



Ohio Police & Fire Pension Fund

2021 ANNUAL COMPREHENSIVE
FINANCIAL REPORT
FOR YEAR ENDED DECEMBER 31, 2021





2021 Annual Comprehensive Financial Report

For year ended Dec. 31, 2021

Prepared through the combined efforts of OP&F staff

Prudence • Integrity • Empathy

Securing the future for Ohio's police and firefighters

140 East Town Street
Columbus, Ohio 43215

Customer Service: 1-888-864-8363

General Information: (614) 228-2975

TTY: (614) 221-3846

FAX: (614) 628-1777

E-mail: questions@op-f.org

www.op-f.org

Copyright © 2022 by Ohio Police & Fire Pension Fund.

All Rights Reserved.

2021

ANNUAL COMPREHENSIVE FINANCIAL REPORT

FOR YEAR ENDED DEC. 31, 2021

PREPARED THROUGH THE COMBINED EFFORTS OF OHIO POLICE & FIRE PENSION FUND STAFF

TABLE OF CONTENTS

v INTRODUCTION *unaudited*

Board of Trustees	vi
Administrative Staff	vii
Professional Consultants	vii
Awards.....	viii
Letter of Transmittal	x
Demographics and Economic impact	xv

1 FINANCIAL

Independent Auditor's Report.....	2
Management's Discussion and Analysis (Unaudited)	5

BASIC FINANCIAL STATEMENTS

Statement of Fiduciary Net Position	9
Statements of Changes in Fiduciary Net Position	10
Notes to Basic Financial Statements.....	11

REQUIRED SUPPLEMENTARY INFORMATION

(UNAUDITED)

Schedule of Changes in the Employers' Net Pension Liability	41
Schedule of Employers' Net Pension Liability (Asset).....	43
Schedule of Employer Contributions - Pension Trust Fund	43
Schedule of Investment Returns.....	43
Notes to Required Supplementary Pension Information	44
Schedule of Changes in Net Other Post-Employment Benefit (OPEB) Liability and Related Ratios	45
Schedule of Net OPEB Liability (Asset)	45
Schedule of Employer Contributions - Retiree Health Care Trust Fund	46
Schedule of Investment Returns.....	46
Notes to Required Supplementary OPEB Information	47
Schedule of Ohio Police & Fire Pension Fund's (OP&F) Proportionate Share of the Net Pension Liability Ohio Public Employees Retirement Plan.....	48
Schedule of Contributions Ohio Public Employees Retirement Plan	49
Schedule of OP&F's Proportionate Share of the Net OPEB Liability Ohio Public Employees Retirement Plan	50
Schedule of OPEB Contributions Ohio Public Employees Retirement Plan	50
ADDITIONAL INFORMATION	
Schedule of Administrative Expenses.....	51
Schedule of Investment Expenses	51
Combining Statement of Changes in Assets and Liabilities - Public Safety Officers Death Benefit Fund.....	52

54 INVESTMENTS *unaudited*

Investment Report	55
Investment Portfolio Summary	63
Ten Largest Common Stocks	64
Ten Largest Bonds and Obligations.....	64
Ten Largest Real Estate Holdings.....	64
Schedule of Investment Results	65
Investment Consultants and Money Managers	66
Schedule of Brokers' Fees Paid	67
Investment Policy and Guidelines.....	68

78 ACTUARIAL *unaudited*

Report of Actuary	79
Description of Actuarial Assumptions and Methods.....	83
Plan Summary	91
Analysis of Financial Experience - Pension Trust Fund	99
Short-Term Solvency Test - Pension Trust Fund.....	100
Active Member Valuation Data - Pension Trust Fund	101
Retirees and Beneficiaries Added to and Removed from Rolls - Pension Trust Fund.....	101
Calculation of Actuarial Value of Assets - Pension Trust Fund	102
Schedule of Funding progress - Pension Trust Fund	102
Employer Contribution Rates	103
Member Contribution Rates.....	103

TABLE OF CONTENTS

(continued)

104 STATISTICAL *unaudited*

STATISTICAL OBJECTIVES

FINANCIAL TRENDS

Changes in Fiduciary Net Position	106
Changes in Fiduciary Net Position	107
Changes in Fiduciary Net Position	108
Revenues by Source	109
Expenses by Type	109
Benefit Expenses by Type	109
Deferred Retirement Option Plan (DROP) Program Balances	110

REVENUE CAPACITY INFORMATION

Active Member and Total Payroll Base Statistics	111
Active Membership Data	111
Retired Membership by Type of Benefits	112
Retirees and Beneficiaries Statistics	112
Average Monthly Benefit Payments	113
Member Health Care Information	114
State of Ohio Subsidy Payments	114
OP&F's Cost-Of-Living Allowance (COLA) History	115
Employer Contribution Rates	117
Member Contribution Rates	117
Health Care Allocation Rates from Employer Contributions	117
Actuarial Interest Rates	118
DROP and Re-Employed Interest Rates	119
DROP Member Count Roll Forward	120
Actuarial Valuation Information - Pension Trust Fund	120
Historical Annual Investment Results	121

DEBT CAPACITY INFORMATION

DEMOGRAPHIC AND ECONOMIC INFORMATION

Number of Employer Units	122
--------------------------------	-----

OPERATING INFORMATION

Retired Membership by Type of Benefits and Average Annual Allowance	123
Schedule of Average Benefits	124
Principal Participating Employers	125
Principal Participating Employers	125
OP&F Employee Budgeted Position Counts	126
Personnel Salaries by Year	126
OP&F Budget	126
Other Operating Statistics	127
Death Benefit Fund	128

LIST OF PROFESSIONAL ACRONYMS, SYMBOLS AND ABBREVIATIONS



INTRODUCTION

2021 ANNUAL COMPREHENSIVE FINANCIAL REPORT



BOARD OF TRUSTEES

ADMINISTRATIVE STAFF

PROFESSIONAL CONSULTANTS

AWARDS

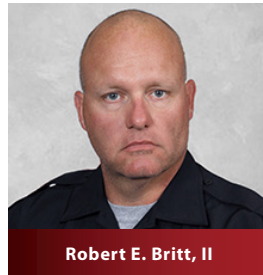
LETTER OF TRANSMITTAL

DEMOGRAPHICS AND ECONOMIC IMPACT

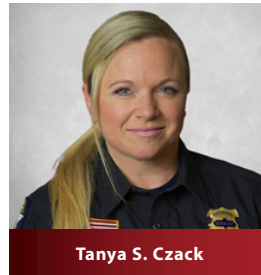
BOARD OF TRUSTEES



Stephen A. Corvi



Robert E. Britt, II



Tanya S. Czack



John R. Deal



Mark E. Drum



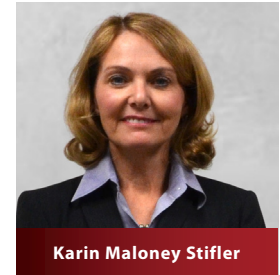
Marco J. Miller



J. David Heller



Charles O. Moore



Karin Maloney Stifler

ABOUT THE BOARD OF TRUSTEES

Ohio law provides for the Ohio Police & Fire Pension Fund (OP&F) Board of Trustees to be comprised of nine members. There are six employee members elected to four-year terms by their respective member groups: two active representatives of police departments, two active representatives of fire departments, one retired police officer and one retired firefighter. The Board of Trustees also includes three statutory members. Each statutory member – one appointed by the Governor of Ohio, one by the Ohio Treasurer of State and one appointed jointly by the Ohio Senate President and the Ohio Speaker of the House – must have professional investment expertise.

The OP&F Board of Trustees appoints the Executive Director, an actuary and other advisors necessary for the transaction of business. By law, the Ohio Treasurer of State is custodian of OP&F's funds. The Board of Trustees meets monthly, except for two months each year. In 2021, the Board of Trustees did not meet in the month of July. In 2022, the Board of Trustees will not meet in the months of July and November. The Board of Trustees receives no compensation, but is reimbursed for necessary expenses.

BOARD OF TRUSTEE MEMBERS

Stephen A. Corvi, Chair
Columbus Fire

Robert E. Britt, II, Chair Elect
Toledo Police

Tanya S. Czack
Parma Heights Police

John R. Deal
Cincinnati Fire

Mark E. Drum
Retired, Delaware Police

Marco J. Miller
Retired, Columbus Fire

J. David Heller
Investment Expert Member, appointed by the Ohio Senate and the Ohio House of Representatives

Charles O. Moore
Investment Expert Member, appointed by the Governor of Ohio

Karin Maloney Stifler
Investment Expert Member, appointed by the Ohio Treasurer of State

ADMINISTRATIVE STAFF



(L-R): Scott Miller, Caren Sparks, Brian O'Brien, Mary Beth Foley, Ted Hall, Keisha Proctor, Jennifer Harville, Pam Vest-Boratyn, David Graham, John Danish

EXECUTIVE STAFF

Mary Beth Foley
Executive Director

Pamela Vest-Boratyn
Deputy Executive Director

John J. Danish
General Counsel

Brian C. O'Brien
Information Technology Director

Theodore G. Hall
Chief Investment Officer

Jennifer L. Harville
Member Services Director

Scott K. Miller
Chief Financial Officer

Caren R. Sparks
Chief Audit Executive/Privacy and Ethics Officer

Keisha D. Proctor
Human Resources Director

David B. Graham
Communications Director

PROFESSIONAL CONSULTANTS

(NOT PICTURED)

Actuary
Cavanaugh Macdonald Consulting, LLC

Legal Counsel
Ohio Attorney General, the Honorable Dave Yost

Custodian of OP&F's Funds
Ohio Treasurer of State, Robert Sprague

Custodial Banks
Huntington National Bank - Domestic
Northern Trust - International

Independent Accountants
RSM US LLP
(Under contract with the Ohio Auditor of State)

Medical Advisors
Joel S. Steinberg, M.D.
OP&F Board Medical Advisor

James B. Talmage, M.D.
Disability Evaluation Panel Medical Advisor

Investment Consultants and Money Managers
(See Page 66)

Schedule of Brokers' Fees Paid
(See Page 67)

AWARDS

OP&F has been recognized by financial experts for their commitment to the highest possible fiscal standards. OP&F is honored to have been recognized with the following:



2020 CERTIFICATE OF ACHIEVEMENT FOR EXCELLENCE IN FINANCIAL REPORTING

For 32 years, the Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to OP&F for its Annual Comprehensive Financial Report. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized annual comprehensive financial report that satisfies both generally accepted accounting principles and applicable legal requirements.



2021 DISTINGUISHED BUDGET PRESENTATION AWARD

OP&F was again recognized by GFOA's Distinguished Budget Presentation Award in 2021, representing the 20th consecutive year OP&F has achieved this distinction. OP&F has received the award annually since 2002. The GFOA established the Distinguished Budget Presentation Awards Program (Budget Awards Program) in 1984 to encourage and assist state and local governments to prepare budget documents of the very highest quality that reflect both the guidelines established by the National Advisory Council on State and Local Budgeting and the GFOA's best practices on budgeting and then to recognize individual governments that succeed in achieving that goal.



2020 AWARD FOR OUTSTANDING ACHIEVEMENT IN POPULAR ANNUAL FINANCIAL REPORTING

For 20 years, the GFOA has awarded a Certificate of Outstanding Achievement in Popular Annual Financial Reporting to OP&F for its Popular Annual Financial Report. This award is a prestigious national award recognizing conformance with the highest standards of creativity, presentation, understandability and reader appeal for preparation of governmental popular reports.



2021 PUBLIC PENSION STANDARDS AWARD

Awarded to OP&F by the Public Pension Coordinating Council (PPCC). OP&F has received the award annually since 2009. This award recognizes OP&F’s professional standards attained for administration. The PPCC’s standards were established in 2002 to promote excellence in pension plan design and administration. These standards serve as a benchmark by which to measure current practices of defined benefit plans.

LETTER OF TRANSMITTAL



140 East Town Street / Columbus, Ohio 43215-5164 / Tel. (614) 228-2975 / www.op-f.org

June 30, 2022

Dear Chair and Members of the Board of Trustees:

We are pleased to submit to you the Annual Comprehensive Financial Report (ACFR) of the Ohio Police & Fire Pension Fund (OP&F) for the fiscal year ending Dec. 31, 2021. OP&F's management is responsible for the accuracy of the data presented here, as well as the completeness and fairness of the presentation. This ACFR was prepared to aid interested parties in assessing OP&F's financial status on Dec. 31, 2021 and its results for the year then ended.

ACCOUNTING SYSTEM AND INTERNAL CONTROLS

The financial statements were prepared in accordance with accounting principles generally accepted in the United States of America (U.S.) applicable to governmental units, including the pronouncements of the Governmental Accounting Standards Board (GASB). Additional information on OP&F's significant accounting policies is contained in the Notes to the Basic Financial Statements in the Financial Section.

Management is responsible for establishing and maintaining an effective internal control structure designed to ensure that the assets of OP&F are protected from loss, theft, or misuse; and to ensure that adequate accounting data is compiled to allow for the preparation of Basic Financial Statements in conformity with accounting principles generally accepted in the U.S. The internal control structure is designed to provide reasonable, but not absolute, assurance that these objectives are met. The concept of reasonable assurance recognizes that:

- (1) the cost of a control should not exceed the benefits likely to be derived; and
- (2) the valuation of costs and benefits requires estimates and judgments by management.

Management believes its internal control structure meets these objectives.

OP&F HISTORY AND OVERVIEW

OP&F is a cost-sharing, multiple-employer public employee retirement system and was created by the Ohio General Assembly in 1965, replacing 454 separate local police and firefighter relief and pension funds in Ohio. OP&F began operating as a statewide Retirement Fund on Jan. 1, 1967. On that date, the local pension funds transferred their assets and liabilities to OP&F. Assets transferred to OP&F totaled approximately \$75 million, while OP&F's actuary computed the liabilities accrued up to 1966 at approximately \$490 million. Employers are paying the remaining unfunded accrued liability, which began in 1969, over a 67-year period. As of Dec. 31, 2021, the balance totaled nearly \$17.1 million.

OP&F provides pension, disability, deferred retirement option plan (DROP) and health care stipend benefits to qualified members. In addition, OP&F provides survivor benefits, death benefits and health care stipend benefits for eligible survivors, spouses, children and dependent parents. Please refer to the Plan Summary in the Actuarial Section for further information on plan benefits.

Membership in OP&F is mandatory under Ohio law for all full-time police officers employed by Ohio municipalities and appointed under the required statutory provisions. Membership is also mandatory for all full-time firefighters employed by Ohio municipalities, townships (fire only), villages, joint fire districts or other political subdivisions. In order to become a member of OP&F, a full-time firefighter is required to satisfactorily complete or have satisfactorily completed a firefighter training course approved under former Section 3303.07, Section 4765.55, or conducted under Section 3737.33 of the Ohio Revised Code (ORC). The table below is a tabulation of current participating employers at Dec. 31, 2021:

PARTICIPATING EMPLOYERS

	Police	Fire	Total
Municipalities	249	204	453
Townships	–	182	182
Villages	278	40	318
TOTAL	527	426	953

FINANCIAL OVERVIEW

OP&F receives virtually all of its funds from the following sources: investment earnings, employer contributions, member contributions, state subsidies and reimbursements. Additions to the fiduciary net position were \$4,083.1 million in 2021 which included contributions received from employers and members as well as appreciation on investments due to a positive return of 20.48% (gross of fees).

Overall contributions increased by \$45.9 million or 5.4% in 2021. This increase is due to an increase in member and employer contributions and is offset slightly by the decrease in State Subsidies.

The statutory employer contribution rate remained unchanged from the prior year at 19.5% for police employers and 24.0% for fire employers. The statutory member contribution rate also remained unchanged from the prior year at 12.25% for both police and fire members. Both member and employer contributions are due monthly.

Statutory penalties are assessed if payments and/or the member contribution reports are received late and if a pre-employment physical is received late. It is OP&F's goal to help employers avoid penalty situations through employer education, courtesy reminders and online tools. OP&F offers employers the ability to report electronically using OP&F's secured Employer Self-Serve Web and to pay electronically using the online Automated Clearing House (ACH) payment options. OP&F will continue promoting these options and train employers on how to use them.

	2021 Amount	2021 Percent
Additions to Fiduciary Net Position (<i>dollars in millions</i>)		
Net Investment Income	\$3,192.8	78.2%
Contributions	889.1	21.8%
Other Additions	1.2	0.0%
TOTAL ADDITIONS	\$4,083.1	100.0%

	2021	2021
	Amount	Percent
Deductions to Fiduciary Net Position (<i>dollars in millions</i>)		
Benefits	\$1,598.2	97.9%
Refund of Member Contributions	24.1	1.5%
Administrative Expenses	9.9	0.6%
TOTAL DEDUCTIONS	\$1,632.2	100.0%

Benefit payments represent the largest deduction and usage of the additions to fiduciary net position. In 2021, OP&F experienced:

- A 6.0% increase in service retirement benefits. This increase is due to a cost-of-living allowance (COLA) for eligible benefit recipients and a 3.1% increase in the number of service retirees receiving pension benefits.
- A 3.2% increase in the amount of health care benefit payments. This increase is due to an increase in the amount of stipend benefits paid to members and 2.4% increase in the number of beneficiaries participating in the stipend program.
- A 37.0% increase in DROP benefits. DROP benefits paid out fluctuate from year-to-year based on the timing of member requests to withdraw their funds on account.
- A 38.0% increase in contributions refunded. Upon termination of active service in a police or fire department, a member may withdraw their accumulated employee contributions on deposit with OP&F. Similar to DROP benefits, contribution refunds paid out fluctuate from year-to-year based on the timing of member requests to withdraw their funds on account.
- A 48.4% decrease in administrative services. This decrease is primarily due to a decrease in OP&F's proportionate share of Ohio Public Employees Retirement System (OPERS) liabilities recognized as GASB 68 pension expense and GASB 75 other post-employment benefit (OPEB) expense. Both GASB 68 and GASB 75 expenses decreased in 2021 compared to 2020.
- Other deductions in 2021 were not material to the overall change in plan assets.

