



2022 Annual Comprehensive Financial Report

Pennsylvania Municipal Retirement System
Commonwealth of Pennsylvania

Fiscal years ended December 31, 2022 and 2021

2022

PENNSYLVANIA

MUNICIPAL RETIREMENT SYSTEM

ANNUAL COMPREHENSIVE FINANCIAL REPORT

Fiscal years ending December 31, 2022 and 2021

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

1721 NORTH FRONT STREET



pennsylvania

MUNICIPAL RETIREMENT SYSTEM

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Introduction

Chairman's Report



January 31, 2024

Dear PMRS Participants,

On behalf of the Pennsylvania Municipal Retirement System (PMRS) and the Board of Trustees, I am pleased to present the Annual Comprehensive Financial Report, for the years ended December 31, 2022, and 2021. This report details PMRS' financial performance as of December 31, 2022.

As the largest single administrator of Pennsylvania local government retirement plans, PMRS administers more than 1,060 pension plans, and serves more than 18,000 members and beneficiaries.

We are committed to protecting the assets of Pennsylvania's local government employees to provide them with a secure retirement. Our investments are managed through a broad diversification of asset classes with a focus on long-term growth. Despite the unfavorable global economic environment at the end of 2022, PMRS held \$3.02 billion in assets and was more than 100% funded, maintaining our position as one of the few fully funded public pensions in the nation.

The PMRS leadership team developed a comprehensive strategic plan, that focuses on empowering our members, improving the employer experience, optimizing our investment management, innovation, inclusiveness, and transparency. These priorities help PMRS' staff engage better with our participants, providing them with the tools and resources to help them make informed decisions regarding their retirement pension plan.

PMRS remains committed to enhancing our operations by prioritizing projects and streamlining our workflow. Additionally, we continue to enhance our software system to better serve our participants. In 2022, we took steps to improve case management workflow, improve calculation functions, and develop automated communications for our members.

In closing, I would like to thank the PMRS Board of Trustees, executive leadership, and staff for their commitment to serving our employers and members in administering sound retirement pensions for nearly 50 years. Additionally, I would like to thank our members for their service to their communities and our commonwealth and their continued support for PMRS. As always, we value your feedback and ask that you contact us with your questions and comments.

Sincerely,

A handwritten signature in black ink that reads "Barry L. Sherman". The signature is written in a cursive style with a long, sweeping underline.

Barry L. Sherman

PMRS Board Chairman

PMRS Board of Trustees

as of December 31, 2022



**Barry Sherman,
Chair**

*Represents retired
members enrolled in
PMRS*



**Cory S. Adams,
Vice Chair**

*Represents PA State
Association of
Township Commissioners*



**Stacy Garrity
State Treasurer
(ex-officio)**



**Veronica
Degraffenreid**

*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

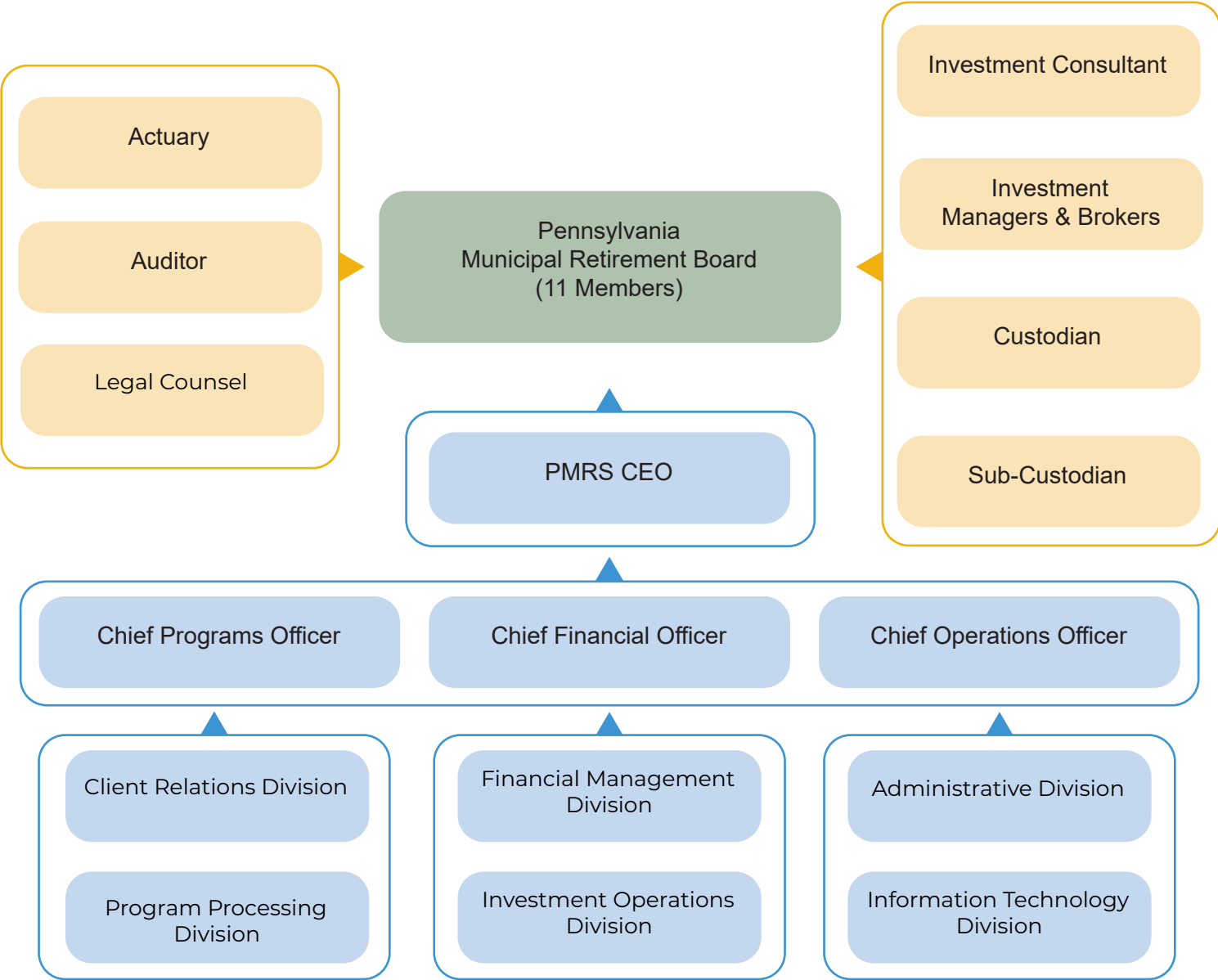
*Represents
Pennsylvania
State Association
of Township
Commissioners*



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

as of December 31, 2022

Executive Staff

Timothy A. Reese,
Chief Executive Officer

Richard Cardamone, CPA, CGMA
Chief Financial Officer

Sean Christine,
Interim Chief Programs Officer

Vacant,
Chief Operations Officer

Pennsylvania Municipal Retirement System (PMRS)
1721 North Front Street
Harrisburg, Pennsylvania 17102-2315

Mailing Address
P.O. Box 1165
Harrisburg, Pennsylvania 17108-1165

www.pMrs.pa.gov

Consultants and Managers

Professional Consultants

Actuary

Cheiron, McLean, VA
Karen Zangara, FSA, MAAA, EA, Principal Consulting Actuary

Auditor

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

Investment Consultant

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

Custodian - PA State Treasury office

BNY Mellon, Pittsburgh, PA
Stephen Cordo, Relationship Manager

Investment Managers

Ares Management, Chicago, IL
William Lee, Principal, Relationship Management

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

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

MFS Institutional Advisors, Boston, MA
Peggy Donahue, Client Service Manager

Northern Trust Asset Management, Chicago, IL
Ashley Alson, Director, Public Funds & Taft Hartley Asset Management

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

PGIM Real Estate, Madison, NJ
Jackie Brady, Executive Director

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

RhumbLine Advisers, Boston, MA
Denise D'Entremont, Chief Executive Officer, General Partner

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

State Street Global Advisors, Boston, MA
Michael Barnes, Assistant Vice President

Xponance, Inc., Philadelphia, PA
Clarissa Parker, Vice President - Client Services & Consulting Relations

Letter of Transmittal

January 31, 2024

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, 2022 and 2021. 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.pmrs.pa.gov).

PMRS Overview

PMRS is an agent multiple-employer system, headquartered in Harrisburg, Pennsylvania. It is a state-affiliated agency created by an 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 System 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, pending board approval. The Statistical Section of this report lists all participating plans as of December 31, 2022.

PMRS offers two types of retirement plans: defined benefit (traditional pension) and cash balance; either plan can be used alone or in combination with the 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

In 2022, the investment markets experienced a variety of trends and challenges from ongoing global economic uncertainty. The globe was still healing from the COVID-19 pandemic that brought disruptions to supply chains, while Europe experienced the largest displacement of people since World War II when Russia invaded Ukraine. These contributed to a surge in inflation that had elevated to a 40-year high. Despite these challenges, the U.S. job market saw record-high job openings and low unemployment rates. In response to the inflationary pressures, the Federal Reserve raised rates by the largest increase in a single year since 1994.

The first quarter of 2022 saw the Russian invasion of Ukraine, the "zero-COVID" policy in China, and rising



inflation in the U.S. and Europe. Increased inflation triggered a shift in the Federal Reserve's outlook and set the stage for a reduction of the Federal Reserve's balance sheet and interest rate hikes. U.S. economic activity plunged in the first quarter, with real Gross Domestic Product (GDP) declining by 1.4%. In Europe, consumer confidence collapsed with the invasion of Ukraine and spiking energy costs. The latter caused the European Central bank to consider interest rate hikes. In China, economic growth remained subdued due to their "zero-COVID policy."

With all the uncertainty in the first quarter, all sectors, except for commodities, saw losses during the quarter.

Increased inflationary pressure and spiking energy costs led commodities to outperform all sectors by a very large margin. Emerging Market Bonds, International Bonds, and Emerging Market equities were the worst-performing sectors. The first quarter net rate of return for the PMRS portfolio was (4.1)%.

The economy entered a technical recession in the second quarter as GDP contracted by 0.9%. The Federal Reserve increased interest rates by 1.5% in the second quarter to a rate of 1.5% to 1.75%. Inflation continued to rise to a multi-decade high, reaching 9.1% over the prior year through June. In Europe, similar dynamics were happening and putting pressure on European economies.

All sectors had negative performance in the 2nd quarter with equities lagging the most. Even bonds were not protected from the market sell-off and experienced the worst first half of the year since the mid-1970s. The PMRS portfolio saw a net rate of return of (9.6)% and a year-to-date net rate of return of (13.3)%.

The third quarter saw a variety of conflicting economic indicators. The economy rebounded with GDP growth of 2.6% and the labor market continued to skirt a recession with continued strong job growth. However, there was a continued contraction in the residential market as housing affordability reached its lowest level since 1989. The economy continued to provide mixed signals as many were anticipating an economic recession. The Federal Reserve remained steadfast in its commitment to bring inflation down and in line with its target of 2%. The Federal Reserve raised interest rates by 1.5% in the quarter, increasing the rates to 3.00% to 3.25%. In Europe, the central banks were experiencing similar challenges and chose to hike rates as well.

All sectors in the portfolio continued to retract in the third quarter, except for bank loans which saw a slight increase. Equities and bonds continued to see lagging performance with international markets losing the most. The third quarter net rate of return for the PMRS portfolio was (4.8)% for the quarter and year-to-date performance (17.5)%.

The global economy improved in the fourth quarter due to lower pressure on energy costs as Europe experienced a milder winter and China reported stronger-than-expected economic data. Despite the uncertain outlook, the Federal Reserve remained committed to bringing inflation down and raised interest rates another 1.25% in the quarter, increasing the rates to 4.25% to 4.50%.

Global investment markets reversed course and increased across the board with varied levels of performance. Equity markets rallied with non-U.S. equities and global equities outperforming U.S. equities. Fixed income also performed well in the fourth quarter with a positive return. Real assets were the only category to have negative returns in the fourth quarter. The fourth quarter net rate of return for the PMRS portfolio was 5.6% and ended with a year-to-date net rate of return of (12.8)%.

Financial Information

PMRS' financial statements were prepared in accordance with generally accepted accounting principles in 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 17 and the Management's Discussion and Analysis commences on page 21.

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

trade date. Significant accounting policies are detailed in the Financial Section under Notes to Financial Statements. PMRS' net position was \$3.02 billion at December 31, 2022. PMRS' net position decreased by \$509.2 million or (14.4)% from \$3.53 billion at December 31, 2021. Net investment gain (loss) decreased the net position by \$(448.6) million. Contributions increased the net position by \$91.5 million. Transfers from other plans increased net position by \$2.1 million. Benefit payments, plan withdrawals, and administrative expenses reduced the net position by \$154.1 million. Additional information is detailed in the Financial Section ("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. PMRS staff prepares a yearly budget which must be adopted by the board. In addition, the budget is presented to and reviewed by the local government committees of the Pennsylvania legislature at least two months before 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 reviews and presentations by management with quarterly board reviews. The 2022 administrative budget was adopted in September 2021 and set at \$12.6 million, exclusive of investment fees. Administrative expenses, exclusive of investment fees, in 2022 amounted to \$8.5 million. More information on PMRS' expenses is included in the Financial Section of this report (Supplementary Schedule 1 – Administrative Expenses located on page 51).

Additions to 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, 2022, and shows the amount and percentage of increases and decreases compared to the prior year ended December 31, 2021.

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.

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

Contributions increased by \$2.4 million or 2.6% from \$91.1 million in 2021 to \$93.6 million in 2022. Most of the increase is due to an increase in contributions by members.

SUMMARY OF ADDITIONS TO FIDUCIARY NET POSITION for the Years December 31, 2022 and 2021 (amounts in thousands)

Additions to Fiduciary Net Position	2022	Percentage of Total	2021	Dollar Increase (Decrease)	Percentage Increase (Decrease)
Contributions ¹	\$93,554	-26.3%	\$91,142	\$2,412	2.6%
Net investment income (loss)	(448,614)	126.3%	417,791	(866,405)	-207.4%
Total	\$(355,060)	100.0%	\$508,933	\$(863,993)	-169.8%

¹Contributions included additional municipal employer contributions towards unfunded liability of \$1.3 million in 2022 and \$2.1 million in 2021, transfer from other plan administrator of \$2.1 million in 2022 and \$1.9 million in 2021 and transfers in lieu of contributions of \$318 thousand in 2022 and \$261 thousand in 2021.

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, new plans being added, or existing plans withdrawing from PMRS.

Net investment income (loss) is a combination of appreciation (depreciation) of fair value and earnings from equities, real assets, fixed income, and a short-term cash management fund, less investment expenses. The fair value of PMRS' investment portfolio decreased from \$3.539 billion at December 31, 2021 to \$3.028 billion

at December 31, 2022. Net investment income was \$(448.61) million in 2022 compared to \$417.79 million in 2021. Investment income (loss) is primarily attributable to appreciation (depreciation) in fair values in the equity markets.

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 schedule below presents a summary of PMRS' deductions from the fiduciary net position for the year ended December 31, 2022 and shows the amount and percentage of increases or decreases in relation to the prior year ended December 31, 2021. The major deductions for 2022 were annuity benefits and terminations, which increased by \$7.5 million from \$136.8 million in 2021 to \$144.3 million in 2022.

SUMMARY OF DEDUCTIONS FROM FIDUCIARY NET POSITION

for the Years December 31, 2022 and 2021
(amounts in thousands)

Deductions to Fiduciary Net Position	2022	Percentage of Total	2021	Dollar Increase (Decrease)	Percentage Increase (Decrease)
Annuity benefits and terminations	\$144,255	93%	\$136,781	\$7,474	5.5%
Transfers to other plan administrators	1,364	1%	1,523	(159)	-10.4%
Administrative expenses	8,493	6%	8,737	(244)	-2.8%
	\$154,112	100%	\$147,041	\$7,071	4.8%

A breakdown of PMRS' deductions from the 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, 2022, the net rate of return for the PMRS' total portfolio was (12.8)%, ranking in the 36th percentile of the Investment Metrics (IM) Public DB Net Return Universe. For the five years that ended December 31, 2022, the net rate of return was 5.3%, ranking in the top 35th percentile. Since its inception in December 1985, the net rate of return for the PMRS' total portfolio was 8.3%. The net rate of return by asset class for the year ended December 31, 2022 and the allocation of assets in the portfolio as of December 31, 2022 are as follows: U.S. equity returned (18.7)% (30.2% of the portfolio); global equity returned (12.8)% (4.9% of the portfolio); non-U.S. equity returned (16.4)% (17.2 of the portfolio%); real assets returned 5.2% (18.8 of the portfolio%); and fixed income returned (13.6)% (27.6% of the portfolio). On December 31, 2022, the allocation of assets in the portfolio for cash equivalents was 1.3%.

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 decreased by \$509.2 million or (14.4)% from \$3.529 billion at December 31, 2021 to \$3.02 billion at December 31, 2022. The "Funded Status of Actuarial Liabilities" was calculated based on the most recent actuarial valuation dated January 1, 2022. The Actuarial Value of Assets funded ratio increased from 99.9% at January 1, 2021 to 100.2% as of the last valuation date of January 1, 2022. As a result, PMRS went from an unfunded actuarial liability of \$3.9 million as of January 1, 2021, to a surplus of \$7.1 million as of January 1, 2022. The increase in the funded ratio is primarily due to changes in the demographics of members. 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 on PMRS' aggregate plan funding can be found in the Actuarial Section of this report beginning on page 64.

Major Initiatives

Plan Administration Software Project

When this software enhancement began in early 2016, it was estimated to be an 18 to 24-month project. The time frame to fully implement the software stretched far beyond the original estimate and is still ongoing. The first phase, which started the use of the enhanced software for the daily administration of the PMRS retirement plan program, began in January 2020. The second phase, which began in 2021, improved the administrative functionality of the enhanced software. This phase included correcting conversion issues, expanding plans' provision options, improving calculation functions, creating a case management workflow, and developing automated communications for members. The second phase was ongoing through 2022 and is expected to be completed in 2024. Phase three will focus on the implementation of the plan sponsor portal and automating the transfer of financial data to the accounting system. This phase will start to on-board employers with online access and training to upload most information currently submitted by paper. This includes employee salary, contributions, and employment status. System requirements are planned to be developed in late 2023 and evaluation of solutions and proof of concepts are planned for 2024. Automation of financial data, expected to occur in late 2024, will improve the accuracy and timeliness and eliminate manual downloads and uploads between the systems. The final phase will implement a member portal that enables members to change personal information, such as addresses, banking information, and beneficiaries online. The final phase timeline is yet to be determined as it is dependent on the successful completion of the earlier phases.

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. Efforts related to the final phase of this project have been ongoing. The final phase includes the automated transfer of general ledger data from the pension administration system to the accounting system. Throughout 2022, the agency prioritized further improving the pension administration system before turning on the automated transfer of data to the accounting software. These efforts are expected to continue through at least 2024. Implementation of additional modules will be delayed until the automation is complete.

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 PMRS staff have laptop devices enabling PMRS to operate from any internet-available location for an unlimited period.

Professional Services

Professional consultants are appointed by the board to perform services essential to the efficient operations of PMRS. An annual financial statement audit performed by an independent certified public accounting firm, an annual System and Organization Controls (SOC) 1 Type II audit performed by an independent certified public accounting firm, and an annual valuation by an actuarial consultant attests to the financial and actuarial soundness of PMRS. The investment performance of the portfolio is reviewed by an investment consultant every quarter. 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 ending

December 31, 2018. However, the extended software implementation issues exceeded the ability of PMRS to submit for the award. As with the 2019, 2020, and 2021 reports, we will not be submitting this report to the GFOA for the 2022 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 the system's assets.

Respectfully submitted,



Timothy A. Reese
Chief Executive Officer



Richard M. Cardamone, CPA, CGMA
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

Most 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 by a job-related activity is classified as a service-connected disability. A disability that is not caused by job activity is termed a non-service 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 include:

- 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 the account to a 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 that is a member of PMRS, the employee may transfer the service credits unimpaired to the new municipal employer.



Financial

Independent Auditor's Report



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 Audit of the Financial Statements

Opinion

We have audited the financial statements of the Pennsylvania Municipal Retirement System (the "System"), as of and for the years ended December 31, 2022 and 2021, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the respective financial position of the System, as of December 31, 2022 and 2021, and the respective changes in financial position for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the System and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management for the Financial Statements

The System's management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for 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.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

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Pennsylvania Municipal Retirement Board
Pennsylvania Municipal Retirement System
Harrisburg, Pennsylvania

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit 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 System's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control–related matters that we identified during the audit.

