deferred outflows of resources at December 31, 2020 and 2019 includes contributions subsequent to the measurement date of \$92,551 and \$146,383, respectively, which are recognized as a reduction of the net OPEB liability in the years ended December 31, 2021 and 2020. The amounts reported as deferred outflows of resources at December 31, 2020 will be recognized in OPEB expense as follows:

Year Ending December 31	
2021	\$(678,000)
2022	\$(640,000)
2023	\$(476,000)
2024	\$(166,000)
2025	\$89,000
Thereafter	\$-
Total	\$(1,871,000)

Sensitivity Of Pmrs' Proportionate Share Of The Commonwealth's Net OPEB Liability To Change In The Discount Rate And Healthcare Cost Trend Rates

The following presents PMRS' proportionate share of the commonwealth's net OPEB liability as well as what PMRS' proportionate share of the commonwealth's net OPEB liability would be if it were calculated using a discount rate that is one

percentage point lower or one percentage point higher than the current discount rate.

2020 SENSITIVITY OF THE NET OPEB LIABILITY TO CHANGE IN THE DISCOUNT RATE

	1% Decrease	Discount Rate	1% Increase
	(1.21%)	(2.21%)	(3.21%)
Net OPEB liability	\$4,628,000	\$4,055,000	\$3,579,000

2019 SENSITIVITY OF THE NET OPEB LIABILITY TO CHANGE IN THE DISCOUNT RATE

	1% Decrease	Discount Rate	1% Increase
	(2.50%)	(3.50%)	(4.50%)
Net OPEB liability	\$3,780,000	\$3,332,000	\$2,957,000

The following presents PMRS' proportionate share of the commonwealth's net OPEB liability as well as what PMRS' proportionate share of the commonwealth's net OPEB liability would be if it were calculated using a healthcare cost trend rate that is a one percentage point lower or one percentage point higher than the current healthcare cost trend rate.

2020 SENSITIVITY OF THE NET OPEB LIABILITY TO CHANGE IN THE HEALTHCARE COST TREND RATE

	1% Decrease	Healthcare Cost Trend Rates	1% Increase
	(5.6% / 5.1% decreasing to 3.1%)	(6.6% / 6.1% decreasing to 4.1%)	(7.6% / 7.1% decreasing to 5.1%)
Net OPEB liability	\$3,447,000	\$4,055,000	\$4,816,000

2019 SENSITIVITY OF THE NET OPEB LIABILITY TO CHANGE IN THE HEALTHCARE COST TREND RATE

	1% Decrease	Healthcare Cost Trend Rates	1% Increase
	(5.0% / 4.9% decreasing to 3.1%)	(6.0% / 5.9% decreasing to 4.1%)	(7.0% / 6.9% decreasing to 5.1%)
Net OPEB liability	\$2,895,000	\$3,332,000	\$3,871,000

Commonwealth's Annual Comprehensive Financial Report (ACFR)

The REHP is reported in the commonwealth's Annual Comprehensive Report (ACFR) as a Pension (and Other Employee Benefit) Trust. The REHP is reported using the economic resources measurement focus and the accrual basis of accounting. The ACFR is an audited financial statement and is available at www.budget.pa.us.

(8) RELATIONSHIPS WITH OTHER COMMONWEALTH AGENCIES

Responsibility for the organization and administration of PMRS is vested in the 11-member Pennsylvania Municipal Retirement Board. The State Treasurer and the Secretary of the Commonwealth serve on the board by virtue of statute. Eight board members are also appointed by the Governor after being nominated by their respective organizations.

One member each represents the Pennsylvania Municipal League, Pennsylvania Municipal Authorities Association, Pennsylvania State Association of Boroughs, Pennsylvania State Association of County Commissioners, Pennsylvania State Association of Township Commissioners, Pennsylvania State Association of Township Supervisors, the Active Police Officers, and the Active Firefighters. In addition, one board position is filled by a retired member of PMRS. Interested individuals apply, and the Governor makes an appointment from the list of applicants.

PMRS is not included as a component unit of the commonwealth for financial reporting purposes because PMRS is not financially accountable to the commonwealth as there is no imposition of will, no financial benefit/burden, nor fiscal dependency associated with PMRS toward the commonwealth.

(9) PLAN TERMINATION

Member municipalities may withdraw from PMRS if the conditions for withdrawal under the act have been met. Requirements include a minimum of five years of membership, approval of a minimum of 75% of the plan's active, vested, and retired members, and approval of PMRS' board. In the event of withdrawal, a municipality is entitled to receive a net refund of the amount then standing to the credit of the municipality in the municipal account, the member employees' account, and the retired members' reserve account. In no event shall the municipality refund exceed the pro-rata interest of the withdrawing municipality in the net position of the entire fund based on fair value of the fund investments as of the date of receipt of the

application for permission to withdraw. Liability for any continuation of retirement or disability benefits being paid from PMRS shall attach to the withdrawing municipality.

(10) RISK MANAGEMENT

Exposure of PMRS through board or staff activity is covered by various means. PMRS acts under the cover of sovereign immunity, participation in the Employee Liability Self-Insurance Program of the Commonwealth of Pennsylvania, the commonwealth's fidelity bond, and the State Insurance Fund. The board also adopted a self-insurance indemnification policy in 2004. There have been no significant reductions in insurance coverage from the prior year. Settlements did not exceed insurance coverage for the past three years.

(11) LITIGATION AND CONTINGENCIES

PMRS 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 positions of PMRS. PMRS is exposed to various other liabilities and risks related to fiduciary responsibilities of directors and officers.

(12) COMMITMENTS

At December 31, 2019, PMRS had no commitments for the future purchase of investments in real estate. At the July 16, 2020 meeting, the board passed a motion to cancel a \$40 million pending commitment for real estate assets.

PMRS entered an operating lease for a new office building effective July 1, 2017 and expiring June 30, 2027 with two five-year renewal options. Annual rent for the first year (including parking) was \$290,718 with annual increases up to a maximum of 5%. Office space rental expense for the years ended December 31, 2020 and 2019 was \$317,094 and \$314,729, respectively.

(13) RISK AND UNCERTAINTIES

Investments are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investments, it is possible that changes in the values of investment securities may occur in the near term and such changes could materially affect the amounts reported in the financial statements.

PMRS' investment policy is to allow contracted

external managers to decide what action to take regarding their respective portfolio's foreign currency exposures. PMRS has no specific policies for interest rate risk and foreign currency risk.

As the effects of the coronavirus pandemic continue to evolve and are dependent upon future developments, the impact of the coronavirus on the PMRS' operations and financial results are uncertain at this time.

(14) SUBSEQUENT EVENTS

PMRS has performed an evaluation of subsequent events through August 29, 2022, the date the financial statements were available to be issued. No material events were identified by PMRS.



REQUIRED SUPPLEMENTARY SCHEDULE

SCHEDULE 1

Schedule of Investment Returns Annual
money-weighted rate of return,
net of investment expense

Year Ended December 31	Annual Rate
2020	13.80%
2019	20.90%
2018	-4.57%
2017	17.84%
2016	8.23%
2015	-0.27%
2014	5.20%

Note: Money-weighted results for the required 10-year timeframe will be added as available

SCHEDULE 2

Schedule of Allocated Share of Net Pension Liability

Year Ended	Allocation Percentage	Allocated Share of Net Pension Liability	Covered Payroll	Net Pension Liability as a Percentage of Covered Payroll	Plan Fiduciary Net Position as a Percentage of Total Pension Liability
12/31/2019	0.025%	\$4,500,579	\$1,735,081	259.39%	63.1%
12/31/2018	0.023%	4,781,405	1,535,688	311.35%	56.4%
12/31/2017	0.023%	3,937,967	1,507,109	261.30%	63.0%
12/31/2016	0.023%	4,475,356	1,479,180	302.60%	57.8%
12/31/2015	0.026%	4,692,967	1,651,026	284.20%	58.9%
12/31/2014	0.025%	3,777,141	1,566,464	241.10%	64.8%
12/31/2013	0.025%	3,454,742	Not available	Not available	66.7%

Note: Allocated share of net pension liability results for the required 10-year timeframe will be added as available

SCHEDULE 3

Schedule of Allocated Share of Net OPEB Liability

Measurement Year Ended	Allocation Percentage	Allocated Share of Net OPEB Liability	Covered Payroll	Net OPEB Liability as a Percentage of Covered Payroll	Plan Fiduciary Net Position as a Percentage of Total OPEB Liability
6/30/2020	0.033%	\$4,055,000	\$1,650,000	245.80%	3.7%
6/30/2019	0.033%	3,332,000	1,432,000	232.70%	3.8%
6/30/2018	0.035%	5,197,000	1,438,000	361.40%	2.2%
6/30/2017	0.034%	6,768,000	1,428,000	473.90%	1.4%
6/30/2016	0.034%	7,327,000	Not available	Not available	Not available

Note: Allocated share of net pension liability results for the required 10-year timeframe will be added as available

REQUIRED SUPPLEMENTARY SCHEDULE

SCHEDULE 4

Schedule of Pension Contributions

	2014	2015	2016	2017	2018	2019	2020
Contractually determined contribution	\$282,345	\$343,460	\$371,833	\$452,537	\$476,919	\$514,987	\$576,308
Contributions in relation to the contractually determined contribution	282,345	343,460	371,833	452,537	476,919	514,987	576,308
Contribution deficiency (excess)	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Covered payroll	\$1,620,305	\$1,596,465	\$1,470,254	\$1,574,215	\$1,589,270	\$1,684,962	\$1,735,081
Contributions as a percentage of covered payroll	17.4%	21.51%	25.29%	28.75%	30.01%	30.56%	33.22%

In accordance with GASB Statement No. 68, this schedule has been prepared prospectively.

This schedule will accumulate each year until sufficient information to present a ten-year trend is available.

Change of Assumptions: The discount rate changed to 7.125% in 2020 from 7.25% in 2019.

SCHEDULE 5

Schedule of Other Post Employee Benefit Obligations

	2017	2018	2019	2020
Contractually determined contribution	\$228,982	\$164,355	\$172,698	\$165,415
Contributions in relation to the contractually determined contribution	228,982	164,355	172,698	165,415
Contribution deficiency (excess)	\$-	\$-	\$-	\$-
Covered payroll	\$1,574,215	\$1,589,270	\$1,684,962	\$1,870,035
Contributions as a percentage of covered payroll	14.55%	10.34%	10.25%	8.85%

In accordance with GASB Statement No. 75, this schedule has been prepared prospectively.

This schedule will accumulate each year until sufficient information to present a ten-year trend is available.

Change of Assumptions: The discount rate was updated to 2.21% as of 06/30/2020 from 3.5% as of 6/30/19 to reflect the plan experience for 2017 to 2019 and medical trends.

SUPPLEMENTARY SCHEDULES

SCHEDULE 1 - ADMINISTRATIVE EXPENSES

Comparative Two-Year Schedule
Years Ended December 31, 2020 and 2019

	2020	2019
Personnel Expenses		
Salaries and wages	\$2,116,129	\$1,942,989
Social security contributions	147,980	126,616
Pension expense	637,383	639,802
OPEB expense	(377,755)	(466,357)
Insurance expenses	379,864	336,588
Other employee benefits	8,152	17,713
Total personnel expenses	\$2,911,753	2,597,351
Professional Services		
IT consultants	611,452	375,115
Actuarial	920,818	522,939
Audit	128,040	161,395
Legal	(5,217)	47,917
Contracted personnel	36,812	-
Miscellaneous professional	100,028	98,132
Data processing	39,252	40,581
Total professional services expenses	\$1,831,185	1,246,079
Communication		
Telephone	50,024	65,385
Travel and conferences	2,239	31,805
Printing and postage	21,766	25,700
Advertising	5,496	5,376
Total communication expenses	\$79,525	128,266
Other Services and Charges		
Contracted EDP services	1,010,405	437,617
Office space rental	317,094	314,729
Equipment leasing	31,415	27,127
Dues and subscriptions	15,390	15,302
Supplies	3,673	7,601
Maintenance	82	436
Bonding and insurance, net	23,457	13,384
Total other services and charges	\$1,401,516	816,196
Depreciation	77,763	79,166
Total administrative expenses	\$6,301,742	\$4,867,058

SCHEDULE 2 - INVESTMENT EXPENSES

Comparative Two-Year Schedule
Years Ended December 31, 2020 and 2019

	2020	2019
Investment management fees	\$11,454,910	\$12,008,813
Investment consultants	224,731	189,878
Custodial fees	98,110	102,645
Divestiture services	(69,477)	-
Proxy voting services	17,696	17,648
Total investment expenses	\$11,725,970	\$12,318,984

SCHEDULE 3 - PAYMENTS TO CONSULTANTS

Comparative Two-Year Schedule
Years Ended December 31, 2020 and 2019

Firm Name	Nature of Service	2020	2019
Cheiron	Actuary	\$920,818	\$522,939
OST, Inc.	IT consultants	269,170	224,655
Dehab Associated, Inc.	Investment consultant	179,038	189,878
Linea Solutions	IT consultants	131,000	-
ZA LLC	Auditor	128,040	90,415
CPAS Systems	IT consultants	83,202	169,832
Keymark IMR	IT consultants	79,338	788
Marquette Associates	Investment consultant	45,692	-
Dell	IT consultants	45,000	(24,320)
ISS	Proxy voting services	17,696	17,648
Bravo Group	Communication & Public Relations services	7,188	-
Unysis	IT consultants	3,742	-
Keystone Digital Imaging Inc.	Records management services	3,556	2,756
Appalachia Technologies	IT consultants	-	4,160
CliftonLarsonAllen, LLP	Auditor		70,980
Total		\$1,913,480	\$1,269,731



INVESTMENTS

The data presented in the Investment Section was prepared by PMRS' independent investment consultant and has been prepared by using a time-weighted rate of return methodology based on fair values. The Investment Section includes only those investments under the management of advisors which are under contract with PMRS. These investments are valued in a manner consistent with information presented in the Financial Section, except for the recognition of accrued income and pending sales and purchases. The difference noted above represents the difference between the investment balance of \$3,178,825,876 presented in the Financial Section and the balance of \$3,175,810,996 reported in this section as of December 31, 2020. The difference noted above also results in a difference in the net investment gain of \$390,646,965 presented in the Financial Section and the investment gain of \$390,652,109 reported in this section for the year ended December 31, 2020.

Investments are reported at fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates. The fair value of real estate investments is based on independent appraisals every three years. In years for which an appraisal is not performed, real estate investments and investments that do not have an established market value are reported at estimated fair values. Purchases and sales of investments are recorded on a trade-date basis.

Returns for active and passive funds presented throughout the Investment Section are gross of external manager fees.

INVESTMENT RETURN

As of December 31, 2020, the Pennsylvania Municipal Retirement Board's investment portfolio was valued at \$3,175,810,996, which was an increase of \$374,996,660 from December 31, 2019 ending value of \$2,800,814,336. For the year ended December 31, 2020, the fund had net withdrawals of \$15,655,450 and an investment gain of \$390,652,109.

For the five years ended December 31, 2020, PMRS had net withdrawals of \$115,692,672 and an investment return of \$1,294,934,166. PMRS' investment portfolio increased from \$1,996,572,502 as of December 31, 2015 to \$3,175,810,996 as of December 31, 2020. Since inception in December

1985, PMRS had net withdrawals of \$393,072,950 and an investment return of \$3,406,488,564. PMRS' investment portfolio increased from \$162,395,431 as of December 31, 1985 to \$3,175,810,996 as of December 31, 2020. If PMRS had earned an annualized compound rate of 5.25% since December 31, 2010, the portfolio would have been worth \$2,169,306,752 or \$1,006,503,943 less than the actual value as of December 31, 2020.



INVESTMENT GUIDELINES

INTRODUCTION

The following represents highlights from the board's investment guidelines. These guidelines, which set forth the board's expectations, restrictions, and policy decisions, were developed to assist PMRS' staff and consultants in the daily management of PMRS' assets.

BACKGROUND

PMRS is currently experiencing a positive cash flow and expects this trend to gradually increase in the future. PMRS currently meets routine benefit payments from incoming revenue as opposed to any depletion of invested assets.

PHILOSOPHY

The board considers itself a conservative fiduciary, placing the greatest emphasis on quality of investment and consistency in return. Despite this conservative posture, the board still believes that the five-year rate of return on investments should exceed the recognized market indices for the various asset vehicles. The board established its allocation goals as follows:

Domestic equities (large capitalized firms)	25.0%
Domestic equities (small capitalized firms)	15.0%
International equities (developed markets)	15.0%
International equities (emerging markets)	10.0%
Fixed income	15.0%
Real estate	12.5%
Timberland	7.5%

OBJECTIVE

The board's investment objective is to benefit PMRS' member municipalities by adding value to their assets. Recognizing that inflation can erode value, the board's goal is to have PMRS earn at least 2% more annually than the average inflation rate over a long period of time. While this is the overall goal, individual investment managers' performance measures rely on other characteristics that are included in the individual contractual service agreement.

PORTFOLIO CONSTRUCTION

Short-term considerations

It is the board's desire to remain as fully invested as possible. Therefore, any manager in a cash or cash equivalent position must invest in vehicles authorized

by PMRS. The manager must use PMRS' depository relationship with the State Treasurer who, as custodian of PMRS' investments, will invest all cash daily in a short-term fund. No management fee will be paid by PMRS for the portion of a manager's average assets in excess of 5% remaining in cash equivalents at Pennsylvania Treasury after the end of any quarter.

Fixed income considerations

The board seeks to bring income and stability to the overall portfolio through fixed income vehicles. The bond portfolio must be invested in quality vehicles and is expected to be diversified from a geographic and industrial standpoint. With the exception of U.S. Treasury bonds, no single holding of an investment manager is to account for more than 5% of the fair value of their bond portfolio. PMRS shall not hold as assets more than 10% of any one bond issue nor more than 5% of any single issuing agent. Corporate bonds of any given industry are not to account for more than 25% of the fair value of the bond portfolio. When an index fund is used to meet the PMRS' commitment to the fixed income allocation, the underlying securities of the index shall not have to comply with the specific requirements of this paragraph.