Please refer to the Management's Discussion and Analysis in the Financial Section for additional financial details.

FUNDING PRACTICES AND ACTUARIAL OVERVIEW

Funds are derived from the excess of additions over deductions and are accumulated by OP&F in order to meet current and future benefit obligations to retirees and other beneficiaries. OP&F experienced a \$2,450.9 million increase in the 2021 fiduciary net position primarily due to the appreciation of the fair value of investments. In addition, a portion of employer contributions and a portion of investment income (and losses) are allocated to operate OP&F's health care stipend program.

In 2021, OP&F's investment portfolio returned a positive 20.48% (gross of fees). As of Dec. 31, 2021, total investments at fair value stood at \$19.71 billion.

In the annual actuarial report dated Jan. 1, 2021 completed by Cavanaugh Macdonald Consulting, OP&F achieved a 25-year amortization period. OP&F continues to be compliant with Ohio's requirement of a funding period of 30 years or less. A funding period is the amount of time it is estimated to pay off all unfunded obligations. The actuarial report also showed a slight increase in the funded ratio as of Jan. 1, 2021 to 71.2% (compared to 69.7% as of Jan. 1, 2020). The funded ratio indicates the percentage of the actuarial value of assets available to pay off all pension obligations of the system. The actuarial valuation confirms that OP&F is able to meet its current and future pension obligations. For more information on actuarial assumptions please refer to the Actuarial Section.

OP&F is not required by statute or GASB to pre-fund health care. As of Jan. 1, 2021 OP&F's Health Care Stabilization Fund (HCSF) had a solvency period until December 2037, or approximately 17 more years. Extending the solvency period of the HCSF can be attributed to the transition from a self-insured health care model to a stipend-based model for retirees and beneficiaries, which was implemented on Jan. 1, 2019.

A report by Wilshire, an independent investment consultant, showed that OP&F's investment portfolio continues to weather challenging market fluctuations. In 2021, the total portfolio's investment return was 20.48% (gross of fees) placing it in the 5th percentile of Wilshire's All Public Plans – Total Fund Universe, a common source to establish peer group rankings. With 2021's result, OP&F's three-year annualized return now stands at 15.55%, while the five-year annualized return was 11.62%. OP&F's 10-year annualized return was 10.81%, comfortably ahead of OP&F's 8.00% assumed rate of return. As mentioned earlier, the total portfolio's 2021 results ranked in the 5th percentile of Wilshire's All Public Plans – Total Fund Universe, while the three-year, five-year and 10-year results ranked in the 44th, 36th and 15th percentiles, respectively, of that same peer universe.

Please see the Notes to the Basic Financial Statements, the Statistical Section and the Required Supplementary Information (RSI) Sections of this report for more detailed information.

INVESTMENT POLICY

OP&F invests all available funds in order to maximize both current income and long-term appreciation. The primary objective of OP&F's investment policy is to ensure that OP&F meets its responsibilities for providing retirement and other benefits. The investment portfolio is diversified to provide adequate cash flow and to provide the highest possible total return for OP&F's assets while maintaining an acceptable level of risk. Over calendar year 2021, OP&F's total gross rate of return on its investment portfolio was a positive 20.48% (gross of fees).

Details of portfolio composition, rates of return, analysis of significant economic conditions, and additional information concerning OP&F's investment policy are provided in the Investment Section of this report.

MATERIAL PLAN AMENDMENTS

There were no material plan amendments in 2021. See the Actuarial Section for the assumptions used within this report.

INDEPENDENT AUDIT

RSM US LLP, independent certified public accountants, audited the financial statements of OP&F for the years ended Dec. 31, 2021, and their opinion thereon is included in the Financial Section.

NOTES TO BASIC FINANCIAL STATEMENTS

The Notes to the Basic Financial Statements, which follow the Basic Financial Statements, contain additional information and are an integral part of such statements.

CERTIFICATE OF ACHIEVEMENT

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to OP&F for its Annual Comprehensive Financial Report for the fiscal year ended Dec. 31, 2020. The Certificate of Achievement is the highest form of recognition for excellence in state and local government financial reporting.

In order to be awarded a Certificate of Achievement, a government unit must publish an easily readable and efficiently organized Annual Report, whose contents conform to program standards. Such reports must satisfy both accounting principles generally accepted in the U.S. and applicable legal requirements. A Certificate of Achievement is valid for

a period of one year only. OP&F believes the current report continues to conform to the Certificate of Achievement Program requirements and is submitting it to the GFOA to determine its eligibility for another certificate.

ACKNOWLEDGMENTS

The preparation and contents of this report reflect the combined efforts of OP&F's staff under the direction of the Board of Trustees and are the responsibility of OP&F's management. It is intended to provide complete and reliable information as a basis for making management decisions, to disclose compliance with legal provisions and as a means of demonstrating responsible stewardship for the assets contributed by the members and their employers.

The cooperation of OP&F's employers is vital to our success and is greatly appreciated.

Respectfully submitted,

Mary Beth Foley
Executive Director

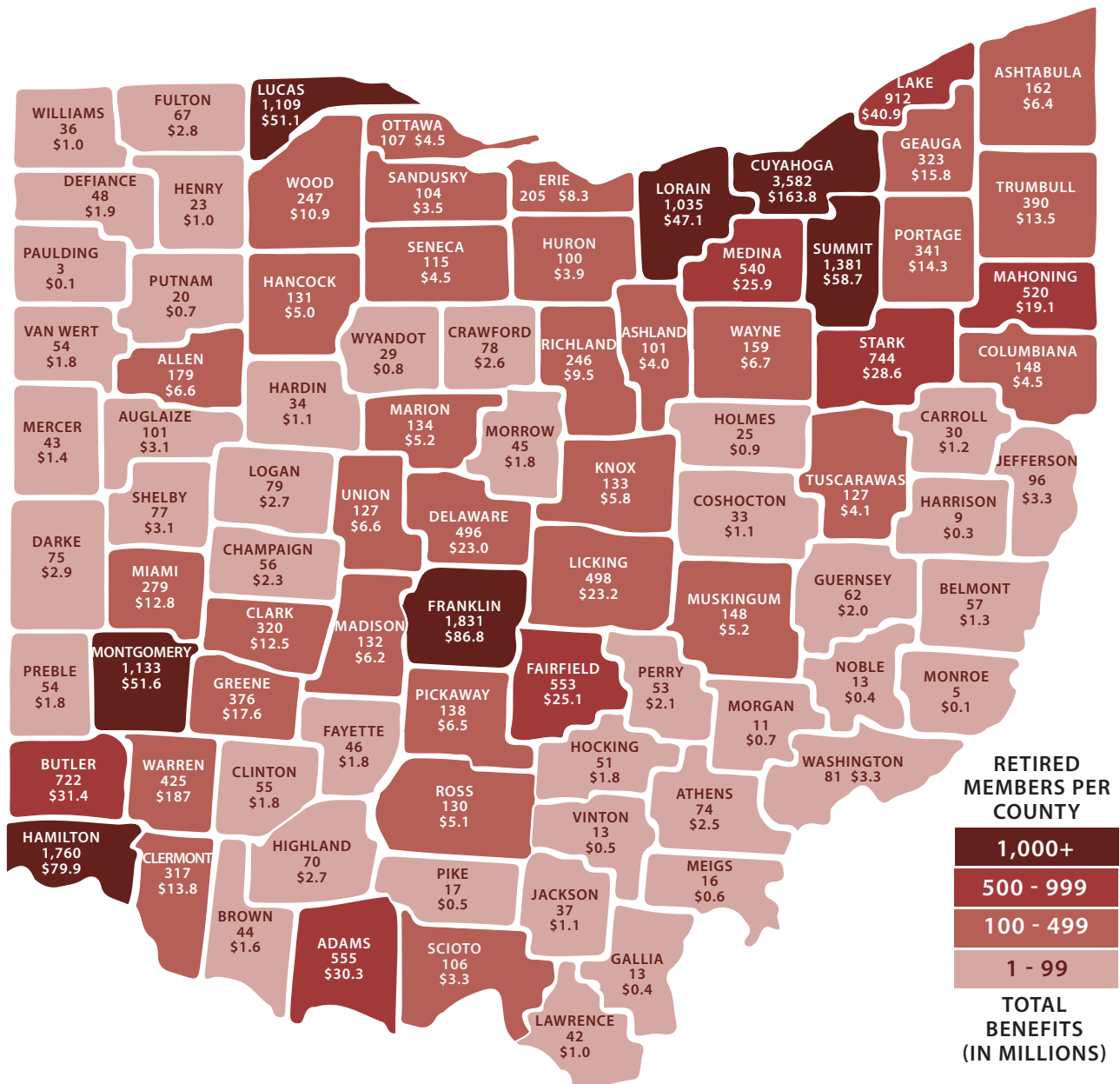
Scott K. Miller
Chief Financial Officer

DEMOGRAPHICS AND ECONOMIC IMPACT

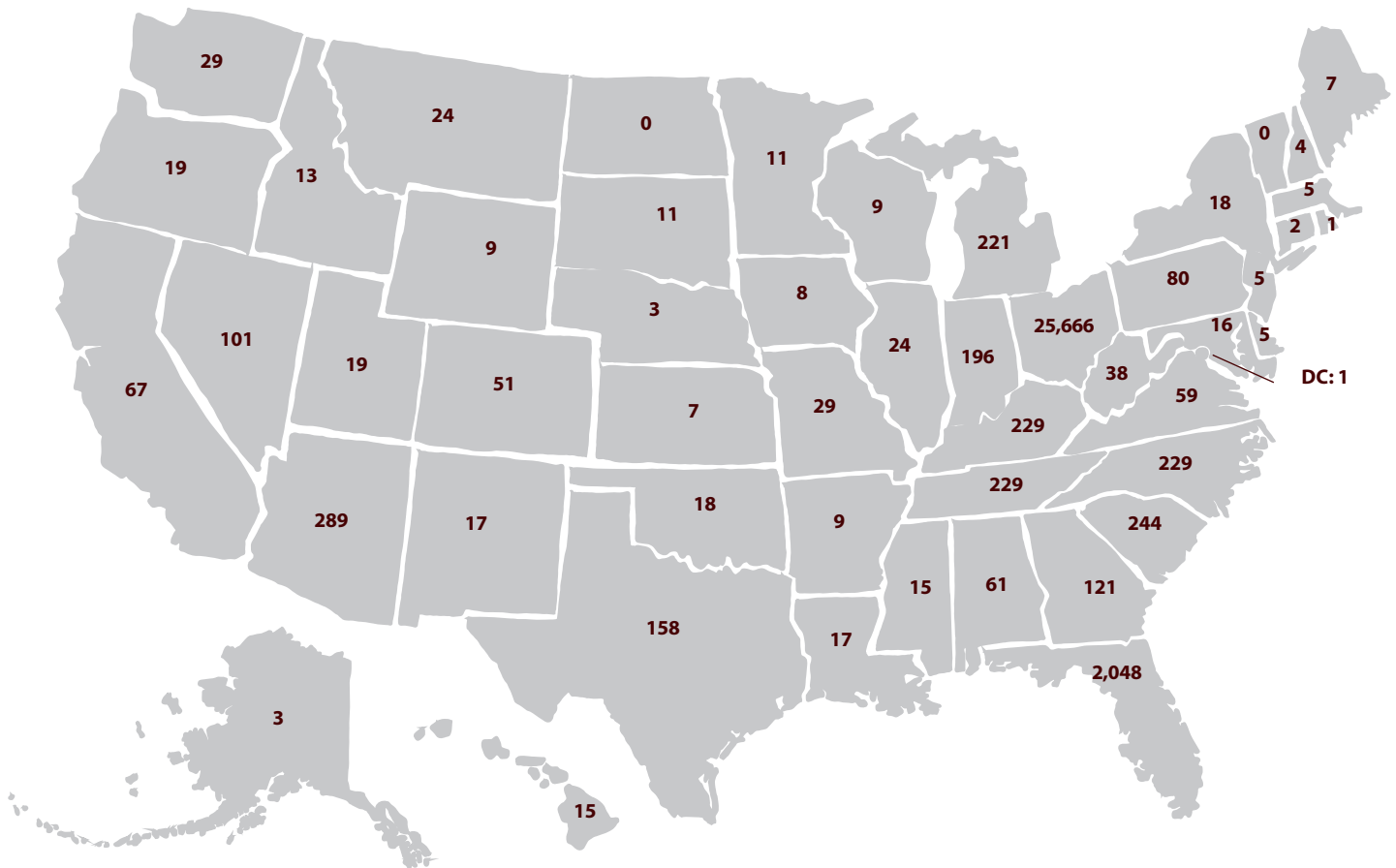
MEMBERSHIP RESIDENCE

Type of Member	Total Persons	Ohio Residents	Non-Residents	Percent of Non-Residents
Active Members (including DROP)	29,305	28,773	532	1.8%
Retirees	23,582	20,039	3,543	15.0%
Survivors	6,902	5,627	1,275	18.5%
TOTAL	59,789	54,439	5,350	9.0%
Active Members in DROP	4,278	4,211	67	1.6%

RETIRES AND BENEFITS PAID BY COUNTY



BENEFICIARIES BY STATE



BENEFICIARIES BY COUNTRY

Location	Retirees
United States	30,460
Canada	10
Colombia	1
France	1
Ireland	1
Philippines	5
Puerto Rico	1
Romania	1
South Africa	1
Thailand	1
Virgin Islands	2

ECONOMIC IMPACT ANALYSIS

OP&F hired the University of Cincinnati Economics Center to conduct an economic impact analysis of the Ohio Police & Fire Pension Fund in 2018. The Economics Center calculated the economic and fiscal impacts of OP&F's operations and capital expenditures using salary, non-wage expenditure, and capital expenditure data provided. These data, provided by OP&F, were applied to Economic Modeling Specialists International (EMSI) input-output model multipliers. The EMSI model captures the interdependencies of an economy's various industries, quantifying how direct expenditures on goods or services by a particular industry (or to individuals in the form of wages) yield additional expenditures within that economy. The State of Ohio is the primary geographic area of analysis for this study.

OP&F provides vital pension and disability benefits to the State's full-time and retired police officers and firefighters, as well as their beneficiaries. OP&F members totaled approximately 59,000 individuals as of year-end 2018, with a nearly even split between active members and retirees and their beneficiaries. OP&F paid out \$1.17 billion in gross benefits to members worldwide in 2018, with approximately \$1.00 billion going to Ohio residents. Of this total, these Ohioans spent approximately \$811 million on products and services in the Ohio economy in 2018. This direct spending supported nearly 7,100 direct jobs and approximately \$276 million in employee earnings. The direct spending, in turn, generated indirect impacts of approximately \$871 million in spending, 6,885 jobs, and nearly \$312 million in earnings. The Economics Center estimates that household spending impacts in Ohio resulting from OP&F pension payments totaled \$1.68 billion in output, supported nearly 14,000 jobs, and more than \$587 million in employee earnings. OP&F operations and

capital spending also benefited the Ohio economy in 2018, with combined total economic impacts of approximately \$147 million in spending, 410 jobs, and nearly \$29 million in employee earnings. The Economics Center estimates that OP&F's total economic impact in 2018 to the Ohio economy included approximately \$1.83 billion in output, more than 14,000 jobs, and more than \$616 million in employee earnings.

OP&F's operations and pension distributions also generated substantial fiscal impacts to the State of Ohio, Ohio Counties and Transit Authorities, and the City of Columbus in 2018. OP&F distributions to Ohio residents generated approximately \$23.5 million in income tax revenues for the State of Ohio. In addition, beneficiaries' purchases of goods and services generated approximately \$13.8 million in State sales tax revenues, as well as \$2.7 million in County sales tax revenues and \$0.7 million in Transit Authority revenues. Earnings paid to OP&F employees in 2018 resulted in income tax collections of approximately \$338,000 by the State of Ohio and approximately \$266,000 by the City of Columbus. Total fiscal impacts of OP&F operations, pension distributions, and resulting household spending in 2018 totaled \$41.3 million which included approximately \$37.6 million to the State of Ohio, \$2.7 million to Ohio Counties, \$0.7 million to Ohio Transit Authorities, and \$0.3 million to the City of Columbus.

The complete report of the economic impact analysis of OP&F conducted by the University Of Cincinnati Economic Center can be found on OP&F's website.

This page intentionally left blank.