Adoption of Governmental Accounting Standards Board Pronouncements

As described in Note 1 to the financial statements, in 2022 the System adopted the provisions of Governmental Accounting Standards Board's Statement No. 87, "Leases", Statement No. 92, "Omnibus 2020", and Statement No. 96, "Subscription Based Information Technology Arrangements". Our opinion is not modified with respect to these 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 contributions, as listed in the table of contents, be presented to supplement the financial statements. Such information is the responsibility of management and, 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.

Supplementary Information

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



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Pennsylvania Municipal Retirement System
Harrisburg, Pennsylvania

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.

Other Information

Management is responsible for the other information in the annual comprehensive financial report. The other information comprises the introduction, investment, actuarial, and statistical sections, but does not include the financial statements and our auditor's report thereon. Our opinion on the financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon. In connection with our audit of the financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Zelenkofske Axelrod LLC

ZELENKOFKSKE AXELROD LLC

Harrisburg, Pennsylvania
January 31, 2024

Management's Discussion & Analysis

This section presents management's discussion and analysis of PMRS' financial performance for the years ended December 31, 2022, 2021, and 2020. 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 governments. Our services include accounting, 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 pending board approval. The Statistical Section of this report lists all participating plans as of December 31, 2022.

The Statement of Fiduciary Net Position provides a snapshot of the financial position of PMRS at December 31, 2022, including comparative amounts for the prior year. The Statement of Changes in Fiduciary Net Position summarizes PMRS' financial activities for the year ended December 31, 2022, including comparative amounts for the prior year.

The Notes to Financial Statements provide additional information 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 benefits (OPEB) liability.

The remaining supplementary schedules provide additional detailed information concerning 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 decreased by \$509.2 million or by 14.4% from \$3.53 billion at December 31, 2021, to \$3.02 billion at December 31, 2022. PMRS' net position increased by \$361.9 million or by 11.4% from \$3.167 billion at December 31, 2020, to \$3.53 billion at December 31, 2021. 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 was 100.2% as of the last valuation dated January 1, 2022. This was an increase from 99.9% on January 1, 2021 and a decrease from 101.2% on January 1, 2020. PMRS went from a \$30.4 million surplus on an Actuarial Value of Assets basis on January 1, 2020, to an unfunded actuarial liability of \$3.9 million on January 1, 2021, to a surplus of \$7.1 million on January 1, 2022.
- The market value of assets funded ration was 120.7% as of the last valuation date of January 1, 2022. This was an increase from 111.9% on January 1, 2021 and 107.3% on January 1, 2020. The surplus had increased from \$190.6 million on January 1, 2020 to \$335.4 million on January 1, 2021 to \$605.8 million on January 1, 2022. The changes were primarily due to equity market gains.
- The market value of assets exceeded the reserves as of January 1, 2021 by \$339.3 million. As of January 1, 2022, the surplus had grown by \$259.3 million with the market value of assets exceeding the reserves by \$598.6 million. Upon publication of the 2021 Annual Comprehensive Financial Report, the actuary presented the calculations defined in Board Policy Statement 05-2 related to excess interest to the board for evaluation. The board declined the distribution of excess interest in 2021.
- The portfolio net rate of return for the year ended December 31, 2022 was (12.8)% compared to 13.2% and 14.6% for the years ended December 31, 2021 and 2020, respectively.
- Contributions increased by \$2.4 million or 2.6% from \$91.1 million in 2021 to \$93.6 million in 2022 representing a slight increase from the prior year due to increased contributions by members. Contributions decreased by \$25.5 million or 21.9% from \$116.6 million in 2020 to \$91.1 million in 2021 representing a contraction from the prior year due to fewer transfers from other plan administrators.
- Annuity benefits and terminations increased \$7.5 million or 5.5% from \$136.8 million in 2021 to \$144.3 million in 2022. Annuity benefits and terminations increased \$12.2 million or 9.8% from \$124.6 million in 2020 to \$136.8 million in 2021. The fluctuations in annuity benefits and terminations from 2020 to 2021 and again in 2021 to 2022 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 decreased from \$1.7 million in 2020 to \$1.5 million in 2021 and decreased slightly to \$1.4 million in 2022 due to fewer plan withdrawals. Transfers from other plan administrators decreased from \$31.9 million in 2020 to \$1.9 million in 2021 and increased slightly to \$2 million in 2022. This is due to new plan admissions.
- Administrative expenses decreased by \$244 thousand or (2.8)% in 2022 from \$8.7 million in 2021 to \$8.5 million in 2022 primarily due to savings from vacant positions in 2022. Administrative expenses increased by \$2.4 million or 38.1% in 2021 from \$6.3 million in 2020 to \$8.7 million in 2021 primarily due to increases in professional services in 2021. Administrative expenses were within PMRS' budgeted amounts for all three years.

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 municipal (i.e., non-county) defined benefit plans are explicitly valued every odd year and are based on the January 1, 2021 actuarial liabilities. The liabilities for the cash balance plans are based on the member and municipal account balances as of December 31, 2021, as provided by PMRS, as well as the explicit liabilities associated with retirees for these plans. The county plans are explicitly valued every even calendar year and are based on the January 1, 2022 actuarial liabilities.

In the off-valuation year, defined benefit plan liabilities are rolled forward using actual benefit payments and reflecting new retirements. These liabilities reflect any material changes that may have occurred since the prior actuarial valuation, such as new actuarial assumptions and material plan provision changes. The rolled forward active and deferred vested liabilities are proportionally adjusted based on the prior year's liabilities net of in-pay status liabilities.

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 100.2% funded as of January 1, 2022.

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 system.

Certain prior year amounts were reclassified to conform to the current presentation.

For the year ended December 31, 2022, the PMRS' net rate of return was (12.8)%. The net rate of return over the past three and five years ended December 31, 2022 was 4.1% and 5.3%, respectively.

Short Term

Short-term investments increased by \$4 million or 11.4% from \$34.3 million at December 31, 2021 to \$38.2 million at December 31, 2022. Short-term investments decreased by \$46.8 million or 57.7% from \$81.1 million at December 31, 2020 to \$34.3 million at December 31, 2021. The annual fluctuations represent the normal cash flow necessary to meet operating expenses.

Fixed Income

Fixed income increased by \$9 million or 1.1% from \$825.1 million at December 31, 2021 to \$834.4 million at December 31, 2022. Fixed income increased by \$425.2 million or 106.3% from \$399.9 million at December 31, 2020 to \$825.1 million at December 31, 2021. The increase is due to a change in asset allocations and re-balancing of the portfolio.

Equities

Equities, including global and international equities, decreased by \$543.4 million or (25.5)% from \$2.13 billion at December 31, 2021, to \$1.59 billion at December 31, 2022, primarily due to a decrease in fair value. Equities, including global and international equities, decreased by \$73 million or 3.4% from \$2.2 billion at December 31, 2020, to \$2.13 billion at December 31, 2021, primarily due to a change in asset allocations and re-balancing of the portfolio.

Real Assets

Real assets increased by \$19.6 million or 3.6% from \$550.6 million at December 31, 2021, to \$570.2 million at December 31, 2022, primarily due to changes in fair value. Real assets increased by \$54.5 million or 11% from \$496.1 million at December 31, 2020, to



\$550.6 million at December 31, 2021, primarily due to changes in fair value.

Contributions and Investment Income

Total contributions increased by \$2.4 million or 2.6% from \$91.1 million at December 31, 2021 to \$93.6 million at December 31, 2022. Most of the increase in total contributions is due to increased member contributions. Total contributions decreased by \$25.5 million or 21.9% from \$116.6 million at December 31, 2020 to \$91.1 million at December 31, 2021. Most of the decrease in total contributions is due to fewer transfers from other plan administrators.

Member contributions increased by \$2.1 million or 7.5% from \$26.6 million at December 31, 2021 to \$28.6 million at December 31, 2022. The increase in contributions is due to an increase in both required and optional member contributions. Member contributions increased by \$1.4 million or 5.5% from \$25.2 million at December 31, 2020 to \$26.6 million at December 31, 2021. Additional contributions in 2021 included transfers from other plan administrators of \$1.9 million.

Net investment income was \$(448.6) million in 2022, compared to net investment income of \$417.8 million in 2021, compared to net investment income of \$390.6 million in 2020. Investment income (loss) is primarily attributable to appreciation (depreciation) in fair values in the equity markets.

Investment expenses decreased by \$3.5 million or (26.7)% from \$12.7 million in 2021 to \$9.3 million in 2022. Fluctuations in the fair market value of assets and lower investment management fees account for the annual differences in investment expenses. Investment expenses were \$11.7 million in 2020. 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 refunds were \$144.3 million in 2022 compared to \$136.8 million in 2021 and \$124.6 million in 2020. 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 \$127.2 million in 2022 compared to \$119.5 million in 2021 and \$111.6 million in 2020.

Transfers from other plan administrators increased by \$100 thousand in 2022 to \$2 million compared to \$1.9 million in 2021 and \$31.9 million in 2020. The fluctuations were based on new plan admissions. Transfers to other plan administrators decreased in 2022 to \$1.4 million compared to \$1.5 million in 2021 and \$1.7 million in 2020 due to fluctuations in plan withdrawals.

Administrative expenses were \$8.5 million in 2022 compared to \$8.7 million in 2021 and \$6.3 million in 2020.

Financial Contact

PMRS' financial statements are designed to present users with a general overview of PMRS' finances and to demonstrate the trustees' 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

SUMMARY OF FIDUCIARY NET POSITION

as of December 31, 2022, 2021, and 2020
(amounts in thousands)

Analysis Of Fiduciary Net Position	2022	2021	2020
Assets			
Receivables	\$8,908	\$6,769	\$6,678
Investments	3,028,223	3,538,717	3,178,825
Capital assets	61	75	252
Prepaid assets	72	73	70
	<u>3,037,264</u>	<u>3,545,634</u>	<u>3,185,825</u>
Total assets	3,037,264	3,545,634	3,185,825
Deferred outflows of resources	5,149	3,565	2,048
Liabilities	19,052	17,076	17,966
Deferred inflows of resources	3,940	3,531	3,208
	<u>3,019,421</u>	<u>3,528,592</u>	<u>3,166,699</u>
Fiduciary net position	3,019,421	3,528,592	3,166,699

INVESTMENT BALANCES BY ASSET CLASS

as of December 31, 2022, 2021, and 2020
(amounts in thousands)

Asset Class	2022	Percentage of Portfolio	2021	Percentage of Portfolio	2020	Percentage of Portfolio
Short-Term Investments	\$38,246	1.3%	\$34,274	1.0%	\$81,079	2.6%
Fixed Income	239,996	7.9%	-	0.0%	-	0.0%
Common and Preferred Stock	587,185	19.4%	906,787	25.6%	1,365,389	43.0%
Real Assets	570,203	18.8%	550,591	15.5%	496,099	15.6%
Collective Trust Funds	1,592,573	52.6%	2,047,065	57.9%	1,236,258	38.8%
Other Investments	20	0.0%	-	0.0%	-	0.0%
	<u>\$3,028,223</u>	<u>100%</u>	<u>\$3,538,717</u>	<u>100.0%</u>	<u>\$3,178,825</u>	<u>100.0%</u>
Total investments	\$3,028,223	100%	\$3,538,717	100.0%	\$3,178,825	100.0%

SUMMARY OF CHANGES IN FIDUCIARY NET POSITION

as of December 31, 2022, 2021, and 2020

(amounts in thousands)

	2022	2021	2020
Additions			
Contributions	\$93,554	\$91,142	\$116,633
Net investment income (loss)	(448,614)	417,790	390,647
Miscellaneous income	1	1	(4)
Total additions	<u>\$(355,059)</u>	<u>\$508,933</u>	<u>\$507,276</u>
Deductions			
Annuity benefits and terminations	144,254	136,781	124,613
Transfers to other plan administrators	1,364	1,524	1,730
Administrative expenses	8,494	8,737	6,302
Total deductions	<u>\$154,112</u>	<u>\$147,041</u>	<u>\$132,645</u>
Changes in fiduciary net position	<u>\$(509,171)</u>	<u>\$361,892</u>	<u>\$374,631</u>

STATEMENT OF FIDUCIARY NET POSITION

as of December 31, 2022 and 2021

	2022	2021
Assets		
Receivables		
Plan members	\$2,257,854	\$2,585,102
Municipal employers	2,215,298	2,138,419
Accrued investment income	4,265,803	1,922,372
Investment sales receivable	152,147	106,502
Other receivable	16,720	16,720
Total receivables	8,907,822	6,769,115
Investments, at fair value		
Short-term investments	38,245,905	34,274,424
Fixed income	239,995,761	-
Common and preferred stock	587,185,359	906,786,569
Real assets	570,202,775	550,590,839
Collective trust funds	1,592,573,378	2,047,065,282
Other investments	20,081	-
Total investments	3,028,223,259	3,538,717,114
Capital assets (net of accumulated depreciation Of \$143,552 and \$129,215 at 2022 and 2021 respectively)	61,113	75,450
Prepaid assets	71,747	72,680
Total assets	3,037,263,941	3,545,634,359
Deferred outflows of resources	5,148,860	3,565,112
Liabilities		
Accounts payable and accrued expenses	6,027,190	7,424,447
Net pension liability	4,470,553	5,230,891
Net other post employment benefit obligation liability	4,920,000	3,866,000
Investment purchases payable	3,633,778	554,364
Total liabilities	19,051,521	17,075,702
Deferred inflows of resources	3,940,392	3,531,838
Net position restricted for pensions	\$3,019,420,888	\$3,528,591,931

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

STATEMENT OF CHANGES IN FIDUCIARY NET POSITION
for the years ended December 31, 2022 and 2021

	2022	2021
Additions		
Contributions		
Municipal employers	\$62,605,935	\$62,402,530
Plan members	28,623,819	26,573,783
Transfers from other plan administrators	2,055,359	1,913,932
Assessments	269,269	251,945
Total contributions	93,554,382	91,142,190
Investment income		
From investing activities:		
Net appreciation (depreciation) in fair value of investments	(482,565,000)	387,430,358
Interest	4,696,298	44,981
Dividends	15,841,966	20,532,904
Real estate	22,664,213	22,506,647
Total investment income (loss)	(439,362,523)	430,514,890
Investment expenses	(9,251,859)	(12,724,633)
Total net investment income (loss)	(448,614,382)	417,790,257
Miscellaneous income	945	1,157
Total additions	(355,059,055)	508,933,604
Deductions		
Annuity benefits and terminations	144,254,364	136,780,814
Transfers to other plan administrators	1,364,225	1,523,515
Administrative expenses	8,493,399	8,737,063
Total deductions	154,111,988	147,041,392
Net increase (decrease)	(509,171,043)	361,892,212
Net position restricted for pensions		
Balance, beginning of year	3,528,591,931	3,166,699,719
Balance, end of year	\$3,019,420,888	\$3,528,591,931

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 System Board. Under the Act, each municipality has the 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 a contractual agreement. The following tables reflect municipal membership and individual membership as of January 1, 2022 and 2021.

INDIVIDUAL MEMBERSHIP

	2022	2021
ACTIVE MEMBERS		
DEFINED BENEFIT PLANS		
Municipal	6,917	6,829
Police	919	898
Firefighters	133	133
Total active	7,969	7,860
CASH BALANCE PLANS		
Municipal	1,605	1,446
Police	30	26
Firefighters	15	14
Total active	1,650	1,486
Total active members	9,619	9,346
RETIREES AND BENEFICIARIES		
Retirees	6,295	6,050
Beneficiaries	708	694
Total retirees and beneficiaries	7,003	6,744
INACTIVE PARTICIPANTS WITH RIGHTS TO DEFERRED PENSION (VESTED)		
Defined benefit	957	933
Cash balance	386	351
Total vested	1,343	1,284
Defined benefit	38	29
Cash balance	2	18
Total non-vested	40	47
TOTAL INDIVIDUAL MEMBERSHIPS	18,005	17,421

PARTICIPATING LOCAL GOVERNMENT EMPLOYERS

as of December 31, 2022 and 2021

Employer Type	2022		2021	
	Defined Benefit	Cash Balance	Defined Benefit	Cash Balance
County	4	1	4	1
City	18	0	18	0
Borough	146	65	146	64
Township of the first class	19	4	19	4
Township of the second class	168	160	167	158
Authority and other units	167	83	168	80
Police	190	19	192	18
Firefighters	10	3	10	2
Total	722	335	724	327

Pension Benefits

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

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.

Capital Assets

Capital assets consist of office furniture and equipment, software, and leasehold improvements. All assets with a purchased cost exceeding \$5,000 and an estimated useful life of more than one year are capitalized. Normal repair and maintenance expenses are not capitalized because they neither add value to the property nor materially prolong its useful life. Capital assets are recorded at cost and depreciated using the straight-line method over the following useful lives:

	Useful Life in Years
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 5 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.

Post-Employment Benefits Other Than Pensions

PMRS participates in the commonwealth's Retired Employee Health Program. For purposes of measuring the Other Post-Employment Benefits (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 6 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 who 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, 2022 and 2021, \$461,386 and \$472,688, 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 address this IRS initiative.

New Accounting Adopted Pronouncements

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 No. 95 are effective for financial statements for fiscal years beginning after June 15, 2021, and all reporting periods thereafter. PMRS evaluated its current leases and determined the amounts were immaterial.

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 Statement No. 95 are effective for reporting periods beginning after June 15, 2021. PMRS evaluated the statement and deemed that it was not applicable.

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 evaluated its current Subscription-Based Information Technology Arrangements and deemed the current subscriptions to be immaterial.

New Accounting Pronouncements

PMRS reviews all new GASB pronouncements and assesses the potential impact on the system. The GASB issued three new pronouncements that have effective dates in future years. PMRS will evaluate the pronouncements and disclose the impact when they are adopted, if applicable.

GASB Pronouncements Issued:

GASB Statement No. 99, *Omnibus 2022*

Effective date(s):

- The requirements related to extension of the use of LIBOR, accounting for SNAP distributions, disclosures of non-monetary transactions, pledges of future revenues by pledging governments, clarification of certain provisions in Statement 34, as amended, and terminology updates related to Statement 53 and Statement 63 are effective upon issuance.
- The requirements related to leases, PPPs, and SBITAs are effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter.
- The requirements related to financial guarantees and the classification and reporting of derivative instruments within the scope of Statement 53 are effective for fiscal years beginning after June 15, 2023, and all reporting periods thereafter.

GASB Statement No. 100, *Accounting Changes and Error Corrections* - an amendment of GASB Statement No. 62

Effective date: For fiscal years beginning after June 15, 2023, and all reporting periods thereafter.

GASB Statement No. 101, *Compensated Absences*

Effective date: The requirements of this statement are effective for fiscal years beginning after December 15, 2023, and all reporting periods thereafter.

Reclassification

Certain prior year amounts were reclassified to



conform to the current presentation.

3. CONTRIBUTIONS AND RESERVES

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, 2022 and 2021 consisted of the following:

	2022	2021
Municipality normal cost ¹	\$64,792,313	\$62,637,483
Amortization of unfunded actuarial accrued liability	(9,562,233)	(7,511,184)
Total²	\$55,230,080	\$55,126,299

¹Municipality normal cost includes additional municipal employer contributions towards unfunded liability of \$1.3 million and \$2.1 million in 2022 and 2021 respectively.

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

The actual contributions were 117.3% of the required contributions in 2022 and 113.6% of the required



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.

contributions in 2021.

The total contributions to PMRS in 2022 were \$93.6 million of which \$62.6 million and \$28.6 million were made by municipal employers and plan members, respectively. Included in the total contributions are \$2.1 million in transfers from other plan administrators and \$269 thousand from assessments. The total contributions to PMRS in 2021 were \$91.1 million of which \$62.4 million and \$26.6 million were made by municipal employers and plan members, respectively. Included in the total contributions are \$1.9 million in transfers from other plan administrators and \$252 thousand 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 also 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 mandates actuarially determined required annual contributions of PMRS 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.