EQUITY INVESTMENT POLICY

PMRS' equity portfolio reflects the board's desire to include growth through market appreciation. The board requires an equity portfolio with diversification, quality issuance and underlying value. No single equity holding may account for more than 7.5% of the fair value of PMRS' equity portfolio. Generally, no single sector should account for more than 20% of the value of an individual manager's portfolio. The cumulative holdings of a manager for all clients shall account for no more than 7.5% of the outstanding voting common stock of a corporation.

REAL ESTATE POLICY

The board believes that diversification in investment vehicles should enhance the potential return on investments without significantly altering the overall risk of the portfolio. Investment decisions regarding the real estate portfolio shall be guided by the objective to preserve capital, maximize cash distributions and income, achieve a total return competitive with other asset classes, and maintain a broad diversification of assets and managers. Real estate vehicles may be both direct equity participation and participation in commingled funds that involve

equity participation with consideration given to types of properties and geographic location. The investment process and specific limitations shall be detailed in each real estate manager's contract.

PROHIBITED TRANSACTIONS

The board prohibits (1) purchasing of commodities, mineral rights and warrants except those previously authorized; (2) short selling and the purchasing of securities on margin; and (3) selling or buying options or future contracts on either fixed income or equity instruments. Leveraged derivatives of any nature or the use of derivatives to create leverage are strictly prohibited.

EXECUTION AND OPERATION

PMRS uses the PA Treasurer as custodian and the Bank of New York Mellon as the sub-custodian.

Investment managers are directed to execute orders on the best net execution/price basis. Transactional costs and the rate of turnover are monitored. Active equity managers are expected to execute trades on the auction market at a rate close to the execution-only cost.

The investment managers may enter into agreements with certain brokerage houses to participate in a recapture program whereby a designated percentage of PMRS' trades handled by these brokerage firms will be returned as cash to PMRS and be treated as new income for the benefit of the membership. It is expected that under such an arrangement, the average execution cost of all trades will approximate the execution-only price.

The board assumes full responsibility for exercising the voting privilege contained in proxy solicitations generated by companies domiciled in the U.S. and has adopted specific guidelines for staff guidance. These guidelines as adopted and hereafter amended are an integral part of PMRS' investment guidelines. Proxy solicitations by non-U.S. domiciled companies are handled by the investment manager that holds the security of that company in their portfolio.

COMMUNICATIONS

The board expects an open and constant line of communication between PMRS' staff and investment managers. Reports required of investment managers to the board and staff include a timely confirmation of all transactions, a quarterly statement of asset values at cost and fair value, any explanation of

contemplated major shifts in investment strategy or manager style before implementation, and an explanation of major changes in organization or the personnel associated with PMRS' account. Active equity managers are required to report on a quarterly basis the average commission price per share traded during the quarter. In addition to the written reports, the investment managers are obligated to appear before the board periodically as specifically spelled out in the investment manager's contract.

Investment managers' fees are based on the fair value of the firm's quarterly average balance in PMRS' portfolio. For the years ended December 31, 2020 and 2019, the total investment managers' fees based upon the average monthly net asset values of the PMRS' total investment portfolio were 42 basis points and 46 basis points, respectively.

MONITORING

PMRS monitors the performance of its investment managers through direct involvement of the board, PMRS staff and any consultant hired for this purpose by the board.

REPORT ON INVESTMENT ACTIVITY RELATIVE PERFORMANCE

Total Fund

For the year ended December 31, 2020, the gross rate of return for PMRS' total portfolio was 14.7%, which was 2.3% more than the shadow index¹ return of 12.4% and ranked in the 33rd percentile of the Investment Metrics (IM) Public Fund universe. For the five years ended December 31, 2020, the gross rate of return for PMRS' total portfolio was 11.4%, which was 1.5% more than the shadow index returns of 9.9% and ranked in the 6th percentile. Since inception, the gross rate of return for PMRS' total portfolio was 9.0%, compared to the shadow index return of 9.3%.

Large Cap Equity

For the year ended December 31, 2020, the gross rate of return for the large cap equity portfolio was 21%, which was 2.6% more than the S&P 500 Index return of 18.4% and ranked in the 35th percentile. For the five years ended December 31, 2020, the gross rate of return for the large cap equity portfolio was 17.1%, which was 1.4% more than the S&P 500 Index return of 15.2% and ranked in the 16th percentile.

¹ The shadow index is a customized index created by PMRS' investment consultant. It is constructed at the asset class level with corresponding benchmark allocations matching the portfolio.

INVESTMENT ACTIVITY

Small Cap Equity

For the year ended December 31, 2020, the gross rate of return for the small cap equity portfolio was 17.1%, which was 2.9% less than the Russell 2000 Index return of 20.0% and ranked in the 40th percentile. For the five years ended December 31, 2020, the gross rate of return for the small cap equity portfolio was 13.2%, which was 1.9% less than the Russell 2000 Index return of 13.3% and ranked in the 42nd percentile.

Developed International Equity

For the year ended December 31, 2020, the gross rate of return for the developed international equity portfolio was 18%, which was 12.1% more than the MSCI EAFE Index return of 7.8% and ranked in the 9th percentile. For the five years ended December 31, 2020, the gross rate of return for the developed international equity portfolio was 12.2%, which was 7.9% more than the MSCI EAFE Index return of 7.4% and ranked in the 11th percentile.

Emerging Markets Equity

For the year ended December 31, 2020, the gross rate of return for the emerging market equity portfolio was 18.3%, which was 0.1% less than the MSCI Emerging Markets Index return of 18.3% and ranked in the 49th percentile. For the five years ended

December 31, 2020, the gross rate of return for the emerging market equity portfolio was 12.9%, which was 0.1% less than the MSCI Emerging Markets Index return of 12.8% and ranked in the 44th percentile.

Real Estate

For the year ended December 31, 2020, the gross rate of return for the real estate portfolio was 2%, which was 1.7% percent more than the NCREIF Property Index return of 0.3%. For the five years ended December 31, 2020, the gross rate of return for the real estate portfolio was 6.2%, which was 1.1% more than the NCREIF Property Index return of 5.3%.

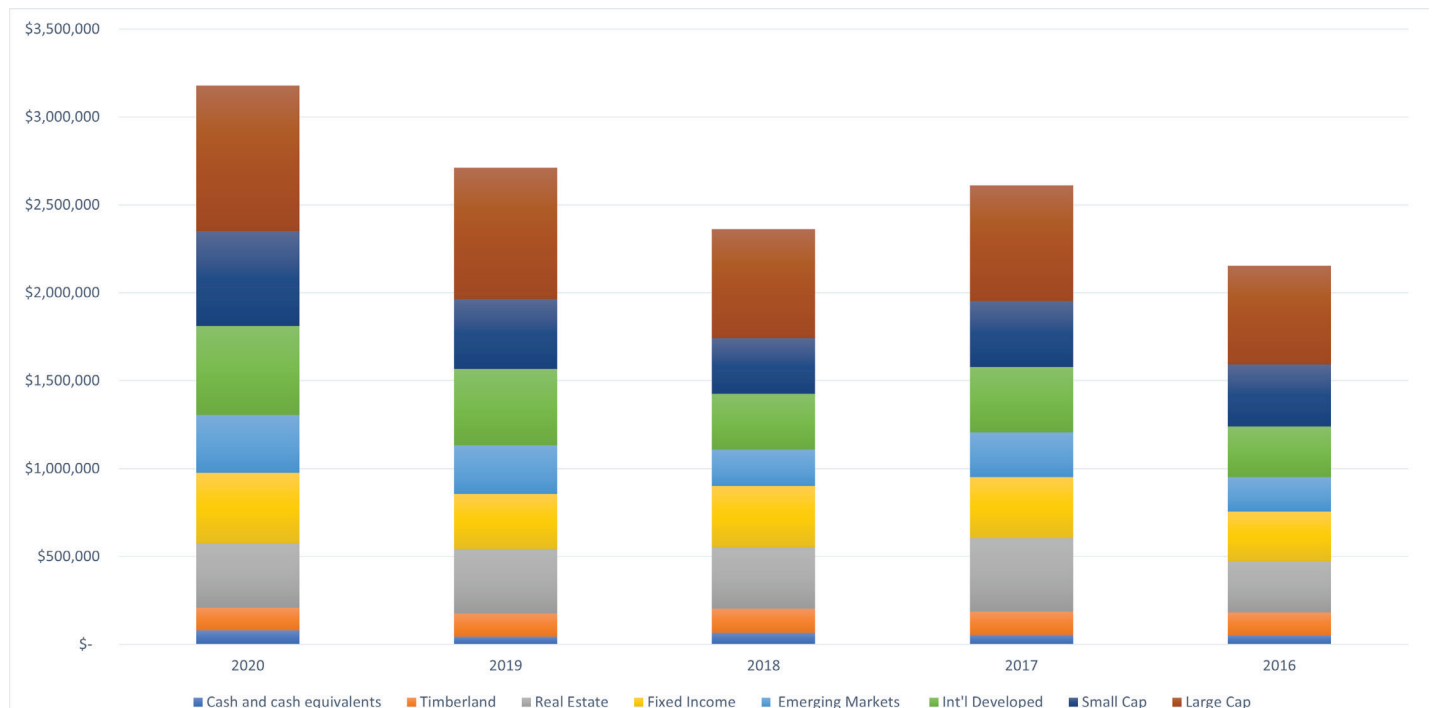
Fixed Income

For the year ended December 31, 2020, the gross rate of return for fixed income portfolio was 7.6%, which was .01 percent more than the Barclays Aggregate Index return of 7.5% and ranked in the 74th percentile. For the five years ended December 31, 2020, the gross rate of return for the fixed income portfolio was 4.5%, which was 0.1% more than Barclays Aggregate Index return of 4.4% and ranked in the 74th percentile.

The following graph shows PMRS' five-year trend of investments at fair value as of December 31, 2020.

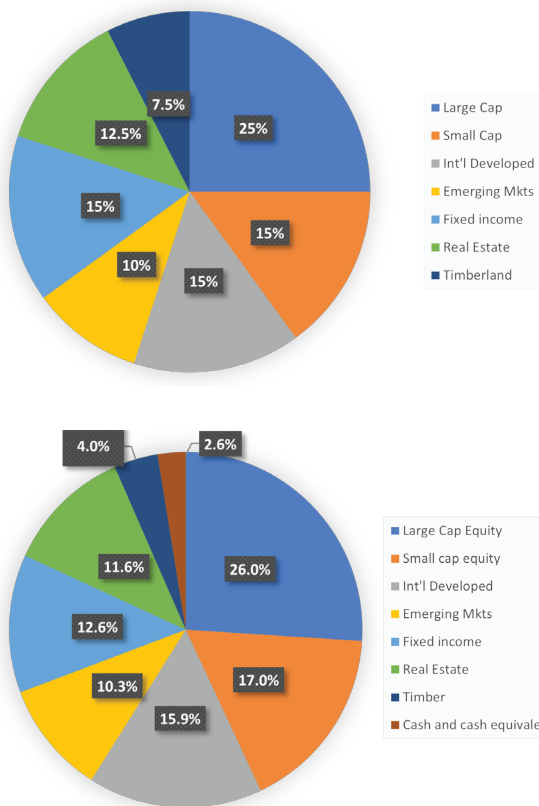
PORTFOLIO DISTRIBUTION - FIVE-YEAR TREND

(Fair Value - Amounts in Millions)



The board established its allocation goals as follows:

ASSET ALLOCATION (As of December 31, 2020)



million to small cap), \$834,083 million to international equities (\$506.9 million to developed markets and \$327.1 million to emerging markets), \$399.9 to fixed income instruments, \$368.1 million to real estate, \$128.0 million to timber, and \$81.1 million to cash and cash equivalents. The percentage distribution is illustrated below.

ACTUAL ASSET ALLOCATION (As of December 31, 2020)

Type	Percentage of Portfolio	Amount
Large Cap Equity	26.0%	\$827,122,074
Small Cap Equity	17.0%	540,500,191
Total domestic equity	43.0%	\$1,367,622,265
International Developed Markets	15.9%	506,944,898
International Emerging Markets	10.3%	327,138,321
Total international equity	26.2%	\$834,083,219
Total equities	69.3%	\$2,201,705,485
Real Estate	15.6%	496,099,531
Fixed Income	12.6%	399,941,590
Cash and cash equivalents¹	2.6%	81,079,270
Total portfolio	100.0%	\$3,178,825,876

¹ Cash and cash equivalents include funds held by the Pennsylvania Treasury Department

PMRS actual asset allocation as of December 31, 2020 was \$1,367.6 million committed to domestic equities (\$827.1 million to large cap and \$540.5

The following table shows the allocation of assets as of December 31, 2020.

ASSET ALLOCATION VARIANCE (As of December 31, 2020)

Sector	Target Percentage Allocation	Target Dollar Allocation	Percentage of Portfolio	Current Dollar Allocation	Dollar Variance	Percentage Variance
Large Cap Equity	25.0%	\$794,706,469	26.0%	\$827,122,075	\$32,415,606	1.0%
Small Cap Equity	15.0%	476,823,881	17.0%	540,500,191	63,676,310	2.0%
Total Domestic Equity	40.0%	1,271,530,350	43.0%	1,367,622,266	96,091,916	3.0%
International Developed Markets	15.0%	476,823,881	15.9%	506,944,898	30,121,017	0.9%
International Emerging Markets	10.0%	317,882,588	10.3%	327,138,321	9,255,733	0.3%
Total International Equity	25.0%	794,706,469	26.2%	834,083,219	39,376,750	1.2%
Total Equities	65.0%	2,066,236,819	69.3%	2,201,705,485	135,468,666	4.3%
Fixed Income	15.0%	476,823,881	12.6%	399,941,590	(76,882,291)	-2.4%
Real Estate	12.5%	397,353,235	11.6%	368,058,890	(29,294,345)	-0.9%
Timber	7.5%	238,411,941	4.0%	128,040,641	(110,371,300)	-3.5%
Cash and Cash Equivalents¹	0.0%	-	2.6%	81,079,270	81,079,270	2.6%
Total Portfolio	100.0%	\$3,178,825,876	100.0%	\$3,178,825,876	\$-	

INVESTMENT SUMMARY

PORTFOLIO RATES OF RETURN¹

The following table compares the gross rates of return for PMRS' total investment portfolio as of December 31, 2020 with standard indexes for one year, three year, five year, ten year and since inception in December 1985. The calculations of yields were prepared using a time weighted rate of return methodology based on fair values. PMRS' returns have been competitive with other professionally managed funds.

PERFORMANCE SUMMARY

	1 YEAR	3 YEAR	5 YEAR	10 YEAR	SINCE INCEPTION DECEMBER 1985
Total Portfolio	14.7%	10.0%	11.4%	9.2%	9%
² Public Fund Rank	(33.0)	(26.0)	(6.0)	(15.0)	
³ Shadow Index	12.4%	8.4%	9.9%	8.5%	9.3%
Large Cap Equity	21.0%	17.4%	17.1%	15.2%	11.4%
⁴ Large Cap Rank	(19.0)	(13.0)	(16.0)	(48.0)	-
S&P 500	18%	14%	15%	14%	11%
Small Cap Equities	17.1%	9.6%	13.2%	11.4%	10.9%
⁴ Small Cap Rank	17.1	9.6	13.2	-	10.9
Russell 2000	20.0%	10.2%	13.3%	11.2%	9.6%
International Equity	18.0%	9.2%	12.2%	8.3%	8.5%
⁵ International Equity Rank	(7.0)	(77.0)	(11.0)	-	-
MSCI EAFE	7.8%	4.3%	7.4%	5.5%	6.2%
Emerging Markets Equity	18.3%	6.1%	12.9%	3.5%	9.5%
⁶ Emerging Markets Rank	(49.0)	(47.0)	(44.0)	(50.0)	-
MSCI Emerging Markets	18.3%	6.2%	12.8%	3.6%	9.5%
Real Estate	2.0%	5.2%	6.2%	8.1%	8.0%
NCREIF	0.3%	4.0%	5.3%	8.9%	-
Fixed Income	7.6%	5.4%	4.5%	3.9%	5.3%
⁷ Core Fixed Income Rank	(74.0)	(68.0)	(74.0)	(75.0)	-
Barclays Aggregate	7.5%	5.3%	4.4%	3.8%	5.3%

²Ranked against balanced funds

³The shadow index is a customized index created by the PMRS' investment consultant. It is constructed at the asset class level with corresponding benchmark allocations matching the portfolio.

⁴Ranked against equity oriented funds.

⁵Ranked against international developed markets oriented funds.

⁶Ranked against international emerging markets oriented funds. PMRS entered emerging markets equities in late 2008.

⁷Ranked against fixed income oriented funds.

¹ Rate of return is a mathematical measure of the rate of change in the asset value of a fund. All rates of return are based on the fair value of assets. Rates of return reflect both realized and unrealized capital gains and losses as well as total earnings from interest and dividends received. Rates of return are gross of fees.