FINANCIAL

2021 ANNUAL COMPREHENSIVE FINANCIAL REPORT



**INDEPENDENT AUDITOR'S REPORT
MANAGEMENT'S DISCUSSION AND
ANALYSIS (UNAUDITED)**

BASIC FINANCIAL STATEMENTS

Statement of Fiduciary Net Position

Statement of Changes in Fiduciary
Net Position

Notes to Basic Financial Statements

**REQUIRED SUPPLEMENTARY INFORMATION
(UNAUDITED)**

Schedule of Changes in the Employers' Net Pension Liability

Schedule of Employers' Net Pension Liability (Asset)

Schedule of Employer Contributions - Pension Trust Fund

Schedule of Investment Returns

Notes to Required Supplementary Pension Information

Schedule of Changes in Net OPEB
Liability and Related Ratios

Schedule of Net OPEB Liability (Asset)

Schedule of Employer Contributions
- Retiree Health Care Trust Fund

Schedule of Investment Returns

Notes to Required Supplementary OPEB Information

Schedule of OP&F's Proportionate Share of the Net Pension
Liability Ohio Public Employees Retirement Plan

Schedule of Contributions Ohio Public Employees
Retirement Plan

Schedule of OP&F's Proportionate Share of the OPEB Liability
Ohio Public Employees Retirement Plan

Schedule of OPEB Contributions Ohio Public Employees
Retirement Plan

ADDITIONAL INFORMATION

Schedule of Administrative Expenses

Schedule of Investment Expenses

Combining Statement of Changes in Assets and Liabilities -
Public Safety Officers Death Benefit Fund

INDEPENDENT AUDITOR'S REPORT



RSM US LLP

Independent Auditor's Report

The Board of Trustees
Ohio Police & Fire Pension Fund and
The Honorable Keith Faber

Report on the Audit of the Financial Statements

Opinion

We have audited the fiduciary net position, and the changes in fiduciary net position of the Ohio Police & Fire Pension Fund (the Fund), as of and for the year ended December 31, 2021, and the related notes to the financial statements, which collectively comprise the Fund's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements referred to above present fairly, in all material respects, the financial position of the Fund, as of December 31, 2021, and the changes in financial position for the year 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) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. 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 Fund 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

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 Fund's ability to continue as a going concern for 12 months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

THE POWER OF BEING UNDERSTOOD
AUDIT | TAX | CONSULTING

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 opinion. 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 and *Government Auditing Standards* 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.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, 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 Fund'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 Fund'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.

Required Supplementary Information

Accounting principles generally accepted in the United States of America require that management's discussion and analysis and the required supplementary information, as listed in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Management is responsible for the other information included in the annual report. The other information comprises the schedule of administrative expenses, schedule of investment expenses, and the combining statements of changes in assets and liabilities, but does not include the basic financial statements and our auditor's report thereon. Our opinions on the basic financial statements do 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 basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic 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.

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

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated June 27, 2022 on our consideration of the Fund's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Fund's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Fund's internal control over financial reporting and compliance.

RSM US LLP

Cleveland, Ohio
June 27, 2022

MANAGEMENT'S DISCUSSION AND ANALYSIS (UNAUDITED)

This Management Discussion and Analysis (MD&A) of OP&F's financial performance provides a narrative overview of financial activities for the fiscal year ended Dec. 31, 2021. The MD&A is designed to focus on the current year's activities, resulting changes and currently known facts. OP&F encourages reading this in conjunction with the Basic Financial Statements, Notes to the Basic Financial Statements and the Letter of Transmittal included in the Introductory Section of this ACFR.

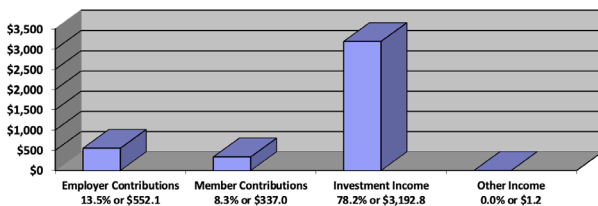
FINANCIAL HIGHLIGHTS

Additions are received primarily from investment income and employer and member pension contributions. For fiscal year 2021, these additions totaled \$4,083.1 million compared to \$2,281.3 million in 2020, which is a 79.0% increase. Investment income can fluctuate dramatically because it includes realized and unrealized investment gains and losses based on performance of global capital markets.

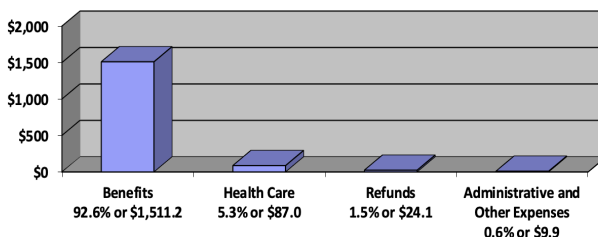
The employer contribution rates of 19.5% for police and 24.0% for fire remained unchanged in both 2021 and 2020. The member contribution rate was 12.25% for both police and fire in 2021 and 2020.

Deductions are incurred primarily for the purpose for which OP&F was created; the payment of pension, disability and survivor benefits to qualified members and survivors. Included in the deductions from OP&F's fiduciary net position for 2021 were benefits for retirement, DROP, disability, health care and survivors. Also included were contribution refunds,

2021 ADDITIONS (DOLLARS IN MILLIONS) \$4,083.1



2021 DEDUCTIONS (DOLLARS IN MILLIONS) \$1,632.2



administrative and other expenses. Pension benefits are funded through a combination of investment earnings and employer and member contributions. Health care stipends are funded through an allocation of employer contributions and investment income. Deductions totaled \$1,632.2 million in 2021 and were \$1,503.9 million in 2020, which is an 8.5% increase over 2020. Please refer to the Plan Summary in the Actuarial Section for further information on plan benefits.

In February 2022, based on market data and in consultation with OP&F's actuarial and investment consultants, the Board of Trustees reduced the actuarial assumption for the long-term expected rate of return from 8.00% to 7.50%. The long-term expected rate of return is also reviewed as part of the actuarial five-year experience study. The next review of the actuarial assumptions is to be completed for adoption with the January 1, 2022 valuation, covering the five-year period 2017 through 2021.

OP&F administers the State of Ohio Public Safety Officers Death Benefit Fund. This program was established by the State of Ohio to provide monthly benefit payments to eligible surviving family members of Ohio public safety officers who have been killed in the line of duty or die of a duty-related injury or illness. Funds are disbursed to OP&F on a quarterly basis and are paid monthly by OP&F to eligible recipients. Annually the unused balance is returned to the State of Ohio. The Death Fund assets and related liability for unpaid benefits were \$0.7 million and \$1.3 at Dec. 31, 2021 and 2020, respectively. This fund is included in the accompanying financial statements.

OVERVIEW OF FINANCIAL STATEMENTS

Following the MD&A are the Statements of Fiduciary Net Position and the Statements of Changes in Fiduciary Net Position. OP&F's financial statements are prepared using the accrual basis of accounting and are in compliance with applicable GASB Statements.

The Statement of Fiduciary Net Position provides a snapshot view at year-end for the amount OP&F has accumulated in assets to pay for benefits. The Statement of Changes in Fiduciary Net Position reflects what has happened to OP&F's assets during the fiscal year. If the fiduciary net position increased, then additions were greater than the deductions. If the fiduciary net position decreased, then additions were less than the deductions.

In addition to the Basic Financial Statements and accompanying Notes to the Basic Financial Statements, certain Required Supplementary Information (RSI) is provided. The RSI consists of information pertaining to OP&F's actuarial methods and assumptions and provides data on the net pension liability and the changes in net pension liability. Also included in the RSI is data on contributions from employers, along with other information useful in evaluating the financial condition of OP&F. Following the RSI are Schedules of Administrative Expenses and the Schedule of Investment Expenses.

In accordance with GASB Statement No. 68, Accounting and Financial Reporting for Pensions, which significantly revised accounting for pension costs and liabilities, OP&F recorded as a liability its proportionate share of the Ohio Public Employees Retirement System (OPERS) Net Pension Liability (NPL). However, OP&F is not responsible for certain key factors affecting the balance of this liability. In Ohio, the employee shares the obligation of funding pension benefits with the employer.

Employee contribution rates are set by Ohio law. State law permits the Board of Trustees to adjust the employee contribution rate if, in consultation with its actuary following an actuarial review, OP&F determines that an adjustment to the rate is appropriate. The Board of Trustees may increase the employee contribution rate if it determines that the increase is necessary to preserve the fiscal integrity of the pension fund. Likewise, the Board of Trustees may decrease the employee contribution rate if it determines that the decrease would not materially impair the fiscal integrity of the pension fund.

Employer contribution rates are also set by Ohio law. A change in the employer rates requires action by the General Assembly and approval by the Governor. OP&F's benefit provisions are also determined by state statute.

In Ohio, at this time it does not appear that there are any legal means to enforce payments of the net pension liability of the pension system by public employers. The pension system is responsible for the administration of the plan.

Most long-term liabilities have set repayment schedules or, in the case of compensated absences (i.e. sick and vacation leave) are satisfied through paid time-off or termination payments. There is no repayment schedule for the NPL. Changes in pension benefits, contribution rates and return on investments affect the balance of the net pension liability, but are outside the control of the public employer. In the event that contributions, investment returns and other changes are insufficient to keep up with required pension payments, state statute does not assign/identify the responsible party for the unfunded portion.

In 2017, OP&F implemented GASB Statement No. 74, Financial Reporting for Post-Employment Benefit Plans Other Than Pension Plans, which resulted in an additional note disclosure to the financial statements and additional Required Supplementary Information related to OP&F's Retiree Health Care program. In 2018, OP&F implemented the provisions of GASB Statement No. 75, Accounting and Financial Reporting for Post-Employment Benefits Other Than Pensions, and recorded a liability representing OP&F's proportionate share of OPERS' Other Post-Employment Benefit (OPEB) liability.

GASB Statement No. 75 is very similar to GASB Statement No. 68, in that, OP&F is not responsible for certain key factors affecting the balance of this OPEB liability. Both standards affect financial reporting only, not funding. The requirement to report these liabilities may represent a significant figure on OP&F's financial statements, but does not affect the amount OP&F is required to fund under Ohio law. In Ohio, governmental employers are not legally bound to pay off the unfunded liabilities of OPERS. The intent of the standards is to enhance both the pension and OPEB related information in financial reports by providing greater transparency and to standardize the valuation practices from entity to entity.

A condensed version of OP&F's financial information is being provided as part of this discussion.

CONDENSED FIDUCIARY NET POSITION INFORMATION (DOLLARS IN MILLIONS)

	2021	2020	2021 Change	
			Amount	Percent
Cash and Short-term Investments	\$2,026.5	\$1,534.6	\$491.9	32.1%
Receivables	145.1	162.7	(17.6)	(10.8)%
Investments, at Fair Value	18,394.0	16,309.8	2,084.2	12.8%
Capital Assets, Net of Depreciation	18.4	14.9	3.5	23.5%
Other Assets	0.3	-	0.3	285.2%
TOTAL ASSETS	20,584.3	18,022.0	2,562.3	14.2%
DEFERRED OUTFLOWS	2.9	3.7	(0.8)	(21.6)%
Benefits and Accounts Payable	69.8	77.0	(7.2)	(9.4)%
Investments Payable	765.0	650.0	115.0	17.7%
TOTAL LIABILITIES	834.8	727.0	107.8	14.8%
DEFERRED INFLOWS	8.8	6.0	2.8	46.7%
FIDUCIARY NET POSITION, END OF YEAR	\$19,743.6	\$17,292.7	\$2,450.9	14.2%

CONDENSED CHANGES IN FIDUCIARY NET POSITION INFORMATION (DOLLARS IN MILLIONS)

	2021	2020	2021 Change	
			Amount	Percent
Contributions	\$889.1	\$843.2	\$45.9	5.4%
Net Investment Gain	3,192.8	1,436.7	1,756.1	122.2%
Other Additions	1.2	1.4	(0.2)	(14.3)%
TOTAL ADDITIONS	4,083.1	2,281.3	1,801.8	79.0%
Benefits	1,598.2	1,467.2	131.0	8.9%
Refunds	24.1	17.5	6.6	37.7%
Administrative Expenses and Other	9.9	19.2	(9.3)	(48.4)%
TOTAL DEDUCTIONS	1,632.2	1,503.9	128.3	8.5%
Net Increase	2,450.9	777.4	1,673.5	215.3%
Fiduciary Net Position, Beginning of Year	17,292.7	16,515.3	777.4	4.7%
FIDUCIARY NET POSITION, END OF YEAR	\$19,743.6	\$17,292.7	\$2,450.9	14.2%

FINANCIAL ANALYSIS

FIDUCIARY NET POSITION

The fiduciary net position available for benefits and expenses in 2021 was \$19,743.6 million versus \$17,292.7 million in 2020, which represents a 14.2% net increase. The overall net increase in 2021 can be primarily attributed to net appreciation on the fair value of investments. Please refer to the Investment Section for additional information on OP&F's investment activities in 2021.

REVENUE ADDITIONS TO FIDUCIARY NET POSITION

Based on the rounded numbers found on Page seven, overall contributions received by OP&F in 2021 increased 5.4% or \$45.9 million compared to 2020. This increase is primarily due to the increase in member and employer contributions received in 2021.

Pension contributions from employers increased \$21.5 million, or 4.1%, in 2021. Employer pension contribution increases are also due to an increase in the average annual salary and total annual payroll. Employer contributions are not impacted by DROP and the employer contributions associated with DROP participation are not allocated to the individual DROP accounts.

In 2021, pension contributions from members increased \$17.4 million, or 5.9%. The increase in 2021 can be attributed to the 2.8% increase in the average annual salary, from \$80,628 to \$82,866. The active member population, or contributing members, decreased by 188, or 0.6%, to 29,363 in 2021.

In 2021, members purchasing service credit or transferring in their member contributions increased by \$7.0 million, or 44.1% compared to 2020. These purchases and transfers-in fluctuate year-to-year based on the number and amount of the service credit being purchased by the membership and the number and amount of members transferring contributions from other retirement systems.

In 2021, contributions received through the state-subsidy decreased \$20,439, from \$225,676 to \$205,237. This trend is due to a normal decline in the population of survivors receiving this subsidized benefit.

Investment net appreciation totaled \$3,192.8 million in 2021. The net appreciation of 2021 can be attributed to a positive gross return of 20.48% from OP&F's investment portfolio. In 2020, investment net appreciation totaled \$1,436.7 million. The net appreciation of 2020 can be attributed to positive gross return of 9.21% from OP&F's investment portfolio.

EXPENSE DEDUCTIONS FROM NET POSITION

Overall benefit deductions for service retirement, DROP, disability and survivors increased \$128.3 million or 9.3% in 2021. This increase in pension benefits is due to an increase in DROP benefit distributions of \$74.3 million or 37.0% in 2021 compared to 2020. In addition, pension benefits paid to service and disability retirees, and survivors and beneficiaries increased \$54.0 million. Service retiree benefits increased \$50.1 million or 6.0% while the number of service retirees increased by 489 individuals, or 3.1% in 2021. Survivors and beneficiaries decreased by 10 individuals, or 0.1% and disability retirees decreased by 98 individuals, or 1.6%.

In 2021, health care benefits increased by 3.2% and gross health care payments totaled \$87.0 million and represented 5.3% of all plan deductions. In 2020, health care benefits totaled \$84.2 million and represented 5.6% of all plan deductions. The increases in health care benefits in 2021 can be attributed to the amount of stipend payments made to members and beneficiaries participating in the stipend program increasing by 584 participants, or 2.4%.

Refunds to members increased by \$6.6 million in 2021. These refunds include actual refunds of member contributions on deposit for inactive members.

Administrative expenses decreased by \$9.4 million or 48.8% in 2021 compared to 2020. This decrease is primarily due to a decrease of \$10.5 million in Pension Expense related to the decrease in OPERS Net Pension Liability recognized as a part of GASB 68 and 75 in 2021.