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 for 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 2.2% to 6.22%, including 2.2% per year compounded annually for inflation, with an additional age-based component to reflect merit/seniority, (c) post-retirement cost-of-living increases of 2.2% per year until the maximum is reached (optional in contracts), (d) pre-retirement mortality based on PUB-2010 General Employees male table for males and PUB-2010 General Employees female table for females, (e) healthy post-retirement mortality based on RP-2006 annuitant male table for males and RP-2006 annuitant female table for females, and (f) disabled post-retirement mortality based on the RP-2006 disabled annuitant male table for males and RP-2006 disabled annuitant female table for females.

Mortality improvement: All base mortality is projected from the applicable base year to 2023 using Mortality Improvement Scale MP-2018.

The actuarial assumptions used have been adopted by the system's board based on the most recent review of the system's experience for the period January 1, 2014 through December 31, 2018 and completed in 2020. Effective January 1, 2021 the board updated the demographic actuarial assumptions as noted above. The January 1, 2017 through January 1, 2020 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 through January 1, 2022

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 the surplus is credited against aggregate cost where applicable.

RESERVE ACCOUNTS

As of December 31, 2022 and 2021, the reserve account balances were as follows:

	2022	2021
Members' reserve account	\$523,080,931	\$508,436,602
Municipal reserve account	984,080,519	981,652,095
Retired members' reserve account	1,512,933,710	1,430,130,716
DROP participant reserve account	1,338,005	1,038,909
Disability reserve account	853,257	201,015
Undistributed earnings reserve account	(2,865,534)	607,132,594
Total	\$3,019,420,888	\$3,528,591,931

The Act defines the following funds to be maintained 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 account at an annual rate determined by the board. PMRS' regular interest rate for the years ended December 31, 2022 and 2021 was 5.25%. In addition to regular interest, PMRS may also award excess interest. PMRS did not award excess interest for 2020 or 2021.

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.

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, 2022 and 2021 was 5.25%. In addition to regular interest, PMRS may also award excess interest. PMRS did not award excess interest for 2020 or 2021.

Retired Members' Reserve Account

The Retired Members' Reserve Account represents the amounts transferred from the Members' Reserve Account, the Municipal Reserve Accounts, and the Disability Reserve Account, where applicable. 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, 2022 and 2021 was 5.25%.

Based on the most recent actuarial valuation, the account is fully funded as of December 31, 2021.

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 Pennsylvania State Treasurer. The DROP interest credited each month shall not be less than 0% nor more than the Act 205 statutory limit of 4.5% annually. The average monthly yield for 2022 ranged from 0.60% to 3.88% with 1.27% as the average for the 12 months. The average monthly yield for 2021 ranged from 0.40% to 1.3% with 0.72% as the average for the 12 months.

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, 2022 and 2021 was 5.25%.

Undistributed Earnings Reserve Account

The Undistributed Earnings Reserve Account is the

investment earnings that the system has earned in excess of the regular interest rate credited to plans less administrative costs. 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. When applicable, the excess interest award is a transfer from the Undistributed Earnings Account to the Municipal, Members', and Retired Members' Reserve Accounts. 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 Accounts as directed by the municipalities. The PMRS board decided not to award excess interest for 2020 or 2021.

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 the permanent disposition of the funds, considering the probable income to be derived therefrom, as well as safety of their capital.

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

Domestic equities	32.5%
Fixed income	29.0%
International equities	17.5%
Global equities	5.0%
Real estate	10.0%
Timber	5.0%
Cash and cash equivalents	1.0%

The board prohibits (1) purchasing collectibles, letter stock, and other unregistered securities, commodities, or commodity contracts where the funds are a counter party, short sales, and margin transactions. (2) derivatives, options, futures, or any other investment for the sole purpose of leveraging are prohibited. 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. (3) direct ownership of oil, gas, or mineral rights (except for the mineral rights that come with the purchase of timber lands) and warrants except those previously authorized. 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, 2022 and 2021, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was (12.8)% and 13.3%, respectively. The money-weighted 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 of these funds rather than 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 924 short-term investment pool. The pool consists 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.

On December 31, 2022 and 2021, PMRS had the following investments:

INVESTMENTS BY FAIR VALUE LEVEL
as of December 31, 2022

	Amount	LEVEL 1	LEVEL 2	LEVEL 3
Equity				
Domestic equity	\$587,185,359	\$587,185,359	\$-	\$-
International equity	-	-	-	-
Fixed income				
U.S. Government and agency obligations	144,618,034	141,563,899	3,054,135	-
Corporates	73,170,480	-	73,170,480	-
Asset-backed and mortgage-backed securities	22,207,247	-	22,207,247	-
Other investments				
Other investments	20,081	20,081	-	-
Total investments by fair value level	\$827,201,201	\$728,769,339	\$98,431,862	\$-
		UNFUNDED	REDEMPTION	REDEMPTION
Investments measured at net asset value (NAV)		COMMITMENTS	FREQUENCY	NOTICE PERIOD
Collective trust funds - domestic equity	327,833,331	-	Daily	Same Day
Collective trust funds - international equity	670,305,518	-	Daily, Monthly	1-10 Days
Collective trust funds - fixed income	594,434,529	-	Daily, Monthly	1-45 Days
Real estate	419,036,524	-	Quarterly, NA	1 Quarter, NA
Timber	151,166,251	-	NA	NA
Total investments measured at NAV	2,162,776,153	-		
Investments at other than fair value				
Short-term investments - TGIF	30,451,495	-		
Short-term investments - other	7,794,410	-		
Total investments at other than fair value	38,245,905	-		
Total investments	\$3,028,223,259	\$-		

INVESTMENTS BY FAIR VALUE LEVEL

as of December 31, 2021

	Amount	LEVEL 1	LEVEL 2	LEVEL 3
Equity				
Domestic equity	\$906,786,569	\$906,786,569	\$-	\$-
International equity	-	-	-	-
Fixed income				
U.S. Government and agency obligations	-	-	-	-
Corporates	-	-	-	-
Asset-backed and mortgage-backed securities	-	-	-	-
Other investments				
Other investments	-	-	-	-
Total investments by fair value level	\$906,786,569	\$906,786,569	\$-	\$-

Investments measured at net asset value (NAV)	UNFUNDED COMMITMENTS	REDEMPTION FREQUENCY	REDEMPTION NOTICE PERIOD
Collective trust funds - domestic equity	423,394,245	-	Daily Same Day
Collective trust funds - international equity	798,570,407	-	Daily, Monthly 1-10 Days
Collective trust funds - fixed income	825,100,630	-	Daily 1-2 Days
Real estate	417,635,557	-	Quarterly, NA 1 Quarter, NA
Timber	132,955,282	-	NA NA
Total investments measured at NAV	2,597,656,121	-	
Investments at other than fair value			
Short-term investments - TGIF	28,683,717	-	
Short-term investments - other	5,590,707	-	
Total investments at other than fair value	34,274,424	-	
Total investments	\$3,538,717,114	\$-	

Deposit and Investment Risks

PMRS' deposits and investments may be subject to various risks. Among these risks are credit risk, concentration of credit risk, custodial 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.

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 counter party 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.

Concentration of Credit Risk

The concentration of credit risk is the risk of loss attributed to the magnitude of PMRS' investments in a single issuer. As of December 31, 2022 and 2021, 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.

Credit Risk

Credit risk is the risk that an issuer or other counter party 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 on December 31, 2022 and 2021.

CREDIT RISK		
	2022	2021
Quality Rating	Fair Value	Fair Value
Aaa ¹	\$12,026,073	\$593,659,904
Aa ¹	8,175,062	25,083,059
A ¹	22,494,898	90,761,069
Baa ¹	52,926,661	115,514,088
Below Baa ¹	2,809,168	82,510
NR ²	632,680,433	34,274,424
Total exposed to credit risk	731,112,295	859,375,054
U.S. Government guaranteed ³	141,563,900	-
Total	\$872,676,195	\$859,375,054

¹ The fixed income portfolio was 100% passive in 2021. The Fair Value distributed among the credit ratings was calculated based on percentages reported by the index fund provider.

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

³ Comprised of U.S. government and agency obligations explicitly guaranteed by the U.S. government and not considered to have credit risk.

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 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.

On December 31, 2022 and 2021, PMRS' fixed-income portfolio had the following effective duration:

INTEREST RATE RISK		
2022		
Investment Type	Fair Value	Effective Duration
U.S. Government and agency obligations	\$144,618,034	5.8
Corporates	73,170,480	7.3
Asset-backed and mortgage-backed securities	22,207,247	2.9
Collective trust funds - fixed income	594,434,529	5.1
Short-term investments - TGIF	30,451,495	0.1
Short-term investments - other	7,794,410	0.0
Total	\$872,676,195	

2021		
Investment Type	Fair Value	Effective Duration
U.S. Government and agency obligations	\$	0.0
Corporates	-	0.0
Asset-backed and mortgage-backed securities	-	0.0
Collective trust funds - fixed income	825,100,630	6.8
Short-term investments - TGIF	28,683,717	0.1
Short-term investments - other	5,590,707	0.0
Total	\$859,375,054	

Foreign Currency Risk

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 may invest in non-U.S. markets.

On December 31, 2022 and 2021, PMRS did not have any non-U.S. currency exposure.

Securities Lending

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 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, 2022 and 2021, PMRS had no credit risk exposure to borrowers because participation in the securities lending program has not been active for several years.

5. 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 pension plans, 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 plans. 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 the final average salary, multiplied by 2%, and multiplied by the class of service multiplier.

Alternatively, SERS provides a hybrid plan which is a mix of a defined-benefit pension plan and a 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, 2021 and 2020 are summarized in the following tables:

LONG-TERM EXPECTED REAL RATE OF RETURN

Asset Class	2021	
	Target Allocation	Long-Term Real Rate of Return
Private equity	12.00%	6.00%
Private credit	4.00	4.25
Real estate	7.00	3.75
U.S. Equity	31.00	4.60
International developed markets equity	14.00	4.50
Emerging markets equity	5.00	4.90
Fixed income	22.00	(0.25)
Inflation protection (tips)	3.00	(0.30)
Cash	2.00	(1.00)
Total	100.00%	



in the actuarial valuation at December 31, 2021 and 2020:

Actuarial Methods and Assumptions

Actuarial Methods And Assumptions	
Actuarial cost method	Entry age
Investment rate of return	7.0% net of manager fees including inflation
Projected salary increases	Average of 4.60% with range of 3.30%-6.95% including inflation
Asset valuation method	Fair (market) value
Inflation	2.50%
Mortality rate	Projected PubG-2010 and PubNS-2010 Mortality Tables adjusted for actual plan experience and future improvement for retirees, beneficiaries, and survivors and rates determined by SERS' actuaries using actual SERS experience for pre-retirement active members
Cost of living adjustments	None (ad hoc)

The 19th Investigation of Actuarial Experience covering the period 2015-2019 was released and approved by the SERS Board in July 2020. The study can be viewed at www.SERS.pa.gov.

On December 31, 2022 PMRS reported a net pension liability of \$4.5 million and \$5.2 million at December 31, 2021 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, 2021 and 2020, 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, 2021, PMRS' proportion was 0.03068241% and 0.02858965% at December 31, 2020.

For the years ended December 31, 2022 and 2021, PMRS recognized pension expenses of \$562,461 and \$653,618, respectively, in administrative expenses on the Statement of Changes in Fiduciary Net Position.

On December 31, 2022 and 2021, PMRS reported deferred outflows of resources and deferred inflows of resources from the following sources:

2020		
Asset Class	Target Allocation	Long-Term Real Rate Of Return
Private equity	14.00%	6.25%
Private credit	4.00	4.25
Real estate	8.00	5.60
U.S.. Equity	25.00	4.90
International developed markets equity	13.00	4.75
Emerging markets equity	4.00	5.00
Fixed income - core	22.00	1.50
Fixed income - opportunistic	4.00	3.00
Inflation protection (tips)	4.00	1.50
Cash	2.00	0.25
Total	100%	

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, 2021 and 2020, and the total pension liability used to calculate the net pension liability was determined by an actuarial valuation at December 31, 2021 and 2020. The following methods and assumptions were used



SCHEDULE OF DEFERRED OUTFLOWS AND INFLOWS

2022		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$29,518	\$25,732
Changes of assumptions	460,112	-
Differences between projected and actual investment earnings on pension plan investments	-	1,293,445
Difference between employer contributions and proportionate share of contributions	541	26,261
Changes in proportion	900,456	2,954
Contributions subsequent to measurement date	793,464	-
Total	\$2,184,091	\$1,348,392

2021		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$49,110	\$5,867
Changes of assumptions	581,654	-
Differences between projected and actual investment earnings on pension plan investments	-	669,264
Difference between employer contributions and proportionate share of contributions	3,231	26,717
Changes in proportion	795,250	32,990
Contributions subsequent to measurement date	670,627	-
Total	\$2,099,872	\$734,838

The amount reported as deferred outflows of resources at December 31, 2022 and 2021 includes contributions subsequent to the measurement date of \$793,464 and \$670,627, respectively, which are recognized as a reduction of the net pension liability in the years ended December 31, 2023 and 2022. The amounts reported as deferred outflows of resources and deferred inflows of resources on December 31, 2022 will be recognized in pension expense as follows:

Year Ended December 31	Deferred
2023	\$147,465
2024	(79,559)
2025	47,925
2026	(80,391)
2027	6,795
Thereafter	-
Total	\$42,235

Sensitivity of PMRS' Proportionate 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:

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

	2022		
	1% Decrease to 6.0%	Discount Rate of 7.0%	1% Increase to 8.0%
Net pension liability	\$6,475,087	\$4,470,553	\$2,775,783
	2021		
	1% Decrease to 6.0%	Discount rate of 7.0%	1% Increase to 8.0%
Net pension liability	\$6,945,743	\$5,230,891	\$3,781,216

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.

6. POST-EMPLOYMENT 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 about 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 \$115 per bi-weekly pay period for each current REHP eligible active employee during the fiscal year ended June 30, 2022, and \$120 per bi-weekly pay period for each current REHP eligible active employee during the fiscal year ended June 30, 2021. 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 inter-agency agreement, dated June 17, 2008, and the "prudent investor" standard set forth in the Commonwealth of Pennsylvania Fiscal Code 72 P.S. §30.1, an amendment to the fiscal code, the principles of Prudent Investors Standards.

The long-term expected rate of return on REHP plan investments 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 come up with 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, 2022 and 2021 are summarized in the following table:

LONG-TERM EXPECTED REAL RATE OF RETURN

2022		
Asset Class	Target Allocation	Long-term Expected Real Rate of Return
Us equity	40.0%	5.1%
International equity	27.00	5.50
Fixed income	23.00	1.60
Real estate	8.00	4.70
Cash and cash equivalents	1.50	0.00
Private equity	0.50	8.30
Total	100%	

2021		
Asset Class	Target Allocation	Long-Term Expected Real Rate Of Return
Us Equity	40.0%	5.8%
International Equity	27.00	6.30
Fixed Income	23.00	2.10
Real Estate	8.00	5.10
Cash And Cash Equivalents	1.50	0.40
Private Equity	0.50	9.30
Total	100%	

At December 31, 2022, PMRS reported a net OPEB liability of \$4.9 million for its proportionate share of the net OPEB liability on the Statement of Fiduciary



updated from Scale MP-2020 to Scale MP-2021.

Proportionate Share of Commonwealth's Net OPEB Liability, OPEB Expense, Deferred Outflows of Resources, and Deferred Inflows of Resource

PMRS' proportionate share of the commonwealth's net OPEB liability was measured as of June 30,

Net Position and \$3.9 million at December 31, 2021. The net OPEB liability was measured as of June 30, 2022 and 2021, 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, 2022, PMRS' proportion of the net OPEB liability was 0.049862% and 0.037786% at June 30, 2021.

2022 and 2021, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation dated August 2022 and September 2021, respectively.

The total OPEB liability in the June 30, 2022 and 2021 actuarial valuation was determined using the following actuarial assumptions, applied to all periods included in the measurement:

Change of Assumptions

REHP RATES

- The discount rate changed from 3.63% as of June 30, 2021, to 4.67% as of June 30, 2022.
- Per capita claims costs were updated based on changes in the underlying claims and benefit provisions.
- Per the Actuarial Standard of Practice (ASOP) No. 6 Practice Note released in March 2021, age-grading of the Medicare Advantage claims costs was removed as the risk-adjusted federal subsidy is intended to eliminate any cost differences due to age.
- The trend rates were updated based on the SOA-Getzen trend rate model version 2022_f4. The short-term trend assumptions were based on a review of the commonwealth's historical trend rates during the years 2017 through 2019 and emerging experience, along with industry surveys, separately for non-Medicare and Medicare benefits. The trend rates reflect the negotiated \$0 premium through 2024 for the REHP Aetna Medicare Advantage Plan. In addition, a short-term adjustment in 2023 and 2024 was made to account for a recent sharp increase in general inflation.
- The mortality improvement assumptions were

Assumptions	June 30, 2022	June 30, 2021
Discount rate	4.67%	3.63%
Investment rate of return	6.75%	6.75%
Inflation	2.50%	2.50%
Initial medical trend rate	7.3% / 6.3%	6.9% / 6.7%
Ultimate medical trend rate	3.90%	4.00%
Year ultimate trend rate reached	2075	2075

For consistency with the pension plan of which these participants are members, these assumptions are based on those disclosed in the Commonwealth of Pennsylvania SERS 2015-2019 experience study and adopted by the SERS Board in July 2020.

For the years ended December 31, 2022 and 2021, PMRS recognized OPEB expenses of \$(514,220) and \$(564,966), respectively, in administrative expenses on the Statement of Changes in Fiduciary Net Position.

At December 31, 2022 and 2021, PMRS reported

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

SCHEDULE OF DEFERRED OUTFLOWS AND INFLOWS

2022		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$187,000	\$1,468,000
Changes of assumptions	446,000	907,000
Differences between projected and actual earnings on plan investments	20,000	-
Change in proportionate share and differences between actual and proportionate share of employer contributions	2,244,000	217,000
Contributions subsequent to measurement date	67,770	-
Total	\$2,964,770	\$2,592,000

2021		
	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$3,000	\$1,876,000
Changes of assumptions	471,000	542,000
Differences between projected and actual earnings on plan investments	-	37,000
Change in proportionate share and differences between actual and proportionate share of employer contributions	937,000	342,000
Contributions subsequent to measurement date	54,240	-
Total	\$1,465,240	\$2,797,000

The amount reported as deferred outflows of resources at December 31, 2022 and 2021 includes

contributions after the measurement date of \$67,770 and \$54,240, respectively, which are recognized as a reduction of the net OPEB liability in the years ended December 31, 2023 and 2022. The amounts reported as deferred outflows of resources at December 31, 2022 will be recognized in OPEB expense as follows:

Year Ended June 30	Deferred
2023	\$(482,000)
2024	(4,000)
2025	341,000
2026	237,000
2027	213,000
Thereafter	-
Total	\$305,000

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:

SENSITIVITY OF PMRS' PROPORTIONATE SHARE OF THE NET OPEB LIABILITY TO CHANGES IN THE DISCOUNT RATE

	2022		
	1% Decrease to 3.67%	Discount Rate of 4.67%	1% Increase to 5.67%
Net OPEB liability	\$5,576,000	\$4,920,000	\$4,367,000
2021			
	1% Decrease to 2.63%	Discount Rate of 3.63%	1% Increase to 4.63%
Net OPEB liability	\$4,430,000	\$3,866,000	\$3,398,000

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:

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

2022		
1% Decrease to (6.3% / 5.3% Decreasing to 2.9%)	Healthcare Cost Trend Rates (7.3% / 6.3% Decreasing to 3.9%)	1% Increase to (8.3% / 7..3% Increasing to 4.9%)

Net OPEB liability	\$4,250,000	\$4,920,000	\$5,741,000
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2021		
1% Decrease to (5.9% / 5.7% Decreasing to 3.0%)	Healthcare Cost Trend Rates (6.9% / 6.7% Decreasing to 4.0%)	1% Increase to (7.9% / 7.7% Increasing to 5.0%)

Net OPEB liability	\$3,288,000	\$3,866,000	\$4,588,000
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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.

7. RELATIONSHIPS WITH OTHER COMMONWEALTH AGENCIES

Responsibility for the organization and administration of PMRS is vested in the 11-member Pennsylvania Municipal Retirement System Board. The Pennsylvania 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.

8. 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 members' account, and the present value of the retired members' pension benefits. 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 the 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 be attached to the withdrawing municipality.

9. 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 two years.