SUMMARY OF INVESTMENT EXPENSES

Comparative Two-Year Schedule
Years ended December 31, 2020 and 2019

Firm Name	2020	2019
Large Cap Domestic Managers		
Eagle Capital Management	\$1,182,863	\$1,155,630
Polen Capital Management	967,060	946,248
William Blair	171,524	
Federated Investors	200,579	778,068
LSV Asset Management	576,140	624,297
	<u>3,098,166</u>	<u>3,504,243</u>
Small Cap Domestic Managers		
Emerald Advisers	378,725	549,932
Smith, Graham & Co.	490,405	501,211
LSV Asset Management	359,913	421,416
AMI Asset Management	300,166	292,116
Copeland Capital Management	214,742	221,237
	<u>1,743,951</u>	<u>1,985,912</u>
Passive Manager		
State Street Global Advisors	383,462	306,969
	<u>383,462</u>	<u>306,969</u>
International Managers		
HGK Asset Management, Inc.	847,163	816,820
Hardman Johnston Global Advisors	825,254	714,817
Jarislowky, Fraser Limited	-	177,162
	<u>1,672,417</u>	<u>1,708,799</u>
Real Estate		
Nuveen Real Estate	1,925,100	1,863,050
Prudential Financial, Inc.	1,657,120	1,612,548
Forest Investment Associates	974,694	1,027,292
	<u>4,556,914</u>	<u>4,502,890</u>
Total Investment Management Fees	11,454,910	12,008,813
Investment Consultant - Dahab Associates, Inc.	224,731	189,878
Custodial Fees - BNY Mellon	98,110	102,645
Divestiture Services	(69,477)	
Proxy Voting Services - ISS	17,696	17,649
Total Investment Expenses	\$11,725,970	\$12,318,985

INVESTMENT SUMMARY

TEN LARGEST COMMON STOCK HOLDINGS

As of December 31, 2020 (Fair Value)

Stock	Shares	Fair Value	Percentage Of Portfolio
Microsoft Corp	193,657	\$43,073,190	1.38%
Alphabet Inc-CI C	20,352	35,654,262	1.14%
Facebook Inc	112,334	30,685,155	0.98%
Adobe Inc	41,757	20,883,511	0.67%
Amazon.com Inc	5,229	17,030,487	0.54%
Unitedhealth Group Inc	47,392	16,619,427	0.53%
Comcast Corp	302,935	15,873,794	0.51%
Mastercard Inc	44,348	15,829,575	0.51%
Abbott Laboratories	143,127	15,670,975	0.50%
Paypal Holdings Inc	63,376	14,842,659	0.47%

PORTFOLIO SUMMARY

As of December 31, 2020

Type of Investment	Cost	Fair Value	Percentage of Total Fair Value
Corporate and Government bonds			
U.S. Government Bonds	\$203,328,806	\$281,958,821	9%
Corporate Bonds	85,080,848	117,982,769	4%
Total	288,409,654	399,941,590	13%
Common stock			
Domestic	913,400,155	1,367,622,266	43%
International	516,010,517	834,083,219	26%
Total	1,429,410,672	2,201,705,485	69%
Other investments			
Real Estate	386,888,155	496,099,531	16%
Cash and Cash Equivalents	81,079,270	81,079,270	3%
Total	467,967,425	577,178,801	18%
Total portfolio	\$2,185,787,751	\$3,178,825,876	100%

SUMMARY OF COMMISSIONS

Summary Of Commissions Paid To Brokers Year ended December 31, 2020

Broker Name	Commissions Paid	Broker Name	Commissions Paid
ABEL NOSER, NEW YORK	\$2,695	CREDIT LYONNAIS SECS (ASIA), HONG KONG	\$2,958
BAIRD, ROBERT W & CO INC, MILWAUKEE	653	CREDIT LYONNAIS SECS, SINGAPORE	11,696
BANQUE PARIBAS, PARIS	614	CREDIT SUISSE, NEW YORK (CSUS)	10,415
BARCLAYS CAPITAL INC./ LE, NEW JERSEY	548	D CARNEGIE AB, STOCKHOLM	3,531
BARCLAYS CAPITAL LE, NEW YORK	783	DAIWA SEC SMBC EUROPE LTD, LONDON	336
BARCLAYS CAPITAL, LONDON (BARCGB33)	448	DAIWA SECS AMER INC, NEW YORK	520
BERENBERG GOSSLER & CIE, HAMBURG	3,410	DAVIDSON(D A) & CO INC, NEW YORK	1,136
BERNSTEIN SANFORD C & CO, NEW YORK	14,336	DEN DANSKE BANK, COPENHAGEN	4,074
BMO CAPITAL MARKETS CORP, NEW YORK	751	DNB NOR MARKETS CUSTODY, OSLO	171
BNP PARIBAS SEC SRVS SA, SINGAPORE	983	EXANE, PARIS (EXANFRPP)	9,707
BNP PARIBAS, JERSEY CITY	423	FIDELITY CAPITAL MARKETS, NEW YORK	922
BNY CONVERGEX EXECUTION SOL, NEW YORK	15,373	GOLDMAN SACHS & CO, NY	40,115
BNY CONVERGEX, NEW YORK	3,580	GOLDMAN SACHS INTL, LONDON	68
BOENNING & SCATTERGOOD, W CONSHOCKEN	135	GOLDMAN SACHS INTL, LONDON (GSILGB2X)	4,733
BOFA SECURITIES INC, LONDON	78	ICBC FINCL SVCS, NEW YORK	17
BTIG LLC, NEW YORK	12	INSTINET AUSTRALIA CLEARING SERV, SYDNEY	255
CANTOR FITZGERALD & CO INC, NEW YORK	1,500	INSTINET CLEARING SER INC, NEW YORK	18,723
CARNEGIE ASA, OSLO	173	INSTINET CORP, NEW YORK	2,060
CARNEGIE SECS LTD, HELSINKI (CASFFIH1)	179	INSTINET EUROPE LIMITED, LONDON	25,073
CITIGROUP GBL MKTS INC, NEW YORK	580	INSTINET PACIFIC LTD, HONG KONG	7,067
CITIGROUP GBL MKTS/ SALOMON, NEW YORK	844	INTL TRADING INC, NEW YORK	120
CITIGROUP GLOBAL MARKETS LTD, LONDON	4,614	ISI GROUP INC, NEW YORK	3,063
CITIGROUP GLOBAL MARKETS, INC., NEW YORK	12,259	J P MORGAN SEC, SYDNEY	1,119
CLSA AMERICAS, NEW YORK	665	J P MORGAN SECS LTD, LONDON	7,361
CLSA AUSTRALIA PTY LTD, SYDNEY	339	J.P MORGAN SECURITIES INC, NEW YORK	9,565
COWEN AND CO LLC, NEW YORK	8,336	J.P. MORGAN SECURITIES LLC, NEW YORK	2,953
COWEN AND COMPANY, LLC, JERSEY CITY	3,246	JANNEY MONTGOMERY SCOTT, PHILADELPHIA	522
		JEFFERIES & CO INC, NEW YORK	17,086
		JEFFERIES & CO LTD, LONDON	2,292
		JMP SECURITIES, SAN FRANCISCO	83
		JONESTRADING INST SVCS LLC, NEW YORK	2,374

SUMMARY OF COMMISSIONS

SUMMARY OF COMMISSIONS PAID TO BROKERS

Year ended December 31, 2020

Broker Name	Commissions Paid	Broker Name	Commissions Paid
KEEFE BRUYETTE + WOODS INC, NEW YORK	\$1,305	RBC CAPITAL MARKETS LLC, NEW YORK	\$18,524
KEYBANC CAPITAL MARKETS INC, NEW YORK	102	REDBURN PARTNERS LLP, LONDON	4,992
KNIGHT EQUITY MARKETS LP, NEW YORK	1,031	SANFORD C BERNSTEIN & CO INC, LONDON	2,525
KNIGHT SECS, NEW JERSEY	586	SIDOTI AND COMPANY LLC, NEW YORK	660
LEERINK SWANN AND COMPANY, NEW YORK	679	SOUTHWEST SECURITIES INC, NEW YORK	80
LIBERUM CAPITAL LIMITED, LONDON	3,057	STIFEL NICOLAUS	13,813
LIQUIDNET INC, NEW YORK	5,277	STIFEL, NICOLAUS AND CO,ST.LOUIS	2,720
LOOP CAPITAL MARKETS, JERSEY CITY	2,055	STURDIVANT AND CO INC, NEW YORK	2,997
LUMINEX TRADING AND ANALYTICS, BOSTON	367	SUNTRUST CAPITAL MARKETS INC, NEW YORK	733
MAXIM GROUP, JERSEY CITY	1,287	UBS AG LONDON BRANCH, LONDON	5,757
MERRILL LYNCH INTL LONDON EQUITIES	21,408	UBS EQUITIES, LONDON	10,985
MERRILL LYNCH PIERCE FENNER SMITH INC NY	25,537	UBS SECURITIES LLC, STAMFORD	3,884
MERRILL LYNCH PROFESSIONAL CLRG, PURCHAS	217	UBS WARBURG ASIA LTD, HONG KONG	3,835
MIRAE ASSET SEC USA, NEW YORK	1,476	UNION BANK OF SWITZERLAND, ZURICH	3,027
MIZUHO SECURITIES USA, INC., NEW YORK	717	VIRTU AMERICAS LLC, NEW YORK	177
MORGAN STANLEY & CO INC, NY	12,875	WEDBUSH MORGAN SECS INC, LOS ANGELES	12
MORGAN STANLEY & CO, LONDON (MSLNGB2X)	5,101	WELLS FARGO SECURITIES LLC, CHARLOTTE	167
NATIONAL FINL SVCS CORP, NEW YORK	25,351	WELLS FARGO SECURITIES, LLC, NEW YORK	9,819
NEEDHAM AND CO LLC, NEW YORK	1,981	WILEY BROS-AINTREE CAPITAL, JERSEY CITY	117
NORTH SOUTH CAPITAL LLC, JERSEY CITY	147	WILLIAM BLAIR & CO, CHICAGO	1,186
OPPENHEIMER & CO INC, NEW YORK	1,103	WILLIAMS CAPITAL GROUP LP, JERSEY CITY	9
PARETO FONDS AS, OSLO	1,543	Total Brokerage Commissions Paid	\$507,285.00
PENSERRA SECURITIES, NEW YORK	70		
PERSHING LLC, JERSEY CITY	5,836		
PIPER JAFFRAY & CO., JERSEY CITY	11,554		
PIPER JAFFRAY & CO, MINNEAPOLIS	149		
RAYMOND JAMES & ASSOC INC, ST PETERSBURG	22,783		



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ACTUARIAL



Via Electronic Mail

April 19, 2022

Pennsylvania Municipal Retirement Board of the
Pennsylvania Municipal Retirement System
c/o Timothy A. Reese, Chief Executive Officer
P.O. Box 1165
Harrisburg, Pennsylvania 17108-1165

Dear Board Members:

The following tables from the annual Actuarial Valuation Report of the Pennsylvania Municipal Retirement System (the System) as of January 1, 2020 will be published in the end-of-year Annual Comprehensive Financial Report (ACFR). These tables were determined based on the results of the valuation as outlined in our actuarial valuation report. The figures and data disclosed in these tables, as presented in the actuarial valuation report, were provided by Cheiron.

1. Required Supplemental Information (detailed as “Note to Required Supplementary Information” in Section V of Actuarial Valuation Report)
2. Solvency Test which shows the portion of the Actuarial Liability covered by Assets
3. Funded Status of Actuarial Liabilities
4. Schedule of Retirees and Beneficiaries
5. Schedule of Total Membership by Status
6. Schedule of Total Membership and Salary
7. Schedule of Active Member Valuation Data (components of which are contained in Section V of Actuarial Valuation Report)
8. Actuarial Methods and Significant Assumptions (noted in the Actuarial Valuation Report Appendix B)

As provided in the Funded Status of Actuarial Liabilities table, the System, as of January 1, 2020, is 101.2% funded on an actuarial asset value basis. The funded ratio on a market value basis is 107.3%.

In addition, while Cheiron did not explicitly provide the exhibit outlining the required employer contributions provided in the ACFR, it is our understanding that this schedule was determined based on information Cheiron provides in the annual valuation reports. This includes the Normal Cost percentage and the employers’ anticipated payroll for each participating plan. It also includes the amortization payment calculated by the actuary or the over-funding credit required under Pennsylvania State Law, Act 205 of 1984. The composite figure is assembled by the agency’s staff and has not been reviewed by Cheiron.

Pennsylvania Municipal Retirement Board of the
Pennsylvania Municipal Retirement System
April 19, 2022
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The Pennsylvania Municipal Retirement System is defined as an agent multiple-employer retirement system for participating municipalities and counties under Governmental Accounting Standards Board Statements No. 67 and 68. Assets and liabilities are separately accounted for and reported to the Department of the Auditor General of the Commonwealth of Pennsylvania. The table excerpts provided for the ACFR reflect aggregate valuation results for the System and provide statistics on employer contribution levels for the defined benefit portion of the municipal plans participating in the system as of the valuation date. No new assumption or methods were effective as of January 1, 2020 actuarial valuation. For the December 31, 2020 GASB 68 reports, assumption and method changes will be incorporated. Please refer to Appendix E in the GASB 68 reports and this ACFR for the additional information on these changes as of year-end.

The assumptions used in preparing the individual municipal valuation results are based on a formal Experience Study dated July 2015 with recommendations presented to the Board for consideration and adoption as well as the Board's review of the regular interest rate used for the 2020 actuarial valuation. The actuarial methods were adopted effective January 1, 1985 unless otherwise indicated. The funding method applied provides for an annual normal cost as a level percent of pay and amortization of unfunded and/or surplus over a fixed period in accordance with provisions of Act 205.

The January 1, 2020 actuarial valuation report contains required disclosures for the entire System and a description of the funding methods and assumptions as required by State law and covered under Act 205 which also falls within the methods as defined as acceptable under the Governmental Accounting Standards Board Statement No. 67. Additional details required under the Governmental Accounting Standards Board Statement No. 67 have also been provided to the System.

In preparing our report, we relied on information (some oral and some written) supplied by the System's staff. This information includes, but is not limited to, plan provisions, employee data, and financial information. We performed an informal examination of the obvious characteristics of the data by plan for all the traditional defined benefit plans and in aggregate for the cash balance plans for reasonableness and consistency in accordance with Actuarial Standard of Practice No. 23 (Data Quality).

The actuarial assumptions reflect the Board's understanding of the likely future experience of the System, as well as adopted formal procedures by the Board in the reviewing and setting of the interest rate assumption. The assumptions both individually and in aggregate represent the best estimate for the future experience of the System as of January 1, 2020. They reflect the experience analysis completed in July 2015 and our presentation of appropriate assumptions in accordance with the Actuarial Standards of Practice No. 27 (Selection of Economic Assumptions for Measuring Pension Obligations) and No. 35 (Selection of Demographic and Other Noneconomic Assumptions for Measuring Pension Obligations) in performing actuarial valuations of retirement systems. To the extent the laws of the Commonwealth of Pennsylvania and/or the administrative practices of the System differ from Actuarial Standards of Practice, we

ACTUARY CERTIFICATION LETTER

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have identified such deviations within the Actuarial Assumptions and Methods Appendix of this report.

The results of our report are dependent upon future experience conforming to these assumptions. To the extent that plan experience differs from that anticipated by the assumptions, there are changes in assumptions or plan provisions, or changes to applicable law, the true cost for each of the plans could vary from our results. Future valuation reports may differ significantly from the current results presented in this document due to such factors as: plan experience differing from that anticipated by the assumptions, changes in assumptions, and changes in plan provisions or applicable law.

Our report and its contents were prepared for PMRS for the purposes of the ACFR herein and for the use by the plan auditor in completing an audit related to the matters herein. Other users of our report are not intended users as defined in the Actuarial Standards of Practice, and Cheiron assumes no duty or liability to any other user.

Finally, our report and its contents have been prepared in accordance with generally recognized and accepted actuarial principles and practices and our understanding of the Code of Professional Conduct and applicable Actuarial Standards of Practice (ASOPs) set out by the Actuarial Standards Board as well as applicable laws and regulations. Furthermore, as credentialed actuaries, we meet the Qualification Standards of the American Academy of Actuaries to render the opinion contained in our report. Our report does not address any contractual or legal issues. We are not attorneys and our firm does not provide any legal services or advice.

Should you have any questions, please do not hesitate to contact us.

Sincerely,
Cheiron



Karen Zangara, FSA, EA, MAAA
Principal Consulting Actuary



Anthony Bucci, FCA, EA, MAAA
Consulting Actuary



Bonnie Rightnour, FSA, MAAA, EA
Consulting Actuary

cc: Richard Cardamone, CPA
Cynthia Cranmer, CPA
Jonathan B. Chipko, FSA, EA, MAAA, Cheiron

NOTE REQUIRED SUPPLEMENTARY INFORMATION

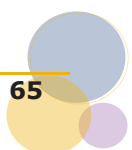
The information presented in the supplementary schedules was determined as part of the actuarial valuation at the date indicated. Additional information as of the latest actuarial valuation follows:

Valuation date	January 1, 2020 - County plans and Cash Balance (CB) plans January 1, 2019 - Plans that are neither County or CB plans
Measurement date	January 1, 2020
Actuarial cost method	Entry age normal
Amortization method	Level dollar for Plan Bases and average for Aggregate Gain/Loss, 10% of surplus is credited against aggregate cost where applicable
Actuarial assumption:	
Investment rate of return (*)	5.25%
Projected salary increases (*)	2.8% - 7.05%
(*) Includes inflation at	2.80%
Cost of living adjustments	Ad hoc

The actuarial assumptions used have been reviewed by the actuary and adopted by the PMRS' board based on the most recent review of PMRS' experience study for the period January 1, 2009 through December 31, 2013 completed in 2015 and the updated investment rate of return assumption of 5.25% as of January 1, 2017 based on the board's review of this assumption during 2015.

The rate of employer contributions to PMRS is composed of the normal cost, amortization of the unfunded actuarial liability, and an allowance for administrative expenses. The normal cost is a level percent of payroll cost which, along with member contributions, will pay for projected benefits at retirement for the average plan participant. The actuarial liability is that portion of the present value of projected benefits that will not be paid by future employer normal costs or member contributions. The difference between this liability and the funds

accumulated as of the same date is the unfunded actuarial liability (or surplus if funds exceed the liabilities). The allowance for administrative expenses is based on PMRS' actual administrative expenses.



REQUIRED SUPPLEMENTAL INFORMATION

SOLVENCY TEST

Aggregate Accrued Liabilities

Valuation Date January 1,	Active Member Contributions ¹	Retirees, Beneficiaries & Vested Terminations	Active Member Employer Financed Contributions	Actuarial Value Of Assets ²	Portion Of Accrued Liabilities Covered By Reported Assets		
					(1)	(2)	(3)
2020	485,374,472	1,315,859,327	800,247,415	2,631,849,434	100%	100%	104%
2019	474,930,885	1,258,545,895	786,667,534	2,528,939,742	100%	100%	101%
2018	460,805,568	1,175,715,217	764,391,135	2,404,498,404	100%	100%	100%
2017	451,613,188	1,114,835,472	754,316,724	2,270,278,691	100%	100%	93%
2016	435,834,498	999,866,637	715,640,331	2,153,625,821	100%	100%	100%
2015	427,736,008	938,380,470	701,148,372	2,081,439,591	100%	100%	102%

¹This includes the sum of the active member employee contribution balances, the member separate annuity account balances, the municipal for member separate annuity account balances, and the excess interest allocations.

²The Actuarial Value of Assets (AVA) were determined based on the methodology outlined in PMRS Policy Statement 05-2. The 1/1/2020 AVA was based on the reserves published by PMRS in the ACFR for the years ended December 31, 2019 and 2018 and the adjustment for the \$6.5 million transfer from the Undistributed Earnings Account to the Retired Members' Reserve Account as directed by opinion from legal counsel.