BASIC FINANCIAL STATEMENTS

STATEMENT OF FIDUCIARY NET POSITION

AS OF DEC. 31, 2021

	Pensions	Post-Employment Health Care	2021 Total	Death Benefit Fund
Assets:				
Cash and Short-term Investments	\$1,927,253,394	\$99,275,914	\$2,026,529,308	\$697,078
Receivables:				
Employers' Contributions	44,986,376	1,064,831	46,051,207	-
Members' Contributions	25,834,784	-	25,834,784	-
Accrued Investment Income	39,886,809	2,054,633	41,941,442	-
Investment Sales Proceeds	13,507,122	695,774	14,202,896	-
Local Funds Receivable	17,065,914	-	17,065,914	-
TOTAL RECEIVABLES	141,281,005	3,815,238	145,096,243	-
Investments, at fair value:				
Domestic Bonds	3,459,417,066	178,200,122	3,637,617,188	-
International Bonds	37,852	1,950	39,802	-
Mortgage and Asset-Backed Securities	773,517,244	39,845,114	813,362,358	-
Domestic Equities	4,579,386,733	235,891,557	4,815,278,290	-
International Equities	2,698,726,609	139,015,737	2,837,742,346	-
Real Estate	1,815,774,272	93,533,445	1,909,307,717	-
Private Debt	461,287,127	23,761,640	485,048,767	-
Private Equity	1,972,582,384	101,610,883	2,074,193,267	-
Real Assets	685,783,304	35,325,798	721,109,102	-
Master Limited Partnerships	482,086,068	24,833,027	506,919,095	-
Domestic Derivatives	(417,608)	(21,512)	(439,120)	-
International Derivatives	372,809	19,204	392,013	-
TOTAL INVESTMENTS	16,928,553,860	872,016,965	17,800,570,825	-
Collateral on Loaned Securities	564,358,506	29,071,012	593,429,518	-
Capital Assets, net of accumulated depreciation, where applicable:				
Land	3,200,000	-	3,200,000	-
Building and Improvements	9,424,381	-	9,424,381	-
Furniture and Equipment	71,343	-	71,343	-
Computer Software and Hardware	5,658,395	-	5,658,395	-
TOTAL CAPITAL ASSETS, NET	18,354,119	-	18,354,119	-
Prepaid Expenses and Other	291,045	-	291,045	-
TOTAL ASSETS	17,107,240,087	1,004,179,129	20,584,271,058	697,078
DEFERRED OUTFLOWS OF RESOURCES				
Deferred Outflows - Pension and OPEB	2,874,195	-	2,874,195	-
Liabilities:				
Investment Commitments Payable	163,177,178	8,405,518	171,582,696	-
Accrued Administrative Expenses	29,798,951	-	29,798,951	-
Due to State of Ohio	-	-	-	697,078
Obligations Under Securities Lending	564,358,506	29,071,012	593,429,518	-
Other Liabilities	39,936,139	-	39,936,139	-
TOTAL LIABILITIES	797,270,774	37,476,530	834,747,304	697,078
DEFERRED INFLOWS OF RESOURCES				
Deferred Inflows - Pension and OPEB	8,776,969	-	8,776,969	-
FIDUCIARY NET POSITION HELD IN TRUST FOR PENSION AND POST-EMPLOYMENT HEALTH CARE BENEFITS	\$18,776,918,381	\$966,702,599	\$19,743,620,980	\$-

See the Notes to the Basic Financial Statements. The accompanying notes are an integral part of the financial statements.

STATEMENTS OF CHANGES IN FIDUCIARY NET POSITION

FOR THE YEAR ENDED DEC. 31, 2021

	Pensions	Post-Employment Health Care	2021 Total	Death Benefit Fund
Additions:				
From Contributions:				
Members'	\$337,025,068	\$-	\$337,025,068	\$-
Employers'	539,130,428	12,758,046	551,888,474	-
State of Ohio-Subsidies	205,237	-	205,237	-
State of Ohio-Death Benefit Fund	-	-	-	34,052,922
TOTAL CONTRIBUTIONS	876,360,733	12,758,046	889,118,779	34,052,922
From Investment Income:				
Net Appreciation Value				
of Investments	2,396,223,443	125,828,785	2,522,052,228	-
Bond Interest	109,119,102	5,729,985	114,849,087	-
Dividends	93,184,200	4,893,223	98,077,423	-
Alternative Investment Income	447,701,658	23,509,392	471,211,050	-
Master Limited Partnerships Income	38,529,898	2,023,255	40,553,153	-
Other Investment Income	1,913,674	100,490	2,014,164	-
Less Investment Expenses	(55,133,954)	(2,895,155)	(58,029,109)	-
NET INVESTMENT INCOME	3,031,538,021	159,189,975	3,190,727,996	34,052,922
From Securities Lending Activities:				
Securities Lending Income	2,392,315	125,624	2,517,939	-
Securities Lending Expense	(466,460)	(24,494)	(490,954)	-
NET INCOME FROM SECURITIES LENDING	1,925,855	101,130	2,026,985	-
Interest on Local Funds Receivable	746,172	-	746,172	-
Other Income	176,066	262,495	438,561	-
TOTAL ADDITIONS	3,910,746,847	172,311,646	4,083,058,493	-
Deductions:				
Service Retirement Benefits	878,727,918	-	878,727,918	-
Disability Benefits	259,545,722	-	259,545,722	-
Health Care Benefits	-	86,947,802	86,947,802	-
Survivor Benefits	97,926,985	-	97,926,985	-
Death Fund Benefits	-	-	-	34,052,922
DROP Withdrawals	275,024,742	-	275,024,742	-
Contribution Refunds	24,118,654	-	24,118,654	-
Administrative Expenses	9,535,041	245,662	9,780,703	-
Other Expenses	74,661	-	74,661	-
TOTAL DEDUCTIONS	1,544,953,723	87,193,464	1,632,147,187	34,052,922
CHANGE IN FIDUCIARY NET POSITION	2,365,793,124	85,118,182	2,450,911,306	-
FIDUCIARY NET POSITION - BEG OF YEAR	16,411,125,257	881,584,417	17,292,709,674	-
FIDUCIARY NET POSITION - END OF YEAR	\$18,776,918,381	\$966,702,599	\$19,743,620,980	\$-

See the Notes to the Basic Financial Statements. The accompanying notes are an integral part of the financial statements.

NOTES TO BASIC FINANCIAL STATEMENTS

(DEC. 31, 2021)

1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The following are the significant accounting policies followed by OP&F.

BASIS OF ACCOUNTING

OP&F's financial statements have been prepared using the accrual basis of accounting. Revenues are recognized when earned and expenses are recorded when a liability is incurred. Contributions are earned based on statutory requirements under Chapter 742 of the ORC.

NEW ACCOUNTING PRONOUNCEMENTS

During the year ended Dec. 31, 2021, OP&F adopted the provisions of GASB Statement No. 87, Leases, GASB Statement No. 93, Replacement of Interbank Offered Rates, and GASB Statement No. 98, The Annual Comprehensive Financial Report. The adoption of these pronouncements had no material impact on the financial statements.

The GASB has issued the following pronouncements: GASB Statement No. 91, Conduit Debt Obligations, is effective for fiscal years beginning after Dec. 15, 2021. GASB Statement No. 92, Omnibus 2020, the requirements related to Statement 87 are effective upon issuance, the rest is effective for fiscal years beginning after June 15, 2021. GASB Statement No. 94, Public-Private and Public-Public Partnerships and Availability Payment Arrangements, is effective for fiscal years beginning after June 15, 2022. GASB Statement No. 96, Subscription-Based Information Technology Arrangements, is effective for fiscal years beginning after June 15, 2022. GASB Statement No. 97, Certain Component Unit Criteria, and Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans – an amendment of GASB Statement No. 14 and No. 84, and a supersession of GASB Statement No. 32, is effective for fiscal years beginning after June 15, 2021. OP&F is analyzing the impact that these GASB pronouncements will have on the financial statements.

MANAGEMENT USE OF ESTIMATES

The preparation of the financial statements requires management to make a number of estimates and assumptions relating to the reported amounts of assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the period. Significant items subject to estimates and assumptions include the fair value of certain investments, carrying amount of capital assets and assets and obligations related to employee and member benefits. Actual results could differ from those estimates.

INVESTMENTS

Investment purchases and sales are recorded on a trade-date basis. Dividend income is recognized on the ex-dividend date. Income on bonds, private equity, private debt, real estate funds and interest income are recognized when earned.

Investments are reported at fair value. Fair value is the amount reasonably expected to be received for an investment in a current sale between a willing buyer and a willing seller. Securities traded on a national or international exchange, including master limited partnerships, are valued at the last reported sales price at the then current exchange rates. Mortgages are valued on the basis of future principal payments discounted at prevailing interest rates for similar instruments. The fair value of real estate and timber are based on independent appraisals and internal valuations. Investments that do not have an established market are reported at estimated fair value received from the investment managers. The value of OP&F's private equity interests are based on values established by each partnership's valuation committee. Investments, for which no national exchanges or pricing services exist, such as private equity assets, are valued at fair value by the investment partnership based on the valuation methodology outlined in the partnership agreement. Real estate may be valued by the manager or independent appraisers. Commingled assets that are not traded on a national exchange are valued by the commingled manager. OP&F performs due diligence reviews of the investment pricing, process and infrastructure of private equity, commingled and real estate investments to assure that asset values provided by the managers are reasonable.

Net appreciation (depreciation) is determined by calculating the change in the fair value of investments between the end of the year and the beginning of the year, less the cost of investments purchased, plus reinvested proceeds from sales of investments at fair value. Investment expense consists of administrative expenses directly related to OP&F's investment operations and a proportional amount of all other administrative expenses allocated based on the ratio of OP&F's investment staff to total OP&F staff.

FEDERAL INCOME TAX STATUS

OP&F was determined to be a qualified trust under section 401(a) of the Internal Revenue Service (IRS) Code that is exempt from Federal income taxes under Section 501(a) of the IRS Code. OP&F's DROP plan was also determined to be part of the 401(a) trust. A separate health care trust accrual account is maintained for health care benefits under IRS Code Section 115 trust. An IRS Code Section 401(h) account is maintained for Medicare Part B reimbursements.

ADMINISTRATIVE COSTS

The cost of administering the plan is financed by investment income.

CONTRIBUTIONS, BENEFITS AND REFUNDS

Employer and member contributions are recognized when due or in the period the related member salaries are earned. Benefits and refunds are recognized when due and payable in accordance with the terms of the plan.

PROPERTY AND EQUIPMENT

Capital projects related to the acquisition of property and equipment, greater than or equal to \$5,000, are capitalized and recorded at cost. Depreciation is computed using the straight-line method over the estimated useful lives of the related assets. The range of estimated useful lives is as follows:

Buildings and Improvements:	40 years
Furniture and Equipment:	3 to 10 years
Computer Software and Hardware:	2 to 7 years

CHANGES IN CAPITAL ASSETS*

Non-Depreciable Capital Assets	Jan. 1, 2021	Additions	Disposals	Dec. 31, 2021
Land	\$3,200,000	\$-	\$-	\$3,200,000
Depreciable Capital Assets	Jan. 1, 2021	Additions	Disposals	Dec. 31, 2021
Building and Improvements	\$21,395,605	\$-	\$-	\$21,395,605
Furniture and Equipment	3,400,626	-	-	3,400,626
Computer Software and Hardware	18,288,704	5,133,889	-	23,422,593
TOTAL DEPRECIABLE CAPITAL ASSETS	43,084,935	5,133,889	-	48,218,824
Accumulated Depreciation	Jan. 1, 2021	Additions	Disposals	Dec. 31, 2021
Building and Improvements	11,402,226	568,998	-	11,971,224
Furniture and Equipment	3,287,204	42,079	-	3,329,283
Computer Software and Hardware	16,737,470	1,026,728	-	17,764,198
TOTAL ACCUMULATED DEPRECIATION	31,426,900	1,637,805	-	33,064,705
TOTAL DEPRECIABLE CAPITAL ASSETS, NET	\$11,658,035	\$3,496,084	\$-	\$15,154,119

* Additions in capital assets are related to purchases of property and equipment in 2021. Increases in accumulated depreciation are a result of depreciation expensed over the useful life of the asset which was expensed in 2021. Decreases in both the capital assets and accumulated depreciation are related to the disposal of property and equipment in 2021.

2. DESCRIPTION OF THE SYSTEM

ORGANIZATION

OP&F is a cost-sharing, multiple-employer public employee retirement system established by the ORC Chapter 742 in 1965 to consolidate the various individual local police and firefighter's relief and pension funds into one statewide plan. OP&F is administered by a nine member Board of Trustees, consisting of two active representatives of police departments, two active representatives of fire departments, one retired police officer and one retired firefighter. The Board of Trustees also includes three statutory members. Each statutory member—one appointed by the Governor of Ohio, one by the Ohio Treasurer of State and one appointed jointly by the Ohio Senate President and Ohio Speaker of the House of Representatives—must have professional investment expertise.

OP&F administers pension, disability, DROP and health care stipend benefits to qualified members. In addition, OP&F administers survivor benefits, death benefits and a health care stipend benefit for eligible survivors, spouses, children and dependent parents. OP&F is a separate financial reporting entity in accordance with criteria established by Governmental Accounting Standards Board Statement No.14, because OP&F is a legally separate entity, a voting majority of the governing board is not appointed by the State and it is fiscally independent of other state and local governments. OP&F also has a variety of professional consultants and money managers as listed on Page vii and Page 66.

PLAN MEMBERSHIP

Employer and member data as of Jan. 1, 2021, based on the most recent actuarial valuation, is as follows:

Employee Members	2021		
	Police	Fire	Total
Retirees and Beneficiaries			
Currently receiving benefits	17,250	12,897	30,147
Terminated employees entitled to benefits but not yet receiving them	167	100	267
TOTAL BENEFIT MEMBERS	17,417	12,997	30,414
Current Members			
Vested*	7,053	6,526	13,579
Non-vested	8,567	7,217	15,784
TOTAL CURRENT MEMBERS	15,620	13,743	29,363
TOTAL EMPLOYEE MEMBERS	33,037	26,740	59,777
Employer Members			
Municipalities	249	204	453
Townships	-	182	182
Villages	278	40	318
TOTAL EMPLOYER MEMBERS	527	426	953

* Includes Rehired Retirees.

BENEFITS

Plan benefits are established under ORC Chapter 742. OP&F offers four types of service retirement: normal, service commuted, age/service commuted and actuarially reduced. Each type has different eligibility guidelines and is calculated using the member's allowable average annual salary.

Since average annual salary is subject to certain statutory and administrative limitations, not all salary, earnings, or compensation may be used in the calculation. OP&F calculates allowable average annual salary as follows:

- For OP&F members with 15 or more years of service credit as of July 1, 2013, average annual salary is an average of the three years of highest allowable earnings, regardless of when in their career the highest years occurred.
- For OP&F members with less than 15 years of service credit as of July 1, 2013, average annual salary is an average of the five years of highest allowable earnings, regardless of when in their career the highest years occurred.
- A salary benchmark is established for members with 15 or more years of service credit as of July 1, 2013, under which certain increases are excluded from salary for the purpose of determining allowable average annual salary. This benchmarking does not apply to members with less than 15 years of service credit as of July 1, 2013.

NORMAL SERVICE RETIREMENT

ELIGIBILITY

- For members hired into an OP&F-covered position after July 1, 2013, minimum retirement age is 52 with at least 25 years of service credit.
- For members hired into an OP&F-covered position on or before July 1, 2013, minimum retirement age is 48 with 25 years of service credit.

BENEFIT

An annual pension equal to a percentage of the allowable average annual salary. The percentage equals 2.5% for each of the first 20 years of service credit, 2.0% for each of the next five years of service credit and 1.5% for each year of service credit in excess of 25 years. The maximum pension of 72% of the allowable average annual salary is paid after 33 years of service credit.

SERVICE COMMUTED RETIREMENT

ELIGIBILITY

- For members hired into an OP&F-covered position after July 1, 2013, the minimum retirement age is 52, they must have at least 15 years of service credit and 25 years have elapsed from the date of their full-time hire.
- For members hired into an OP&F-covered position on or before July 1, 2013, the minimum retirement age is 48, they must have at least 15 years of service credit and 25 years have elapsed from the date of their full-time hire.

BENEFIT

An annual pension equal to 1.5% of the allowable average annual salary multiplied by the number of full years of service credit (up to 25 years of service credit).

AGE/SERVICE COMMUTED RETIREMENT

ELIGIBILITY

Age 62, 15 years of service credit and still working as a full-time police officer or firefighter.

BENEFIT

An annual pension that uses the same formula as the Normal Service Retirement benefit (up to 25 years of service credit).

ACTUARIALLY REDUCED

ELIGIBILITY

For members hired into an OP&F-covered position after July 1, 2013, age 48 with 25 years of service credit.

BENEFIT

An annual pension reduced to the actuarial equivalent of the amount payable had the member retired at age 52.

OTHER BENEFITS

In addition to retirement benefits, OP&F also provides disability, survivor and Death Benefit Fund (DBF) benefits. Disability benefits are available to all members and vary by length of service and type of disability. Statutory survivor benefits are specified dollar amounts paid to an eligible surviving spouse, children and dependent parents upon the death of an active member or retiree. A one-time lump sum death benefit of \$1,000 is payable to the surviving spouse, designated beneficiary or estate, as applicable, of each deceased retired member.

OP&F also administers the Ohio Public Safety Officers DBF, which is funded by the State of Ohio and provides special

benefits to eligible survivors of public safety officers who are killed in the line of duty or who die from injuries or disease incurred in the performance of official duties. If the public safety officer had not qualified for age and service retirement these eligible survivors are entitled to receive the member's full base pay until the officer would have been eligible to retire as of the maximum age and service pension for the officer's position, which will be reduced at the member's maximum pension eligibility date. If the public safety officer would have qualified for maximum age and service retirement, the survivors are eligible for a transitional benefit equal to 75% of the monthly base pay. The transitional benefit is paid in addition to any other payment that they might be eligible to receive without offset.

DEFERRED RETIREMENT OPTION PLAN (DROP)

Effective January 2003, DROP is an optional benefit that allows eligible police officers and firefighters to accumulate a lump sum of money for retirement, subject to the member meeting certain criteria.

At Dec. 31, 2021, 4,396 members were enrolled in the DROP program, with total values of the DROP accounts equaling \$1,895.9 million.