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

11. COMMITMENTS

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. The lease may be terminated for convenience with a six-month notice and the payment of a three-month rental rate early termination fee. 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, 2022 and 2023 was \$327,049 and \$317,745, respectively.

12. RISK AND UNCERTAINTIES

Investments are exposed to various risks such as interest rates, market, and credit risks. Due to the level of risk associated with certain investments, 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.

13. SUBSEQUENT EVENTS

PMRS has evaluated subsequent events through January 31, 2024, the date the financial statements were available to be issued. No material events were identified by PMRS.



Required Supplementary Information

SCHEDULE 1

Schedule of Investment Returns Annual Money-weighted Rate of Return, Net of Investment Expenses

Year Ended December 31	Annual Rate
2022	(12.83)%
2021	13.34
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 time frame will be added as available.

SCHEDULE 2

Schedule of Allocated Share of Net Pension Liability

Measurement 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
12/31/2021	0.031%	\$4,470,553	\$2,336,925	191.30%	76.0%
12/31/2020	0.029%	5,230,891	2,123,782	246.30%	67.0%
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 applicable	not applicable	66.7%

Note: Allocated share of net pension liability results for the required 10-year time frame will be 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
6/30/2022	0.050%	\$4,920,000	\$1,932,000	254.70%	5.9%
6/30/2021	0.038%	3,866,000	1,567,000	246.70%	6.1%
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 time frame will be as available.

SCHEDULE 4

Schedule of Pension Contributions

	2022	2021	2020	2019	2018
Contractually determined contribution	\$793,464	\$670,627	\$576,308	\$514,987	\$476,919
Contributions in relation to the contractually determined contribution	793,464	670,627	576,308	514,987	476,919
Contribution deficiency (excess)	\$-	\$-	\$-	\$-	\$-
Covered payroll	\$2,721,746	\$2,336,925	\$2,123,782	\$1,735,081	\$1,535,688
Contributions as a percentage of covered payroll	29.15%	28.70%	27.14%	29.68%	31.06%

	2017	2016	2015	2014
Contractually determined contribution	\$452,537	\$371,833	\$343,460	\$282,345
Contributions in relation to the contractually determined contribution	452,537	371,833	343,460	282,345
Contribution deficiency (excess)	\$-	\$-	\$-	\$-
Covered payroll	\$1,507,109	\$1,479,180	\$1,651,026	\$1,566,464
Contributions as a percentage of covered payroll	30.03%	25.14%	20.80%	18.0%

In accordance with GASB Statement No. 68, this schedule will accumulate each year until sufficient information to present a ten-year trend is available.

Changes of assumptions: The SERS board approved a reduction in the annual investment return assumption from 7.125% to 7.000% as well as numerous other actuarial assumption changes implemented with the December 31, 2020 actuarial valuation. The board maintained the annual investment return assumption at 7.000% during its 2021 review. The discount rate changed to 7.125% in 2020 from 7.25% in 2019.

SCHEDULE 5

Schedule of Other Post Employee Benefit Obligations

	2022	2021	2020	2019	2018	2017
Contractually determined contribution	\$136,310	\$70,723	\$165,415	\$172,698	\$164,355	\$228,982
Contributions in relation to the contractually determined contribution	136,310	70,723	165,415	172,698	164,355	228,982
Contribution deficiency (excess)	\$-	\$-	\$-	\$-	\$-	\$-
Covered payroll	\$2,721,746	\$2,336,925	\$2,123,782	\$1,735,081	\$1,535,688	\$1,507,109
Contributions as a percentage of covered payroll	5.01%	3.03%	7.79%	9.95%	10.70%	15.19%

In accordance with GASB Statement No. 75, this schedule will accumulate each year until sufficient information to present a ten-year trend is available.

Change of assumptions. The discount rate changed from 3.63% as of 6/30/21 to 4.67% as of 6/30/22. The discount rate was updated to 3.63% as of 06/30/2021 from 2.21% as of 6/30/20. The discount rate was updated to 2.21% as of 06/30/2020 from 3.5% as of 06/30/19.

Supplementary Schedules

SCHEDULE 1 - ADMINISTRATIVE EXPENSES

Comparative two-year schedule
for the years ended December 31, 2022 and 2021

	2022	2021
Personnel expenses		
Salaries and wages	\$2,898,731	\$2,405,015
Social security contributions	213,640	178,365
Pension expense	562,461	653,618
OPEB expense	(514,220)	(564,966)
Insurance expenses	579,242	474,701
Other employee benefits	5,695	24,017
Total personnel expenses	3,745,549	3,170,750
Professional services		
IT consultants	1,376,623	1,364,334
Actuarial	401,405	1,422,409
Audit	104,228	23,812
Legal	56,703	18,253
Contracted personnel	675,555	485,567
Miscellaneous professional	179,920	222,814
Data processing	70,971	51,368
Total professional expenses	2,865,405	3,588,557
Communication		
Telephone	37,459	36,660
Travel and conferences	23,167	6,503
Printing and postage	47,747	35,282
Advertising	3,197	5,736
Total communication expenses	111,570	84,181
Other services and charges		
Contracted EDP services	1,328,349	1,249,614
Office space rental	327,049	317,745
Equipment leasing	40,335	41,094
Dues and subscriptions	14,955	15,130
Supplies	14,586	172,742
Maintenance	766	2,361
Bonding and insurance, net	30,498	27,203
Total other services	1,756,538	1,825,889
Depreciation	14,337	67,686
Total administrative expenses	\$8,493,399	\$8,737,063

SCHEDULE 2 - INVESTMENT EXPENSES

Comparative two-year schedule
for the years ended December 31, 2022 and 2021

	2022	2021
Investment Management fees	\$8,862,651	\$12,300,225
Investment Consultants	285,000	285,000
Custodial fees	92,104	121,862
Divestiture services	(6,118)	(628)
Proxy voting services	18,222	18,174
Total investment expenses	\$9,251,859	\$12,724,633

SCHEDULE 3 - PAYMENTS TO CONSULTANTS

comparative two-year schedule
for the years ended December 31, 2022 and 2021

Firm Name	Nature Of Service	2022	2021
Cheiron	Actuary	\$401,405	\$1,422,409
Zelenkofske Axelrod LLC	Auditor	104,228	23,812
Bravo Group	Communication & Public Relation Services	27,188	70,075
Ernst & Young	Consulting Services	39,000	44,396
Marquette Associates	Investment Consultant	285,000	285,000
OST, Inc.	IT Consultants	1,073,266	328,826
CPAS Systems	IT Consultants	197,498	118,273
Keymark IMR	IT Consultants	105,859	35,438
Enterprise Iron	IT Consultants	-	540,800
Linea Solutions	IT Consultants	-	340,998
Institutional Shareholder Services	Proxy Voting Services	18,222	18,173
Keystone Digital Imaging Inc.	Records Management Services	3,548	3,573
Total		\$2,255,214	\$3,231,773



Investments

Basis of Presentation

The data presented in the Investments 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 Investments Section includes only those investments under the management of advisors that 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 between the investment balance of \$3,028,223,259 presented in the Financial Section and the balance of \$3,021,555,622 reported in this section as of December 31, 2022 results in a difference in the net investment loss of \$439,362,523 presented in the Financial Section and the investment loss of \$448,675,655 reported in this section for the year ended December 31, 2022.

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 Investments Section are net of external manager fees.

Investment Return

As of December 31, 2022, the board's investment portfolio was valued at \$3,021,555,622 which was a decrease of \$514,561,993 from December 31, 2021 ending value of \$3,536,117,615. For the year ended December 31, 2022, the fund had net withdrawals of \$65,886,338 and an investment loss of \$448,675,655.

For the five years that ended December 31, 2022, PMRS had net withdrawals of \$232,539,332 and an investment return of \$753,742,821. PMRS' investment portfolio increased from \$2,500,352,133 as of December 31, 2017 to \$3,021,555,622 as of December 31, 2022.

Over the past ten years, PMRS had net withdrawals of \$378,353,805 and an investment return of \$1,742,625,738. PMRS' investment portfolio increased from \$1,657,283,689 as of December 31, 2012, to \$3,021,555,622 as of December 31, 2022.

If PMRS had earned an annualized compound rate of 5.25% since December 31, 2012, the portfolio would have been worth \$2,268,906,683 or \$752,648,939 less than the actual value as of December 31, 2022.



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 experienced a negative cash flow in 2022 and expects this trend to gradually decrease in the future due to revised asset allocations and improved market performance.

Philosophy

The board considers itself a conservative fiduciary, placing the greatest emphasis on the quality of investments and consistency in returns. 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:

	Target %
Equities	55.0
Domestic	32.5
Global	5.0
International	17.5
Fixed income	29.0
Investment grade	24.0
Opportunistic credit	5.0
Real assets	15.0
Real estate	10.0
Timber	5.0
Cash & cash equivalents	1.0

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

The board desires 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 Pennsylvania 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 more than 5% remaining in cash equivalents at the 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. Except for 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 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 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. Active investment managers are limited to no single equity holding accounting for more than 7.5% of the fair value of their assigned 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 10% 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 in direct equity participation in commingled funds that involve equity participation, Real Estate Investment Trusts (REITs), or closed-end private real estate commingled funds 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 futures 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 Pennsylvania 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 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 who holds the security of that company in their

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

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 quarterly, 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, 2022 and 2021, the total investment managers' fees based upon the average monthly net asset values of the PMRS' total investment portfolio were 31 basis points and 27 basis points, respectively.

Monitoring

PMRS monitors the performance of its investment managers through the 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, 2022, the net rate of return for PMRS' total portfolio was (12.8)%, which was 0.6% less than the policy index¹ return of (12.2)% and ranked in the 36th percentile of the Investment Metrics (IM) Public DB universe. For the five years that ended December 31, 2022, the net rate of return for PMRS' total portfolio was 5.3%, which was 0.2% more than the policy index returns of 5.1% and ranked in the 35th percentile. Since inception, the net rate of return for PMRS' total portfolio was 8.3%, compared to the policy index¹ return of 8.8%.

Domestic Equity

For the year ended December 31, 2022, the net rate of return for the Domestic equity portfolio was (18.7)%, which was 0.5% more than the Russell 3000 Index return of (19.2)% and ranked in the 76th

percentile. For the five years ended December 31, 2022, the net rate of return for the Domestic equity portfolio was 8.5%, which was 0.3% less than the Russell 3000 Index return of 8.8% and ranked in the 42nd percentile.

Global Equity

For the year ended December 31, 2022, the net rate of return for the global equity portfolio was (12.8)%, which was 0.7% less than the Global Equity Policy Index return of (13.5)% and ranked in the 12th percentile. The global equity portfolio is a new investment in 2022.

International Equity

For the year ended December 31, 2022, the net rate of return for the International equity portfolio was (16.4)%, which was 0.2% more than the MSCI ACWI ex-USA Index return of (16.6)% and ranked in the 33rd percentile. For the five years that ended December 31, 2022, the net rate of return for the International equity portfolio was 1.8%, which was 1% more than the MSCI ACWI ex-USA Index return of 0.8% and ranked in the 15th percentile.

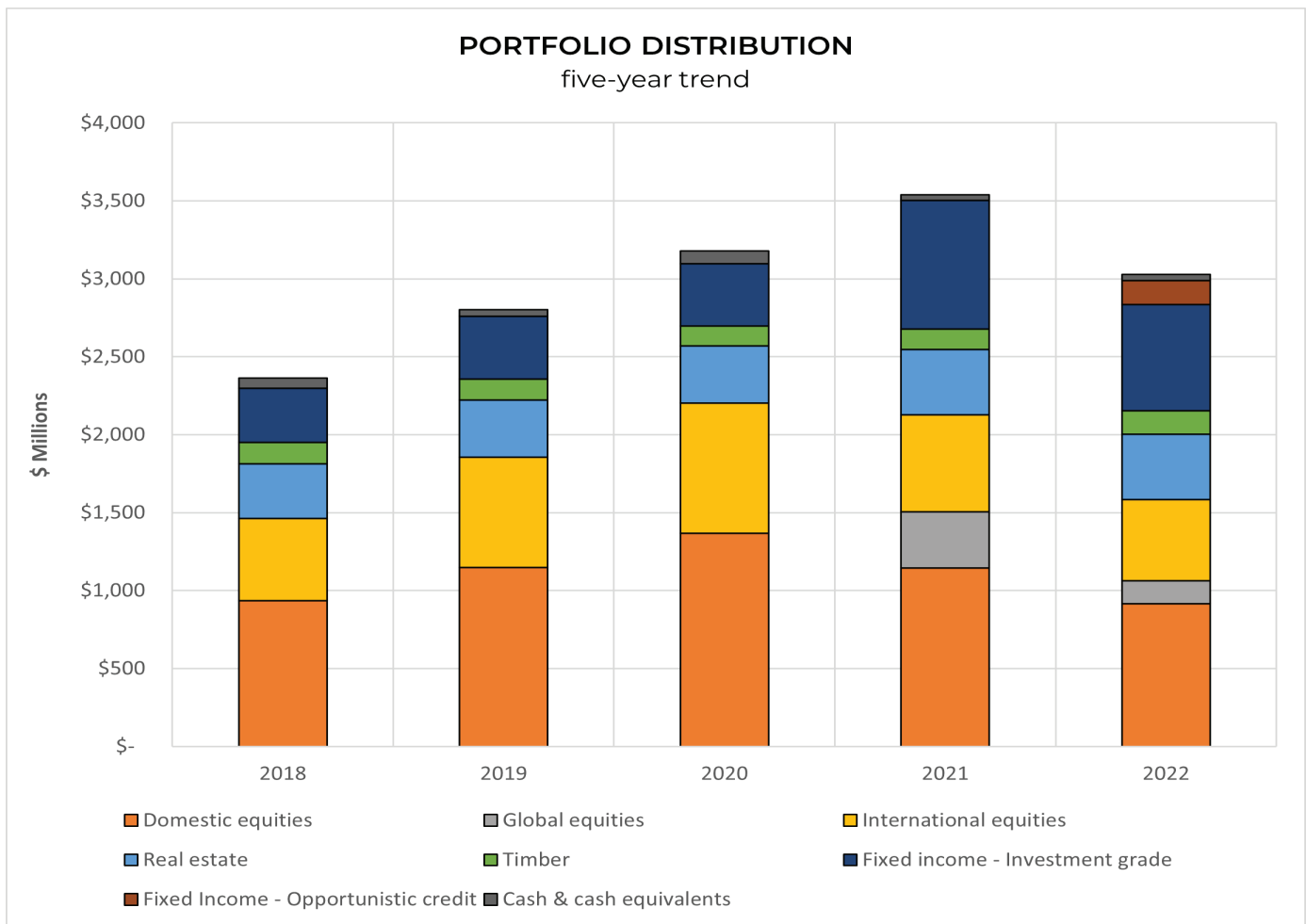
Real Assets

For the year ended December 31, 2022, the net rate of return for the real asset portfolio was 5.2%, which was 3.6% percent less than the Real Assets Policy Index of 8.8%. For the five years that ended December 31, 2022, the net rate of return for the real assets portfolio was 6.2%, which was 2% less than the Real Assets Policy Index return of 8.2%.

Fixed Income

For the year ended December 31, 2022, the net rate of return for the fixed-income portfolio was (13.6)%, which was 0.6 percent less than the Bloomberg US Aggregate TR Index return of (13.0)% and ranked in the 91st percentile. For the five years ended December 31, 2022, the net rate of return for the fixed-income portfolio was (0.1)%, which was 0.1% less than the Bloomberg U.S. Aggregate TR Index return of 0% and ranked in the 92nd percentile.

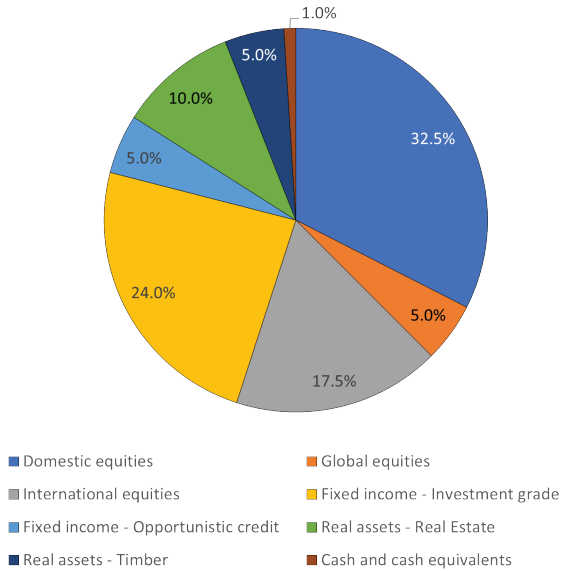
The following graph shows PMRS' five-year trend of investments on fair value as of December 31, 2022:



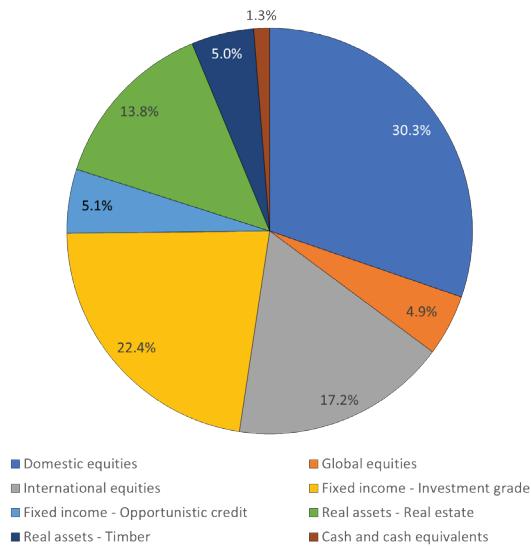
Asset Allocation

Asset Allocation

The board established its allocation goals as follows:



PMRS' portfolio allocation on December 31, 2022 was as follows:



The following table shows the allocation of assets on December 31, 2022.

ASSET ALLOCATION

as of December 31, 2022
(amounts in thousands)

Type	Percentage of Portfolio	Amount
Domestic	30.3%	\$915,025
Global	4.9%	147,973
International	17.2%	522,332
Total equities	52.4%	1,585,330
Investment grade	22.4%	679,690
Opportunistic	5.1%	154,754
Total fixed income	27.5%	834,444
Real estate	13.8%	419,037
Timber	5.0%	151,166
Total real assets	18.8%	570,203
Cash and cash equivalents ¹	1.3%	38,246
Total portfolio	100.0%	\$3,028,223

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

PMRS' actual asset allocation on December 31, 2022 was \$915 million committed to domestic equities, \$148 million to global equities, \$522 million to international equities, \$834 million to fixed income instruments, \$419 million to real estate, \$151 million to timber, and \$38 million to cash and cash equivalents.

The following table shows the actual allocation of assets compared to the board-established allocation on December 31, 2022.