FUNDED STATUS OF ACTUARIAL LIABILITIES

Valuation Date January 1,	Actuarial Value Of Assets ¹	Actuarial Liability (A) Entry Age	Unfunded AI (Surplus) (B-A)	Funded Ratio (A/B)	Discout Rate
2020	\$2,631,849,434	\$2,601,481,214	\$(30,368,220)	101.20%	5.25%
2019	2,528,939,742	2,520,144,314	(8,795,428)	100.40%	5.25%
2018	2,404,498,404	2,400,911,920	(3,586,484)	100.10%	5.25%
2017	2,270,278,691	2,320,765,384	50,486,693	97.80%	5.25%
2016	2,153,625,821	2,151,341,466	(2,284,355)	100.10%	5.50%
2015	2,081,439,591	2,067,264,850	(14,174,741)	100.70%	5.50%

¹The Actuarial Value of Assets (AVA) were determined based on the methodology outlined in PMRS Policy Statement 05-2. The 1/1/2020 AVA was based on the reserves published by PMRS in the ACFR for the years ended December 31, 2019 and 2018 and the adjustment for the \$6.5 million transfer from the Undistributed Earnings Account to the Retired Members' Reserve Account as directed by opinion from legal counsel.

The actuarial assumptions as of January 1, 2020, are shown in the assumptions and methods section. The above information was derived from the following membership data and number of pension plans, as provided by PMRS regarding:

VALUATION OF LIABILITIES - NUMBER OF PLANS INCLUDED

Valuation Date	Complete Valuation	Roll Forward	Cash Balance Plans
January 1, 2020	4	724	328
January 1, 2019	719	4	323
January 1, 2018	4	726	314
January 1, 2017	718	4	311
January 1, 2016	4	718	294
January 1, 2015	717	4	286

REQUIRED SUPPLEMENTAL INFORMATION

SCHEDULE OF RETIREES AND BENEFICIARIES

Added to and Removed from Rolls in Last Six Years

Valuation Date January 1, To	Added To Roll	Average Annual Annuities Added	Average Annual Benefit Increase	Deleted From Roll	Average Annual Annuities Removed	Number On Roll	Annual Annuities	Percentage Increase In Annuities	Average Annual Annuities	Percentage Increase In Average Annual Annuities
2020	381	\$19,656	\$528	135	\$11,392	6,435	\$107,504,808	6.0%	\$16,706	2.0%
2019	429	19,572	419	146	\$8,147	6,189	101,399,088	7.8%	\$16,384	2.9%
2018	383	18,912	575	176	9,325	5,906	94,073,168	6.5%	15,928	2.7%
2017	447	18,744	490	108	8,174	5,699	88,360,677	9.5%	15,505	2.9%
2016	339	18,888	161	87	18,915	5,360	80,729,221	6.3%	15,061	1.3%
2015	392	17,908	185	227	10,494	5,108	75,936,364	6.6%	14,866	3.1%

SCHEDULE OF TOTAL MEMBERSHIP BY STATUS

Six-Year Trend

ACTIVE MEMBERS:							
Valuation date January 1,	Defined Benefit	Cash Balance	Retirees	Beneficiaries	Deferred pension	Inactive members*	Total
2020	7,970	1,502	5,781	654	1,205	47	17,159
2019	7,949	1,446	5,550	639	1,168	40	16,792
2018	7,868	1,387	5,307	599	1,090	35	16,286
2017	7,728	1,303	5,099	600	1,150	28	15,908
2016	7,698	1,274	4,784	576	1,173	7	15,512
2015	7,580	1,214	4,566	542	1,027	8	14,937

*Inactive members represent inactive non-vested participants with employee contribution account balances.



REQUIRED SUPPLEMENTAL INFORMATION

SCHEDULE OF TOTAL MEMBERSHIP AND SALARY¹

As of January 1

	2020	2019	2018	2017	2016	2015
a. Retirees currently receiving benefits	5,781	5,550	5,307	5,099	4,784	4,566
b. Beneficiaries currently receiving benefits	654	639	599	600	576	542
c. Terminated vested employees entitled to future benefits from Defined Benefit Plans	882	853	797	834	872	779
d. Terminated non-vested employees entitled to contribution refunds from Defined Benefit Plan	47	40	35	28	7	8
e. Active employees in defined benefit plans	7,970	7,949	7,868	7,728	7,698	7,580
i. Aggregate Salary ²	\$465,906,342	\$455,352,355	\$434,554,380	\$422,621,214	\$394,133,120	\$384,270,155
ii. Vested ³	4,388	4,470	4,553	4,573	4,676	4,726
iii. Non-vested	3,582	3,479	3,315	3,156	3,022	2,854
f. Non-Retired Participants in cash balance plans	1,825	1,761	1,680	1,619	1,575	1,462
i. Aggregate Salary	\$69,134,048	\$63,302,730	\$60,013,152	\$53,998,354	\$51,642,049	\$47,537,851
ii. Active	1,502	1,446	1,387	1,303	1,274	1,214
iii. Inactive	323	315	293	316	301	248

¹Represents entire system

²Annualized salary paid during the prior plan year for Traditional Defined Benefit plan participants and actual salary for active cash balance participants.

³Count of vested participants estimated based on service as of the valuation date.



SCHEDULE OF ACTIVE MEMBER VALUATION DATA

Last Six Years

DEFINED BENEFIT PLANS									
Valuation Date	Number Of Active Members	Percentage Change In Membership	Number Of Participating Employers	Percentage Increase (Decrease) In Number Of Participating Employers	Total Annual Payroll	Percentage Increase (Decrease) In Payroll	Average Annual Salary	Percentage Increase (Decrease) In Average Annual Salary	
2020	7,970	0.3%	728	0.7%	465,906,342	2.3%	58,458	2.0%	
2019	7,949	1.0%	723	-1.0%	455,352,355	4.8%	57,285	3.7%	
2018	7,868	1.8%	730	1.1%	434,554,380	2.8%	55,231	1.0%	
2017	7,728	0.4%	722	0.0%	422,621,214	7.2%	54,687	6.8%	
2016	7,698	1.5%	722	0.1%	394,133,120	2.6%	51,199	1.0%	
2015	7,580	-1.3%	721	0.7%	384,270,155	-1.3%	50,695	-0.1%	

CASH BALANCE PLANS									
Valuation Date	Number Of Active Members	Percentage Change In Membership	Number Of Participating Employers	Percentage Increase (Decrease) In Number Of Participating Employers	Total Annual Payroll	Percentage Increase (Decrease) In Payroll	Average Annual Salary	Percentage Increase (Decrease) In Average Annual Salary	
2020	1,502	3.9%	328	1.5%	69,134,048	9.2%	46,028	5.1%	
2019	1,446	4.3%	323	2.9%	63,302,730	5.5%	43,778	1.2%	
2018	1,387	6.4%	314	1.0%	60,013,152	11.1%	43,268	4.4%	
2017	1,303	2.3%	311	5.8%	53,998,354	4.6%	41,442	2.2%	
2016	1,274	4.9%	294	2.8%	51,642,049	8.6%	40,535	3.5%	
2015	1,214	2.4%	286	6.7%	47,537,851	5.2%	39,158	2.7%	

ACTUARIAL ASSUMPTIONS AND METHODS

The PMRS demographic actuarial assumptions were revised by the board effective January 1, 2016. The Regular Interest Rate (investment return assumption) was approved by the board effective November 21, 2019. The assumptions are as follows:

A. Healthy Life Mortality Rates:

Based on the information provided by PMRS and review of the actual mortality experience over a five-year period, these mortality tables provide projected mortality improvements for the future. Given that experience analysis is required to be performed every four years, the projection periods are sufficient to reflect anticipated improvements until the next study is performed.

Rates of Pre-Retirement Mortality

Males: RP-2000 Non-Annuitant Male table projected 15 years with Scale AA.

Females: RP-2000 Non-Annuitant Female table projected 15 years with Scale, AA, setback five years.

a) Killed-in-service mortality rates:

- (i.) 15% of mortality is assumed to be service-related for municipal plans, and
- (ii.) 50% of mortality is assumed to be service-related for uniform plans.

Rates of Post-Retirement Mortality

Males: RP-2000 Annuitant Male table projected 5 years with Scale AA.

Females: RP-2000 Annuitant Female table projected 10 years with Scale AA.

REQUIRED SUPPLEMENTAL INFORMATION

B. Disabled Life Mortality Rates

Males and females: RP-2000 Combined with 10-year set forward.

C. Termination Rates Before Retirement

Rates based on the number of active members in the pension plan, years of service, and the type of plan participants (non-uniform or uniform).

CURRENT VALUATION RATE

BASED ON NUMBER OF ACTIVE MEMBERS IN PLAN

YEARS OF SERVICE	MUNICIPAL PARTICIPANTS (NON-UNIFORM)		UNIFORMED PARTICIPANTS	
	<25	25+	<25	25+
LESS THAN 1	15.0%	18.0%	12.0%	13.0%
1 BUT LESS THAN 2	15.0%	18.0%	12.0%	10.0%
2 BUT LESS THAN 3	11.0%	14.0%	12.0%	7.0%
3 BUT LESS THAN 4	8.0%	12.0%	9.0%	7.0%
4 BUT LESS THAN 5	7.0%	9.0%	7.0%	6.0%
5 BUT LESS THAN 6	6.0%	9.0%	5.0%	5.0%
6 BUT LESS THAN 7	5.5%	8.0%	5.0%	4.0%
7 BUT LESS THAN 8	5.5%	7.5%	5.0%	3.0%
8 BUT LESS THAN 9	5.5%	6.5%	4.5%	3.0%
9 BUT LESS THAN 10	4.0%	5.0%	4.0%	3.0%
10 OR MORE	2.5%	4.0%	3.0%	3.0%

D. Disability Incident Rates

Municipal – 40% of 1964 OASDI (Social Security)

Experience for males with adjustments (sample rates shown on right).

Uniformed plans – 60% of 1964 OASDI (Social Security) Experience for males with adjustments (sample rate shown on

MUNICIPAL RATES

Age	Current Valuation Rate
25	0.014%
35	0.029%
45	0.064%
55	0.134%
65	0.658%

right).

a) Type of disability

(i.) 15% of disablements are assumed to be service-related for municipal plans, and

(ii.) 50% of disablements are assumed to be service-related for uniform plans.

UNIFORMED RATES

Age	Current Valuation Rate
25	0.031%
35	0.058%
45	0.136%
55	0.335%
65	1.123%

E. Workers Compensation

Service-related disability benefits payable from municipal plans are offset by 25% of final average salary.

F. Salary Scale

Three-year select and ultimate rates include 2.8% inflation and age-related scale for merit/seniority based on sample rates as shown below.

SAMPLE SALARY RATES

Age	Total Rate ¹ (Including Inflation)
25	7.05%
30	5.44%
35	4.55%
40	4.26%
45	3.97%
50	3.72%
55	3.44%
60	3.28%
65	2.80%

¹Add 2% for each of the first three years of service and additional 6% increase in year prior to normal retirement age.

G. Rates of Retirement

Members are assumed to retire over a range of ages. No early retirement is assumed. Specific assumptions regarding retirement age are:

RETIREMENT RATES FOR MUNICIPAL MEMBERS

Age	Current rate Of Normal Retirement ¹
under 45	2%
45	8%
46	10%
47-50	15%
51-54	17%
55	22%
56-59	14%
60-64	18%
65	25%
66-74	20%
75	100%

a) Municipal Members:

Members are assumed to retire over a range of ages as shown on right.

b) Uniformed Members:

Retirement rates are reflected in the chart below.

¹Rates indicated are adjusted by adding 5% (and 10% for ages 60-62 under current rate assumptions) for the year in which the member is first eligible for normal retirement.

RETIREMENT RATES FOR UNIFORMED MEMBERS

Age	Current Rate of Normal Retirement
under 49	0%
50	30%
51-54	10%
55	25%
56-58	20%
59-60	15%
61	20%
62	30%
63-64	20%
65	30%
66+	100%

H. Marital State and Spouse’s Age¹

80% of members are assumed to be married at time of retirement with the 50% Joint and Survivor form of payment. Male spouses are assumed to be three-years older than female spouses.

I. Social Security Projections¹

a) The Social Security Taxable Wage Base will increase by 3.3% compounded annually;

b) The Consumer Price Index will increase by 2.8% compounded annually;

c) The Average Total Wages of All Workers will increase by 3.3% compounded annually.

J. Post-Retirement Cost-of-Living Increases¹

Cost-of-living increases are assumed to be 2.8% per year, subject to plan limitations.

K. Investment Return Assumption

Investment returns are assumed to be 5.25% compounded annually (net of investment and certain administrative expenses) for funding purposes.

L. Administrative Expenses

System-wide Actuarial Value of Assets: The expense assumption is based on the previous year’s actual expenses increased by 5%.

Municipalities: The expense assumption is based on the expected expenses for the current year, as reported on the Act 205 forms.

Rationale for Assumptions: An experience study is completed every five years for PMRS. The assumptions outlined above were reviewed and adopted by the board based on the most recent experience study for the period covering January 1, 2009 through December 31, 2013 and the board’s review of the regular interest rate in 2019.

ACTUARIAL METHODS

Contribution requirements are individually determined for each participating municipality, on an actuarial basis as described below in the Funding of the Unfunded Actuarial Liability section, at least biennially. The frequency of the actuarial valuation is determined by applicable commonwealth statute (Act 205 of 1984 and Act 293 of 1972).The following actuarial methods were adopted effective January 1, 1985, unless indicated otherwise.

ACTUARIAL VALUE OF ASSETS

PMRS’ Actuarial Value of Assets equal the sum of all audited reserve accounts as of the valuation date, including Member, Municipal, Retired, Disability, and DROP Reserves, and a one-year administration expense reserve, plus the portion of any additional investment income to be distributed as “excess interest,” based on the PMRS Policy Statement 05-2.

The actuarial value can never be less than 90% of fair market value.

¹ If applicable

REQUIRED SUPPLEMENTAL INFORMATION

Each year, municipalities may receive an excess interest allocation derived as a portion of new surplus created during the prior year based on the current financial standing of PMRS. “Surplus” refers to the excess of fair market value over the actuarial value of assets. Once the preliminary actuarial value of assets has been determined, a formula is used to allocate the new surplus. Generally, depending on the relative size of surplus to fair market value, between 10% and 90% of the new surplus will become excess interest.

The Actuarial Value of Assets are set equal to reserves under PMRS based on the unique legislative structure of PMRS, which are increased annually at a rate agreed on by the board named “Regular Interest” as defined under the Pennsylvania Municipal Retirement Law. Therefore, these assets do not necessarily relate directly or indirectly with the current market value of assets as required under Actuarial Standard of Practice Statement No. 44 which states under Section 3.3:

“... the actuary should select an asset valuation method that is designed to produce actuarial values of assets that bear a reasonable relationship to the corresponding market values. The qualities of such an asset valuation method include the following:

- a. The asset valuation method is likely to produce actuarial values of assets that are sometimes greater than and sometimes less than the corresponding fair market values.
- b. The asset valuation method is likely to produce actuarial values of assets that, in the actuary’s professional judgment, satisfy both of the following:
 1. The asset values fall within a reasonable range around the corresponding market values. For example, there might be a corridor centered at market value, outside of which the actuarial value of assets may not fall, in order to assure that the difference from market value is not greater than the actuary deems reasonable.
 2. Any differences between the actuarial value of assets and the market value are recognized within a reasonable period of time. For example, the actuary might use a method where the actuarial value of assets converges toward market value at a pace that the actuary deems reasonable, if the investment return assumption is realized in future periods.

In lieu of satisfying both (1) and (2) above, an asset valuation method could satisfy section 3.3(b) if, in the

actuary’s professional judgment, the asset valuation method either (i) produces values within a sufficiently narrow range around market value or (ii) recognizes differences from market value in a sufficiently short period.”

The administrative rules adopted by the board in conjunction with the Pennsylvania Municipal Retirement Law, which are not subject to comply with Actuarial Standards of Practice (ASOP), when defining the Actuarial Value of Assets, does not necessarily meet the requirement of ASOP 44 Selection and Use of Asset Valuation Methods for Pension Valuations. The Actuarial Value of Assets provided within this report follow the Pennsylvania Municipal Retirement System Law and PMRS policy statement.

ACTUARIAL COST METHOD

The Entry Age Normal Actuarial Cost Method was used for active employees, whereby the normal cost is computed as the level annual percentage of pay required to fund the retirement benefits between each member’s date of hire and assumed retirement. Entry age is defined as attained age less credited service. The normal cost is based on taking the value, as of entry age into the plan, of each member’s projected future benefits. This value is then divided by the value, also at entry age, of each member’s expected future salary producing a normal cost rate as a percent of salary. The normal cost rate is multiplied by current salary to determine each member’s normal cost. If a plan provides for a Separate Member Annuity through required member contributions, this contribution rate is then added to the total normal cost rate to determine the final total normal cost rate. Within the Minimum Municipal Obligation (MMO) calculation, the normal cost is reduced by the member contribution to produce the employer normal cost to be paid.

The actuarial liability is the difference between the present value of future benefits and the present value of future normal cost. The unfunded actuarial liability is the difference between the actuarial liability and the actuarial value of assets.

FUNDING OF THE UNFUNDED ACTUARIAL LIABILITY

Actuarial gains (or losses), including the effect of contributions greater or lesser than the previously determined actuarial level, are reflected by decreases (or increases) in the unfunded actuarial liability. Under Act 205 of 1984, and updated by Act 44, the unfunded

actuarial liability for each plan is amortized as a level dollar amount over the lesser of:

- (a) (i) 30 years, with respect to the initial liability as of 1/1/85 (or first valuation);
- (ii) 20 years, with respect to actuarial gains and losses;
- (iii) 15 years, with respect to changes due to actuarial assumptions;
- (iv) 20 years, with respect to changes due to plan provisions (if state mandated);
- (v) 10 years, with respect to changes in benefits for currently active members and 1 year for retired members (if local benefit changes); or
- (b) The average assumed working lifetime of active employees as of the date the liability was established. If there are no active employees, the unfunded liability is amortized one year after the liability was established.