ELIGIBILITY

A member is eligible to participate in DROP when he or she is eligible for a normal service retirement.

- For members hired into an OP&F-covered position after July 1, 2013, normal service retirement eligibility is age 52 with at least 25 years of service credit.
- For members hired into an OP&F-covered position on or before July 1, 2013, normal service retirement eligibility is age 48 with at least 25 years of service credit.

BENEFIT

DROP is a cost neutral benefit offered by OP&F. Upon the DROP effective date, the member's pension is calculated as if that were their date of retirement. While the member continues to work and draw their normal salary, the amount they would have received in retirement benefits accumulates tax-deferred at OP&F on their behalf, as well as a portion of their OP&F employee contributions and interest. Since the member's pension has already been calculated:

- The years of DROP service do not apply towards the member's normal service retirement.
- If a member earns a higher salary after their DROP effective date due to a raise, job promotion, etc., it will not be used to recalculate their pension and, therefore,

will not result in that member receiving a higher pension upon retirement.

The DROP interest rate is set by administrative rule and is subject to change at any time. OP&F credits interest to all DROP balances each month at a rate equal to the 10-year United States Treasury Note Business Day Series, as published by the U.S. Department of the Treasury, with a cap of 5.0% and a floor of 2.5%. This variable interest rate is compounded annually and adjusted quarterly to match the published 10-year U.S. Treasury Note Business Day Series rate for the last trading business day of the preceding quarter and is in effect for the subsequent quarter.

Members whose election to participate in DROP is effective after July 1, 2013 do not qualify for annual cost-of-living allowances (COLA) at any time during DROP. Members whose election to participate in DROP is effective on or before July 1, 2013 will continue to receive a cost-of-living allowance during DROP, but only when they reach 55 years of age and have been participating in DROP for at least one year. Those members whose enrollment date into DROP qualifies them for a cost-of-living allowance during DROP will receive 3.0% of their base pension.

Member contributions are credited to their DROP account based on the number of years of DROP service. For those members whose election to participate in DROP is effective after July 1, 2013, OP&F applies contributions to DROP in the following manner:

Years of DROP Service	Percentage of Member Contributions
Years 1-3	50% of member's contributions
Years 4-5	75% of member's contributions
Years 6-8	100% of member's contributions

For this group of members, the minimum participation in DROP, without penalty, is five years and the maximum is eight years.

- If a member terminates employment within the first five years of electing to participate in DROP, then the member forfeits all of their DROP interest. In addition to losing their accumulated interest, members who choose to terminate employment before completing their required participation period cannot withdraw any of the funds in their DROP account until the minimum participation period has expired. The only exception to this rule is if the member dies during the minimum participation period. The member's surviving spouse, designated beneficiary or estate,

as applicable, will receive the entire DROP account balance determined at time of death.

- If a member chooses to continue working after eight years in DROP, the member forfeits all DROP benefits and receives the Normal Service Retirement benefit upon retirement, which will be calculated to include the service credit and salary earned during the DROP participation period.

For those members whose election to participate in DROP was on or before July 1, 2013, member contributions are applied to DROP under the following schedule:

Years of DROP Service	Percentage of Member Contributions
Years 1-2	50% of member's contributions
Year 3	75% of member's contributions
Years 4-8	100% of member's contributions

For this group of members, the minimum participation in DROP, without penalty, is three years and the maximum is eight years.

- If a member terminates employment within the first three years of electing to participate in DROP, then the member forfeits all of their DROP interest. In addition to losing their accumulated interest, members who choose to terminate employment before completing the required participation period cannot withdraw any of the funds in their DROP account until the minimum participation period has expired. The only exception to this rule is if the member dies during the minimum participation period. The member's surviving spouse, designated beneficiary or estate, as applicable, will receive the entire DROP account balance determined at time of death.
- If a member chooses to continue working after eight years in DROP, the member forfeits all DROP benefits and receives the Normal Service Retirement benefit upon retirement, which will be calculated to include the service credit earned during the DROP participation period.

All DROP members retiring before the eight-year maximum participation period will receive their Normal Service Retirement benefit determined at the time of DROP entry, with the COLA adjustment (if applicable) to their date of retirement when eligible. These members will also receive the DROP account balance as a lump sum or monthly distribution.

If a member dies while participating in DROP, the member's surviving spouse, designated beneficiary or estate will receive the entire DROP account balance determined at the time of death. Also, the member's surviving spouse or contingent dependent beneficiary will receive either a 50% joint and survivor annuity or the annuity plan selected by the member, whichever is greater. All other statutory death benefits will apply.

If the member becomes disabled while in DROP, and has not terminated employment, the member must choose between receiving a disability benefit or DROP and a service retirement benefit. If the member stays in DROP, the disability benefit is forfeited. If the member chooses the disability benefit, the member forfeits all DROP benefits and receives the disability benefit, with service credit during the DROP period included.

REFUNDS

Upon separation from service, a member can receive the contributions that he or she made to the plan or the employee share of member contributions picked-up on the member's behalf by their employer. Acceptance of a refund of employee contributions cancels the member's rights, benefits and total service with OP&F. Employer contributions to OP&F are not refundable.

HEALTH CARE

A stipend funded by OP&F via the Health Care Stabilization Fund (HCSF) is available to eligible members through a Health Reimbursement Arrangement and can be used to reimburse retirees for qualified health care expenses. This stipend model allows eligible members the option of choosing an appropriate health care plan on the insurance exchange. Implementation of the stipend model has helped OP&F meet the funding goal of a 15 year future solvency projection in the HCSF.

Health care costs paid from the funds of the plan are included in the employer contribution rates, which are currently 19.5% and 24.0% of salaries for police and fire employers, respectively. During 2021, the Board of Trustees has allocated employer contributions equal to 0.5% of annual covered payroll to the HCSF. The HCSF is part of the Pension Reserve Fund.

OP&F maintains funds for health care in two separate accounts: one account for health care benefits and one account for Medicare Part B reimbursements. A separate health care trust accrual account is maintained for health care benefits under IRS Code Section 115 trust. IRS Code Section 401(h) account is maintained for Medicare Part B reimbursements.

3. CONTRIBUTIONS AND RESERVES

CONTRIBUTIONS

The ORC Chapter 742 requires contributions by active members and their employers. Contribution rates are subject to annual review by the Ohio Retirement Study Council (ORSC). Additionally, an actuary is used to determine the actuarial implications of the requirement. The adequacy of contribution rates is determined annually using the entry age normal actuarial cost method. Rates are at the statutory maximums and the maximum rates have been taken into consideration in the projection of pension benefits for financial accounting measurement purposes.

Rates established by the ORC Jan. 1, 2021 through Dec. 31, 2021:

Percentage of active member payroll	Police	Fire	Percent Contributed
Member	12.25%	12.25%	100%
Employer	19.50%	24.00%	100%
TOTAL STATUTORY RATE*	31.75%	36.25%	100%

* Combined member and employer contributions as a percentage of the total active member payroll required and made Jan. 1, 2021 through Dec. 31, 2021.

The ORC establishes the length of the amortization period for unfunded pension liability as the primary measure of OP&F's financial status, with a period of 30 years or less being considered satisfactory. This 30-year target was to be attained by Dec. 31, 2006 and maintained thereafter. As of Jan. 1, 2021, OP&F's amortization period was 25 years.

In accordance with the ORC, the State of Ohio is required to contribute additional amounts to finance the cost of certain state-legislated benefit improvements. The total amount contributed by the State of Ohio was \$205,237 for the year ended Dec. 31, 2021.

The chart below summarizes the member and employer contributions for 2021:

SUMMARY OF MEMBER AND EMPLOYER CONTRIBUTIONS

Year Ending Dec. 31	Police Member Contributions	Police Employer Contributions	Percent Contributed	Fire Member Contributions	Fire Employer Contributions	Percent Contributed
2021	\$175,603,711	\$254,570,576	100%	\$161,421,357	\$297,317,898	100%

LOCAL FUNDS RECEIVABLE

Local governments are required by state statute to pay the unfunded portion of the actuarially-determined liability of the local police and firefighter's relief and pension funds that were merged to form OP&F in 1967. The ORC designates this obligation of the local governments to the Employers' Accrued Liability. Interest on the outstanding balance is being accrued at the rate of 4.25%, compounded semi-annually. Local governments began repayment in 1969 and payments are required to be made until 2035.

The following is a summary of the amounts due on the local funds receivable:

Local Funds Receivable	
Year ending December 2022	\$1,675,415
Year ending December 2023	1,673,934
Year ending December 2024	1,673,934
Year ending December 2025	1,673,934
Year ending December 2026	1,673,934
Thereafter	14,079,587
TOTAL PROJECTED PAYMENTS	22,450,738
Less future interest portion	(5,384,824)
BALANCE AT DEC. 31, 2021*	\$17,065,914

* The Local Funds Receivable balance due at Dec. 31, 2021 includes \$20,100 due from two employers, which had previously underpaid their semi-annual payment.

RESERVES

The ORC requires that several reserve funds be maintained annually for tracking fund activities for both police and fire. Each year-end the reserve funds are managed and allocations are done to reflect the revenue and expense activities and funding balance transfers due to changes in membership status from active to retired.

The Guarantee Fund and Expense Fund are always zero at the end of each year as they are used to fund the Pension Reserve Fund from investment gains and losses and to account for the administrative operation expenses.

As required by the ORC, the following accounts have been established for the reserves held for current and future benefits and are separated between police and fire:

The Police Officers’ and Firefighters’ Contribution Fund

This fund accumulates the contributions deducted from the salaries of members. Upon retirement, a member’s accumulated contributions are transferred to the Police Officers’ or Firefighters’ Pension Reserve Fund.

The Police Officers’ and Firefighters’ Employers’ Contribution Fund

This fund is the depository for employer contributions. Based on actuarial valuations, amounts are transferred from this account to the Police Officers’ and Firefighters’ Pension Reserve Fund.

The Police Officers’ and Firefighters’ Pension Reserve Fund

This fund is the account from which all retirement, disability, DROP, health care stipend and survivor benefits are paid. Included in this Fund is the Health Care Stabilization Fund from which payments for the health care stipend payments are made. Amounts are transferred into the Pension Reserve Fund from the Contribution Funds and the Guarantee Fund.

The Guarantee Fund

This fund records all investment earnings of OP&F. In addition, contributions from the State of Ohio, exclusive of death benefit contributions, are recorded in this fund. Annually, investment earnings are transferred to the Pension Reserve Fund and the Expense Fund, as defined below.

Ohio law provides that any deficit occurring in any other fund that will not be covered by payments to that fund, as otherwise provided by sections 742.01 to 742.61 of the ORC, must be paid by transfers of amounts from the Guarantee Fund to such fund or funds. Should the amount in the Guarantee Fund be insufficient at any time to meet the amounts payable therefrom, the amount of such deficiency, with regular interest, must be paid by an additional employer rate of current contributions as determined by the actuary and must be approved by the Board of Trustees of OP&F and the amount of such additional employer contribution will be credited to the Guarantee Fund.

The Expense Fund

This fund is used to record all expenses for the administration and management of OP&F. Annually funds are transferred from the Guarantee Fund to cover expenses incurred.

Fiduciary net position held in trust for benefits for the various funds were as follows:

	2021
Members’ Contribution	\$3,462,079,978
Employers’ Contribution	2,712,634,002
Pension Reserve	13,568,907,000
TOTAL	\$19,743,620,980

4. FAIR VALUE MEASUREMENT

OP&F measures and records its investments using fair value measurement guidelines established by the generally accepted accounting principles. These guidelines categorize the inputs to valuation techniques into three hierarchical levels, as follows:

Level 1: Quoted (unadjusted) prices for identical investments in active markets.

Level 2: Inputs other than quoted prices that are observable for the investments directly or indirectly. These inputs are quoted prices for similar assets in active markets, quoted prices for identical or similar assets in markets that are not active and observable inputs other than quoted prices. Such inputs may include interest rates, yield curves, implied volatilities and credit spreads.

Level 3: Inputs are prices based on unobservable sources. These inputs include the best information available under the circumstances, which can include OP&F's own data and takes into account all information about market participant assumptions.

The classification of the levels, within the hierarchy, is based on the asset type and the pricing transparency. Level 1 assets are valued based on prices quoted by external pricing vendors furnished to OP&F's custodial banks.

Level 2 securities in Cash and Short-Term Investments primarily consist of Commercial Paper which are reported at cost plus earned discount and approximates market or fair value. Equity securities in Level 2 are valued using bid evaluation while fair values for debt and derivative securities in Level 2 are based on bid evaluations or matrix pricing method. Bid evaluations are typically based on market quotations, yields, maturities, call features and ratings. The matrix pricing technique is used to value securities based on the securities relationship to benchmark quoted prices.

The Level 3 Real Assets securities consists primarily of investments in infrastructure and timberlands. Due to the significance of certain unobservable assumptions in the valuation of timberland this investment is valued using Income Capitalization, Sales Comparison or Cost methods. The Income Capitalization method involves using a range of discount rates to determine the present value of the future income that can be produced over the holding period. The sales comparison approach is a method of estimating the fair value based on open market prices recently paid for similar timberland properties in the market area. The cost approach is a method of estimating the fair value based on the concept that a market participant would pay no more than the real asset property than the cost to purchase and develop a comparable property having utility. The remainder of the assets are primarily securities which are in default and valued by the bank or manager using internally developed valuation estimates.

The fair value of investments in certain equity, fixed income and marketable alternative funds are based on the investments' net asset value. Investments that are measured at fair value using the net asset value as practical expedient are not classified in the fair value hierarchy.

The following table shows the classification of OP&F fair value measurement for its investments as of Dec. 31, 2021 (Dollars in thousands):

	Dec. 31, 2021	Fair Value Measurements Using:		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Investments by fair value level				
Corporate Bond and Obligations	\$2,099,508	\$-	\$2,098,255	\$1,253
Domestic Equities	1,578,725	1,564,545	7,947	6,233
International Equities	1,736,587	1,735,877	-	710
Master Limited Partnerships	506,919	506,919	-	-
Non-Agency Mortgage and Asset-Backed Securities	546,953	-	536,906	10,047
Municipal Bond Obligations	5,398	-	5,398	-
International Bonds	40	-	40	-
Real Assets	95,421	-	-	95,421
U.S. Agency Mortgage and Asset-Backed Securities	266,409	-	266,409	-
U.S. Government Treasury Obligations	329,690	-	329,690	-
U.S. Government Treasury STRIPS*	12,012	-	12,012	-
TOTAL INVESTMENTS BY FAIR VALUE LEVEL	\$7,177,662	\$3,807,341	\$3,256,657	\$113,664
Investments measured at Net Asset Value (NAV)				
Domestic Commingled Bonds	\$1,191,009			
Domestic Pooled Equities	1,956,262			
Domestic Equities	1,280,292			
International Equities	1,101,155			
Private Debt	485,049			
Private Equity	2,074,193			
Real Assets	625,688			
Real Estate	1,909,308			
TOTAL INVESTMENTS MEASURED AT NAV	\$10,622,956			
Investment Derivatives				
Futures	\$-	\$-	\$-	\$-
Options/Swaptions	(44)	-	(44)	-
Foreign Currency Forwards	432	-	432	-
Credit Default Swap - International	(6)	-	(6)	-
Credit Default Swaps - Domestic	1	-	1	-
Interest Rate Swap - International	(36)	-	(36)	-
Interest Rate Swaps - Domestic	(395)	-	(395)	-
TOTAL INVESTMENT DERIVATIVES	\$(48)	\$-	\$(48)	\$-
TOTAL INVESTMENTS	\$17,800,570			
Securities not leveled in investment portfolio				
Cash Equivalents	\$2,026,067			

* Separate Trading of Registered Interest and Principal Securities (STRIPS).

INVESTMENTS MEASURED AT THE NET ASSET VALUE (DOLLARS IN THOUSANDS)

	Dec. 31, 2021	Unfunded Commitments ⁽¹⁾	Redemption Frequency (If Currently Eligible)	Redemption Notice Period ⁽²⁾
Bond/Credit Funds ⁽³⁾	\$1,676,058	\$151,774	Daily, Semi-annually, Not Eligible	1 Days - Not Eligible
Domestic Equity Funds ⁽⁴⁾	1,038,878	-	Daily	0 Days
Hedge Funds ⁽⁵⁾				
<i>Global Macro</i>	917,384	-	Monthly	5 Days
Hedge Fund of Funds ⁽⁶⁾				
<i>Multi-Strategy</i>	1,279,980	-	Daily	5 Days
<i>Market Neutral</i>	312	-	Daily	0 Days
International Equity Funds ⁽⁷⁾	1,101,155	-	Daily, Bi-monthly	0-9 Days
Private Equity/Venture Capital Funds ⁽⁸⁾	2,074,193	377,968	Not Eligible	Not Eligible
Real Estate Funds				
<i>Open-End⁽⁹⁾</i>	1,328,555	185,000	Quarterly	30-90 Days
<i>Closed-End⁽¹⁰⁾</i>	580,753	331,047	Not Eligible	Not Eligible
Real Assets Funds				
<i>Open-End⁽¹¹⁾</i>	310,530	153,654	Quarterly	90 Days
<i>Closed-End⁽¹²⁾</i>	315,158	156,799	Not Eligible	Not Eligible
TOTAL INVESTMENTS MEASURED AT THE NAV	\$10,622,956			

(1) Unfunded Commitments do not include distributions subject to recall.