ASSET ALLOCATION VARIANCE

as of December 31, 2022
(amounts in thousands)

Sector	Target Percentage Allocation	Target Dollar Allocation	Percentage of Portfolio	Current Dollar Allocation	Dollar Variance	Percentage Variance
Domestic	32.5%	\$984,173	30.3%	\$915,025	\$(69,148)	-2.2%
Global	5.0%	151,411	4.9%	147,973	\$(3,438)	-0.1%
International	17.5%	529,939	17.2%	522,332	\$(7,607)	-0.3%
Total equities	55.0%	1,665,523	52.4%	1,585,330	(80,193)	-2.6%
Investment grade	24.0%	726,774	22.4%	679,690	(47,084)	-1.6%
Opportunistic	5.0%	151,411	5.1%	154,754	3,343	0.1%
Total fixed income	29.0%	878,185	27.5%	834,444	(43,741)	-1.4%
Real estate	10.0%	302,822	13.8%	419,037	116,215	3.8%
Timber	5.0%	151,411	5.0%	151,166	(245)	-0.0%
Total real assets	15.0%	454,233	18.8%	570,203	115,970	3.8%
Cash and cash equivalents ¹	1.0%	30,282	1.3%	38,246	7,964	0.3%
Total portfolio	100.0%	\$3,028,223	100.0%	\$3,028,223	\$-	0.0%

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

Investment Summary

Portfolio Rates of Return

The following table compares the net rates of return for PMRS' total investment portfolio as of December 31, 2022 with standard indexes for one year, three years, five years, ten years, and since inception. 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	Inception Date
Total Portfolio	-12.8%	4.1%	5.3%	7.5%	8.3%	Jan-86
InvMetrics Public DB Net Rank	36	35	35	23	34	
Policy Index	-12.2%	4.2%	5.1%	7.4%	8.8%	
U.S. Equity Composite	-18.7%	6.4%	8.5%	11.8%	8.2%	Jan-06
InvMetrics Public DB US Eq Net Rank	76	76	42	40	48	
Russell 3000	-19.2%	7.1%	8.8%	12.1%	8.9%	
Global Equity Composite	-12.8%	-	-	-	-12.8%	Dec-21
InvMetrics Public DB Gbl Eq Net Rank	11	-	-	-	-	
Global Equity Policy Index	-13.5%	-	-	-	-	
Non-U.S. Equity Composite	-16.4%	1.2%	1.8%	4.60	6.2%	May-12
InvMetrics Public DB ex-US Eq Net Rank	33	22	15	25.00	24	
MSCI ACWI ex USA IMI	-16.6%	0.2%	0.8%	4.0%	5.6%	
Real Assets Composite	5.2%	6.5%	6.2%	7.5%	7.6%	Apr-93
Real Assets Policy Index	8.8%	9.7%	8.2%	9.3%	7.6%	
Total Fixed Income Composite	-13.6%	-2.9%	-0.1%	1.0%	5.6%	Jan-86
InvMetrics Public DB US Fix Inc Net Rank	91	93	92	72	-	
Bloomberg US Aggregate TR	-13.0%	-2.7%	0.0%	1.1%	5.6%	

SUMMARY OF INVESTMENT EXPENSES

for the years ended December 31, 2022 and 2021

Firm name	2022	2021
Large cap domestic managers		
Eagle Capital Management	\$-	\$1,551,426
MFS Institutional Advisers	262,552	-
Polen Capital Management	414,162	1,071,777
William Blair Investment Management	-	320,465
Federated Investors	-	-
LSV Asset Management	270,390	(35,726)
	<u>947,104</u>	<u>2,907,942</u>
Small cap domestic managers		
Emerald Advisers	207,273	467,605
Smith, Graham & Co.	339,841	660,081
LSV Asset Management	-	365,572
AMI Asset Management	-	373,437
Copeland Capital Management	238,552	295,100
	<u>785,666</u>	<u>2,161,795</u>
Passive manager		
State Street Global Advisors	193,796	447,855
Northern Trust Investments, Inc	24,775	1,239
Xponance, Inc	49,281	2,794
Rhumblin Advisers Limited Partnership	71,423	-
	<u>339,275</u>	<u>451,888</u>
International managers		
HGK Asset Management, Inc.	731,525	1,042,301
Hardman Johnston Global Advisors	613,786	1,057,671
Jarislowsky, Fraser Limited	-	-
	<u>1,345,311</u>	<u>2,099,972</u>
Fixed income managers		
Federated Investment Counseling	188,176	-
Ares Global Multi-asset Credit	45,700	-
	<u>233,876</u>	<u>-</u>
Real estate		
Nuveen Real Estate	1,998,030	1,926,120
Prudential Financial, Inc.	2,121,050	1,751,206
Forest Investment Associates	1,092,339	1,001,302
	<u>5,211,419</u>	<u>4,678,628</u>
Total investment management fees	8,862,651	12,300,225
Investment Consultant - Marquette	285,000	285,000
Custodial Fees - BNY Mellon	92,104	121,862
Divestiture Services	(6,118)	(628)
Proxy Voting Services - ISS	18,222	18,174
Total investment expenses	\$9,251,859	\$12,724,633

TEN LARGEST COMMON STOCK HOLDINGS
as of December 31, 2022

Stock	Shares	Fair Value	Percentage Of Portfolio
Microsoft Corp	78,905	\$18,922,997	0.62%
Apple Inc	108,364	14,079,735	0.46%
Amazon.Com Inc	115,078	9,666,552	0.32%
Jpmorgan Chase & Co	62,548	8,387,687	0.28%
Johnson & Johnson	44,938	7,938,298	0.26%
Abbott Laboratories	71,453	7,844,825	0.26%
Unitedhealth Group Inc	14,789	7,840,832	0.26%
Thermo Fisher Scientific Inc	14,041	7,732,238	0.26%
Accenture PLC	28,448	7,591,064	0.25%
Mastercard Inc	20,402	7,094,387	0.23%

PORTFOLIO SUMMARY
as of December 31, 2022
(amounts in thousands)

Type of Investment	Cost	Fair Value	Percentage of Total Fair Value
Equities			
Domestic	\$997,592	\$915,025	30%
Global	162,909	147,973	5%
International	522,021	522,332	17%
Total	1,682,522	1,585,330	52%
Fixed income			
Investment grade	\$694,090	\$679,690	23%
Opportunistic credit	155,000	154,754	5%
Total	849,090	834,444	28%
Other investments			
Real assets	389,013	570,203	19%
Cash and cash equivalents ¹	38,246	38,246	1%
Total	427,259	608,449	20%
Total portfolio	\$2,958,871	\$3,028,223	100%

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

Summary of Commissions

SUMMARY OF COMMISSIONS PAID TO BROKERS

for the fiscal year ended December 31, 2022

Broker Name	Commissions Paid	Broker Name	Commissions Paid
Apex Clearing Corporation, Dallas	\$2,370	Jonestrading Inst Svcs Llc, New York	\$1,328
Baird, Robert W & Co Inc, Milwaukee	649	Keefe Bruyette + Woods Inc, New York	54
Barclays Capital Inc./Le, New Jersey	47	Liquidnet Inc, New York	4,144
Barclays Capital Le, New York	2,051	Loop Capital Markets, Jersey City	1,248
Bernstein Sanford C & Co, New York	2,821	Luminex Trading And Analytics, Boston	68
Bmo Capital Markets Corp, New York	433	Maxim Group, Jersey City	134
Bnp Paribas Prime Brokerage, Jersey City	220	Merrill Lynch Broadcourt Cap, New York	56
Bnp Paribas Prime Brokerage, Inc, New York	10	Merrill Lynch Pierce Fenner Smith Inc Ny	2,986
Boenning & Scattergood, W Conshohocken	88	Mirae Asset Sec Usa, New York	179
Btig Llc, New York	73	Mizuho Securities Usa Inc, New York	7
Citation Group Bcc Clrg, New York	4	Morgan J P Secs Inc, New York	88
Citigroup Global Markets Inc., New York	596	Morgan Stanley And Co., Llc, New York	1,792
Citigroup Global Markets, Inc., New York	4,462	National Finl Svcs Corp, New York	19,827
Clsa Americas, New York	208	Needham And Co Llc, New York	598
Cowen And Co Llc, New York	813	Northern Tr Secs, Chicago	172
Cowen And Company, Llc, Jersey City	86	Oppenheimer & Co Inc, New York	88
Credit Suisse, New York (Csus)	839	Pershing Llc, Jersey City	36,110
Daiwa Secs Amer Inc, New York	118	Piper Jaffray & Co., Jersey City	5,788
Davidson(D A) & Co Inc, New York	262	Raymond James & Assoc Inc, St Petersburg	6,252
Exane Inc, New York	350	Rbc Capital Markets Llc, New York	10,194
Fidelity Capital Markets, New York	3	Sg Americas Securities Llc, New York	45
Goldman Sachs & Co, Ny	6,724	Smbc Nikko Securities, New Jersey	52
Instinet Clearing Ser Inc, New York	18,939	Stifel Nicolaus	5,026
Instinet Corp, New York	2	Suntrust Capital Markets Inc, New York	571
Investment Tech Group Inc, New York	1	Ubs Securities Llc, Stamford	758
Isi Group Inc, New York	581	Virtu Americas Llc, New York	40
J.P Morgan Securities Inc, New York	7,135	Wells Fargo Securities, Llc, New York	2,604
J.P. Morgan Securities Llc, New York	292	William Blair & Co, Chicago	977
Jefferies & Co Inc, New York	6,126		
		Total Brokerage Commissions Paid	\$157,489



Actuarial

Actuary's Certification Letter



Classic Values, Innovative Advice

Via Electronic Mail

January 2, 2024

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, 2022 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, 2022, is 100.2% funded on an actuarial asset value basis. The funded ratio on a market value basis is 120.7%.

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.

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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.

The assumptions used in preparing the individual municipal valuation results were reflected in the January 1, 2022 actuarial valuation and based on the assumptions reviewed and adopted by the Board from the experience study issued by Cheiron in September 2020. The actuarial assumptions reflect the Board's understanding of the likely future experience of the System. The assumptions, both individually and in aggregate, represent the best estimate for the future experience of the System. The investment return assumption for the 2022 actuarial valuation was based on the Board's adopted procedure to annually review and set the interest rate assumption.

These assumptions were analyzed 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) to perform actuarial valuations for 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 have identified such deviations within the Actuarial Assumptions and Methods Appendix of the actuarial valuation report.

No new methods were effective as of January 1, 2022 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, 2022 actuarial valuation report contains required disclosures for the entire System. Additional details required under the Governmental Accounting Standards Board Statement No. 67 have also been provided to the System. For the December 31, 2022 GASB 68 reports, there are no new assumption and method changes.

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 results of our report are dependent on 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 such other users.

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 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
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Actuarial Supplemental 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, 2022 – County Plans and Cash Balance (CB) Plans (active and vested terminated accounts) January 1, 2021 – Plans that are neither County nor CB plans and retiree liabilities
Measurement date	January 1, 2022
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*	2.2% - 6.22% based on aged and service
* Includes inflation at	2.20%
Cost of living adjustments	2.2% per year up to plan maximum

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, 2014 through December 31, 2018 completed in 2020.

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 the difference between the present value of future benefits and the present value of future normal costs. The unfunded actuarial liability or surplus is the difference between the actuarial liability and the Actuarial Value of Assets.

The allowance for administrative expenses is based on PMRS' actual administrative expenses.

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 Reported Assets	Portion of Accrued Liabilities Covered by Reported Assets		
					(1)	(2)	(3)
2022	\$508,436,602	\$1,575,137,867	\$839,241,639	\$2,929,944,455	100%	100%	101%
2021	494,275,157	1,495,048,974	841,964,053	2,827,402,985	100%	100%	100%
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%

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.

FUNDED STATUS OF ACTUARIAL LIABILITIES

Valuation Date January 1,	Actuarial Value of Assets ¹	Actuarial Liability (AL) Entry Age	Unfunded AL (Surplus)	Funded Ratio	Discount Rate
2022	\$2,929,944,455	\$2,922,816,108	\$(7,128,347)	100.20%	5.25%
2021	2,827,402,985	2,831,288,184	3,885,199	99.90%	5.25%
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%

¹The Actuarial Value of Assets (AVA) were determined based on the methodology outlined in PMRS Policy Statement 05-2. The 1/1/21 AVA was based on the reserves published by PMRS in the ACFR for the years ended December 31, 2020 and 2019, adjusted for \$67.8 million and \$6.5 million, respectively, that transferred from the Undistributed Earnings Reserve Account to the Retired Members' Account to fully fund the retiree reserve as required by opinion of legal counsel.

The actuarial assumptions as of January 1, 2022, are shown in the assumptions and methods section. The above information was derived from the following membership data and the number of pension plans, as provided by PMRS.

VALUATION OF LIABILITIES

number of plans

Valuation Date January 1,	Complete Valuation	Roll Forward	Cash Balance Plans
2022	4	718	322 ¹
2021	720	4	327
2020	4	724	328
2019	719	4	323
2018	4	726	314
2017	718	4	311

¹Explicit valuation for active and terminated vested accounts

SCHEDULE OF RETIREES AND BENEFICIARIES

added to and removed from rolls in last six years

Valuation Date January 1,	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
2022	409	\$21,174	\$1,603	150	\$14,441	7,003	\$122,707,214	6.1%	\$17,522	2.1%
2021	434	21,588	375	125	10,350	6,744	115,697,265	7.6%	17,156	2.7%
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%

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	
2022	7,969	1,650	6,295	708	1,343	40	18,005	
2021	7,860	1,486	6,050	694	1,284	47	17,421	
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	

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

SCHEDULE OF TOTAL MEMBERSHIP AND SALARY¹

as of January 1,

	2022	2021	2020	2019	2018	2017
A. Retirees currently receiving benefits	6,295	6,050	5,781	5,550	5,307	5,099
B. Beneficiaries currently receiving benefits	708	694	654	639	599	600
C. Terminated vested employees entitled to future benefits from defined benefit plans	957	933	882	853	797	834
D. Terminated non-vested employees entitled to contribution refunds from defined benefit plan	40	47	47	40	35	28
E. Active employees in defined benefit plans	7,969	7,860	7,970	7,949	7,868	7,728
I. Aggregate salary ²	\$497,193,829	\$476,970,336	\$465,906,342	\$455,352,355	\$434,554,380	\$422,621,214
Ii. Vested ³	4,224	4,281	4,388	4,470	4,553	4,573
Iii. Non-vested	3,745	3,579	3,582	3,479	3,315	3,156
F. Non-retired participants in cash balance plans	2,036	1,837	1,825	1,761	1,680	1,619
I. Aggregate salary	\$79,029,741	\$71,553,094	\$69,134,048	\$63,302,730	\$60,013,152	\$53,998,354
Ii. Active	1,650	1,486	1,502	1,446	1,387	1,303
Iii. Inactive	386	351	323	315	293	316

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 6 years

DEFINED BENEFIT PLANS

Valuation Date January 1,	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
2022	7,969	1.4%	722	-0.3%	\$497,193,829	4.2%	\$62,391	2.8%
2021	7,860	-1.4%	724	-0.6%	476,970,336	2.4%	60,683	3.8%
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%

CASH BALANCE PLANS

Valuation Date January 1,	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
2022	1,650	11.0%	322	-1.8%	\$79,029,741	10.4%	\$47,897	-0.5%
2021	1,486	-1.1%	328	0.0%	71,553,094	3.5%	48,151	4.6%
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%

Actuarial Assumptions And Methods

The PMRS demographic actuarial assumptions were revised by the board effective January 1, 2021. The Regular Interest Rate (investment return assumption) was approved by the board effective January 1, 2017. The assumptions are as follows:

A. Healthy Life Mortality Rates:

The mortality assumption, inclusive of the projected mortality improvements, was selected as a reasonable representation of the ultimate projected payout of benefits from the plan using nationally available mortality tables as well as data provided by PMRS.

Rates of Pre-Retirement Mortality

Males: PUB-2010 General Employees male table
Females: PUB-2010 General Employees female table

Type of Death:

- a) 20% of pre-retirement deaths are assumed to be service-related for municipal plans, and
- b) 70% of pre-retirement deaths are assumed to be service-related for uniform plans.

Rates of Post-Retirement Mortality

Males: RP-2006 annuitant male table

Females: RP-2006 annuitant female table

Disabled Life Mortality Rates

Males: RP-2006 disabled annuitant male table

Females: RP-2006 disabled annuitant female table

Mortality Improvement

All base mortality tables described above are projected from the applicable table's base year to 2023 using Mortality Improvement Scale MP-2018.

B. 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).

TERMINATION RATES BEFORE RETIREMENT

Number of Active Members in Plan				
Years of Service	MUNICIPAL PARTICIPANTS (NON-UNIFORM)		UNIFORMED PARTICIPANTS	
	<25	25+	Years of Service	
LESS THAN 1	11.0%	12.0%		
1	11.0%	12.0%		
2	10.0%	11.0%		
3	9.0%	10.0%		
4	8.0%	9.0%	<4	10.0%
5	7.0%	7.5%	5	5.0%
6	8.0%	7.5%	6	4.0%
7	6.0%	7.0%	7	4.0%
8	5.0%	6.0%	8	4.0%
9	4.0%	5.0%	9	3.0%
10+	3.0%	3.5%	10+	3.0%



C. Disability Incident Rates

50% of the 2017 CalPERS Public Miscellaneous Group disability rates for males. Sample rates are:

DISABILITY INCIDENCE RATES

Age	Rate
25	0.0085%
35	0.0245%
45	0.0955%
55	0.1105%
65	0.1050%

D. Workers Compensation

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

E. Salary Scale

Includes a rate of 2.2% inflation plus merit-based increases as shown below for the select ages:

SALARY RATES

Age	Total Rate ¹ (Including Inflation)
25	6.22%
30	5.16%
35	4.49%
40	4.14%
45	3.82%
50	3.55%
55	3.28%
60	3.11%
65	2.79%

¹Add 3% for each of the first two years of service, 2% for years three and four, and 1% for years five and six

For 2021 and 2022, merit-based increases are assumed to be 0%.

F. Rates of Retirement

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

assumptions regarding retirement age are:

1) Municipal Members:

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

RETIREMENT RATES FOR MUNICIPAL MEMBERS (NON-UNIFORM)

Age	Current Rate of Normal Retirement ¹
<55	33%
55	30%
56-57	12%
58-59	14%
60	18%
61	10%
62	20%
63	18%
64	15%
65-67	25%
68-70	20%
71-73	22%
74	20%
75	100%

¹Rates indicated are adjusted by adding 10% for ages 61-63 and 5% for ages 64-70 for the year in which the member is first eligible for normal retirement.



2) Uniformed Members:

a. Retirement rates are reflected in the chart below.

RETIREMENT RATES FOR UNIFORMED MEMBERS

Age	Current Rate of Normal Retirement
<49	0%
50	25%
51-53	10%
54-55	15%
56-58	17%
59-60	15%
61	20%
62	28%
63	22%
64	25%
65	35%
66	30%
67+	100%

For any members participating in a Deferred Retirement Option Program (DROP), the participant's date of entry into the DROP is considered the retirement date.

G. Deferred Retirement Option Program (DROP) or In-Service Distribution Plan:

For plans with these options, at Participant's Normal Retirement Age, retirement rate multiplied by the following factors:

- 1) Uniform: 130%
- 2) Non-uniform: 115%

H. Marital State and Spouse's Age¹:

For plans with 50% joint and survivor form of payment, 85%/65% of active male/female members are assumed to be married. Male spouses are assumed to be three years older than female spouses.

I. Social Security Projections¹:

- 1) The Social Security Taxable Wage Base will increase by 2.7% compounded annually;
- 2) The Consumer Price Index will increase by

¹ If Applicable

2.2% compounded annually;

3) The Average Total Wages of All Workers will increase by 2.7% compounded annually.

J. Post-Retirement Cost-of-Living Increases¹:

Cost-of-living increases are assumed to be 2.2% 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.

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

M. 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, 2014 – December 31, 2018 and the board's review of the regular interest rate in 2021.

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 statutes (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 Assets²

PMRS' Actuarial Value of Assets (AVA) equals 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 any additional adjustments as made during the

year by the Board of Trustees without reflecting any excess interest based on the PMRS' Policy Statement 05-2. In years where an excess interest distribution occurs, the following year's valuation will incorporate the updated information once the type and amount of distribution to each plan has been determined.

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

Each year, municipalities may receive an excess interest allocation derived as a portion of the 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 the surplus to fair market value, between 10% and 90% of the new surplus may become excess interest based on PMRS Policy Statement 05-2 and board approval.

The Actuarial Value of Assets is set to equal 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 to 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 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

¹If Applicable

² The Actuarial Value of Assets (AVA) was determined based on the methodology outlined in PMRS Policy Statement 05-2. The 1/1/22 AVA was based on the reserves published by PMRS in the ACFR for the years ended December 31, 2021 and 2020, adjusted for \$0 million and \$67.8 million, respectively, that transferred from the Undistributed Earnings Reserve Account to the Retired Members' Account to fully fund the retired member's reserve as required by opinion of legal counsel.

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 follows 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 the 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 calculation, the normal cost is reduced by the required member contribution to produce the employer's 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:

- 1) (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
- 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.

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 Member's 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 non-county defined benefit pension plans are explicitly valued every odd calendar year. The county defined benefit pension plans are valued explicitly every even calendar year. Cash balance plans are valued every year for the active and terminated vested accounts while the retiree liabilities for the January 1, 2022 valuation were based on rolled-forward amounts.

In the off-valuation year, defined benefit plan liabilities are rolled forward using actual benefit payments and reflecting new retirements. These liabilities reflect any material changes that may have occurred since the prior actuarial valuation, such as new actuarial assumptions and material plan provision changes. When the retiree liabilities are explicitly calculated, the rolled forward active and deferred vested liabilities are proportionally adjusted based on the prior year's liabilities net of liabilities attributable to participants in pay.

Changes in Actuarial Assumptions and Methods

This is the initial Act 293 valuation cycle for county defined benefit pension plans using the assumptions disclosed in the previous valuation report. The changes in actuarial assumptions and methods were previously disclosed in the December 31, 2021 ACFR.