With the two exceptions that follow, the funding method is applied individually with respect to each municipality:

- 1) Retired and disabled members are paid monthly benefits from PMRS' Retired Reserve account, which at the time of retirement receives a transfer from the municipal and member accounts in an amount actuarially determined to be sufficient to pay all future benefits for the member (and, if applicable, a surviving beneficiary). Thus, post-retirement experience is pooled with PMRS.
- 2) A disabled member's pension is met in part from the amount that can be provided by the value of that portion of the member's accrued benefit attributable to municipal contributions, with the balance of the pension being provided by the appropriate transfer from the Disability Reserve Account. The amount of annual transfer from the accumulated municipal contributions to the Disability Reserve Account is determined on the one-year term cost basis, i.e., the expected cost of disabilities in the coming year.

If a plan is in a surplus position, then 10% of the surplus is credited against the aggregate cost of the plan.

METHOD TO ESTIMATE ROLL FORWARD LIABILITIES

The county defined benefit pension plans and cash

balance plans are valued explicitly every even calendar year (cash balance plans are valued every year). However, the liabilities for those plans that are neither county nor cash balance are explicitly valued every odd calendar year. For the even calendar years, we estimate those plan liabilities by rolling forward the prior year's liabilities. With the implementation of GASB 68, which required an individual report to be issued for each pension plan, the liabilities for those plans that are neither county nor cash balance (i.e., municipal or authority defined benefit plans) were rolled forward based on the actual benefit payments. These liabilities reflect any material changes to the liabilities that may have occurred since the prior actuarial valuation. These rolled forward liabilities have been reflected in this report. The liabilities for all participants in pay status for these municipal pension plans are explicitly valued every year. The roll forward active and deferred vested liabilities were proportionally adjusted based on the prior year liabilities net of in pay status liabilities. All other liabilities for the county and cash balance plans were explicitly valued as of January 1, 2020 based on the data, plan provisions, methods, and assumptions.

CHANGES IN ACTUARIAL ASSUMPTIONS AND METHODS

Total Pension Liabilities reported in the December 31, 2020 GASB 68 reports for all municipal defined benefit plans with a fiscal year ending between December 31, 2020 and June 30, 2021 will be based on the liabilities determined as of the January 1, 2019 valuation date and rolled forward to the measurement date (December 31, 2020). County plans will be based on the liabilities determined as of the January 1, 2020 valuation date and rolled forward to the measurement date. The assumption change is also based on the liabilities determined as of the valuation date and rolled forward to the measurement date. Furthermore, these rolled forward liabilities reflect any material changes as required by GASB 67/68.

Total Pension Liabilities reported in the December 31, 2020 GASB 68 report for all cash balance plans and municipal defined benefit plans with a fiscal year ending between July 1, 2021 and December 30, 2021 will be based on the valuation date of January 1, 2021.



STATISTICAL

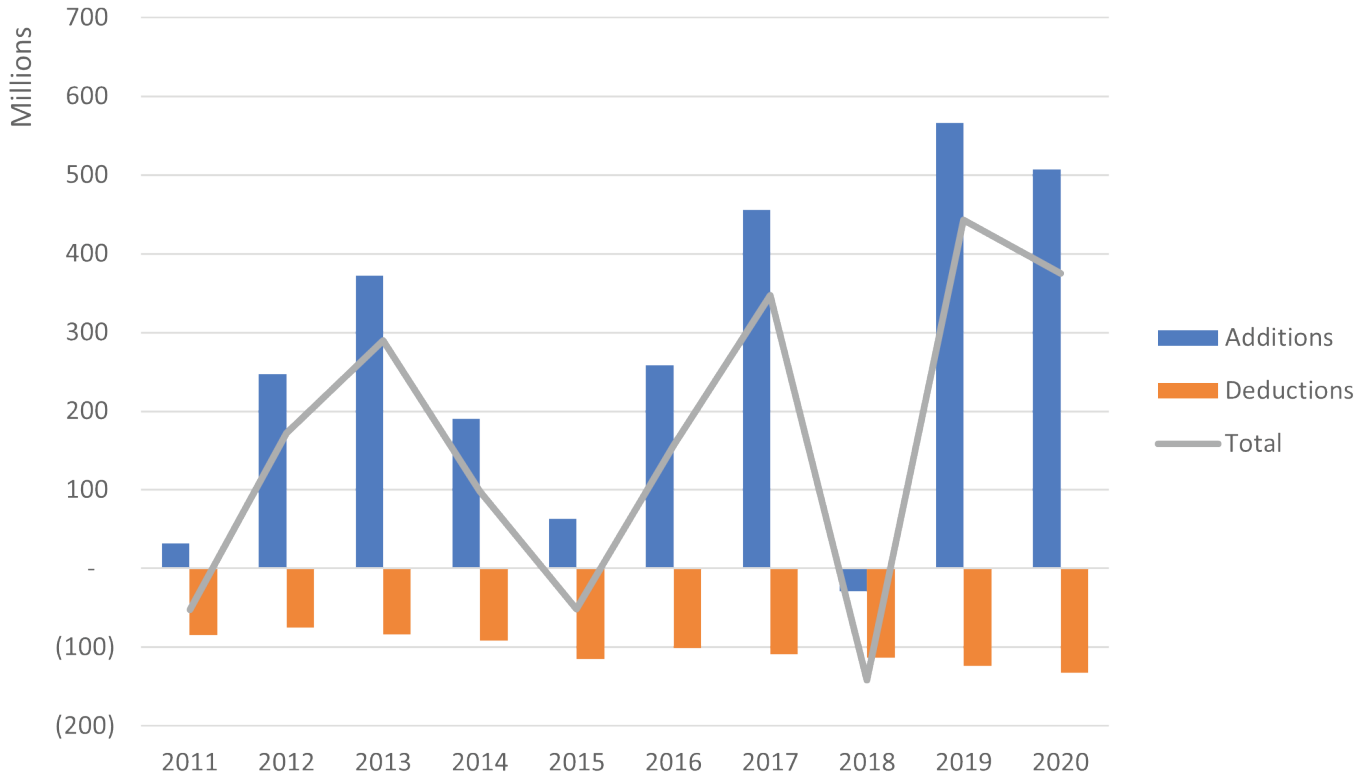
The objectives of the statistical section are to provide additional historical perspective, context, and relevant details to assist readers in using information in the financial statements, notes to the financial statements, and required supplementary information to understand and assess PMRS' overall financial condition. GASB Statement No 44, "Economic Condition Reporting: The Statistical Section" establishes standardized reporting requirements relative to the supplementary information provided in this section.

The graphs and schedules beginning on page 76 provide information relative to financial trends. The graphs and schedules provide detailed information about PMRS' net position and how it has changed over time.

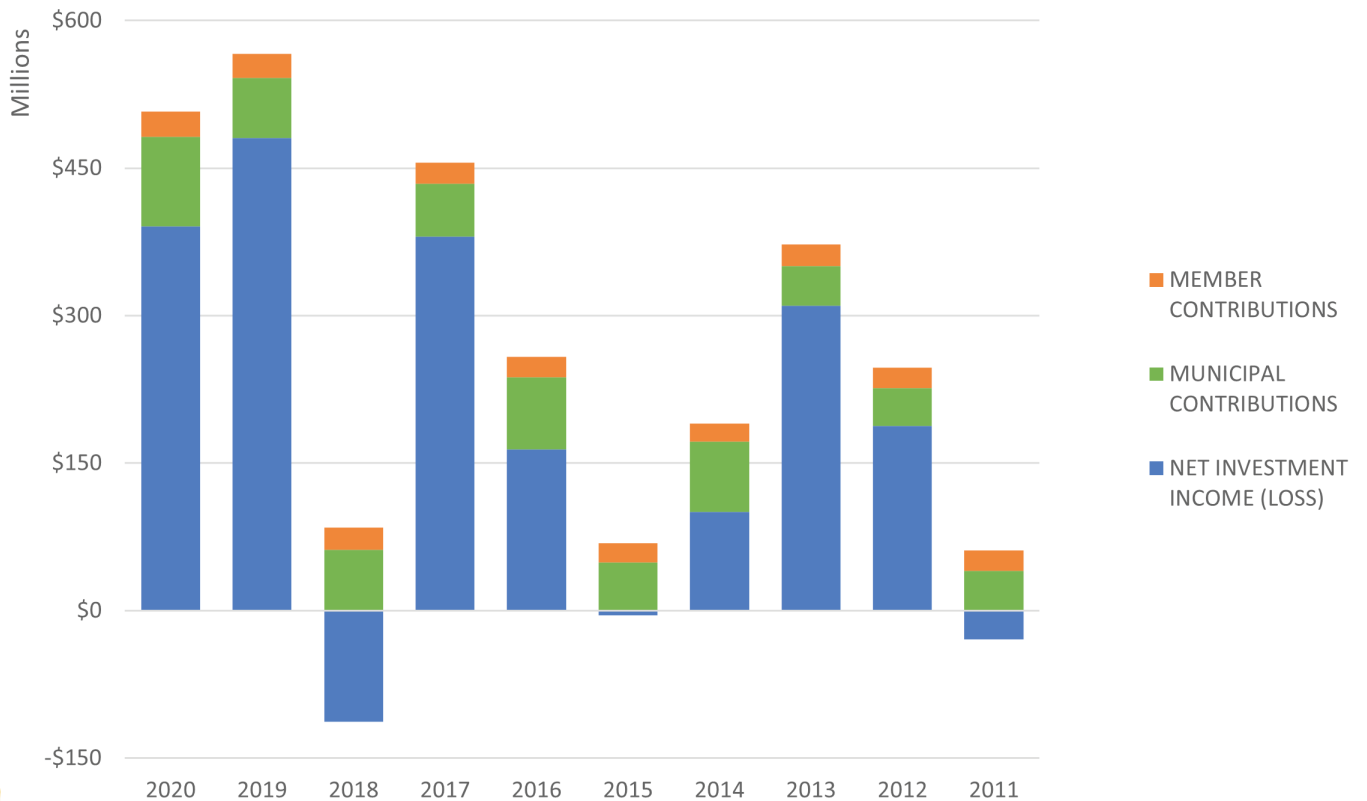
The graphs and schedules beginning on page 80 provide information relative to membership. The graphs and schedules reflect changes in active and retired members of PMRS. The information is intended to provide contextual information about PMRS' membership and framework for the ratio of funding versus obligations. The schedules beginning on page 85 provide information relative to pension payments and pensions awarded. The information is intended to provide contextual information about payment trends of PMRS.



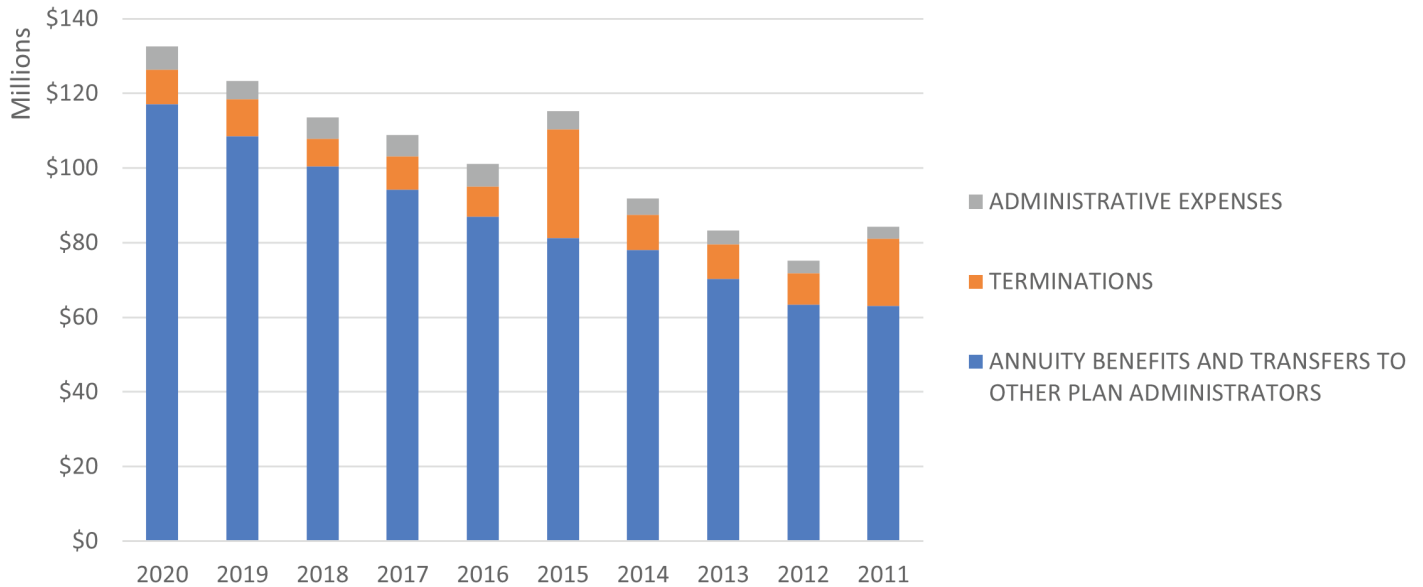
RESULTS OF OPERATIONS - 10-YEAR TREND (Amounts in Millions)



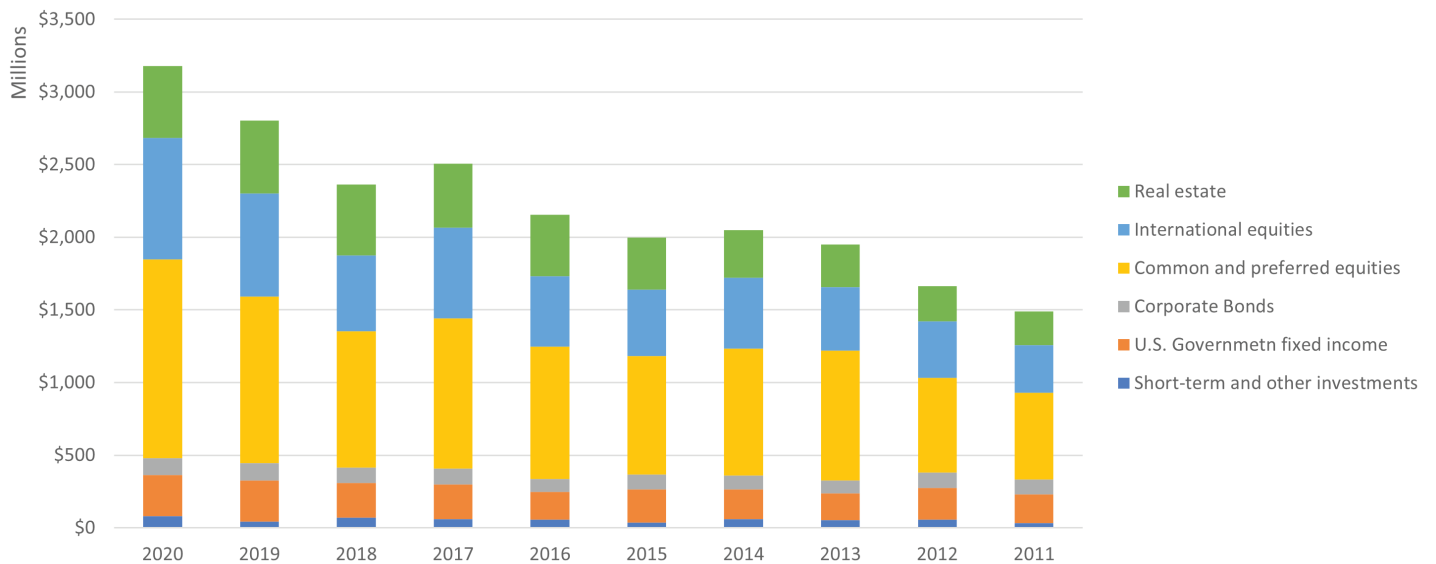
ADDITIONS TO FIDUCIARY NET POSITION - 10-YEAR TREND (Amounts in Millions)



DEDUCTIONS FROM FIDUCIARY NET POSITION - 10-YEAR TREND (Amounts in Millions)



INVESTMENTS BY TYPE - 10-YEAR TREND (Amounts in Millions)



PART 1: FINANCIAL

CHANGES IN FIDUCIARY NET POSITION

10-Year Trend

Year	Contributions	Net Investment Income (Loss) And Miscellaneous Income	Annuity Benefits And Terminations And Transfers To Other Plan Administrators	Administrative Expenses	Change In Fiduciary Net Position
2020	\$116,632,667	\$390,643,231	\$126,343,576	\$6,301,742	\$374,630,580
2019	85,683,337	480,282,330	118,409,245	4,867,058	442,689,364
2018	84,554,720	(113,220,485)	107,803,587	5,770,601	(142,239,953)
2017	75,412,160	380,140,930	103,077,938	5,498,575	346,976,577
2016	93,999,086	379,933,759	95,013,418	5,834,448	373,084,979
2015	68,740,888	163,735,825	110,303,677	4,983,399	117,189,637
2014	89,762,417	100,453,558	87,436,751	4,411,462	98,367,762
2013	61,092,399	310,197,575	78,245,253	3,723,590	289,321,131
2012	59,253,955	187,755,253	71,827,710	3,424,363	171,757,135
2011	61,265,501	(29,086,613)	81,155,883	3,142,004	(52,118,999)

ADDITIONS TO FIDUCIARY NET POSITION

10-Year Trend

Year	Member Contributions	Municipal Contributions And Transfers From Other Plan Administrators ¹	Municipal Assessments ²	Net Investment Income (Loss) And Miscellaneous Income	Additions To Fiduciary Net Position, Net Of Investment Losses
2020	\$25,199,715	\$91,184,063 ³	\$248,889	\$390,643,231	\$507,275,898
2019	24,332,531	60,994,306 ⁴	356,500	480,282,330	565,965,667
2018	23,008,066	61,288,746 ⁵	257,908	(113,220,485)	(28,665,765)
2017	21,717,564	53,446,315	248,281	379,933,759	455,345,919
2016	20,776,539	72,995,245 ⁶	227,302	163,735,825	257,734,911
2015	19,472,225	49,062,549	206,114	(4,943,521)	63,797,367
2014	18,441,437	71,157,740 ⁷	163,240	100,453,558	190,215,975
2013	22,416,432	38,493,407	182,560	310,197,575	371,289,974
2012	20,981,612	37,974,023	298,320	187,755,253	247,009,208
2011	20,732,344	40,231,586	301,571	(29,086,613)	32,178,888

¹Contributions were made in accordance with actuarially determined contribution requirements.