(2) Days = Business or Calendar Days.

(3) **Bond/Credit Funds:** Consisting of three credit/bond funds and thirteen private debt funds. Each is valued at the net asset value at the end of the period based on the value of the underlying assets. Distributions from the private debt funds are received when the underlying assets are liquidated. This is estimated to occur from five to eight years.

(4) **Domestic Equity Fund:** Consists of one fund, which tracks the Russell 1000 Index. It is valued at net asset value on a daily basis. The fund is eligible for redemption on a daily basis.

(5) **Hedge Funds:** Consisting of one Global Macro commingled fund held in two separate accounts. This fund can be redeemed monthly with five days' notice.

(6) **Hedge Fund of Funds:** Consisting of one multi strategy and one market neutral fund. The multi strategy fund can be redeemed daily with five days' notice while the market neutral fund can be redeemed daily with zero days' notice. Both funds are subject to the liquidity of the underlying investments.

(7) **International Equity Funds:** Consisting of three commingled funds which invest in international developed and emerging markets equity securities. These investments are valued at net asset value on a daily basis. These funds are eligible for redemption on a daily to bi-monthly basis with zero to nine days' notice.

(8) **Private Equity/Venture Capital Funds:** Consisting of 110 commingled funds, fund-of-funds, and secondary funds involving domestic, international and global buyout, distressed debt, special situations, growth equity and venture capital funds. These are long-term lock-up vehicles, typically with 10-year terms plus available extensions. These investments are valued at net asset value, typically on a quarterly basis, as reported by the fund. The unfunded commitments can be called to make new investments or pay fees and expenses. Distributions are received when underlying assets are liquidated and this occurs from five to 15 years.

(9) **Open-End Real Estate Funds:** Consisting of 15 commingled funds which invest primarily in operating and substantially leased institutional quality properties located in the U.S. These investments are valued at net asset value, typically on a quarterly basis, as reported by the fund. The unfunded commitments can be called to make new investments or pay fees and expenses. These funds are eligible for redemption on a quarterly basis subject to available liquidity with thirty to ninety days' notice. In two of the investments, OP&F is currently subject to certain lock-up periods. In one of the investments, there is no lock-up period, however, redemption fees may apply. Limited partners redeeming before the second anniversary will be subject to redemption fees. Redemption fee is 2.0% in the first year after initial closing and 1.0% in the second year following the initial closing.

(10) **Closed-End Real Estate Funds:** Consisting of 39 commingled funds which invest in properties on a global basis having more risk and correspondingly higher expected returns than those in the Open-End Real Estate Funds. These are long-term lock-up vehicles, typically with 10-year terms plus available extensions. These investments are valued at net asset value, typically on a quarterly basis, as reported by the fund. The unfunded commitments can be called to make new investments or pay fees and expenses.

(11) **Open-End Real Assets Funds:** Consisting of three commingled funds, two of which invests primarily in a diversified portfolio of infrastructure assets on a global basis while the other invests primarily in a diversified portfolio of infrastructure assets in the U.S. These investments are valued at net asset value, typically on a quarterly basis, as reported by the fund. The unfunded commitments can be called to make new investments or pay fees and expenses. One fund is eligible for redemption on a quarterly basis subject to available liquidity with ninety days' notice. One fund is eligible for redemption on an annual basis subject to a maximum of 20% of net asset value of the fund per year along with available liquidity. In addition, limited partners are subject to a redemption step-down discount on net asset value within the first five years (7.5% in year one, with a 1.5% reduction in each subsequent year). Limited partners can submit redemption notices between April 1 and June 30 of each year. One fund is eligible for redemption on a quarterly basis subject to available liquidity with ninety days' notice. In addition, a six-year lock-up period applies to founding investors (three-years hard lock-up and three-years soft lock-up) and three-years soft lock-up for other investors commencing on the date of the first capital call. Redemptions can be requested during the soft lock-up, however, a 5.0% discount to net asset value would apply to the benefit of other existing investors.

(12) **Closed-End Real Assets Funds:** Consisting of eight commingled funds which invest either in timberland, agriculture or infrastructure assets on a global basis. These are long-term lock-up vehicles, typically with 10-year terms plus available extensions. These investments are valued at net asset value, typically on a quarterly basis, as reported by the fund. The unfunded commitments can be called to make new investments or pay fees and expenses. These funds are not eligible for redemption and distributions are received when underlying assets are liquidated and this occurs from five to 15 years.

5. CASH AND INVESTMENTS

A summary of cash and short-term securities and investments held at Dec. 31, 2021 is as follows:

Category	2021 Fair Value
Cash and Cash Equivalent*	\$2,026,066,746
Corporate Bonds and Obligations	2,099,508,171
Domestic and International Derivatives	(47,107)
Domestic Commingled Bonds	1,191,008,869
Domestic Equities	2,859,016,568
Domestic Pooled Equities	1,956,261,722
International Bonds	39,802
International Equities	2,837,742,346
Master Limited Partnerships	506,919,095
Municipal Bond Obligations	5,397,677
Non-Agency Mortgage and Asset-Backed Securities	546,953,390
Private Debt	485,048,767
Private Equity	2,074,193,267
Real Assets	721,109,102
Real Estate	1,909,307,717
U.S. Agency Mortgage and Asset-Backed Securities	266,408,968
U.S. Government Treasury Obligations	329,690,366
U.S. Government Treasury STRIPS**	12,012,105
GRAND TOTAL	\$19,826,637,571

The investment type classification is based on the characteristics of the individual securities.

* Cash and cash equivalents are included in cash and short-term investments on the Statement of Fiduciary Net Position.

** Separate Trading of Registered Interest and Principal Securities (STRIPS).

MONEY WEIGHTED RETURN ON INVESTMENT

The money weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested. For the year ended Dec. 31, 2021, the annual money weighted rate of return on investments, net of investment expense was 19.230%.

CUSTODIAL CREDIT RISK

The custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, an organization will not be able to recover deposits or will not be able to recover collateral securities that are in the possession of an outside party. The custodial credit risk for investments is the risk that, in the failure of the counterparty to a transaction, an organization will not be able to recover the value of investment or collateral securities that are in the possession of an outside party.

In accordance with ORC 135.18, the Ohio Treasurer of State, the statutory custodian for OP&F, requires that the amount

in any demand deposit and securities lending account not covered by federal deposit insurance be collateralized with securities permitted under ORC 135.18 at 102% of the value of the cash. Collateral is held in the Ohio Treasurer of State's name by a third party trustee for the benefit of OP&F. All of OP&F's depository-eligible securities are held in the custodial bank or its agent's nominee, for the benefit of OP&F. Any physical securities are held in the vaults of the custodial bank, or its agent. The custodial bank provides book entry accounting for OP&F's real estate and private market assets. The custody agreement between the custodial bank and the Ohio Treasurer of State has historically restricted the right of the custodial bank or its agents from putting any right, charge, security interest, lien or claim of any kind on the securities they hold. Despite OP&F objections, the Ohio Treasurer of State allowed language in the custody agreement that grants a security interest in OP&F assets. The cash held in foreign local banks for immediate settlement of pending trade transactions are not collateralized.

DEPOSITS EXPOSED TO CUSTODIAL CREDIT RISK AS OF DEC. 31, 2021

	2021
Uninsured deposits collateralized with securities held by the pledging financial institution	\$5,564,811
Uninsured and uncollateralized deposits	\$28,586

- Non-agency mortgage and asset-backed instruments refer to mortgage and asset-backed securities that are made up of mortgage loans not guaranteed by U.S. government supported agency.
- Corporate bonds consist of debt instruments issued by domestic corporations or U.S. dollar-denominated debt issued by foreign entities and managed by a U.S. based investment manager.

CREDIT RISK

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligation to the holder of the investment. This risk is measured by the assignment of a rating by a nationally recognized statistical rating organization. OP&F's risk management policy over credit risk is based on the type of fixed income instruments. For credit risk purposes, OP&F classifies its fixed income securities into four main types: core, high yield, private credit and short-term fixed income. The credit risk policies related to these types are as follows:

CORE FIXED INCOME

OP&F's two core fixed income portfolios, all managed externally, contain government, mortgage and asset-backed securities, U.S. Agency and corporate bonds. These external managers invest in securities based on guidelines provided by the OP&F Board of Trustees. It is the policy of OP&F that a security in the core fixed income portfolio shall be rated BBB- or better by two standard rating services at the time of purchase. OP&F allows some of its investment managers to purchase securities that are "not rated" as long as they deem these securities to be at least equivalent to the minimum ratings at the time of purchase.

- Government instruments include those issued by the U.S. Treasury as well as fixed income instruments, other than mortgage-backed securities, of an agency or instrumentality of the U.S. government.
- Agency mortgage-backed instruments include collateralized mortgage obligations and Real Estate Mortgage Investment Conduits (REMIC's), whose payment of principal and interest is insured by the full faith and credit of the U.S. government, or an agency or instrumentality thereof. Also included in this category are secured assets issued by Government National Mortgage Association (GNMA) project loans, pools and participation certificates, Federal National Mortgage Association (FNMA) and Federal Home Loan Mortgage Corporation (FHLMC).

The following tables show ratings by asset class in OP&F's fixed income portfolio as of Dec. 31, 2021:

RATINGS BY ASSET CLASS – 2021

S&P Ratings	Corporate Bonds and Obligations	Domestic Commingled Bonds	Municipal Bond Obligations	International Bonds	U.S. Government Treasury Obligations	U.S. Government Treasury STRIPS	U.S. Agency Mortgage and Asset-Backed Securities	Non-Agency Mortgage and Asset-Backed Securities	GRAND TOTAL
AAA	\$2,701,688	\$-	\$1,187,428	\$-	\$-	\$-	\$330,142	\$194,199,678	\$198,418,936
AA+	6,561,159	1,191,008,869	107,521	-	-	-	256,534,143	4,403,196	1,458,614,888
AA	4,879,046	-	1,674,325	-	-	-	614	26,386,082	32,940,067
AA-	34,071,946	-	512,262	-	-	-	-	2,484,983	37,069,191
A+	58,964,601	-	1,177,051	-	-	-	-	1,600,967	61,742,619
A	46,032,770	-	-	-	-	-	-	18,748,022	64,780,792
A-	146,008,976	-	219,892	-	-	-	-	-	146,228,868
BBB+	129,778,239	-	-	-	-	-	-	3,672,019	133,450,258
BBB	152,604,478	-	519,198	-	-	-	-	2,585,491	155,709,167
BBB-	143,375,021	-	-	-	-	-	414,158	553,495	144,342,674
BB+	197,085,264	-	-	-	-	-	2,240,759	871,999	200,198,022
BB	257,001,631	-	-	-	-	-	-	-	257,001,631
BB-	263,264,429	-	-	-	-	-	2,919,233	-	266,183,662
B+	192,852,073	-	-	-	-	-	-	-	192,852,073
B	156,932,728	-	-	-	-	-	-	-	156,932,728
B-	104,221,794	-	-	-	-	-	-	2,456,933	106,678,727
CCC+	93,580,030	-	-	-	-	-	-	-	93,580,030
CCC	32,101,813	-	-	-	-	-	-	-	32,101,813
CCC-	2,898,122	-	-	-	-	-	-	-	2,898,122
CC	-	-	-	-	-	-	-	5,087,687	5,087,687
D	416,175	-	-	39,802	-	-	-	97,773	553,750
NR*	74,176,188	-	-	-	-	-	3,969,919	283,805,065	361,951,172
FF&C**	-	-	-	-	329,690,366	12,012,105	-	-	341,702,471
GRAND TOTAL	\$2,099,508,171	\$1,191,008,869	\$5,397,677	\$39,802	\$329,690,366	\$12,012,105	\$266,408,968	\$546,953,390	\$4,451,019,348

* Not Rated (NR).

** Full Faith and Credit (FF&C).

HIGH YIELD FIXED INCOME

As of Dec. 31 2021, OP&F had three high yield fixed-income portfolios that invest in publicly traded securities and one portfolio designated as high yield which contains securities purchased from OP&F's former domestic securities lending agent. All these portfolios were managed externally. The high yield bond asset class consists of the portion of the U.S. corporate bond market that is rated below BBB- by Standard & Poor's (S&P) or below Baa3 by Moody's. Accordingly, credit risks associated with these bonds are greater than with core fixed income bonds. OP&F's policy is to invest in high yield bonds issued by U.S. Corporations with a minimum credit rating of CCC or equivalent. OP&F allows some of its investment managers to purchase securities that are "not rated" as long as they deem these securities to be at least equivalent to the minimum ratings at the time of purchase. It is possible after purchase that the security is downgraded. In the event of an investment guideline violation and in the event of a security downgrade, such that the ratings (Moody's, S&P, or Fitch Investor's Service) are below the allowable minimum security quality, the investment manager will inform OP&F in writing within five business days of such violation. Such notice will include the action the Manager intends to take with regard to the violation and over what time period that action will be taken. Both the method and timing of the violation resolution must be agreeable to OP&F.

PRIVATE CREDIT

As of Dec. 31 2021, OP&F had fourteen private credit strategies consisting of thirteen limited partnership funds managed by ten different investment firms and one private credit strategy that is a common stock holding of an investment company that manages private credit strategies. The limited partnership funds are not publicly listed and as such do not have a specific credit rating. However, most of OP&F's private credit securities range from the equivalent of B to BB+ in terms of comparable S&P credit rating.

SHORT-TERM INVESTMENTS

Any excess cash received in OP&F's trust accounts is swept into designated money market funds. In addition, OP&F has one externally managed portfolio that is invested in cash equivalents consistent with 2a7 money market rules and other short duration fixed income securities.

The following table lists the short-term investment ratings as of Dec. 31, 2021:

S&P/Moody's Rating	Fair Value 2021	Percent 2021
A1/P1	\$272,351,653	100.00%
GRAND TOTAL	\$272,351,653	100.00%

INTEREST RATE RISK

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of fixed income investments. This relationship can be measured using duration, which shows the sensitivity of the price of a fixed-income investment to a change in interest rates. OP&F uses effective duration to measure the interest rate risk of the core fixed income portfolio and U.S. Government Inflation-Linked Bond portfolio. The effective duration takes into account that expected cash flows will fluctuate as interest rates change.

All the fixed income managers are also required to monitor and report the effective duration of their portfolio(s) on a monthly basis. As of Dec. 31 2021, the permissible ranges for the two core fixed income portfolio managers and the U.S. Government Inflation-Linked Bond manager were:

Portfolio Benchmark	2021 Benchmark Duration (years)	Portfolio Manager	Portfolio Permissible Range
Barclays U.S. Government Inflation-Linked Bond Index	15.87	Bridgewater Associates*	Replicate benchmark
Bloomberg U.S. Aggregate Bond Index	6.20	PGIM Core Bond	Benchmark +/- 2 years
Bloomberg U.S. Aggregate Bond Index	6.20	Loomis Core Bond	Benchmark +/- 2 years

* Bridgewater Associates holds a 2:1 levered portfolio.

Since portfolio level duration is the best measure of interest rate risk, OP&F does not require its managers to measure or report on the duration of each security sector. OP&F does not measure the duration of their high yield portfolios because interest rate risk is a very small part of the total risk of high yield securities. The major risks for high yield bonds are credit risk and interest rate spread risk.

The following table lists the effective duration for OP&F's fixed-income portfolio as of Dec. 31, 2021:

Investment Type	Fair Value 2021	Effective Duration (years)
U.S. Government Treasury Obligations	\$329,690,366	11.72
U.S. Government Treasury STRIPS	12,012,105	16.88
U.S. Agency Mortgage and Asset-Backed Securities	266,408,968	3.71
Non-Agency Mortgage and Asset-Backed Securities	546,953,390	2.58
Municipal Bond Obligations	5,397,677	14.74
Corporate Bond Obligations	2,099,508,171	4.83
International Bonds	39,802	0.01
Domestic Commingled Bonds	1,191,008,869	16.34
TOTAL FIXED INCOME EFFECTIVE DURATION	\$4,451,019,348	8.12

COLLATERALIZED MORTGAGE OBLIGATIONS

In general, mortgage-backed securities entitle their holders to receive both principal and interest payments from the payments made by the borrowers of the underlying mortgages over the lives of those loans. The life of the mortgage that underlies a mortgage-backed security can be shortened by several economic events, including borrower refinancing. When interest rates fall and remain very low, a growing number of borrowers will refinance their existing loans causing mortgage-backed security holders to be repaid more quickly than anticipated. This early repayment is a form of market risk assumed by OP&F and other owners of mortgage-backed securities.

To the contrary, when interest rates begin to rise, the refinancing of existing mortgages begins to slow. If the rates remain high for long periods of time, fewer borrowers refinance their mortgages. This causes mortgage-backed security holders to be repaid over longer periods of time. This prolonged repayment is known as extension risk and is another form of market risk assumed by OP&F and other owners of mortgage-backed securities.

These securities are based on cash flows from interest payments on underlying loans. Therefore, they are sensitive to prepayments by the debtor, which may result from a decline in interest rates.