Otherwise, there have been no changes in assumptions or methods this year.



Statistical

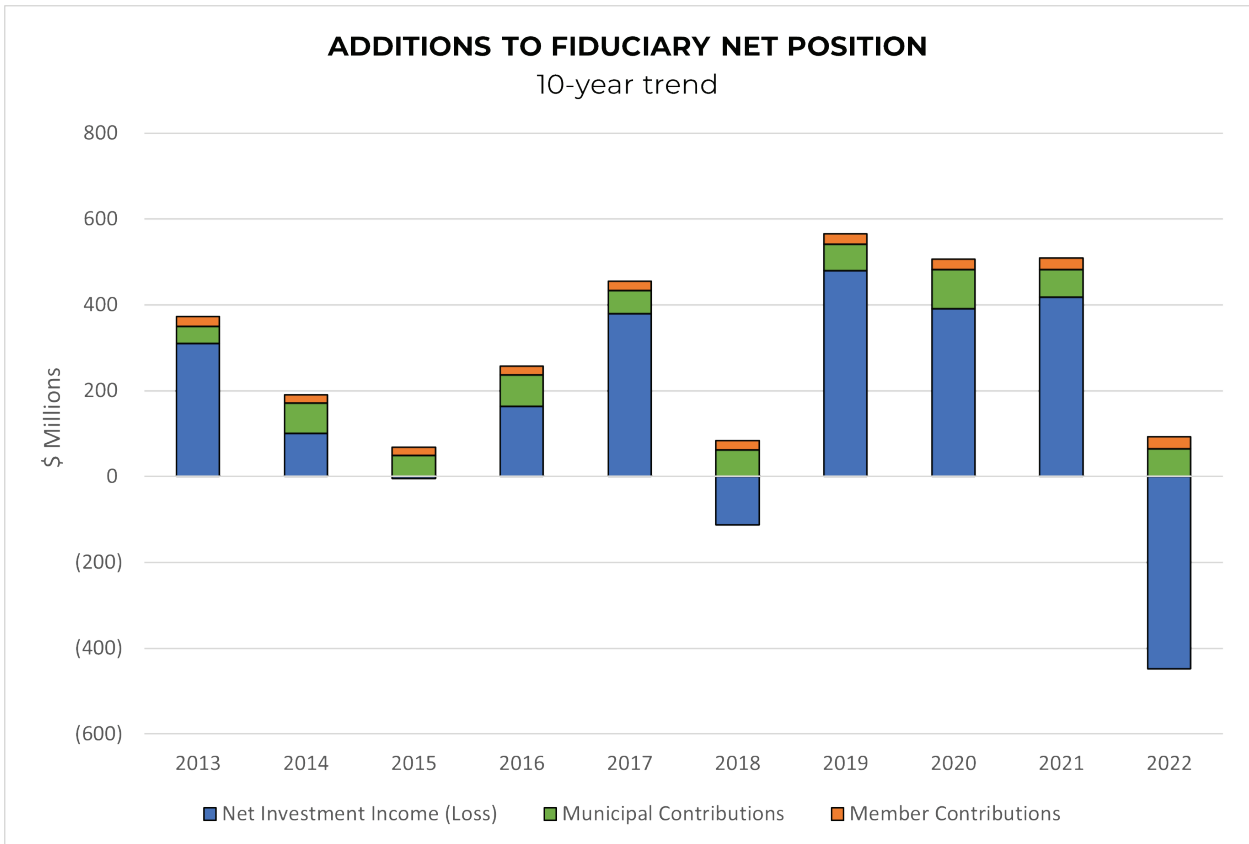
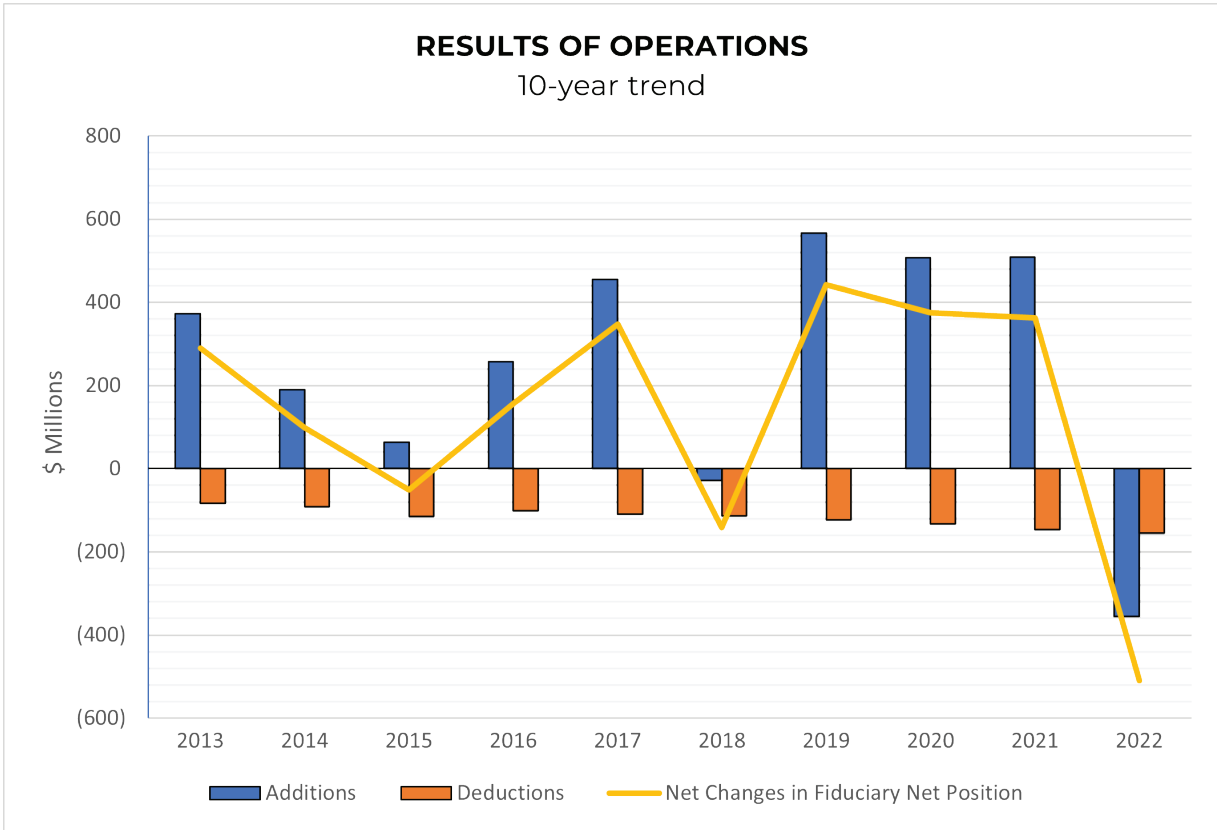
Introduction

The objectives of the statistical section are to provide additional historical perspective, context, and relevant details to assist readers in using the 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 80 provide information relative to financial trends. The graphs and schedules provide detailed information about PMRS' net position and how it has changed over time.

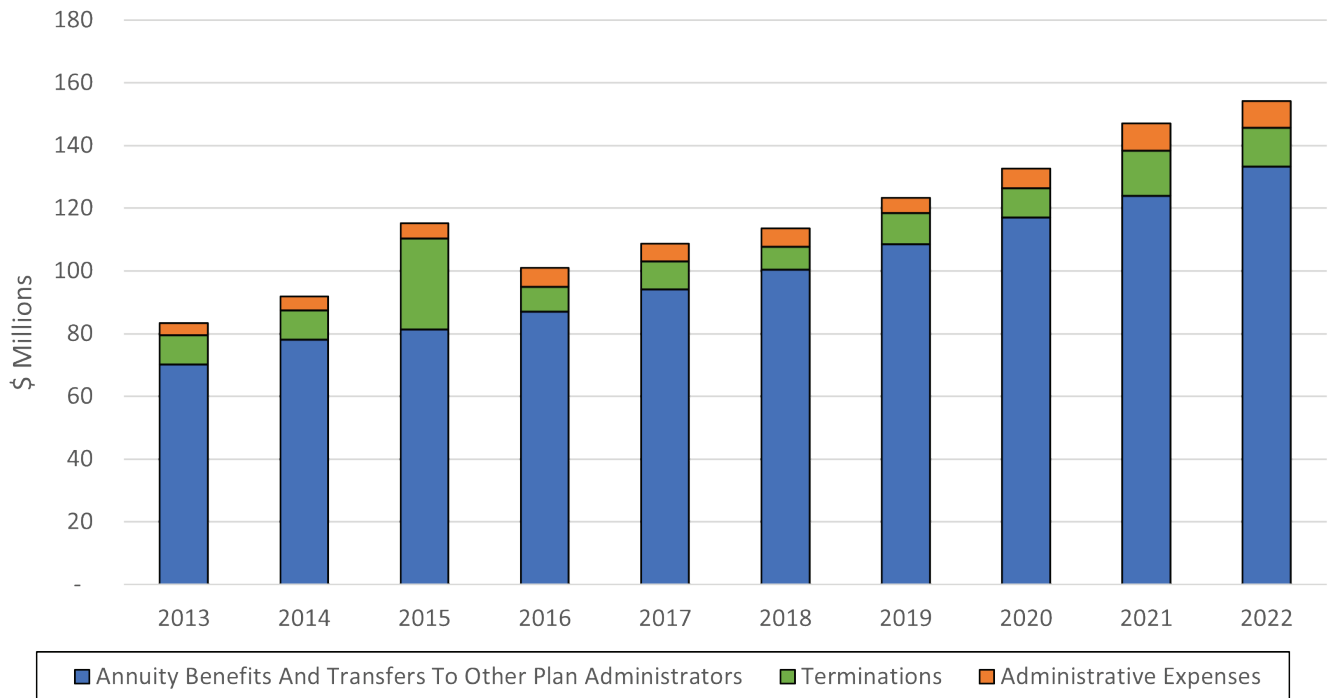
The graphs and schedules beginning on page 85 provide information relative to membership. The graphs and schedules reflect changes in active and retired members of PMRS. The information is intended to provide contextual information about PMRS' membership and framework for the ratio of funding versus obligations. The schedules beginning on page 89 provide information relative to pension payments and pensions awarded. The information is intended to provide contextual information about the payment trends of PMRS.

Part 1 Financial



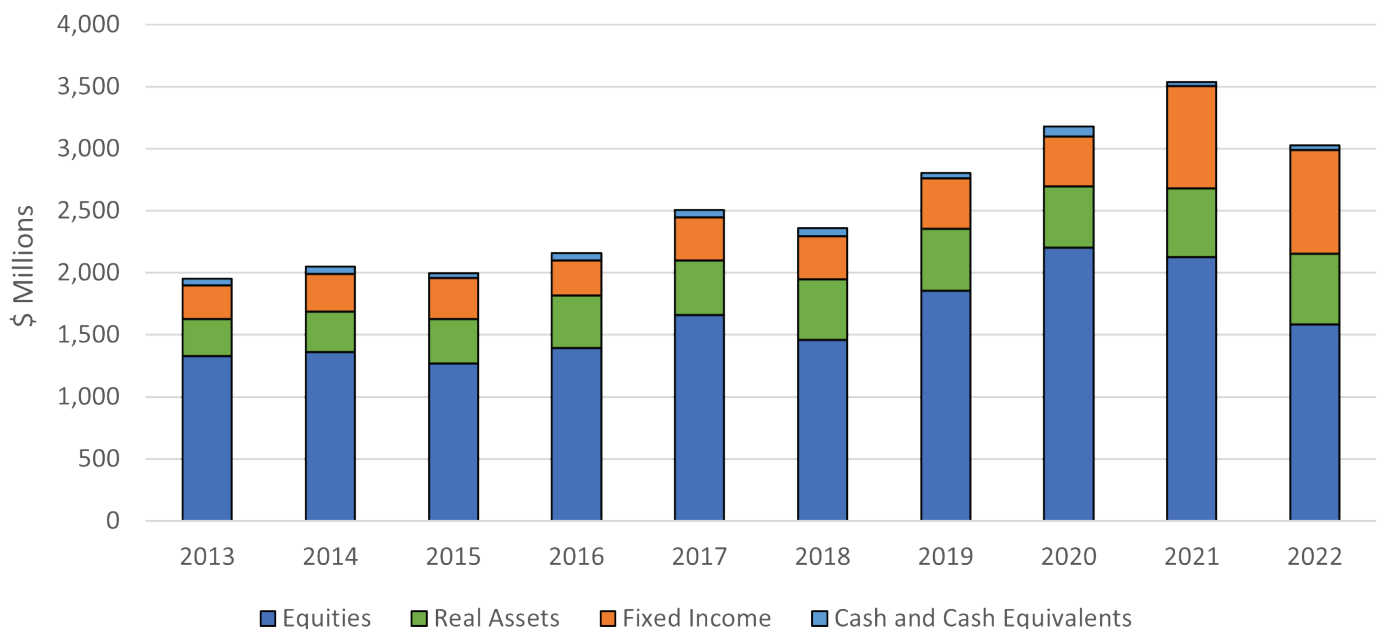
DEDUCTIONS FROM FIDUCIARY NET POSITION

10-year trend



INVESTMENTS BY TYPE

10-year trend



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
2022	\$93,554,382	\$(448,613,437)	\$145,618,589	\$8,493,399	\$(509,171,043)
2021	91,142,190	417,791,414	138,304,329	8,737,064	361,892,211
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

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
2022	\$28,623,819	\$64,661,294 ³	\$269,269	\$(448,613,437)	\$(355,059,055)
2021	26,573,783	64,316,462 ⁴	251,945	417,791,414	508,933,604
2020	25,199,715	91,184,063 ⁵	248,889	390,643,231	507,275,898
2019	24,332,531	60,994,306 ⁶	356,500	480,282,330	565,965,667
2018	23,008,066	61,288,746 ⁷	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 ⁸	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 ⁹	163,240	100,453,558	190,215,975
2013	22,416,432	38,493,407	182,560	310,197,575	371,289,974

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

²Municipal assessments are receipts but not assets of the plans

³ Municipal contributions for 2022 include additional contributions towards unfunded liability of \$1.3 million and transfers from other plan administrators of \$2.1 million.

⁴ Municipal contributions for 2021 include additional contributions towards unfunded liability of \$2.1 million and transfers from other plan administrators of \$1.9 million.

⁵ Municipal contributions for 2020 include additional contributions towards unfunded liability of \$2.1 million and transfers from other plan administrators of \$31.9 million.

⁶ Municipal contributions for 2019 include transfers from other plan administrators of \$4.7 million.

⁷ Municipal contributions for 2018 include additional contributions towards unfunded liability of \$8.6 million.

⁸ Municipal contributions for 2016 include transfers from other plan administrators of \$21.4 million.

⁹ Municipal 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
2022	\$129,466,839	\$16,151,750	\$8,493,399	\$154,111,988
2021	122,150,117	16,154,212	8,737,063	147,041,392
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

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
2022	\$81,562,037	\$33,056,109	\$1,743,445	\$10,017,883	\$952,220	\$770,920	\$1,364,225	129,466,839
2021	74,539,451	33,421,882	1,842,404	9,222,971	1,090,143	509,751	1,523,515	122,150,117
2020 ¹	66,892,692	33,990,328	1,514,134	7,906,547	1,484,134	773,643	1,730,317	114,291,795
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

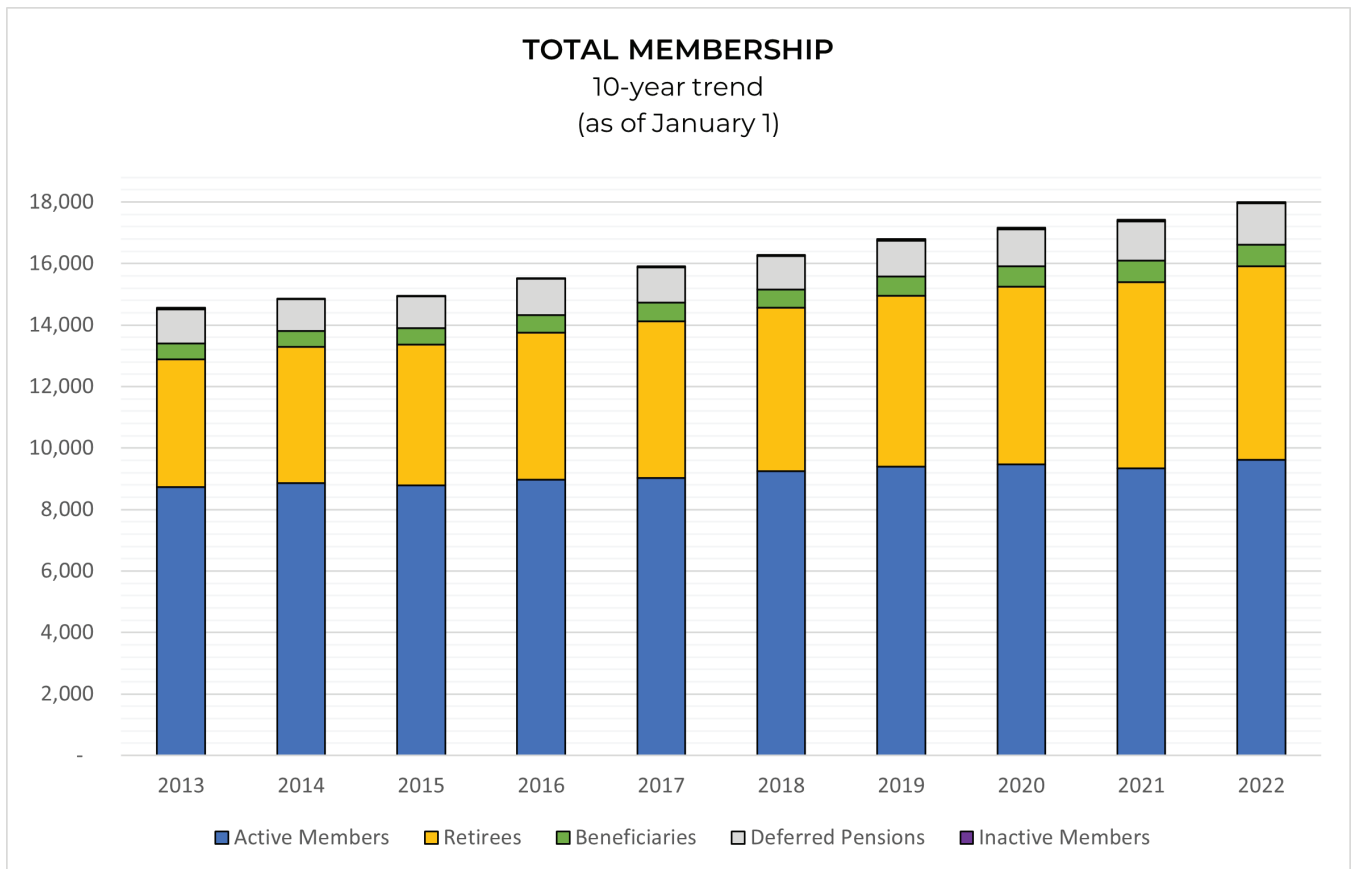
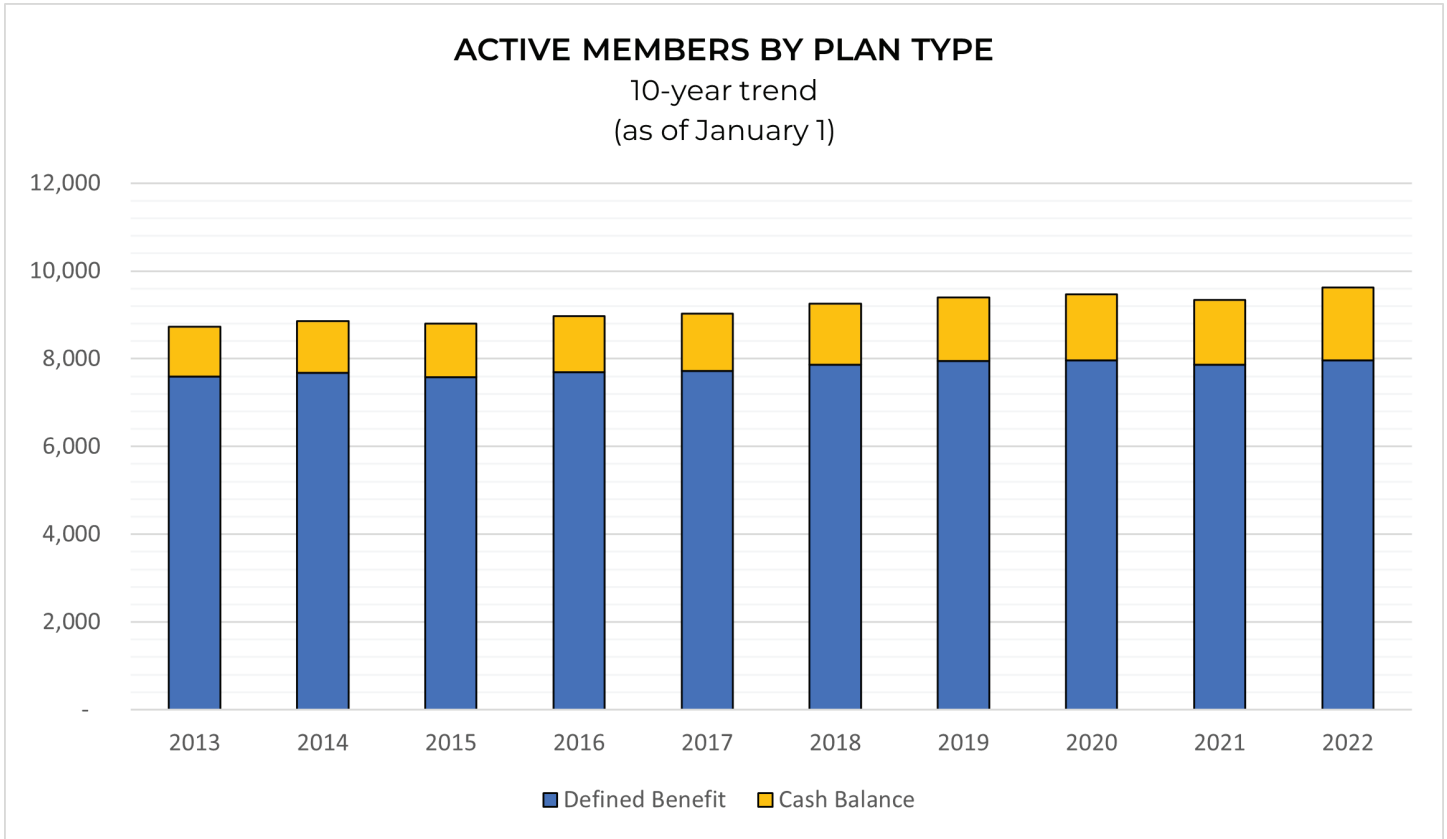
¹There is a noted increase in the 2020 Early category of payments due to CPAS recognition of categories. CPAS 5.8 identifies the category of payment as "Early" for those annuitant retiring early with no benefit reductions. CPAS 5.3 classified this group as normal.