²Municipal assessments are receipts but not assets of the plans.

³Municipal contributions for 2020 include additional contributions towards unfunded liability of \$2.1 million.

⁴Municipal contributions for 2019 include transfers from other plan administrators of \$4.7 million.

⁵Municipal contributions for 2018 include additional contributions towards unfunded liability of \$8.6 million.

⁶Municipal contributions for 2016 include transfers from other plan administrators of \$21.4 million.

⁷Municipal contributions for 2014 include a one-time payment for one municipality towards its unfunded liability.

DEDUCTIONS FROM FIDUCIARY NET POSITION

10-Year Trend

BENEFITS AND REFUNDS				
Year	Annuity	Refunds	Administrative Expenses	Deductions From Fiduciary Net Position
2020	\$114,291,794	\$12,051,782	\$6,301,742	\$132,645,318
2019	108,465,916	9,943,329	4,867,058	123,276,303
2018	100,465,963	7,337,624	5,770,601	113,574,188
2017	94,172,167	8,905,771	5,498,575	108,576,513
2016	87,046,730	7,966,688	5,834,448	100,847,866
2015	81,299,398	29,004,279	4,983,399	115,287,076
2014	78,046,330	9,390,421	4,411,462	91,848,213
2013	68,901,058	9,344,195	3,723,590	81,968,843
2012	63,390,100	8,437,610	3,424,363	75,252,073
2011	63,105,165	18,050,718	3,142,004	84,297,887

SCHEDULE OF BENEFIT DEDUCTIONS FROM FIDUCIARY NET POSITION

10-Year Trend

ANNUITY BENEFIT BY TYPE								
Year	Normal	Early	Disability	Survivor	Death	Drop	Transfer And Other	Total Annuity
2020 ¹	\$66,892,692	\$33,990,328	\$1,514,134	\$8,430,889	\$959,791	\$773,643	\$1,730,317	\$114,291,794
2019	86,559,982	9,085,439	1,569,152	8,022,306	2,860,130	368,908	-	108,465,916
2018	82,214,203	7,545,194	1,498,518	5,728,724	2,456,344	1,022,980	-	100,465,963
2017	76,325,433	7,925,396	1,534,891	5,014,321	2,733,583	638,543	-	94,172,167
2016	70,441,634	7,998,536	983,325	4,477,493	2,742,076	403,666	-	87,046,730
2015	64,508,631	8,698,618	1,036,807	3,900,315	2,614,938	460,751	79,338	81,299,398
2014	58,291,738	8,769,947	1,362,544	5,569,629	3,234,667	146,215	671,590	78,046,330
2013	52,063,381	8,156,170	1,722,313	5,243,882	1,637,485	68,795	9,032	68,901,058
2012	47,951,194	7,545,724	1,347,255	4,848,070	1,678,836	-	19,021	63,390,100
2011	44,166,997	6,161,604	1,257,354	4,497,860	2,241,312	-	4,780,038	63,105,165

¹There is a noted increase in the 2020 "Early" category of payments due to CPAS recognition of categories. CPAS 5.8 identifies the category of payment as "Early" for those annuitants retiring early with no benefit reductions. CPAS 5.3 classified this group as normal.

SCHEDULE OF REFUND DEDUCTIONS FROM FIDUCIARY NET POSITION BY TYPE

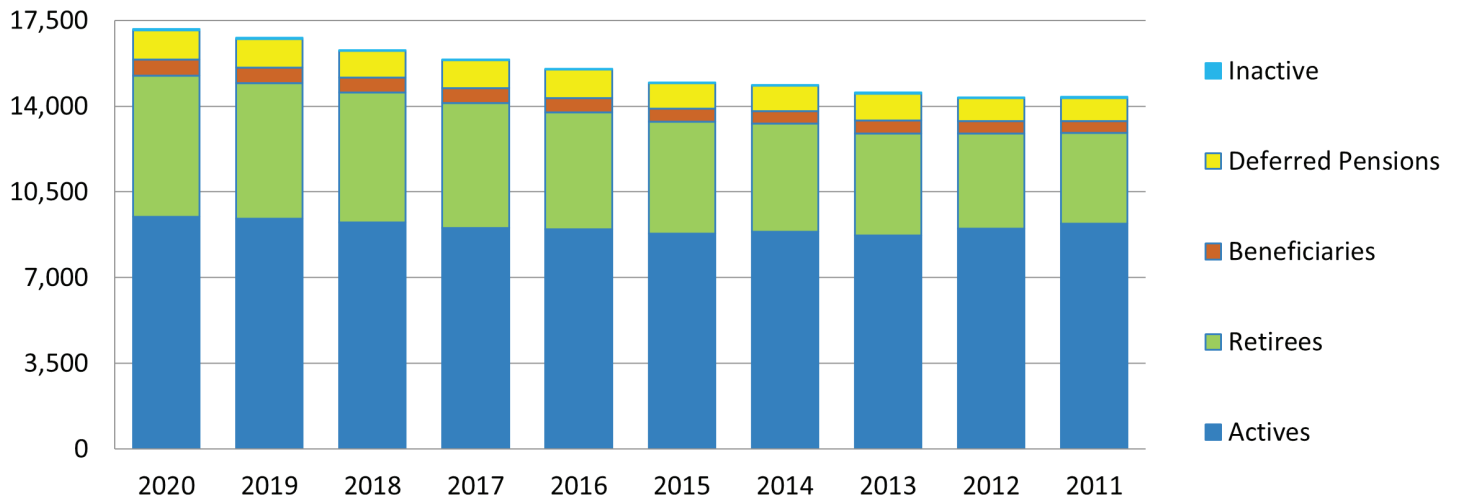
10-Year Trend

REFUNDS BY TYPE			
Year	Terminations	Lump Sum	Total Refunds
2020	\$3,978,743	\$8,073,039	\$12,051,782
2019	3,513,448	6,429,881	9,943,329
2018	2,869,673	4,467,951	7,337,624
2017	2,424,733	6,481,038	8,905,771
2016	2,757,092	5,209,596	7,966,688
2015	2,838,347	26,165,932	29,004,279
2014	4,788,017	4,602,404	9,390,421
2013	2,449,964	6,894,231	9,344,195
2012	3,908,772	4,528,838	8,437,610
2011	12,421,382	5,629,336	18,050,718

PART 2: MEMBERSHIP

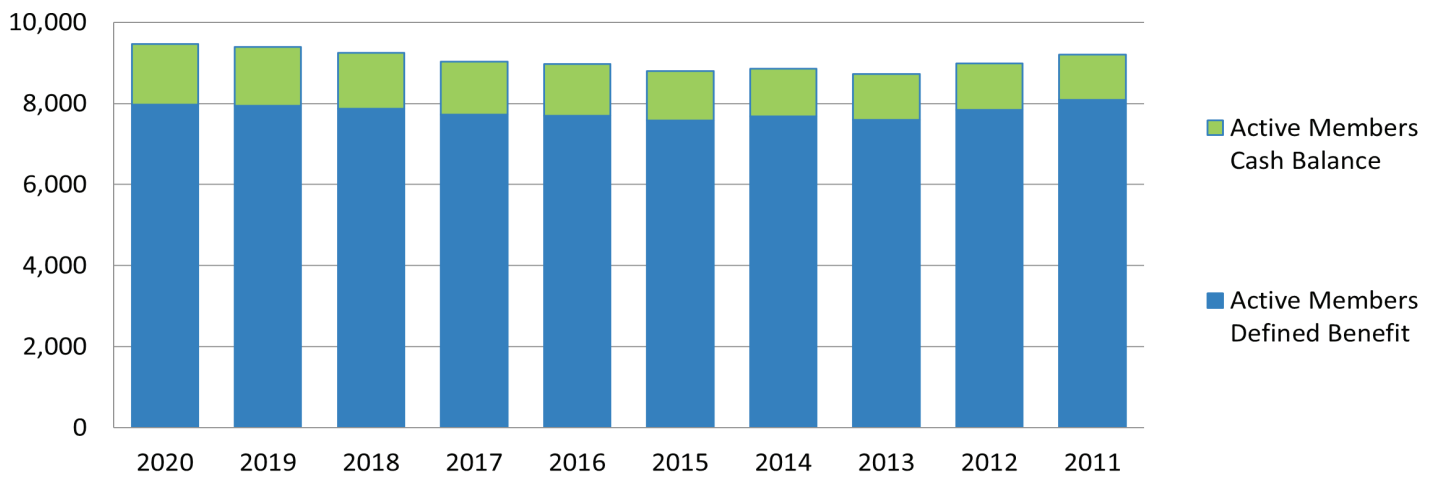
TOTAL MEMBERSHIP

Valuation Date 1/1/2020



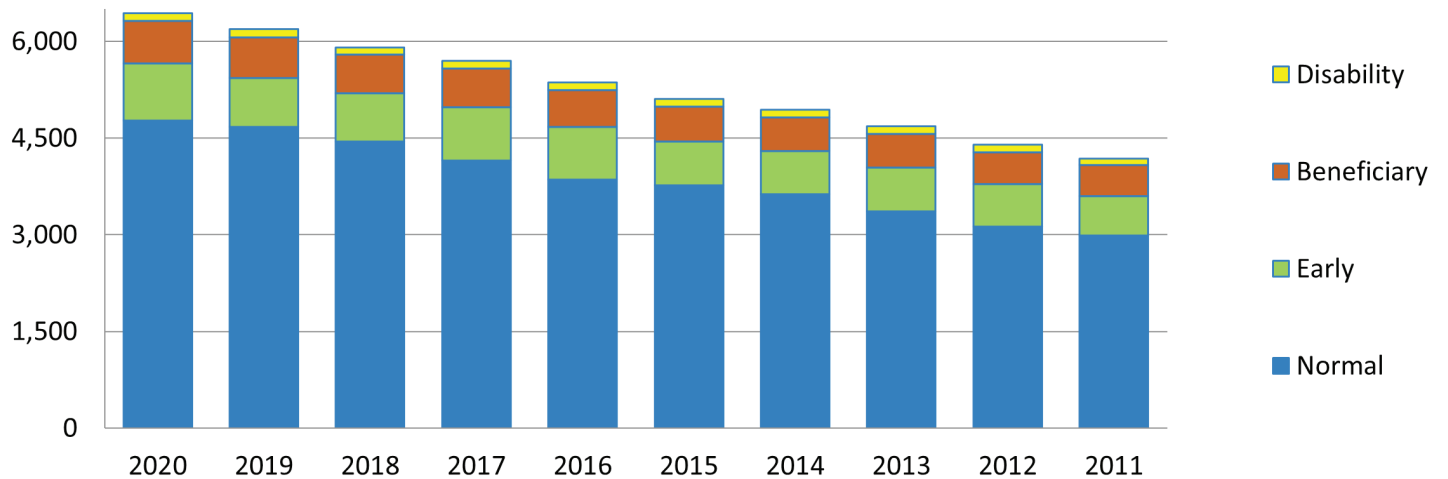
ACTIVE MEMBERS

Valuation Date 1/1/2020



RETIRED MEMBERS

Valuation Date 1/1/2020



DISTRIBUTION OF ACTIVE MEMBERS

Counts by Age/Service as of January 1, 2020

COUNTS BY AGE/SERVICE											
Age	1 Year Or Less	1 To 2	2 To 3	3 To 5	5 To 10	10 To 15	15 To 20	20 To 25	25 To 30	30 & Up	Total
Under 20	10	2	0	0	0	0	0	0	0	0	12
20 - 40	136	81	35	26	7	0	0	0	0	0	285
25 - 29	173	134	119	145	89	4	0	0	0	0	664
30 - 34	136	144	91	154	211	73	2	0	0	0	811
35 -39	109	106	81	144	214	183	55	4	0	0	896
40 - 44	120	79	65	129	167	168	191	45	1	0	965
45 - 49	88	81	79	129	197	189	195	141	68	10	1177
50 - 54	98	101	60	129	220	196	210	191	123	84	1412
55 - 59	66	59	65	127	210	200	219	176	154	229	1505
60 - 64	30	51	38	74	164	177	192	152	115	209	1202
65 & up	14	12	19	40	79	80	78	68	52	101	543
Total	980	850	652	1,097	1,558	1,270	1,142	777	513	633	9,472

DISTRIBUTION OF ACTIVE MEMBERS

Average Salary by Age/Service as of January 1, 2020

AVERAGE SALARY BY AGE/SERVICE											
Age	1 Year Or Less	1 To 2	2 To 3	3 To 5	5 To 10	10 To 15	15 To 20	20 To 25	25 To 30	30 & Up	Total
Under 20	\$22,844	\$36,147	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$25,061
20 - 40	\$32,566	\$45,789	\$42,633	\$51,043	\$64,821	\$-	\$-	\$-	\$-	\$-	\$40,038
25 - 29	\$39,574	\$46,271	\$48,067	\$50,872	\$58,385	\$64,021	\$-	\$-	\$-	\$-	\$47,583
30 - 34	\$37,303	\$46,314	\$53,998	\$57,728	\$59,233	\$56,995	\$79,181	\$-	\$-	\$-	\$52,236
35 -39	\$37,193	\$51,005	\$51,617	\$56,090	\$60,825	\$67,211	\$68,607	\$72,210	\$-	\$-	\$57,028
40 - 44	\$35,731	\$49,354	\$49,495	\$52,838	\$58,772	\$65,482	\$72,702	\$72,897	\$42,682	\$-	\$58,285
45 - 49	\$33,792	\$49,550	\$49,236	\$55,833	\$56,880	\$61,211	\$70,299	\$71,197	\$74,777	\$74,332	\$59,838
50 - 54	\$38,998	\$45,041	\$54,346	\$47,589	\$55,507	\$57,396	\$62,988	\$67,081	\$73,535	\$73,975	\$58,449
55 - 59	\$40,245	\$47,031	\$53,068	\$56,182	\$56,316	\$58,658	\$57,621	\$61,030	\$69,679	\$68,429	\$59,359
60 - 64	\$43,627	\$49,905	\$46,026	\$57,637	\$56,539	\$54,450	\$60,866	\$59,647	\$62,244	\$64,242	\$58,332
65 & up	\$36,053	\$51,056	\$40,776	\$50,596	\$51,232	\$53,111	\$53,869	\$56,358	\$59,987	\$61,890	\$54,542
Total	\$36,922	\$47,590	\$50,073	\$54,013	\$57,473	\$59,964	\$64,151	\$64,428	\$68,578	\$66,832	\$56,486

PART 2: MEMBERSHIP

PENSION IN PAYMENT STATUS ON JANUARY 1, 2020

By Type and Monthly Amount

TYPE OF PENSION							
Monthly Amount	Total	Normal	Involuntary Early	Voluntary Early	Service Disability	Non- Service Disability	
TOTAL	6,435	5,423	226	668	53	65	
Under \$100	286	247	19	18	1	1	
\$100 - \$199	346	282	28	35	1	-	
200 - 299	341	275	28	38	-	-	
300 - 399	335	270	24	35	4	2	
400 - 499	338	280	23	32	1	2	
500 - 599	324	269	9	38	2	6	
600 - 699	270	215	17	35	3	-	
700 - 799	286	233	14	36	1	2	
800 - 899	275	220	12	33	1	9	
900 - 999	258	205	7	32	5	9	
1000 - 1199	530	424	16	71	6	13	
1200 - 1399	389	307	11	60	5	6	
1400 - 1599	362	303	4	41	9	5	
1600 - 1799	266	232	5	26	1	2	
1800 - 1999	258	215	3	33	6	1	
2000 - 2199	218	194	2	18	2	2	
2200 - 2399	206	181	3	21	1	-	
2400 - 2599	163	147	-	14	1	1	
2600 - 2799	146	130	-	13	1	2	
2800 - 2999	115	107	-	6	-	2	
3000 - 3499	275	257	1	15	2	-	
3500 - 3999	189	179	-	10	-	-	
4000 and over	259	251	-	8	-	-	

PENSIONS AWARDED BY TYPE AND AMOUNT

10-Year Trend

Valuation Date 1/1	TOTAL		NORMAL		VOLUNTARY EARLY		INVOLUNTARY EARLY		DISABILITY	
	Count	Average Monthly Amount	Count	Average Monthly Amount	Count	Average Monthly Amount	Count	Average Monthly Amount	Count	Average Monthly Amount
2020	381	\$1,638	341	\$1,644	8	\$781	27	\$1,887	5(5)	\$1,247
2019	429	\$1,630	382	\$1,651	9	\$963	33	\$1,475	5(4)	\$2,277
2018	383	\$1,576	342	\$1,616	29	\$1,350	8	\$822	4(1)	\$1,311
2017	447	\$1,562	397	\$1,600	28	\$1,428	11	\$627	11(3)	\$1,485
2016	339	\$1,574	309	\$1,593	22	\$1,569	4	\$562	4(2)	\$1,113
2015	392	\$1,493	341	\$1,524	29	\$1,575	14	\$825	8(2)	\$1,022
2014	431	\$1,706	364	\$1,800	34	\$1,280	17	\$905	16(2)	\$1,319
2013	390	\$1,373	341	\$1,421	22	\$1,614	20	\$520	7(2)	\$709
2012	438	\$1,367	352	\$1,496	40	\$1,180	37	\$459	9(3)	\$888
2011	396	\$1,552	341	\$1,632	37	\$1,250	13	\$364	5(0)	\$1,407

*Number of service-related disability pensions shown in parentheses

SCHEDULE OF TOTAL MEMBERSHIP

10-Year Trend

Valuation Date 1/1	Active Members Defined Benefit Plans	Active Members Cash Balance Plans	Retirees	Beneficiaries	Deferred Pensions(1)	Inactive Members(2)	Total
2020	7,970	1,502	5,781	654	1,205	47	17,159
2019	7,949	1,446	5,550	639	1,168	40	16,792
2018	7,868	1,387	5,307	599	1,090	35	16,286
2017	7,728	1,303	5,099	600	1,150	28	15,908
2016	7,698	1,274	4,784	576	1,173	7	15,512
2015	7,580	1,214	4,566	542	1,027	8	14,937
2014	7,676	1,185	4,423	520	1,044	14	14,862
2013	7,599	1,131	4,160	520	1,098	51	14,559
2012	7,836	1,158	3,899	495	952	21	14,361
2011	8,091	1,119	3,707	477	945	42	14,381