VARIABLE RATE SECURITIES

OP&F's core fixed income and high yield managers are permitted to hold variable-rate coupon bonds whose rates may vary directly or inversely with changes in a related interest rate. As of Dec. 31, 2021, OP&F did not hold any security with a variable-rate coupon that had a multiplier greater than one or any security with an inverse variable rate.

CONCENTRATION OF CREDIT RISK

Concentration of credit risk is the risk of loss attributed to the magnitude of an entity's investment in a single issuer. OP&F does not permit more than 10% of the core fixed income portfolio to be invested in the securities of any one issuer, and no more than 5.0% in any one issue on a dollar duration basis, with the exception of U.S. Government or Agency securities. For the high yield portfolio, no more than 10% of the entire portfolio at market shall be invested in securities of a single issue or issuer, unless otherwise approved by the Board of Trustees. At Dec. 31, 2021, OP&F did not hold investments in any one issuer that represented 5.0% or more of OP&F's net assets.

SECURITIES LENDING

As of Dec. 31, 2021, OP&F participates in a securities lending program managed by one of its custody banks, as authorized by the Board of Trustees. Securities are loaned to investment broker/dealers (borrower). Securities loaned are collateralized by the borrower at 102% of the domestic and 105% of the international loaned securities' fair value. OP&F has minimized its exposure to credit risk due to borrower default by having the lending agent bank determine daily that the required collateral meets the specified collateral requirements. There are no restrictions on the amount of the securities that can be loaned. Contracts with lending agents require them to indemnify OP&F if the borrowers fail to return the securities or fail to pay OP&F for income distributions by the securities' issuer while the securities are on loan. All securities loans can be terminated on demand and the maturities of the investments made with an acceptable form of the collateral generally matches the maturities of the securities loans.

At year end, OP&F has no credit risk exposure to borrowers because the amounts that OP&F owes the borrowers exceed the amounts the borrowers owe OP&F.

OP&F terminated one of its securities lending programs as of Sept. 30, 2021. As a result of this, OP&F incurred an unrealized loss of \$11,330,059 to take on securities from its domestic securities lending agent at the time of the transfer. OP&F does have the ability to pledge or sell collateral securities in case of a borrower default. The following represents the balances relating to the securities lending transactions at Dec. 31, 2021:

SECURITIES LENT AS OF DEC. 31, 2021

Securities Lent	Underlying Security	Collateral Received	Collateral Fair Value	Type of Collateral
Domestic Corporate Fixed Income	\$187,356,964	\$191,450,887	\$191,450,887	Cash
Domestic Equities	47,011,089	48,410,739	48,410,739	Cash
U.S. Government and Treasuries	211,204,400	215,462,559	215,462,559	Cash
International Bonds	26,889,407	27,491,472	27,491,472	Cash
International Equities	106,901,143	110,613,861	110,613,861	Cash
TOTAL SECURITIES LENT	\$579,363,003	\$593,429,518	\$593,429,518	

FOREIGN CURRENCY RISK

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. As of Dec. 31, 2021, OP&F is working towards its long-term target allocation of 14% to international equity. OP&F has no specific policy regarding the international custodial credit risk; however, the five international equity managers are allowed to hold 5.0% to 10% of their holdings in cash and cash equivalents.

Apart from cash needed for immediate settlement of pending trade transactions, (local cash awaiting repatriation), any excess cash received in OP&F's trust accounts is swept into designated money market funds. For the year ending Dec. 31, 2021, OP&F's exposure to foreign currency risk is as follows:

2021 EXPOSURE TO CURRENCY RISK

Currency	Fair Value (Cash Deposits)	Fair Value (Fixed Income)	Fair Value (Currency Contracts)	Fair Value (Equities)	Fair Value (Private Equity and Real Estate)	Fair Value (Derivatives)	Total Fair Value (Cash Deposits and Securities)
Australian Dollar	\$-	\$-	\$138,310	\$8,891,409	\$-	\$80,630	\$9,110,349
Brazilian Real	5,824	-	-	6,151,298	6,595,657	-	12,752,779
British Pound	-	-	372,121	195,638,295	-	273,807	196,284,223
Canadian Dollar	10,720	-	62,086	26,213,862	-	237,351	26,524,019
China Offshore Yuan	-	-	-	27,360,370	-	-	27,360,370
Chinese Yuan	-	-	-	1,352,160	-	-	1,352,160
Denmark Kroner	-	-	-	15,583,032	-	-	15,583,032
Euro	7,831	39,802	180,628	442,583,703	330,150,848	1,546,262	774,509,074
Hong Kong Dollar	-	-	461	118,054,626	-	23,785	118,078,872
Indonesian Rupiah	-	-	-	10,546,219	-	-	10,546,219
Japanese Yen	-	-	(320,999)	206,286,684	1,040,171	364,328	207,370,184
Malaysian Ringgit	-	-	-	638,406	-	-	638,406
Mexican Peso	-	-	-	3,733,694	-	-	3,733,694
New Zealand Dollar	4,208	-	-	-	-	-	4,208
Norwegian Krone	-	-	-	2,334,017	-	-	2,334,017
Polish Zloty	-	-	-	1,370,164	-	-	1,370,164
Singapore Dollar	-	-	-	22,488,091	-	-	22,488,091
South African Rand	3	-	-	3,525,022	-	-	3,525,025
South Korean Won	-	-	(30)	28,558,707	-	-	28,558,677
Swedish Kroner	-	-	243	102,886,120	-	198,935	103,085,298
Swiss Franc	-	-	-	126,149,310	-	-	126,149,310
Taiwanese New Dollar	-	-	-	23,048,463	-	-	23,048,463
Thai Baht	-	-	-	2,030,127	-	-	2,030,127
United Arab Emirates - Dirham	-	-	-	695,479	-	-	695,479
GRAND TOTAL	\$28,586	\$39,802	\$432,820	\$1,376,119,258	\$337,786,676	\$2,725,098	\$1,717,132,240

DERIVATIVES

Derivatives are generally defined as investment instruments whose value depends on, or is derived from, the value of an underlying asset, reference rate, or index.

OP&F has classified the following as derivatives:

- **Mortgage and Asset-Backed Securities:** OP&F invested in Planned Amortization Class and Sequential Pay Real Estate Mortgage Investment Conduit bonds issued by GNMA, FHLMC, and FNMA. Planned Amortization Class bonds are retired according to a payment schedule so as to have a stable average life and yield even if expected prepayment rates change within a specified broad range of prepayment possibilities. Sequential pay bonds begin to pay principal when classes with an earlier priority have paid to a zero balance. Such bonds enjoy uninterrupted payment of principal until paid to a zero balance. In terms of credit risk, the U.S. government explicitly backs GNMA mortgage securities programs and is viewed by the market as implicitly backing FHLMC and FNMA mortgage securities programs.
- **Futures Contracts:** Futures contracts are contracts to buy or sell units of an index or financial instrument on a specified future date at a price agreed upon when the contract is originated. OP&F had futures exposure with seven external managers constituting \$6.20

billion of notional value as of Dec. 31, 2021.

This amount represented 31.45% of the total portfolio. OP&F uses this exposure to synthetics to maintain market exposure while also increasing liquidity and flexibility.

- **Forward-Currency Contracts:** Forward currency contracts are legal agreements between two parties to purchase and sell a foreign currency, for a price specified at the contract date, with delivery and settlement in the future. OP&F, through its external investment managers, enters into forward currency contracts to hedge underlying foreign currency exposure in its non-U.S. equity and fixed income portfolios back to the U.S. dollar or to provide the quantity of foreign currency needed to settle trades.

All the contracts are valued at the spot foreign exchange rate at Dec. 31, 2021. The changes in the value of the open contracts are recognized as unrealized appreciation/depreciation. A realized gain or loss is recorded at the time of the delivery/closing of the contract. The realized gain or loss is the difference between the value of the original contract and the closing/delivery value of such contracts. Both realized and unrealized gains and losses are included in the Statement of Changes in Fiduciary Net Position as net appreciation/depreciation. The following tables represent the balances of the outstanding currency transactions as of Dec. 31, 2021:

OPEN CURRENCY CONTRACTS AS OF DEC. 31, 2021

Purpose	Fair Value (Outstanding Purchases)	Fair Value (Outstanding Sales)	Unrealized Appreciation/ (Depreciation)
Trade Settlement	\$325,100	\$325,409	\$309
Position Hedging	123,632,208	124,064,719	432,511
GRAND TOTAL	\$123,957,308	\$124,390,128	\$432,820

On delivered/closed currency contracts OP&F had a realized gain of \$1,835,294 in 2021.

- **Options:** An option is the right, but not the obligation, to buy or sell a specific amount of a given security or other financial assets at a specified price during a specified period of time. OP&F invests in options as part of its portable alpha program. OP&F's exposure represented less than 1.0% of the total portfolio fair value at year-end.
- **Swaps:** A swap is a derivative contract through which two parties exchange financial instruments that involve cash flows based on a notional principal amount that both parties agree to. Usually, the principal does not change hands but each cash flow comprises one leg of the swap. One cash flow is generally fixed, while the other is variable and based on a benchmark interest rate, floating currency exchange rate or index price.

OP&F invested in interest rate and credit default swaps through one external manager. The fair value for the total swap position at Dec. 31, 2021 was:

SWAP HOLDINGS AS OF DEC. 31, 2021

Type of Swap	Fair Value (Receive Side)	Fair Value (Pay Side)	Fair Value (Total Swap Position)
Credit Default Swap	\$725	\$(6,159)	\$(5,434)
Interest Rate Swap	-	(431,780)	(431,780)
Total Swap Position	\$725	\$(437,939)	\$(437,214)

OP&F has not violated any legal, regulatory, or contractual provisions by its participation in these types of derivative instruments and there is no known undue credit, market, or legal risk. These instruments were purchased in order to enhance OP&F's overall rate of return.

6. DEFERRED COMPENSATION PLAN

OP&F does not sponsor a deferred compensation program. OP&F employees are eligible to participate in the deferred compensation plan sponsored by the State of Ohio. The state-sponsored plan was created in accordance with IRS Code Section 457. The plan is available to all OP&F employees and permits them to defer a portion of their salary until future years. Deferred compensation assets are not available to employees until termination, retirement, death, or unforeseeable emergency.

IRS Code Section 457 requires that the amount of compensation assets deferred under a plan, all property and rights and all income attributable to those amounts, property or rights, be held in trust for the benefit of the participants. This insulates IRS Code Section 457 benefits from the claims of an employer's general creditors. Accordingly, OP&F does not include the deferred compensation assets or liabilities of the Ohio Deferred Compensation Plan in its financial statements.

7. COMPENSATED ABSENCES

As of Dec. 31, 2021, \$3.1 million were accrued for unused vacation and sick leave for OP&F employees. To help OP&F reduce and manage the vacation liability, all employees with at least one year of continuous service as of the beginning of the current calendar year are required to use five consecutive workdays of vacation leave each year. Upon termination of employment, employees will be paid for unused vacation time that has been earned through the last day of work. Three-fourths of accrued but unused sick leave will be paid at the employee's base rate upon termination of employment.

8. SELF-INSURED HEALTH CARE FOR EMPLOYEES OF OP&F

OP&F is self-insured for employee benefits for medical, dental, vision and prescription coverage. A third-party administrator manages the program. OP&F holds a stop-loss policy per covered life per year with a \$100,000 specific deductible.

9 - COMMITMENTS AND CONTINGENCIES

OP&F is a defendant in a number of lawsuits pertaining to matters that are incidental to performing routine business functions. OP&F's management is of the opinion that ultimate resolution of such claims will not result in a material, adverse effect on OP&F's financial position as of Dec. 31, 2021.

OP&F is committed to making additional capital contributions to the following investment types as of Dec. 31, 2021:

Asset Class	Unfunded Commitments	Fair Value At Dec. 31, 2021
Private Equity*	\$377,968,494	\$2,074,193,267
Private Debt	151,774,120	485,048,767
Real Estate	516,047,370	1,909,307,717
Real Assets	313,063,882	721,109,102
TOTAL	\$1,358,853,866	\$5,189,658,853

* Included in Private Equity are five Euro based unfunded commitments totaling as of Dec. 31, 2021: €4,927,352 (€ = Euro) (\$5,603,385 U.S.D.) Unfunded Commitments do not include distributions subject to recall.

10. STATE OF OHIO PUBLIC SAFETY OFFICERS DEATH BENEFIT FUND

Pursuant to ORC Section 742.62, the Board of Trustees of the OP&F administers the State of Ohio Public Safety Officers Death Benefit Fund. This program was established by the State of Ohio to provide monthly benefit payments to eligible surviving family members of Ohio public safety officers who have been killed in the line of duty or die of a duty-related injury or illness. Funds are disbursed to OP&F on a quarterly basis each state fiscal year (July 1-June 30) and are paid monthly by OP&F to eligible recipients. The unused balance at June 30 is returned to the State. The Public Safety Officers Death Benefit Fund is considered to be a custodial fund administered by OP&F and, accordingly, its assets and related liabilities for unpaid benefits of \$697,078 are included in the accompanying financial statements as of Dec. 31, 2021.

11. EMPLOYERS' NET PENSION LIABILITY (ASSET)

The components of the net pension liability of employers as of Dec. 31, 2021:

Year Ending Dec. 31	(a) Total Pension Liability	(b) Plan Fiduciary Net Position	(a)-(b)=(c) Net Pension Liability (Asset)	(b) / (a) Plan Fiduciary Net Pension as a Percentage of Total Pension Liability	(d) Covered Payroll	(c) / (d) Net Pension Liability (Asset) as a Percentage of Covered Payroll
2021	\$25,024,339,943	\$18,776,918,381	\$6,247,421,562	75.03%	\$2,526,179,170	247.31%

The total pension liability is determined by OP&F's actuaries in accordance with GASB Statement No. 67, as part of their annual

valuation. Actuarial valuations of an ongoing retirement plan involve estimates of the value of reported amounts and assumptions about probability of occurrence of events far into the future. Examples include assumptions about future employment mortality, salary increases, disabilities, retirements and employment terminations. Actuarially determined amounts are subject to continual review and potential modifications, as actual results are compared with past expectations and new estimates are made about the future.

The Schedule of Employers' Net Pension Liability presents multi-year trend information about whether the fiduciary net positions are increasing or decreasing over time relative to the total pension liability. These schedules are presented in the RSI section. The total pension liability as of Dec. 31, 2021, is based on the results of an actuarial valuation date of Jan. 1, 2021 and rolled-forward using generally accepted actuarial procedures.

A summary of the actuarial assumptions as of the latest actuarial valuation (except see note on investment rate of return) is shown below.

Actuarial Assumptions	
Valuation date	Jan. 1, 2021
Actuarial cost method	Entry age
Investment rate of return	7.50% (Board approved change from 8.00% in Feb. 2022)
Projected salary increases	3.75% - 10.50%
Payroll increases	3.25%
Inflation assumptions	2.75%
Cost-of-living adjustments	2.20% simple
Healthy Mortality	RP-2014 Total Employee and Healthy Annuitant Mortality Tables rolled back to 2006, adjusted and projected with the Buck Modified 2016 Improvement Scale. Rates for surviving beneficiaries are adjusted by 120%.
Disability Mortality	RP-2014 Disability Mortality Tables rolled back to 2006, adjusted and projected with the Buck Modified 2016 Improvement Scale.

The long-term expected rate of return on pension plan investments was determined using a building-block approach and assumes a time horizon, as defined in the Statement of Investment Policy. A forecasted rate of inflation serves as the baseline for the return expected. Various real return premiums over the baseline inflation rate have been established for each asset class. The long-term expected nominal rate of return has been determined by calculating a weighted average of the expected real return premiums for each asset class, adding the projected inflation rate and adding the expected return from rebalancing uncorrelated asset classes. Best estimates of the long-term expected real rates of return for each major asset class included in OP&F's target asset allocation as of Dec. 31, 2021 are summarized below:

TARGET ALLOCATIONS (SOURCE: WILSHIRE)

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return**
Domestic Equity	21.0%	3.6%
International Equity	14.0%	4.4%
Private Markets	8.0%	6.8%
Core Fixed Income*	23.0%	1.1%
High Yield Fixed Income	7.0%	3.0%
Private Credit	5.0%	4.5%
U.S. Inflation Linked Bonds*	17.0%	0.8%
Midstream Energy Infrastructure	5.0%	5.0%
Real Assets	8.0%	5.9%
Gold	5.0%	2.4%
Private Real Estate	12.0%	4.8%
TOTAL	125.0%	

Note: Assumptions are geometric.

* Levered 2x.

** Numbers are net of expected inflation.

OP&F's Board of Trustees has incorporated the risk parity concept into OP&F's asset liability valuation and its overall asset allocation. Risk parity has a goal of reducing equity risk exposure, which reduces overall Total Portfolio risk without sacrificing return and creating a more risk-balanced portfolio based on the relationship between asset classes and economic environments. From the notional portfolio perspective above, the Total Portfolio may be levered up to 1.25 times due to the application of leverage in core fixed income and U.S. inflation linked bonds and the implementation approach for gold.