SCHEDULE OF REFUND DEDUCTIONS
from fiduciary net position by type

10-year trend

Refunds by Type			
Year	Terminations	Lump Sum	Total Refunds
2022	\$1,450,217	\$14,701,533	\$16,151,7510
2021	2,840,063	13,314,149	16,154,212
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

Part 2: Membership

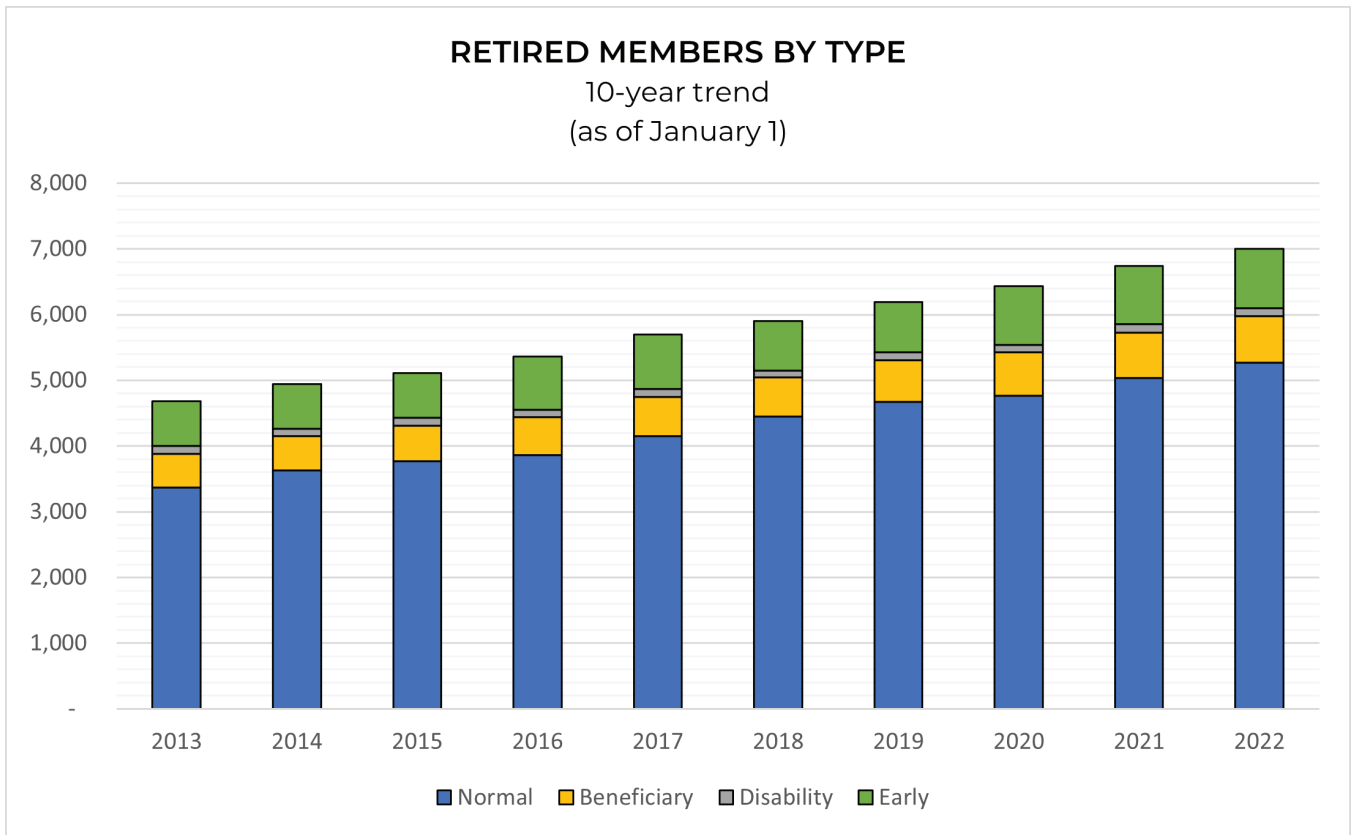


SCHEDULE OF TOTAL MEMBERSHIP
10 year trend

Active Members							
Valuation Date January 1,	Defined Benefit	Cash Balance	Retirees	Beneficiaries	Deferred Pensions ⁽¹⁾	Inactive Members ⁽²⁾	Total
2022	7,969	1,650	6,295	708	1,343	40	18,005
2021	7,860	1,486	6,050	694	1,284	47	17,421
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

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

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



DISTRIBUTION OF ACTIVE MEMBERS

counts by age/service

as of January 1, 2022

Years of 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	18	1	0	0	0	0	0	0	0	0	19
20 - 24	145	61	41	37	5	0	0	0	0	0	289
25 - 29	157	124	128	163	108	2	0	0	0	0	682
30 - 34	154	117	123	190	284	43	6	0	0	0	917
35 - 39	125	86	73	171	271	166	60	3	0	0	955
40 - 44	99	67	105	143	232	156	187	59	1	0	1,049
45 - 49	107	60	80	125	197	140	162	158	48	0	1,077
50 - 54	123	70	74	131	265	171	184	184	127	80	1,409
55 - 59	81	53	62	125	239	178	193	193	123	216	1,463
60 - 64	37	43	40	88	210	146	169	141	103	210	1,187
65 & up	13	13	18	43	86	72	75	83	53	116	572
Total	1,059	695	744	1,216	1,897	1,074	1,036	821	455	622	9,619

DISTRIBUTION OF ACTIVE MEMBERS

average salary by age/service

as of January 1, 2022

Years of 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	Average
Under 20	\$31,050	\$20,123	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$30,475
20 - 24	35,686	47,167	47,300	51,482	75,470	-	-	-	-	-	42,467
25 - 29	40,140	50,830	52,521	58,583	58,379	63,241	-	-	-	-	51,771
30 - 34	45,058	59,297	54,956	57,319	65,778	61,964	51,583	-	-	-	57,995
35 - 39	43,041	50,128	53,646	59,367	65,073	67,913	73,607	77,023	-	-	60,015
40 - 44	42,082	50,578	50,531	56,831	61,309	71,544	77,003	71,740	79,776	-	62,044
45 - 49	44,138	56,743	49,812	57,156	61,836	64,641	71,981	77,202	74,826	-	63,081
50 - 54	45,337	47,964	50,693	54,884	57,563	61,348	68,965	73,328	77,614	77,841	62,375
55 - 59	41,221	59,117	55,076	50,329	59,659	60,313	60,024	68,345	69,129	76,776	62,224
60 - 64	49,768	47,773	53,877	55,830	59,176	56,936	58,945	64,067	66,580	69,703	60,821
65 & up	44,688	43,985	35,563	51,130	60,469	54,350	55,478	64,405	59,464	66,099	58,445
Average	\$42,097	\$52,315	\$51,868	\$56,217	\$61,435	\$63,061	\$66,779	\$70,309	\$70,419	\$72,534	\$59,905

PENSIONS IN PAYMENT
by monthly amount and type
as of January 1, 2022

Monthly Amount	Type Of Pension					Total
	Normal	Involuntary Early	Voluntary Early	Service Disability	Non-Service Disability	
Under \$100	\$252	\$21	\$18	\$1	\$1	\$293
\$100 - \$199	306	29	32	1	-	368
200 - 299	286	28	37	-	-	351
300 - 399	270	24	35	4	2	335
400 - 499	298	24	32	1	2	357
500 - 599	278	9	34	1	5	327
600 - 699	222	15	35	3	-	275
700 - 799	252	14	36	1	2	305
800 - 899	247	11	33	1	9	301
900 - 999	210	9	30	6	7	262
1000 - 1199	460	16	70	6	13	565
1200 - 1399	345	9	60	6	7	427
1400 - 1599	328	5	41	8	4	386
1600 - 1799	268	5	32	1	2	308
1800 - 1999	245	3	33	3	3	287
2000 - 2199	227	3	20	3	3	256
2200 - 2399	208	4	24	3	-	239
2400 - 2599	168	-	17	1	1	187
2600 - 2799	148	-	14	2	2	166
2800 - 2999	122	-	6	-	1	129
3000 - 3499	289	1	15	1	1	307
3500 - 3999	212	-	10	-	-	222
4000 and over	337	-	12	-	1	350
Total	\$5,978	\$230	\$676	\$53	\$66	\$7,003

PENSIONS AWARDED BY TYPE AND AMOUNT

10-year trend

		Normal		Voluntary Early		Involuntary Early		Disability		Total	
Valuation Date	Count	Average Monthly Amount	Count	Average Monthly Amount	Count	Average Monthly Amount	Count*	Average Monthly Amount	Count	Average Monthly Amount	
2022	371	\$1,762	21	\$1,589	6	\$493	11 (5)	\$2,869	409	\$1,764	
2021	406	\$1,797	22	\$1,790	1	\$2,312	5 (3)	\$1,931	434	\$1,799	
2020	341	\$1,644	27	\$1,887	8	\$781	5 (5)	\$1,247	381	\$1,638	
2019	382	\$1,651	33	\$1,475	9	\$963	5 (4)	\$2,277	429	\$1,631	
2018	342	\$1,616	8	\$822	29	\$1,350	4 (1)	\$1,311	383	\$1,576	
2017	397	\$1,600	11	\$627	28	\$1,428	11 (3)	\$1,485	447	\$1,562	
2016	309	\$1,593	4	\$562	22	\$1,569	4 (2)	\$1,113	339	\$1,574	
2015	341	\$1,524	14	\$825	29	\$1,575	8 (2)	\$1,022	392	\$1,492	
2014	364	\$1,800	17	\$905	34	\$1,280	16 (2)	\$1,319	431	\$1,706	
2013	341	\$1,421	20	\$520	22	\$1,614	7 (2)	\$709	390	\$1,370	

*Number of service-related disability pensions shown in parentheses

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

10-year trend

Defined Benefit Plans

Valuation Date January 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
2022	7,969	1.4%	722	-0.3%	\$497,193,829	4.2%	\$62,391	2.8%
2021	7,860	-1.4%	724	-0.6%	476,970,336	2.4%	60,683	3.8%
2020	7,970	0.3%	728	0.7%	465,906,342	2.3%	58,458	2.1%
2019	7,949	1.0%	723	-1.0%	455,352,355	4.8%	57,284	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	1.6%	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	2.5%
2013	7,599	-3.0%	714	0.7%	376,296,674	2.6%	49,519	5.8%

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

10-year trend

Cash Balance Plans

Valuation Date January 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
2022	1,650	11.0%	322	-1.8%	\$79,029,741	10.4%	\$47,897	-0.5%
2021	1,486	-1.1%	328	0.0%	71,553,094	3.5%	48,151	4.6%
2020	1,502	3.9%	328	1.6%	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%
2014	1,185	4.8%	268	6.8%	45,193,710	1.6%	38,138	-3.1%
2013	1,131	-2.3%	251	4.6%	44,490,671	8.1%	39,337	10.7%

**SCHEDULE OF AVERAGE NEW MONTHLY
benefit payments from defined benefit plans**
10-year trend

Retirement Effective Date	Years Credited Service						
	<5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
2022							
Average monthly benefit	\$215	\$493	\$1,080	\$1,411	\$2,350	\$2,883	\$3,318
Average final average salary	\$48,759	\$51,256	\$59,835	\$56,136	\$72,378	\$77,929	\$74,239
Number of retired members	22	30	49	45	73	58	88
2021							
Average monthly benefit	\$349	\$506	\$862	\$1,345	\$2,224	\$2,735	\$2,989
Average final average salary	\$41,028	\$51,960	\$49,304	\$53,802	\$65,993	\$74,326	\$65,467
Number of retired members	12	28	54	55	68	47	95
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

SCHEDULE OF AVERAGE NEW MONTHLY BENEFIT PAYMENTS FROM CASH BALANCE PLANS
10-year trend

Retirement Effective Date	Years Credited Service						
	<5	5 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30+
2022							
Average monthly benefit	\$128	\$274	\$477	\$1,060	\$899	\$1,568	\$1,470
Number of retired members	5	15	8	9	11	5	8
2021							
Average monthly benefit	\$156	\$310	\$485	\$840	\$592	\$1,335	\$1,151
Number of retired members	3	9	9	12	6	10	13
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

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

AUTHORITIES AND OTHER UNITS

Allegheny Valley Joint Sewage Authority	Cambria County Conservation & Recreation Authority	Management Association
Ambridge Borough Municipal Authority	Cambria County Conservation District	Delaware Valley Municipal Management Association (CB Plan)
Armstrong Conservation District	Cambria Township Sewer Authority	Derry Township Municipal Authority
Avonmore Borough Municipal Authority	Cambria Township Water Authority	Derry Township Sanitary Sewer Authority
B.A.R.T.A.	Capital Region Water	DuBois City Redevelopment Authority
Bangor Borough Authority	Carbon County Conservation District	East Berlin Area Joint Authority
Bath Borough Authority	Carmichaels-Cumberland Joint Sewer Authority	East Norriton-Plymouth-Whitpain Joint Sewer Authority
Bedford Township Municipal Authority	Carroll Township Authority	Eastern Snyder County Regional Authority
Belle Vernon Municipal Authority	Catawissa Borough Municipal Water Authority	Economy Borough Municipal Authority
Bethlehem Authority	Centerville Borough Sanitary Authority	Elizabeth Borough Municipal Authority
Bethlehem City Redevelopment Authority	Central Carbon Municipal Authority	Elizabeth Township Sanitary Authority
Bethlehem Parking Authority	Central Indiana County Joint Sanitary Authority	Elizabethville Area Authority
Blair Township Water and Sewer Authority	Centre County Library & Historical Museum	Erie County Diversity Equity Inclusion Commission
Bloomfield Township Sewage Authority	Clarion County Housing Authority	Erie County Housing Authority
Bradford City Water Authority	Clarion County Housing Authority (CB Plan)	Everett Area Municipal Authority
Bradford Regional Airport Authority	Coaldale-Lansford-Summit Hill Sewer Authority	Fairfield Municipal Authority
Brighton Township Municipal Authority	Collier Township Sewer Department	Fawn Township Sewage Authority
Brighton Township Sewage Authority	Columbia County Conservation District	Fawn-Frazer Joint Water Authority
Brockway Area Sewage Authority	Connellsville Municipal Authority	Fayette County Conservation District
Brockway Borough Municipal Authority	Connellsville Redevelopment Authority	Frackville Area Municipal Authority
Brodhead Creek Regional Authority	Conshohocken Borough Authority	Franklin City Housing Authority
Brookville Municipal Authority	Coolspring, Jackson & Lake Latonka Joint Authority	Franklin Township Municipal Sanitary Authority
Bucks County Redevelopment Authority	Coplay-Whitehall Sewer Authority	Franklin Township Sewer Authority
Bucks County Water & Sewer Authority	Cressona Borough Authority	Frazer Transportation Authority
Bucks County Water and Sewer Authority (CB Plan)	Creswell Heights Joint Authority	Fredericksburg Sewer & Water Authority
Burrell Township Sewage Authority	Cumberland-Franklin Joint Municipal Authority	Freeland Borough Municipal Authority
Butler Area Public Library	Curwensville Municipal Authority	Glendale Valley Municipal Authority
	Delaware Valley Municipal	Greater Lebanon Refuse Authority

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

Greenville Municipal Authority	Linesville Pine Joint Municipal Authority	Moon Township Municipal Authority
Guilford Township Authority	London Grove Township Municipal Authority	Mount Jewett Borough Authority
Guilford Water Authority	Lower Bucks County Joint Municipal Authority	Mount Joy Township Authority
Harrison Township Water Authority	Lower Bucks County Joint Municipal Authority Supervisors	Mount Lebanon Parking Authority
Hawley Area Authority	Lower Indiana County Municipal Authority	Mount Pleasant Township Municipal Authority
Hellertown Borough Authority	Lower Mahanoy Township Municipal Authority	Mount Pocono Municipal Authority
Hilltown Township Water & Sewer Authority	Luzerne Conservation District	Municipal Authority of the Borough of Kittanning
Horsham Water and Sewer Authority	Luzerne County Flood Protection Authority	Municipal Authority of the Borough of Matamoras
Hughesville-Wolf Township Joint Municipal Authority	Mahanoy Township Authority	Municipal Authority of the Borough of Morrisville
Hyndman Borough Municipal Authority	Maidencreek Township Authority	Municipal Authority of the Borough of Portage Water Department
Indiana County Conservation District	Manheim Area Water and Sewer Authority	Municipal Authority of Westmoreland County of COJMA
Indiana County Solid Waste Authority	Manor Township Joint Municipal Authority	Myerstown Community Library Association
Jackson Township Water Authority	Mary Meuser Memorial Library	Myerstown Water Authority
Jefferson Conservation District	McKean County Solid Waste Authority	Nanty Glo Sanitary Sewer Authority
Jefferson County Solid Waste Authority (Jefferson County)	Mercer County Regional Planning Commission	Nanty Glo Water Authority
Jenner Area Joint Sewer Authority	Mid Mon Valley Water Authority	Nesquehoning Borough Authority
Johnsonburg Municipal Authority	Middlesex Township Municipal Authority	New Kensington Municipal Sanitary Authority
Johnstown Redevelopment Authority	Middletown Township Sewer Authority	New Kensington Redevelopment Authority
Juniata County Conservation District	Mifflin County Regional Police NU	Newport Borough Water Authority
Kiskiminetas Township Municipal Authority	Mifflintown Municipal Authority	North & South Shenango Joint Municipal Authority
Kittanning Suburban Joint Water Authority	Milford Water Authority	North Coventry Municipal Authority
Kulpmont-Marion Heights JMA	Millcreek - Richland Joint Authority	North Huntingdon Township Municipal Authority
Lancaster City Parking Authority	Millersburg Area Authority	North Middleton Authority
Lansford - Coaldale Joint Water Authority	Mon Valley Sewage Authority	North Strabane Township Municipal Authority
Lebanon City Authority	Monroe County Control Center	Northampton Borough Municipal Authority
Lebanon City Authority (CB Plan)	Monroe County Redevelopment Authority	Northampton Borough Municipal Authority (CB Plan)
Lebanon Community Library	Montgomery County Sewer Authority	
Leetsdale Borough Municipal Authority	Montour County Conservation District	
Lehigh County Authority	Montrose Municipal Authority	
Lehighon Water Authority		