(1) Inactive participants with rights to deferred pension (vested)

(2) Inactive participants with rights to return of contributions (non-vested)

PART 2: MEMBERSHIP

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

10-Year Trend

DEFINED BENEFIT PLANS								
Valuation Date 1/1	Number Of Active Members	Percentage Change In Membership	Number Of Participating Employers	Percentage Increase In Number Of Participating Employers	Total Annual Payroll	Percentage Increase In Payroll	Average Annual Salary	Percentage Increase In Average Annual Salary
2020	7,970	0.26%	728	0.69%	\$465,906,342	2.32%	\$58,458	2.05%
2019	7,949	1.03%	723	-0.96%	\$455,352,355	4.79%	\$57,284	3.72%
2018	7,868	1.8%	730	1.1%	\$434,554,380	2.8%	\$55,231	1.0%
2017	7,728	0.4%	722	0.0%	\$422,621,214	7.2%	\$54,687	6.8%
2016	7,698	1.6%	722	0.1%	\$394,133,120	2.6%	\$51,199	1.0%
2015	7,580	-1.3%	721	0.7%	\$384,270,155	-1.3%	\$50,695	-0.1%
2014	7,676	1.0%	716	0.3%	\$389,410,214	3.5%	\$50,731	2.48%
2013	7,599	-3.0%	714	0.7%	\$376,296,674	2.6%	\$49,519	5.8%
2012	7,836	-3.2%	709	0.3%	\$366,882,467	-4.4%	\$46,820	-1.3%
2011	8,091	-3.2%	707	1.4%	\$383,802,844	1.5%	\$47,436	4.9%

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

10-Year Trend

CASH BALANCE PLANS								
Valuation Date 1/1	Number Of Active Members	Percentage Change In Membership	Number Of Participating Employers	Percentage Increase In Number Of Participating Employers	Total Annual Payroll	Percentage Increase In Payroll	Average Annual Salary	Percentage Increase In Average Annual Salary
2020	1,502	3.87%	328	1.55%	\$69,134,048	9.21%	\$46,028	5.14%
2019	1,446	4.25%	323	2.87%	\$63,302,730	5.48%	\$43,778	1.18%
2018	1,387	6.4%	314	1.0%	\$60,013,152	11.1%	\$43,268	4.4%
2017	1,303	2.3%	311	5.8%	\$53,998,354	4.6%	\$41,442	2.2%
2016	1,274	4.9%	294	2.8%	\$51,642,049	8.6%	\$40,535	3.5%
2015	1,214	2.4%	286	6.7%	\$47,537,851	5.2%	\$39,158	2.7%
2014	1,185	4.8%	268	6.8%	\$45,193,710	1.6%	\$38,138	-3.0%
2013	1,131	-2.3%	251	4.6%	\$44,490,671	8.1-1.3%	\$39,337	10.7%
2012	1,158	3.5%	240	4.8%	\$41,143,383	18.7%	\$35,530	-4.6%
2011	1,119	12.6%	229	13.4%	\$41,683,065	6.9%	\$37,250	5.5%

**SCHEDULE OF AVERAGE NEW MONTHLY
BENEFIT PAYMENTS FROM DEFINED BENEFIT PLANS**

10-Year Trend

Retirement Effective Dates	YEARS CREDITED SERVICE						
	<5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
2020							
Average monthly benefit	\$606	\$581	\$878	\$2,453	\$1,786	\$2,605	\$3,027
Average final average salary	\$47,749	\$49,244	\$46,184	\$55,891	\$63,780	\$68,255	\$67,356
Number of retired members	11	33	51	62	50	55	85
2019							
Average monthly benefit	\$391	\$587	\$819	\$1,364	\$1,853	\$2,272	\$3,242
Average final average salary	\$40,467	\$44,214	\$49,034	\$47,161	\$51,461	\$55,448	\$67,055
Number of retired members	12	45	43	58	39	37	90
2018							
Average monthly benefit	\$310	\$667	\$933	\$1,251	\$1,860	\$2,870	\$3,674
Average final average salary	\$59,831	\$43,076	\$49,018	\$49,312	\$52,479	\$60,231	\$64,982
Number of retired members	13	32	60	49	55	47	97
2017							
Average monthly benefit	\$457	\$578	\$955	\$1,512	\$1,915	\$2,744	\$3,501
Average final average salary	\$44,940	\$37,684	\$46,433	\$50,159	\$53,564	\$61,510	\$61,257
Number of retired members	14	28	53	44	52	52	82
2016							
Average monthly benefit	\$374	\$694	\$895	\$1,336	\$2,003	\$2,660	\$3,460
Average final average salary	\$31,616	\$49,321	\$41,023	\$45,681	\$53,708	\$56,706	\$58,295
Number of retired members	12	36	64	65	64	58	108
2015							
Average monthly benefit	\$184	\$601	\$901	\$1,328	\$1,876	\$2,542	\$3,841
Average final average salary	\$53,428	\$47,415	\$40,968	\$43,550	\$52,415	\$55,956	\$66,231
Number of retired members	18	35	46	58	42	65	57
2014							
Average monthly benefit	\$172	\$442	\$793	\$1,253	\$2,106	\$2,232	\$3,375
Average final average salary	\$46,376	\$41,257	\$38,647	\$41,967	\$49,967	\$50,207	\$59,175
Number of retired members	11	36	65	47	48	52	73
2013							
Average monthly benefit	\$351	\$484	\$927	\$1,288	\$1,833	\$2,294	\$3,285
Average final average salary	\$48,984	\$42,915	\$46,047	\$43,468	\$49,235	\$52,714	\$55,709
Number of retired members	11	49	62	51	53	69	116
2012							
Average monthly benefit	\$513	\$396	\$729	\$1,144	\$1,546	\$2,185	\$3,287
Average final average salary	\$48,078	\$34,996	\$37,640	\$39,183	\$43,646	\$48,153	\$57,516
Number of retired members	12	32	63	45	60	46	91
2011							
Average monthly benefit	\$236	\$405	\$763	\$1,099	\$1,706	\$2,310	\$3,271
Average final average salary	\$43,107	\$39,033	\$46,475	\$41,193	\$49,092	\$52,198	\$55,375
Number of retired members	14	38	56	56	76	39	85

PART 2: MEMBERSHIP

SCHEDULE OF AVERAGE NEW MONTHLY BENEFIT PAYMENTS FROM CASH BALANCE PLANS

10 Year Trend

Retirement Effective Dates	YEARS CREDITED SERVICE						
	<5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
2020							
Average monthly benefit	\$196	\$177	\$472	\$961	\$902	\$1,382	\$630
Number of retired members	5	11	13	5	11	11	8
2019							
Average monthly benefit	\$40	\$256	\$506	\$790	\$756	\$810	\$1,350
Number of retired members	6	14	5	13	7	5	9
2018							
Average monthly benefit	\$81	\$332	\$628	\$431	\$1,390	\$1,515	\$1,974
Number of retired members	5	11	13	6	8	4	17
2017							
Average monthly benefit	\$149	\$222	\$289	\$732	\$948	\$495	\$1,334
Number of retired members	6	6	7	6	6	4	11
2016							
Average monthly benefit	\$47	\$220	\$499	\$650	\$1,124	\$1,595	\$1,385
Number of retired members	3	13	11	9	10	8	10
2015							
Average monthly benefit	\$131	\$189	\$239	\$823	\$1,071	\$713	\$1,914
Number of retired members	3	10	5	8	9	4	6
2014							
Average monthly benefit	\$94	\$420	\$649	\$580	\$1,285	\$942	\$717
Number of retired members	13	10	9	8	6	2	6
2013							
Average monthly benefit	\$141	\$203	\$430	\$388	\$820	\$945	\$1,028
Number of retired members	7	10	5	4	7	3	5
2012							
Average monthly benefit	\$189	\$270	\$557	\$580	\$857	\$581	\$804
Number of retired members	6	7	8	5	13	5	5
2011							
Average monthly benefit	\$139	\$219	\$393	\$217	\$1,051	\$649	\$1,110
Number of retired members	3	11	5	7	10	4	5

SCHEDULE OF PARTICIPAING PLANS^{1,2}

As of Jan. 1, 2020

COUNTY

Adams County
Forest County
Jefferson County
Sullivan County

CITY

Allentown City
Bethlehem City
Clairton City
Connellsville City
Easton City
Farrell City
Greensburg City
Harrisburg City
Hermitage City
Jeannette City
Latrobe City
Lebanon City
Lower Burrell City
Nanticoke City
New Kensington City
Sharon City
Sunbury City
Uniontown City

BOROUGH

Adamstown Borough
Apollo Borough
Ashland Borough
Atglen Borough
Atglen Borough (CB)
Avondale Borough
Avonmore Borough

Bally Borough
Bangor Borough
Bangor Borough (CB)
Bedford Borough
Bedford Borough (CB)
Bellefonte Borough
Bellefonte Borough (CB)
Bellwood Borough
Berlin Borough
Berlin Borough (CB)
Big Beaver Borough
Biglerville Borough
Biglerville Borough (CB)
Bloomfield Borough
Bowmanstown Borough
Brackenridge Borough
Bridgeville Borough
Bridgewater Borough
Brockway Borough
Brookville Borough
California Borough
Cambridge Springs Borough
Camp Hill Borough
Camp Hill Borough (CB)
Carnegie Borough
Carroll Valley Borough
Carrolltown Borough
Centerville Borough
Central City Borough
Charleroi Borough
Christiana Borough (Lancaster County)

Claysville Borough
Cleona Borough
Clymer Borough
Coaldale Borough
Cochranton Borough
Cokeburg Borough
Collegetown Borough
Collingdale Borough
Conneautville Borough
Conshohocken Borough
Conway Borough
Cressona Borough
Dalton Borough
Deemston Borough
Delmont Borough
Derry Borough
Dravosburg Borough
Dublin Borough
Duboistown Borough
Duncannon Borough
Duncansville Borough
East Berlin Borough
East Greenville Borough
East Rochester Borough
East Stroudsburg Borough
East Stroudsburg Borough (CB)
East Washington Borough
Emlenton Borough
Emporium Borough
Etna Borough
Everett Borough

Factoryville Borough
Falls Creek Borough
Ferndale Borough
Forest City Borough
Fountain Hill Borough
Fountain Hill Borough (CB)
Franklin Borough
Franklinton Borough
Freeburg Borough
Freedom Borough (Beaver County)
Freeland Borough
Freeport Borough
Greenville Borough
Hollidaysburg Borough
Homer City Borough
Hughestown Borough
Hummelstown Borough
Huntingdon Borough
Hyndman Borough
Jessup Borough
Jim Thorpe Borough
Johnsonburg Borough
Jonestown Borough
Kenhorst Borough
Kennett Square Borough
Kittanning Borough
Knox Borough
Kulpmont Borough
Kutztown Borough
Larksville Borough
Lehighon Borough

¹ County names are in parentheses.

² The abbreviation CB designates a Cash Balance Plan. NU denotes a Non-Uniform plan.

PART 2: MEMBERSHIP

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

Lewistown Borough	New Florence Borough	Shamokin Dam Borough	Wilson Borough
Liberty Borough	New Stanton Borough	Sharpsburg Borough	Windsor Borough
Linesville Borough	Newport Borough	Sharpsville Borough	Yardley Borough
Lykens Borough	Newtown Borough	Shenandoah Borough	Yoe Borough
Marcus Hook Borough	Norristown Borough	Shippingport Borough	York Springs Borough
Mars Borough	North East Borough	Slippery Rock Borough	Youngwood Borough
Martinsburg Borough	North Wales Borough	Smithton Borough	TOWNSHIPS OF THE FIRST CLASS
Marysville Borough	Northumberland Borough	South Waverly Borough	Bristol Township
Matamoras Borough	Orwigsburg Borough	Southmont Borough	Caln Township
Mayfield Borough	Palmerton Borough	Springdale Borough	Collier Township
Mercer Borough	Palmyra Borough	Stewartstown Borough	Crescent Township
Meyersdale Borough	Pen Argyl Borough	Summit Hill Borough	East Deer Township
Middleburg Borough	Pennsburg Borough	Tarentum Borough	Elizabeth Township (Allegheny County)
Midway Borough	Perkasie Borough	Tatamy Borough (CB)	Harrison Township
Millersburg Borough	Pine Grove Borough	Telford Borough	Hopewell Township (Beaver County)
Millerstown Borough	Portage Borough	Thornburg Borough	North Huntingdon Township
Millville Borough	Pringle Borough	Topton Borough	North Versailles Township
Minersville Borough	Prospect Borough	Trafford Borough	Ridley Township
Monaca Borough	Prospect Park Borough	Trainer Borough	Rochester Township
Monroeville Municipality	Richland Borough	Turbotville Borough	Salisbury Township
Mont Alto Borough	Ridley Park Borough	Turtle Creek Borough	Springdale Township
Montrose Borough	Roaring Spring Borough	Verona Borough	Susquehanna Township
Moosic Borough	Rochester Borough	Versailles Borough	Swatara Township
Moosic Borough (CB)	Rouseville Borough	Waterford Borough	Swatara Township (CB)
Morrisville Borough	Rural Valley Borough	Waynesburg Borough	Upper Moreland Township
Moscow Borough	Salisbury Borough	West Grove Borough	Vanport Township
Mount Gretna Borough	Sandy Lake Borough	West Middlesex Borough	West Pottsgrove Township
Mount Jewett Borough	Saxton Borough	West Newton Borough	Whitehall Township
Mount Pleasant Borough	Schuylkill Haven Borough	West Reading Borough	Whitehall Township (CB)
Mount Union Borough	Selinsgrove Borough	Wheatland Borough	Wilkins Township
Nanty Glo Borough	Sellersville Borough	White Haven Borough	
Narberth Borough	Seven Fields Borough	Williamsburg Borough	
Nesquehoning Borough	Seven Fields Borough (CB)	Williamstown Borough	
New Eagle Borough		Wilmerding Borough	

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

TOWNSHIPS OF THE SECOND CLASS

Allegheny Township (Westmoreland County)	Cambridge Township	County) (CB)	County)
Antrim Township	Canal Township	Derry Township (Mifflin County)	Eldred Township (Warren County)
Athens Township	Canton Township	Derry Township (Westmoreland County)	Elizabeth Township (Lancaster County)
Bald Eagle Township	Cass Township	Dickinson Township	Elizabeth Township (Lancaster County) (CB)
Beaver Township	Center Township (Greene County)	Dingman Township	Elk Creek Township
Bedminster Township	Center Township (Indiana County)	Donegal Township (Butler County)	Elk Township
Bell Township	Center Township (Snyder County)	Donegal Township (Washington County)	Fairfield Township
Bethel Township	Centre Township (Berks County)	Donegal Township (Westmoreland County)	Fairview Township
Birmingham Township	Centre Township (Perry County)	Dorrance Township	Falls Township
Black Creek Township	Cherrytree Township	Douglass Township (Montgomery County)	Farmington Township
Blair Township	Chippewa Township	Drumore Township	Forks Township
Bloomfield Township	Clarion Township	East Allen Township	Forks Township (CB)
Blooming Grove Township	Clay Township	East Carroll Township	Forward Township
Boggs Township (Centre County)	Clearfield Township	East Coventry Township	Foster Township
Boggs Township (Clearfield County)	Columbus Township	East Coventry Township (CB)	Franklin Township (Beaver County)
Brecknock Township	Concord Township	East Fallowfield Township	Franklin Township (Butler County)
Brecknock Township (Berks County) (CB)	Conemaugh Township	East Finley Township	Franklin Township (Carbon County)
Briar Creek Township	Conewago Township	East Hanover Township	Franklin Township (Greene County)
Brighton Township	Cook Township	East Huntingdon Township	Frazer Township
Broad Top Township	Coolspring Township	East Manchester Township	Freedom Township
Brokenstraw Township	Cornplanter Township	East Marlborough Township	Freehold Township
Brothersvalley Township	Corydon Township	East Rockhill Township	Frenchcreek Township
Brown Township	Covington Township	East Rockhill Township (CB)	Girard Township
Buckingham Township	Cranberry Township	Eaton Township	Glade Township
Buffalo Township	Cross Creek Township	Eldred Township (Jefferson County)	Greene Township
Burnside Township	Cussewago Township	Eldred Township (Monroe County)	Greenfield Township (Blair County)
Burrell Township	Darlington Township		Greenfield Township (Erie County)
Caernarvon Township	Delaware Township		Greenfield Township
Cambria Township	Derry Township (Dauphin County)		
	Derry Township (Dauphin County)		

PART 2: MEMBERSHIP

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

(Lackawanna County)	Jenner Township	(CB)	North Strabane Township (CB)
Hamilton Township	Jones Township	McKean Township	Nottingham Township
Hamiltonban Township	Keating Township	Mead Township	Oakland Township
Hamlin Township	Kennett Township	Middle Smithfield Township	Oil Creek Township (Crawford County)
Hanover Township (Beaver County)	Lancaster Township (Butler County)	Middlesex Township	Oil Creek Township (Venango County)
Hanover Township (Lehigh County)	Lancaster Township (Lancaster County)	Milford Township (Bucks County)	Old Lycoming Township
Haycock Township	Latimore Township	Milford Township (Pike County)	Oliver Township (Jefferson County)
Hemlock Township	LeBoeuf Township	Millcreek Township	Oliver Township (Mifflin County)
Henderson Township	Lehman Township	Monongahela Township	Orange Township
Hilltown Township	Limestone Township (Clarion County)	Monroe Township (Snyder County)	Paint Township
Hopewell Township (Cumberland County)	Limestone Township (Lycoming County)	Monroe Township (Wyoming County)	Paradise Township
Hopewell Township (Washington County)	Limestone Township (Union County)	Moore Township	Penn Township
Hopewell Township (York County)	Lincoln Township	Morris Township (Greene County)	Pennsbury Township
Horsham Township	Liverpool Township	Morris Township (Tioga County)	Perry Township
Howe Township	London Britain Township	Morris Township (Washington County)	Peters Township
Hunlock Township	London Grove Township	Morris Township (Washington County)	Peters Township (CB)
Huntington Township	London Grove Township (CB)	Mount Joy Township	Pike Township
Huston Township	Lower Mahanoy Township	Mount Pleasant Township	Pine Creek Township
Jackson Township (Greene County)	Lower Towamensing Township	Muncy Creek Township	Pine Grove Township (Schuylkill County)
Jackson Township (Lebanon County)	Lower Towamensing Township (CB)	New Garden Township	Pine Grove Township (Warren County)
Jackson Township (Luzerne County)	Lower Yoder Township	New Sewickley Township	Pittsfield Township
Jackson Township (Snyder County)	Loyalhanna Township	Nockamixon Township	Pleasant Township
Jackson Township (Susquehanna County)	Loyalhanna Township (CB)	North Buffalo Township	Plum Township
Jackson Township (Venango County)	Mahanoy Township	North Coventry Township	Plumcreek Township
Jefferson Township (Washington County)	Mahoning Township	North Franklin Township	Plumstead Township
Jenks Township	Manchester Township	North Newton Township (CB)	Plymouth Township
	Manchester Township	North Sewickley Township	Pocopson Township
		North Strabane Township	Point Township
			Portage Township