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

Northeastern Regional Police NU	Shannock Valley General Services Authority	Warwick Township Municipal Authority
Northern Lancaster County Authority	Sharon Sanitary Authority	Washington Area COG
Northern York County Regional Police NU	Sheffield Township Municipal Authority	Washington Township Municipal Authority (Berks County)
Northwest Regional Lancaster County Police NU	Slippery Rock Municipal Authority	Washington Township Municipal Authority (Fayette County)
Oil City Housing Authority	Smithton Borough Municipal Authority	Waterford Borough Municipal Authority
Parker Area Authority	Snake Spring Township Municipal Authority	Wayne County Redevelopment Authority
Parker Area Authority (CB Plan)	Snyder County Housing Authority	Wayne Library Authority
Parks Township Municipal Authority	Somerset Conservation District	Wernersville Municipal Authority
Penn Township Sewage Authority	South Fayette Township Municipal Authority	West Carroll Water Authority
Pennridge Wastewater Treatment Authority	South Middleton Township Municipal Authority	West Hanover Township Water & Sewer Authority (CB)
Pennsylvania Municipal League	Southern Police Commission NU	Western Butler County Authority
Perkasie Regional Authority	Southwestern Pa Water Authority	Western Clinton County Municipal Authority
Peters Creek Sanitary Authority	St. Marys Area Water Authority	Western Westmoreland Municipal Authority
Peters Township Municipal Authority	Stormwater Authority of the City of Chester	Western Westmoreland Municipal Authority (CB Plan)
Pleasant Hills Authority	Summit Hill Water Authority	Westmoreland-Fayette Municipal Sewage Authority
Pocono Mountains Municipal Airport Authority (CB)	Sunbury Municipal Authority	White Run Regional Municipal Authority
Point Township Sewer Authority	Swatara Township Authority	Whitehall Township Authority
Portage Area Sewer Authority	Swatara Township Authority CB	Williamstown Borough Authority
Possum Valley Municipal Authority	Tower City Borough Authority	Womelsdorf-Robeson Joint Authority
Redevelopment Authority of the City of Corry	Township of Falls Authority	Wyoming Valley Sanitary Authority
Reynoldsville Water Authority	Tri-County COG IBC	York County Planning Commission
Riverview Sanitary Authority	Tri-County Joint Municipal Authority	BOROUGH
Robesonia-Wernersville Municipal Authority	Twin Boroughs Sanitary Authority	Adamstown Borough
Robinson Township Municipal Authority	Upper Allegheny Joint Sanitary Authority	Apollo Borough
Rochester Area Joint Sewer Authority	Upper Montgomery Joint Authority	Ashland Borough
Rostraver Township Sewer Authority	Upper Southampton Municipal Authority	Atglen Borough
Saxton Borough Municipal Authority	Vanport Township Municipal Authority	Atglen Borough (CB Plan)
Seward/St. Clair Township Sanitary Authority	Vernon Township Sanitary Authority	Avondale Borough
Sewer Authority of Twp of Pittston	Vernon Township Water Authority	Avonmore Borough
Shade-Central City Joint Authority	Warren County Housing Authority	Bally Borough
	Warren County Solid Waste Authority	Bangor Borough

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

Bangor Borough (CB Plan)	Conway Borough	Huntingdon Borough
Bedford Borough	Cressona Borough	Hyndman Borough
Bedford Borough (CB)	Dalton Borough	Jamestown Borough
Bellefonte Borough	Deemston Borough	Jessup Borough
Bellefonte Borough (CB Plan)	Delmont Borough	Jim Thorpe Borough
Bellwood Borough	Derry Borough	Johnsonburg Borough
Bentleyville Borough	Dravosburg Borough	Jonestown Borough
Berlin Borough	Dublin Borough	Kenhorst Borough
Berlin Borough (CB Plan)	Duboistown Borough	Kennett Square Borough
Big Beaver Borough	Duncannon Borough	Kittanning Brough CB
Biglerville Borough	Duncansville Borough	Kittanning Borough
Biglerville Borough (CB Plan)	East Berlin Borough	Knox Borough
Bloomfield Borough	East Greenville Borough	Kulpmont Borough
Bowmanstown Borough	East Rochester Borough	Kutztown Borough
Brackenridge Borough	East Stroudsburg Borough	Larksville Borough
Bridgeville Borough	East Stroudsburg Borough (CB Plan)	Lehighton Borough
Bridgewater Borough	East Washington Borough	Lewistown Borough
Brockway Borough	Emlenton Borough	Liberty Borough
Brookville Borough	Emporium Borough	Linesville Borough
California Borough	Etna Borough	Lykens Borough
Cambridge Springs Borough	Everett Borough	Marcus Hook Borough
Camp Hill Borough	Factoryville Borough	Mars Borough
Camp Hill Borough (CB Plan)	Falls Creek Borough	Martinsburg Borough
Carnegie Borough	Ferndale Borough	Marysville Borough
Carroll Valley Borough	Ford City Borough	Matamoras Borough
Carrolltown Borough	Forest City Borough	Mayfield Borough
Centerville Borough	Fountain Hill Borough	Mercer Borough
Central City Borough	Fountain Hill Borough (CB)	Meyersdale Borough
Charleroi Borough	Franklin Borough	Middleburg Borough
Christiana Borough (Lancaster County)	Franklintown Borough	Midway Borough
Claysville Borough	Freeburg Borough	Millersburg Borough
Cleona Borough	Freedom Borough (Beaver County)	Millerstown Borough
Clymer Borough	Freeland Borough	Millville Borough
Coaldale Borough	Freeport Borough	Minersville Borough
Cochranton Borough	Greenville Borough	Monaca Borough
Cokeburg Borough	Hollidaysburg Borough	Monroeville Municipality
Collegeville Borough	Homer City Borough	Mont Alto Borough
Collingdale Borough	Hughestown Borough	Montrose Borough
Conneautville Borough	Hummelstown Borough	Moosic Borough
Conshohocken Borough		Moosic Borough (CB Plan)
		Morrisville Borough

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

Moscow Borough	Seven Fields Borough (CB Plan)	Youngwood Borough
Mount Gretna Borough	Shamokin Dam Borough	CITY
Mount Jewett Borough	Sharpsburg Borough	Allentown City
Mount Pleasant Borough	Sharpsville Borough	Bethlehem City
Mount Union Borough	Shenandoah Borough	Clairton City
Nanty Glo Borough	Shippingport Borough	Connellsville City
Narberth Borough	Slippery Rock Borough	Easton City
Nesquehoning Borough	Smithton Borough	Farrell City
New Eagle Borough	South Waverly Borough	Greensburg City
New Florence Borough	Southmont Borough	Harrisburg City
New Stanton Borough	Spring Grove Borough Police NU	Hermitage City
Newport Borough	Springdale Borough	Jeannette City
Newtown Borough	Stewartstown Borough	Latrobe City
Norristown Borough	Summit Hill Borough	Lebanon City
North East Borough	Tarentum Borough	Lower Burrell City
North Wales Borough	Tatamy Borough (CB)	Nanticoke City
Northumberland Borough	Telford Borough	New Kensington City
Orwigsburg Borough	Thornburg Borough	Sharon City
Palmerton Borough	Topton Borough	Sunbury City
Palmyra Borough	Trafford Borough	Uniontown City
Pen Argyl Borough	Trainer Borough	COUNTY
Pennsburg Borough	Turbotville Borough	Adams County
Perkasie Borough	Turtle Creek Borough	Erie County Gaming Revenue Authority
Pine Grove Borough	Verona Borough	Forest County
Portage Borough	Versailles Borough	Jefferson County
Pringle Borough	Waterford Borough	Sullivan County
Prospect Borough	Waynesburg Borough	FIREFIIGHTERS
Prospect Park Borough	West Grove Borough	Clairton Firefighters
Richland Borough	West Middlesex Borough	Farrell City Firefighters
Ridley Park Borough	West Newton Borough	Greenville Borough Firemen
Roaring Spring Borough	West Reading Borough	Harrisburg Fire
Rochester Borough	Wheatland Borough	Larksville Borough Firemen
Rouseville Borough	White Haven Borough	Manchester Township Firefighters
Rural Valley Borough	Williamsburg Borough	Manchester Township Firefighters (CB Plan)
Salisbury Borough	Williamstown Borough	North Strabane Township Fire
Sandy Lake Borough	Wilmerding Borough	North Strabane Township Fire (CB)
Saxton Borough	Wilson Borough	South Strabane Township Fire
Schuylkill Haven Borough	Windsor Borough	Upper Moreland Firefighters
Selinsgrove Borough	Yardley Borough	Wilson Borough Firemen
Sellersville Borough	Yoe Borough	
Seven Fields Borough	York Springs Borough	

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

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

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

Millersburg Borough Police	Quarryville Borough Police	Washington Township Police (Fayette County)
Millville Borough Police	Red Lion Police	Washington Township Police (Westmoreland County)
Montour Township Police	Redstone Township Police	Waverly Township Police
Moore Township Police	Richland Borough Police	West Caln Township Police
Moosic Borough Police	Richland Township Police	West Fallowfield Township Police
Morrisville Borough Police	Roaring Brook Township Police	West Grove Borough Police
Moscow Borough Police	Roaring Spring Borough Police	West Lampeter Township Police
Mount Jewett Borough Police	Rochester Township Police	West Middlesex Borough Police
Mount Pleasant Borough Police	Rye Township Police	West Newton Borough Police
Mount Union Borough Police	Sadsbury Township Police	West Pikeland Township Police
New Castle Township Police	Sandy Lake Borough Police	West Pottsgrove Township Police
New Garden Township Police	Saxton Borough Police	West Sadsbury Township Police
New Wilmington Borough Police	Schwenksville Borough Police	West Vincent Township Police
Newport Borough Police	Scott Township Police	Westfield Borough Police
Newtown Borough Police	Scottdale Borough Police	White Haven Borough Police
Nockamixon Township Police	Selinsgrove Borough Police	Wiconisco Township Police
North Coventry Township Police	Shade Township Police	Williamsburg Borough Police
North Hopewell Township Police	Shamokin Dam Borough Police	Williamstown Borough Police
North Huntingdon Township Police	Sheffield Township Police	Windsor Township Police
North Middleton Township Police	Shippingport Borough Police	Wrightstown Township Police
North Sewickley Township Police	Shiremanstown Borough Police	Yardley Borough Police
North Woodbury Township Police	Sinking Spring Borough Police	York Area Regional Police Department
Northeastern Regional Police Department	South Beaver Township Police	Youngwood Borough Police
Northumberland Borough Police	South Centre Township Police	
Old Lycoming Township Police	South Pymatuning Township Police	
Orangeville Area Police Board	South Waverly Borough Police	TOWNSHIP OF
Orwigsburg Borough Police	South Williamsport Borough Police	THE FIRST CLASS
Palmyra Borough Police	Southern Chester County Regional Police Department	Bristol Township
Paxtang Borough Police	Southern Police Commission	Caln Township
Penbrook Borough Police	Summit Hill Borough Police	Collier Township
Pennridge Regional Police Dept	Tatamy Borough Police (CB)	Crescent Township
Pennridge Regional Police N-U	Telford Borough Police	East Deer Township
Pequea Township Police	Tinicum Township Police	Elizabeth Township (Allegheny County)
Perkasie Borough Police	Tulpehocken Township Police	Harrison Township
Pine Grove Borough Police	Tunkhannock Township Police	Hopewell Township (Beaver County)
Point Township Police	Upper Burrell Township Police	North Huntingdon Township
Polk Borough Police	Upper Macungie Township Police	North Versailles Township
Pulaski Township Police	Vanport Township Police	Ridley Township
Pymatuning Township Police	Versailles Borough Police	Rochester Township

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

Salisbury Township
Springdale Township
Susquehanna Township
Swatara Township
Swatara Township (CB Plan)
Upper Moreland Township
Vanport Township
West Pottsgrove Township
Whitehall Township
Whitehall Township (CB Plan)
Wilkins Township

TOWNSHIP OF THE SECOND CLASS

Allegheny Township
(Westmoreland County)
Antrim Township
Athens Township
Bald Eagle Township
Beaver Township
Bedminster Township
Bell Township
Bethel Township
Birmingham Township
Black Creek Township
Blair Township
Bloomfield Township
Blooming Grove Township
Boggs Township (Centre County)
Boggs Township (Clearfield
County)
Brecknock Township
Brecknock Township (Berks
County) (CB Plan)
Briar Creek Township
Brighton Township
Broad Top Township
Brokenstraw Township
Brothersvalley Township
Brown Township
Buckingham Township
Buffalo Township
Burnside Township

Burrell Township
Caernarvon Township
Cambria Township
Cambridge Township
Canal Township
Canton Township
Cass Township
Center Township (Greene County)
Center Township (Indiana County)
Center Township (Snyder County)
Centre Township (Berks County)
Centre Township (Perry County)
Cherrytree Township
Chippewa Township
Clarion Township
Clay Township
Clearfield Township
Columbus Township
Concord Township
Conemaugh Township
Conewago Township
Cook Township
Coolspring Township
Cornplanter Township
Corydon Township
Covington Township
Cranberry Township
Cross Creek Township
Cussewago Township
Darlington Township
Delaware Township
Derry Township (Dauphin County)
Derry Township (Dauphin County)
(CB Plan)
Derry Township (Mifflin County)
Derry Township (Westmoreland
County)
Dickinson Township
Dingman Township
Donegal Township (Butler County)
Donegal Township (Washington
County)

Donegal Township
(Westmoreland County)
Dorrance Township
Douglass Township (Montgomery
County)
Drumore Township
East Allen Township
East Carroll Township
East Coventry Township
East Coventry Township (CB Plan)
East Fallowfield Township
East Finley Township
East Hanover Township
East Huntingdon Township
East Manchester Township
East Marlborough Township
East Rockhill Township
East Rockhill Township (CB Plan)
Eaton Township
Eldred Township (Jefferson
County)
Eldred Township (Monroe County)
Eldred Township (Warren County)
Elizabeth Township (Lancaster
County)
Elizabeth Township (Lancaster
County) (CB Plan)
Elk Creek Township
Elk Township
Fairfield Township
Fairview Township
Falls Township
Farmington Township (Clarion
County)
Farmington Township (Warren
County)
Forks Township
Forks Township (CB Plan)
Forward Township
Foster Township
Franklin Township (Beaver
County)
Franklin Township (Butler County)

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

Franklin Township (Carbon County)	County)	Manchester Township (CB Plan)
Franklin Township (Greene County)	Jackson Township (Snyder County)	McKean Township
Franklin Township (Susquehanna Co)	Jackson Township (Susquehanna County)	Mead Township
Frazer Township	Jackson Township (Venango County)	Middle Smithfield Township
Freedom Township	Jefferson Township (Washington County)	Middlesex Township
Freehold Township	Jenks Township	Milford Township (Bucks County)
Frenchcreek Township	Jenner Township	Milford Township (Pike County)
Girard Township	Jones Township	Millcreek Township
Glade Township	Keating Township	Monongahela Township
Greene Township	Kennett Township	Monroe Township (Snyder County)
Greenfield Township (Blair County)	Lancaster Township (Butler County)	Monroe Township (Wyoming County)
Greenfield Township (Erie County)	Lancaster Township (Lancaster County)	Montour Township
Greenfield Township (Lackawanna County)	Latimore Township	Moore Township
Hamilton Township	LeBoeuf Township	Morris Township (Greene County)
Hamiltonban Township	Lehman Township	Morris Township (Tioga County)
Hamlin Township	Liberty Township (McKean County)	Morris Township (Washington County)
Hanover Township (Beaver County)	Liberty Township (Tioga County)	Mount Joy Township
Hanover Township (Lehigh County)	Limestone Township (Clarion County)	Mount Pleasant Township
Haycock Township	Limestone Township (Lycoming County)	Muncy Creek Township
Hemlock Township	Limestone Township (Union County)	New Garden Township
Henderson Township	Lincoln Township	New Sewickley Township
Hilltown Township	Liverpool Township	Nockamixon Township
Hopewell Township (Cumberland County)	London Britain Township	North Buffalo Township
Hopewell Township (Washington County)	London Grove Township	North Coventry Township
Hopewell Township (York County)	Lower Mahanoy Township	North Franklin Township
Horsham Township	Lower Towamensing Township	North Newton Township (CB)
Howe Township	Lower Towamensing Township (CB Plan)	North Sewickley Township
Hunlock Township	Lower Yoder Township	North Strabane Township
Huntington Township	Loyalhanna Township	North Strabane Township (CB Plan)
Huston Township	Loyalhanna Township (CB Plan)	Nottingham Township
Jackson Township (Greene County)	Mahanoy Township	Oakland Township
Jackson Township (Lebanon County)	Mahoning Township	Oakland Township NU CB
Jackson Township (Luzerne County)	Manchester Township	Oil Creek Township (Crawford County)
		Oil Creek Township (Venango County)
		Old Lycoming Township
		Oliver Township (Jefferson County)
		Oliver Township (Mifflin County)

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

Orange Township	Rye Township	Union Township (Snyder County)
Paint Township	Rye Township (Perry County) (CB Plan)	Union Township (Washington County)
Paradise Township	Salford Township	Unity Township
Penn Township	Scott Township	Upper Burrell Township
Pennsbury Township	Sewickley Township	Upper Frederick Township
Perry Township	Shade Township	Upper Milford Township
Peters Township	Sheffield Township	Upper Nazareth Township
Peters Township (CB Plan)	Shippensburg Township	Valley Township
Pike Township	Shrewsbury Township	Wallace Township
Pine Creek Township	Slippery Rock Township	Warrington Township
Pine Grove Township (Schuylkill County)	Smithfield Township	Warsaw Township
Pine Grove Township (Warren County)	Snake Spring Township	Warwick Township
Pittsfield Township	Solebury Township	Washington Township (Berks County)
Pleasant Township	Solebury Township (CB Plan)	Washington Township (Cambria County)
Plum Township	South Abington Township	Washington Township (Dauphin County)
Plumcreek Township	South Abington Township (CB Plan)	Washington Township (Erie County)
Plumstead Township	South Beaver Township	Washington Township (Fayette County)
Plymouth Township	South Bend Township	Washington Township (Greene County)
Pocopson Township	South Franklin Township	Washington Township (Jefferson County)
Point Township	South Hanover Township	Washington Township (Northampton County - CB Plan)
Portage Township	South Huntingdon Township	Washington Township (Northampton County)
Porter Township	South Manheim Township	Washington Township (Schuylkill County)
Preston Township	South Middleton Township	Washington Township (Westmoreland County)
Price Township	South Pymatuning Township	Washington Township (Wyoming County)
Providence Township	South Strabane Township	Waverly Township
Pulaski Township	Southampton Township	Wayne Township
Pymatuning Township	Southwest Township	West Bradford Township
Raccoon Township	Spring Creek Township	West Brunswick Township
Rice Township	Springfield Township	West Caln Township
Richhill Township	Stonycreek Township	West Carroll Township
Richland Township (Bucks County)	Sugar Grove Township	West Fallowfield Township
Richland Township (CB Plan)	Sullivan Township	
Richland Township (Venango County)	Summit Township	
Ridgway Township	Tinicum Township	
Rome Township	Towamensing Township	
Rose Township	Tredyffrin Township	
Ross Township	Tunkhannock Township	
Rutland Township	Union Township (Berks County)	
	Union Township (Lebanon County)	

SCHEDULE OF PARTICIPATING PLANS

as of December 31, 2022

West Lampeter Township
West Pennsboro Township
West Rockhill Township
West Sadsbury Township
West Salem Township
West Wheatfield Township
Westtown Township
Wetmore Township
White Township
Whiteley Township
Wiconisco Township
Williams Township
Wilmington Township
Windsor Township
Wright Township
Wrightstown Township
Zerbe Township



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