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

Porter Township	South Abington Township (CB)	Upper Frederick Township	Township
Preston Township	South Beaver Township	Upper Milford Township	West Caln Township
Price Township	South Bend Township	Upper Nazareth Township	West Carroll Township
Providence Township	South Franklin Township	Valley Township	West Fallowfield Township
Pulaski Township	South Hanover Township	Wallace Township	West Lampeter Township
Pymatuning Township	South Huntingdon Township	Warrington Township	West Pennsboro Township
Raccoon Township	South Manheim Township	Warsaw Township	West Rockhill Township
Rice Township	South Middleton Township	Warwick Township	West Sadsbury Township
Richhill Township	South Pymatuning Township	Washington Township (Berks County)	West Salem Township
Richland Township (Bucks County)	South Strabane Township	Washington Township (Cambria County)	West Wheatfield Township
Richland Township (Venango County)	Southampton Township	Washington Township (Dauphin County)	Westtown Township
Ridgway Township	Southwest Township	Washington Township (Erie County)	Wetmore Township
Rome Township	Spring Creek Township	Washington Township (Fayette County)	White Township
Rose Township	Springfield Township	Washington Township (Greene County)	Whiteley Township
Ross Township	S Stonycreek Township	Washington Township (Jefferson County)	Wiconisco Township
Rutland Township	Sugar Grove Township	Washington Township (Northampton County - CB)	Williams Township
Rye Township	Sullivan Township	Washington Township (Northampton County)	Wilmington Township
Rye Township (Perry County) (CB)	Summit Township	Washington Township (Schuylkill County)	Windsor Township
Salford Township	Tinicum Township	Washington Township (Westmoreland County)	Woodward Township
Scott Township	Towamensing Township	Washington Township (Wyoming County)	Wright Township
Sewickley Township	Tredyffrin Township	Waverly Township	Wrightstown Township
Shade Township	Tunkhannock Township	Wayne Township	Zerbe Township
Sheffield Township	Union Township (Berks County)	West Bradford Township	POLICE
Shippensburg Township	Union Township (Lebanon County)	West Brunswick	Apollo Borough Police
Shrewsbury Township	Union Township (Snyder County)		Ashley Borough Police
Slippery Rock Township	Unity Township		Bally Borough Police
Smithfield Township	Upper Burrell Township		Beaver Meadows Borough Police
Snake Spring Township			Bedminster Township Police
Solebury Township			Bellwood Borough Police
Solebury Township (CB)			Bentleyville Borough Police
South Abington Township			

PART 2: MEMBERSHIP

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

Bentleyville Borough Police (CB)	Covington Township Police	East Washington Borough Police	Hellam Township Police
Big Beaver Borough Police	Crescent Township Police	Elizabeth Township (Allegheny County) Police	Hemlock Township Police
Biglerville Borough Police	Danville Borough Police	Emlenton Borough Police	Hilltown Township Police
Birmingham Township Police	Darlington Township Police	Emporium Borough Police	Honey Brook Borough Police
Blair Township Police	Decatur Township Police	Everett Borough Police	Hummelstown Borough Police
Brecknock Township Police	Delmont Borough Police	Factoryville Borough Police	Independence Township Police
Briar Creek Township Police	Donegal Township Police (Washington County)	Fairview Township Police	Jackson Township Police (Luzerne County)
Bridgewater Borough Police	Douglass Township (Montgomery County) Police	Falls Creek Borough Police	Johnsonburg Borough Police
Buckingham Township Police	Douglass Township Police (Berks County)	Farrell City Police	Kennett Township Police
California Borough Police	Dublin Borough Police	Forest City Borough Police	Knox Borough Police
Cambria Township Police	Duboistown Borough Police	Forward Township Police	Lancaster Township (Butler County) Police
Cambridge Springs Borough Police	Dunbar Borough Police	Franklin Borough Police	Larksville Borough Police
Camp Hill Borough Police	Duncannon Borough Police	Franklin Township Police (Beaver County)	Lewistown Borough Police
Carroll Township Police	Duncansville Borough Police	Frazer Township Police	Liberty Borough Police
Carroll Valley Borough Police	East Bangor Borough Police	Freedom Township Police	Linesville Borough Police
Carrolltown Borough Police	East Berlin Borough Police	Freeland Borough Police	Locust Township Police
Central City Borough Police	East Coventry Township Police	German Township Police	Lower Windsor Township Police
Centre Township (Berks County) Police	East Deer Township Police	Gilpin Township Police	Lykens Borough Police
Clairton Police	East Fallowfield Township Police	Greene County Regional Police	Lower Yoder Township Police
Clymer Borough Police	East Franklin Township Police	Greenfield Township (Blair County) Police	Mahoning Township Police (Lawrence County)
Cochranton Borough Police	East Marlborough Township Police	Greenville Borough Police	Mahoning Township Police (Montour County)
Colebrookdale Township Police	East Pennsboro Township Police	Hamiltonban Township Police	Manor Borough Police
Conneaut Lake Regional Police		Harveys Lake Borough Police	Mars Borough Police
		Heidelberg Township Police	Martinsburg Borough Police
			Marysville Borough Police

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

Maxatawny Township Police	Police	Redstone Township Police	South Waverly Borough Police
Mayfield Borough Police	North Coventry Township Police	Richland Borough Police	South Williamsport Borough Police
Mead Township Police	North Hopewell Township Police	Richland Township Police	Southern Chester County Regional Police Department
Mercer Borough Police	North Huntingdon Township Police	Roaring Brook Township Police	Southern Police Commission
Middleburg Borough Police	North Middleton Township Police	Roaring Spring Borough Police	Springdale Township Police
Middlesex Township Police	North Sewickley Township Police	Rochester Township Police	Summit Hill Borough Police
Millcreek Township Police	Northeastern Regional Police Department	Rye Township Police	Tatamy Borough Police (CB)
Millersburg Borough Police	Northumberland Borough Police	Sadsbury Township Police	Telford Borough Police
Millville Borough Police	Old Lycoming Township Police	Sandy Lake Borough Police	Tinicum Township Police
Montour Township Police	Orangeville Area Police Board	Saxton Borough Police	Tulpehocken Township Police
Moore Township Police	Orwigsburg Borough Police	Schwenksville Borough Police	Tunkhannock Township Police
Moosic Borough Police	Palmyra Borough Police	Scott Township Police	Upper Burrell Township Police
Morris Township Police (Greene County)	Paxtang Borough Police	Scottdale Borough Police	Upper Macungie Township Police
Morrisville Borough Police	Penbrook Borough Police	Selinsgrove Borough Police	Vanport Township Police
Moscow Borough Police	Pennridge Regional Police Dept	Shade Township Police	Versailles Borough Police
Mount Jewett Borough Police	Pequea Township Police	Shamokin Dam Borough Police	Washington Township Police (Fayette County)
Mount Pleasant Borough Police	Perkasie Borough Police	Sheffield Township Police	Washington Township Police (Westmoreland County)
Mount Pleasant Township Police (Washington Co)	Pine Grove Borough Police	Shippingport Borough Police	Waverly Township Police
Mount Union Borough Police	Point Township Police	Shiremanstown Borough Police	West Caln Township Police
New Castle Township Police	Polk Borough Police	Sinking Spring Borough Police	West Fallowfield Township Police
New Garden Township Police	Pulaski Township Police	South Beaver Township Police	West Grove Borough Police
New Wilmington Borough Police	Pymatuning Township Police	South Centre Township Police	
Newport Borough Police	Quarryville Borough Police	South Pymatuning Township Police	
Newtown Borough Police	Red Lion Police		
Nockamixon Township			

PART 2: MEMBERSHIP

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

West Lampeter Township Police	Manchester Township Firefighters	Sewage Authority	Carroll Township Authority
West Middlesex Borough Police	Manchester Township Firefighters (CB)	Bradford City Water Authority	Catawissa Borough Municipal Water Authority
West Newton Borough Police	North Strabane Township Fire	Bradford Regional Airport Authority	Centerville Borough Sanitary Authority
West Pikeland Township Police	North Strabane Township Fire (CB)	Brighton Township Municipal Authority	Central Carbon Municipal Authority
West Pottsgrove Township Police	South Strabane Township Fire	Brighton Township Sewage Authority	Central Indiana County Joint Sanitary Authority
West Sadsbury Township Police	Upper Moreland Firefighters	Brockway Area Sewage Authority	Centre County Library & Historical Museum
West Vincent Township Police	Wilson Borough Firemen	Brockway Borough Municipal Authority	Clarion County Housing Authority
Westfield Borough Police	AUTHORITIES AND OTHER UNITS	Brodhead Creek Regional Authority	Clarion County Housing Authority (CB)
White Haven Borough Police	Allegheny Valley Joint Sewage Authority	Brookville Municipal Authority	Coaldale-Lansford-Summit Hill Sewer Authority
Wiconisco Township Police	Ambridge Borough Municipal Authority	Bucks County Redevelopment Authority	Collier Township Sewer Department
Williamsburg Borough Police	Armstrong Conservation District	Bucks County Water & Sewer Authority	Columbia County Conservation District
Williamstown Borough Police	Avonmore Borough Municipal Authority	Bucks County Water and Sewer Authority (CB)	Connellsville Municipal Authority
Windsor Township Police	B.A.R.T.A.	Burrell Township Sewage Authority	Connellsville Redevelopment Authority
Wrightstown Township Police	Bangor Borough Sewer Department	Butler Area Public Library	Conshohocken Borough Authority
Yardley Borough Police	Bath Borough Authority	Cambria County Conservation & Recreation Authority	Coolspring, Jackson & Lake Latonka Joint Authority
York Area Regional Police Department	Bedford Township Municipal Authority	Cambria County Conservation District	Coplay-Whitehall Sewer Authority
Youngwood Borough Police	Belle Vernon Municipal Authority	Cambria Township Sewer Authority	Cressona Borough Authority
FIREFIGHTERS	Bethlehem Authority	Cambria Township Water Authority	Creswell Heights Joint Authority
Clairton Firefighters	Bethlehem City Redevelopment Authority	Capital Region Water	Cumberland-Franklin Joint Municipal Authority
Farrell City Firefighters	Bethlehem Parking Authority	Carbon County Conservation District	
Greenville Borough Firemen	Blair Township Water and Sewer Authority	Carmichaels-Cumberland Joint Sewer Authority	
Harrisburg Fire	Bloomfield Township		
Larksville Borough Firemen			

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

Curwensville Municipal Authority	Frackville Area Municipal Authority	Indiana County Solid Waste Authority	Lower Bucks County Joint Municipal Authority
Delaware Valley Municipal Management Association	Franklin City Housing Authority	Jackson Township Water Authority	Lower Bucks County Joint Municipal Authority Supervisors
Delaware Valley Municipal Management Association (CB)	Franklin Township Municipal Sanitary Authority	Jefferson Conservation District	Lower Indiana County Municipal Authority
Derry Township Municipal Authority	Franklin Township Sewer Authority	Jefferson County Solid Waste Authority (Jefferson County)	Lower Mahanoy Township Municipal Authority
Derry Township Sanitary Sewer Authority	Frazer Transportation Authority	Jenner Area Joint Sewer Authority	Lower Providence Township Sewer Authority
DuBois City Redevelopment Authority	Fredericksburg Sewer & Water Authority	Johnsonburg Municipal Authority	Luzerne Conservation District
East Berlin Area Joint Authority	Freeland Borough Municipal Authority	Johnstown Redevelopment Authority	Luzerne County Flood Protection Authority
East Norriton-Plymouth-Whitpain Joint Sewer Authority	Glendale Valley Municipal Authority	Juniata County Conservation District	Mahanoy Township Authority
Eastern Snyder County Regional Authority	Greater Lebanon Refuse Authority	Kiskiminetas Township Municipal Authority	Maidencreek Township Authority
Economy Borough Municipal Authority	Greenville Municipal Authority	Kittanning Suburban Joint Water Authority	Manheim Area Water and Sewer Authority
Elizabeth Borough Municipal Authority	Guilford Township Authority	Kulpmont-Marion Heights JMA	Manor Township Joint Municipal Authority
Elizabeth Township Sanitary Authority	Guilford Water Authority	Lancaster City Parking Authority	Mary Meuser Memorial Library
Elizabethville Area Authority	Harrison Township Water Authority	Lansford - Coaldale Joint Water Authority	McKean County Solid Waste Authority
Erie County Housing Authority	Hawley Area Authority	Lebanon City Authority	Mercer County Regional Planning Commission
Everett Area Municipal Authority	Hellertown Borough Authority	Lebanon City Authority (CB)	Mid Mon Valley Water Authority
Fairfield Municipal Authority	Hilltown Township Water & Sewer Authority	Lebanon Community Library	Middlesex Township Municipal Authority
Fawn Township Sewage Authority	Horsham Water and Sewer Authority	Leetsdale Borough Municipal Authority	Middletown Township Sewer Authority
Fawn-Frazer Joint Water Authority	Hughesville-Wolf Township Joint Municipal Authority	Lehigh County Authority	Mifflintown Municipal Authority
Fayette County Conservation District	Hyndman Borough Municipal Authority	Lehigh County Authority	Milford Water Authority
	Indiana County Conservation District	Leighton Water Authority	Millcreek - Richland Joint
		Linesville Pine Joint Municipal Authority	
		London Grove Township Municipal Authority	

PART 2: MEMBERSHIP

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

Authority	COJMA	Penn Township Sewage Authority	Authority
Millersburg Area Authority	Myerstown Community Library Association	Pennridge WasteWater Treatment Authority	Shannock Valley General Services Authority
Mon Valley Sewage Authority	Myerstown Water Authority	Pennsylvania Municipal League	Sharon Sanitary Authority
Monroe County Municipal Waste Management Authority	Nanty Glo Sanitary Sewer Authority	Perkasie Regional Authority	Sheffield Township Municipal Authority
Monroe County Redevelopment Authority	Nanty Glo Water Authority	Peters Creek Sanitary Authority	Slippery Rock Municipal Authority
Montgomery County Sewer Authority	Nesquehoning Borough Authority	Peters Township Municipal Authority	Smithton Borough Municipal Authority
Montour County Conservation District	New Kensington Municipal Sanitary Authority	Pleasant Hills Authority	Snake Spring Township Municipal Authority
Montrose Municipal Authority	New Kensington Redevelopment Authority	Pocono Mountains Municipal Airport Authority (CB)	Snyder County Housing Authority
Moon Township Municipal Authority	Newport Borough Water Authority	Portage Area Sewer Authority	Somerset Conservation District
Mount Jewett Borough Authority	North & South Shenango Joint Municipal Authority	Possum Valley Municipal Authority	South Fayette Township Municipal Authority
Mount Joy Township Authority	North Coventry Municipal Authority	Redevelopment Authority of the City of Corry	South Middleton Township Municipal Authority
Mount Lebanon Parking Authority	North Huntingdon Township Municipal Authority	Reynoldsville Water Authority	Southwestern Pa Water Authority
Mount Pleasant Township Municipal Authority	North Middleton Authority	Riverview Sanitary Authority	St. Marys Area Water Authority
Mount Pocono Municipal Authority	North Strabane Township Municipal Authority	Robesonia-Wernersville Municipal Authority	Stormwater Authority of the City of Chester
Municipal Authority of the Borough of Kittanning	Northampton Borough Municipal Authority	Robinson Township Municipal Authority	Sunbury Municipal Authority
Municipal Authority of the Borough of Kittanning	Northampton Borough Municipal Authority (CB)	Rochester Area Joint Sewer Authority	Swatara Township Authority
Municipal Authority of the Borough of Kittanning	Northern Lancaster County Authority	Rostraver Township Sewer Authority	Tower City Borough Authority
Municipal Authority of the Borough of Morrisville	Oil City Housing Authority	Saxton Borough Municipal Authority	Township of Falls Authority
Municipal Authority of the Borough of Portage Water Department	Parker Area Authority	Seward/St. Clair Township Sanitary Authority	Tri-County Joint Municipal Authority
Municipal Authority of Westmoreland County of	Parker Area Authority (CB)	Shade-Central City Joint	Twin Boroughs Sanitary Authority
	Parks Township Municipal Authority		Upper Allegheny Joint

SCHEDULE OF PARTICIPATING PLANS

As of Jan. 1, 2020

Sanitary Authority	Municipal Authority
Upper Montgomery Joint Authority	Western Westmoreland Municipal Authority (CB)
Upper Southampton Municipal Authority	Westmoreland-Fayette Municipal Sewage Authority
Vanport Township Municipal Authority	White Run Regional Municipal Authority
Vernon Township Sanitary Authority	Whitehall Township Authority
Vernon Township Water Authority	Williamstown Borough Authority
Warren County Housing Authority	Womelsdorf-Robeson Joint Authority
Warren County Solid Waste Authority	Wyoming Valley Sanitary Authority
Warwick Township Municipal Authority	York County Planning Commission
Washington Township Municipal Authority (Berks County)	
Washington Township Municipal Authority (Fayette County)	
Waterford Borough Municipal Authority	
Wayne County Redevelopment Authority	
Wayne Library Authority	
Wernersville Municipal Authority	
West Carroll Water Authority	
West Hanover Township Water & Sewer Authority (CB)	
Western Butler County Authority	
Western Clinton County Municipal Authority	
Western Westmoreland	





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