Total pension liability was calculated using the discount rate of 7.50%. The projection of cash flows used to determine the discount rate assumed the contributions from employers and from members would be computed based on contribution requirements as stipulated by state statute. Projected inflows

from investment earnings were calculated using the longer-term assumed investment rate of return 7.50%. Based on those assumptions, OP&F's fiduciary net position was projected to be available to make all future benefit payments of current plan members. Therefore, a long-term expected rate of return on pension plan investments was applied to all periods of projected benefits to determine the total pension liability.

Net pension liability is sensitive to changes in the discount rate. To illustrate the potential impact the following table presents the net pension liability calculated using the discount rate of 7.50%, as well as what the net pension liability would be if it were calculated using a discount rate that is 1.0% lower, 6.50%, or 1.0% higher, 8.50%, than the current rate.

CHANGES IN DISCOUNT RATE

Sensitivity of the Net Pension Liability to Changes in the Discount Rate at Dec. 31, 2021

	1.0% Decrease	Current Discount Rate	1.0% Increase
Discount Rate	6.50%	7.50%	8.50%
Total Pension Liability	\$28,041,757,603	\$25,024,339,943	\$22,511,576,296
Plan Fiduciary Net Position	18,776,918,381	18,776,918,381	18,776,918,381
NET PENSION LIABILITY (ASSET)	\$9,264,839,222	\$6,247,421,562	\$3,734,657,915

12. NET OTHER POST-EMPLOYMENT BENEFITS (OPEB) LIABILITY AND ACTUARIAL INFORMATION

PLAN ADMINISTRATION

The OP&F Board of Trustees consists of four elected active members, two elected retired members and three state appointed professional investment experts. The OP&F Board of Trustees is responsible for administering the OP&F retiree health care stipend program, a cost-sharing, multiple-employer, defined benefit OPEB plan that provides various levels of health care to eligible benefit recipients and their eligible dependents.

PLAN MEMBERSHIP

As of Jan. 1, 2021, OP&F's health care plan membership consisted of the following:

PARTICIPANTS BY STATUS

Status	Number
Active Members*	29,138
Inactive Members Eligible for Allowances	267
Retiree Members or their Beneficiaries Currently Receiving Benefits	24,680
TOTAL	54,085

* Excludes rehired retirees.

BENEFITS PROVIDED

A stipend funded by OP&F via the Health Care Stabilization Fund (HCSF) is available to eligible members through a Health Reimbursement Arrangement and can be used to reimburse retirees for qualified health care expenses. This stipend model allows eligible members the option of choosing an appropriate health care plan on the insurance exchange. Implementation of the stipend model has helped OP&F meet the funding goal of a 15 year future solvency projection in the HCSF.

CONTRIBUTIONS

OP&F's health care plan is financed through a combination of employer contributions and investment returns. A portion of OP&F's investment gain/loss is allocated to the HCSF. In 2021, OP&F's investment portfolio had a favorable gross return of 20.48%. During 2021, the Board of Trustees allocated employer contributions equal to 0.5% of annual covered payroll to the HCSF.

INVESTMENT POLICY

The health care stipend program follows the same investment policy and guidelines as the pension plan.

DISCOUNT RATE

The discount rate used to measure the total OPEB liability at Jan. 1, 2021 and rolled forward to Dec. 31, 2021 was 2.84% (using Dec. 31, 2021's S&P Municipal Bond 20 Year High Grade Rate Index of 2.05%). The discount rate used to measure the total OPEB liability as of Jan. 1, 2020 and rolled forward to Dec. 31, 2020 was 2.96% (using Dec. 31, 2020's S&P Municipal Bond 20 Year High Grade Rate Index of 2.12%). The projection of cash flows used to determine the discount rate assumed that OP&F will contribute at a rate equal to 0.50% of payroll. Based on those assumptions, the OPEB plan's fiduciary net position was projected to be available to make all projected OPEB payments for current active and inactive employees until 2037. After that time, the funding of benefit payments is uncertain. The discount rate is the single equivalent rate which results in the same present value as discounting future benefit payments made from assets at the long term expected rate of return and discounting future benefit payments funded on a pay-as-you-go basis on the municipal bond 20-year index rate.

RATE OF RETURN

The long-term expected rate of return on plan assets is reviewed as part of the actuarial five-year experience study. The most recent study covered fiscal years 2012 through 2016. Several factors are considered in evaluating the long-term rate of return assumption including long-term historical data, estimates inherent in current market data, each major investment asset class and expected inflation. Based on this study it was recommended by the actuary and adopted by the Board of Trustees that the long-term expected rate of return be changed from 8.25% to 8.00%. This change was effective as of Jan. 1, 2017. In February 2022, based on market data and in consultation with OP&F's actuarial and investment consultants, the Board of Trustees took further action in reducing the long-term expected rate of return to 7.50%.

The long-term expected rate of return on pension plan investments was determined using a building-block approach and assumes a time horizon, as defined in the Statement of Investment Policy and Guidelines. A forecasted rate of inflation serves as the baseline for the return expected. Various real return premiums over the baseline inflation rate have been established for each asset class. The long-term expected nominal rate of return has been determined by calculating a weighted average of the expected real return premiums for each asset class, adding the projected inflation rate and adding the expected return from rebalancing uncorrelated asset classes.

PERIODS OF PROJECTED BENEFIT PAYMENTS

Future benefit payments for all current plan members were projected through 2120.

ASSUMED ASSET ALLOCATION

The target asset allocation and best estimates of geometric real rates of return for each major asset class is summarized as follows:

TARGET ALLOCATIONS (SOURCE: WILSHIRE)

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return**
Domestic Equity	21.0%	3.6%
International Equity	14.0%	4.4%
Private Markets	8.0%	6.8%
Core Fixed Income*	23.0%	1.1%
High Yield Fixed Income	7.0%	3.0%
Private Credit	5.0%	4.5%
U.S. Inflation Linked Bonds*	17.0%	0.8%
Midstream Energy Infrastructure	5.0%	5.0%
Real Assets	8.0%	5.9%
Gold	5.0%	2.4%
Private Real Estate	12.0%	4.8%
TOTAL	125.0%	

Note: Assumptions are geometric.

* Levered 2x.

** Numbers are net of expected inflation.

OP&F's Board of Trustees has incorporated the risk parity concept into OP&F's asset liability valuation and its overall asset allocation. Risk parity has a goal of reducing equity risk exposure, which reduces overall Total Portfolio risk without sacrificing return and creating a more risk-balanced portfolio based on the relationship between asset classes and economic environments. From the notional portfolio perspective above, the Total Portfolio may be levered up to 1.25 times due to the application of leverage in core fixed income and U.S. inflation linked bonds and the implementation approach of gold.

NET OPEB LIABILITY OF OP&F

The total OPEB liability as of Dec. 31, 2021 was determined based on a no gain (loss) roll-forward of the Jan. 1, 2021 valuation. The components of the net OPEB liability of OP&F at Dec. 31, 2021, were as follows:

Net OPEB Liability of OP&F	
Total OPEB Liability	\$2,062,788,647
Plan Fiduciary Net Position	966,702,599
OP&F'S NET OPEB LIABILITY	\$1,096,086,048
Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	46.86%
Net OPEB Liability as a Percentage of Covered Payroll	43.39%

ACTUARIAL ASSUMPTIONS

The actuarial assumptions used in the valuation were adopted as of Jan. 1, 2017 and were based on the results from the most recent actuarial experience review covering the period 2012 through 2016. The total OPEB liability as of Dec. 31, 2021, is based on the results of an actuarial valuation dated Jan. 1, 2021 and rolled-forward using generally accepted actuarial procedures.

The total OPEB liability used the following assumptions and other inputs:

Actuarial Assumptions	
Valuation Date	Jan. 1, 2021
Long-Term Return on Plan Assets	7.50% (Board approved change from 8.00% in Feb. 2022)
Dec. 31, 2021 Discount Rate	2.84%
Dec. 31, 2021 Municipal Bond Index	2.05%
Actuarial Cost Method	Entry age normal cost.
Payroll Growth Rate	3.25% per annum
Stipend Increase Rate	The stipend is not assumed to increase over the projection period.
Projected Depletion Year of OPEB Assets	2037 (per GASB Statement No. 74 Report)
Health Care Cost Trend Rate	N/A* - based on a medical benefit that is a flat dollar amount; therefore, it is unaffected by a health care cost trend rate.
Healthy Mortality	RP-2014 Total Employee and Healthy Annuitant Mortality Tables rolled back to 2006, adjusted and projected with the Buck Modified 2016 Improvement Scale. Rates for surviving beneficiaries are adjusted by 120%.
Disability Mortality	RP-2014 Disability Mortality Tables rolled back to 2006, adjusted and projected with the Buck Modified 2016 Improvement Scale.
Age of Spouse	Wives are assumed to be three years younger than their husbands.
Dependent Children	Each member is assumed to have two children, born when the member was age 26. Dependency is assumed to cease when the child is 22.

* Not Applicable (N/A).

SENSITIVITY OF THE NET OPEB LIABILITY TO CHANGES IN THE DISCOUNT RATE

The following table presents the net OPEB liability of OP&F as of Dec. 31, 2021, calculated using the discount rate of 2.84%, as well as what OP&F's net OPEB liability would be if it were calculated using a discount rate that is 1.0% lower, 1.84%, or 1.0% higher, 3.84%, than the current discount rate:

SENSITIVITY OF THE NET OPEB LIABILITY TO CHANGES IN THE DISCOUNT RATE AT DEC. 31, 2021

	1.0% Decrease	Current Discount Rate	1.0% Increase
Discount Rate	1.84%	2.84%	3.84%
Net OPEB Liability	\$1,377,804,510	\$1,096,086,048	\$864,512,826

13. PENSION PLANS FOR EMPLOYEES OF OP&F

All OP&F employees are required to participate in a contributory retirement plan administered by Ohio Public Employees Retirement System (OPERS). OPERS is a cost-sharing, multi-employer public employee retirement system that administers three pension plans that include a defined benefit plan, a defined contribution plan and a combined plan. Participation in these plans is a choice members make at the time their employment commences.

The member and employer contribution rates are 10.0% and 14.0% of covered payroll, respectively. The required employer contributions for the current year and the two preceding years are shown in the table below.

OP&F's Required Employer Contributions to OPERS:

Year Ended Dec. 31	Annual Required Contributions	Percent Contribution
2021	\$1,357,430	100%
2020	\$1,378,535	100%
2019	\$1,699,004	100%

GASB Statement No. 68, Accounting and Financial Reporting for Pensions, requires OP&F to record a net pension liability based on its proportionate share of OPERS' total net pension liability. Likewise, OP&F's proportionate share of OPERS' deferred outflows and deferred inflows of resources related to pensions and pension expense are recorded in the Statements of Fiduciary Net Position and Statement of Changes in Fiduciary Net Position for the fiscal year ending Dec. 31, 2021.

For purposes of measuring the net pension liability, deferred outflows of resources and deferred inflows of resources related to pensions, and pension expense, information about the fiduciary net position of OPERS and additions to/ deductions from OPERS' fiduciary net position have been determined on the same basis as there are reported by OPERS. For this purpose, benefits and refunds are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

OPERS also provides post-employment health care coverage which is considered an OPEB as described in GASB Statement No. 75. OPERS has the discretion to direct a portion of employer contributions to fund retiree health care. The employer rate allocated to post employment health care in the defined benefit plan and combined plan was 0.0% in calendar year 2020. The portion of the employer rated allocation to post employment health care in the defined contribution plan was 4.0% in calendar year 2020.

For purposes of measuring the net OPEB liability, deferred outflows of resources and deferred inflows of resources related to OPEB, and OPEB expense, information about the OPEB fiduciary net position of OPERS and additions to/ deductions from OPEB fiduciary net position of OPERS have been determined on the same basis as they are reported by OPERS. For this purpose, health care benefit payments are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

Historical trend information showing the progress of OPERS in accumulating sufficient assets to pay pension and OPEB benefits when due is presented in the OPERS Annual Comprehensive Financial Report (ACFR). OPERS' ACFR is available on their website at www.OPERS.org.

REQUIRED SUPPLEMENTARY INFORMATION (UNAUDITED)

SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY*

Total Pension Liability	Year Ending Dec. 31, 2021	Year Ending Dec. 31, 2020	Year Ending Dec. 31, 2019	Year Ending Dec. 31, 2018	Year Ending Dec. 31, 2017
Service Cost	\$360,427,328	\$357,200,509	\$343,991,701	\$331,600,261	\$289,911,106
Interest	1,826,859,097	1,763,487,122	1,741,126,879	1,663,040,537	1,623,441,004
Plan Changes	-	-	-	-	-
Differences Between Expected and Actual Experience	(168,232,265)	134,816,300	(421,664,871)	322,601,323	109,199,474
Changes in Assumptions	1,312,414,800	-	-	-	318,479,524
Benefit Payments, Including Refunds of Member Contributions	(1,535,344,021)	(1,400,413,884)	(1,394,027,927)	(1,314,608,496)	(1,256,254,446)
NET CHANGE IN TOTAL PENSION LIABILITY	1,796,124,939	855,090,047	269,425,782	1,002,633,625	1,084,776,662
TOTAL PENSION LIABILITY - BEGINNING	23,228,215,004	22,373,124,957	22,103,699,175	21,101,065,550	20,016,288,888
TOTAL PENSION LIABILITY - ENDING (a)	\$25,024,339,943	\$23,228,215,004	\$22,373,124,957	\$22,103,699,175	\$21,101,065,550
Plan Fiduciary Net Position:					
Contributions - Employer	\$539,335,665	\$518,430,203	\$502,303,770	\$478,595,785	\$462,394,203
Contributions - Member	337,025,068	312,628,926	303,413,682	295,472,374	282,006,793
Net Investment Income (Loss)	3,034,386,114	1,362,818,981	2,305,254,776	(458,734,784)	1,812,565,572
Benefit Payments, Including Refunds of Member Contributions	(1,535,344,021)	(1,400,413,884)	(1,394,027,927)	(1,314,608,496)	(1,256,254,446)
Administrative Expense	(9,609,702)	(18,929,776)	(21,410,301)	(16,234,396)	(19,487,358)
Other Changes	-	-	-	(7,047,680)	-
NET CHANGES IN PLAN FIDUCIARY NET POSITION	2,365,793,124	774,534,450	1,695,534,000	(1,022,557,197)	1,281,224,764
PLAN FIDUCIARY NET POSITION - BEGINNING	16,411,125,257	15,636,590,807	13,941,056,807	14,963,614,004	13,682,389,240
PLAN FIDUCIARY NET POSITION - ENDING (b)	\$18,776,918,381	\$16,411,125,257	\$15,636,590,807	\$13,941,056,807	\$14,963,614,004
NET PENSION LIABILITY (SURPLUS) -ENDING (a)-(b)	\$6,247,421,562	\$6,817,089,747	\$6,736,534,150	\$8,162,642,368	\$6,137,451,546
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	75.03%	70.65%	69.89%	63.07%	70.91%
Covered Payroll	\$2,526,179,170	\$2,475,784,283	\$2,373,429,623	\$2,302,436,015	\$2,224,675,422
Net Pension Liability as a Percentage of Covered Payroll	247.31%	275.35%	283.83%	354.52%	275.88%

* Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY* (CONTINUED)

Total Pension Liability	Year Ending Dec. 31, 2016	Year Ending Dec. 31, 2015	Year Ending Dec. 31, 2014
Service Cost	\$273,592,476	\$267,624,727	\$262,846,976
Interest	1,570,560,385	1,519,848,287	1,472,778,463
Plan Changes	-	-	-
Differences Between Expected and Actual Experience	2,143,161	(21,544,278)	-
Changes in Assumptions	-	-	-
Benefit Payments, Including Refunds of Member Contributions	(1,187,020,466)	(1,170,476,866)	(1,126,154,321)
NET CHANGE IN TOTAL PENSION LIABILITY	659,275,556	595,451,870	609,471,118
TOTAL PENSION LIABILITY - BEGINNING	19,357,013,332	18,761,561,462	18,152,090,344
TOTAL PENSION LIABILITY - ENDING (a)	\$20,016,288,888	\$19,357,013,332	\$18,761,561,462
Plan Fiduciary Net Position:			
Contributions - Employer	\$455,143,532	\$428,972,949	\$418,493,468
Contributions - Member	268,594,295	245,834,623	223,989,055
Net Investment Income (Loss)	1,240,580,488	(11,259,198)	786,522,451
Benefit Payments, Including Refunds of Member Contributions	(1,187,020,466)	(1,170,476,866)	(1,126,154,321)
Administrative Expense	(18,851,765)	(15,635,762)	(15,480,687)
Other Changes	-	(6,940,426)	-
NET CHANGES IN PLAN FIDUCIARY NET POSITION	758,446,084	(529,504,680)	287,369,966
PLAN FIDUCIARY NET POSITION - BEGINNING	12,923,943,156	13,453,447,836	13,166,077,870
PLAN FIDUCIARY NET POSITION - ENDING (b)	\$13,682,389,240	\$12,923,943,156	\$13,453,447,836
NET PENSION LIABILITY (SURPLUS) -ENDING (a)-(b)			
	\$6,333,899,648	\$6,433,070,176	\$5,308,113,626
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	68.36%	66.77%	71.71%
Covered Payroll	\$2,094,550,962	\$2,046,601,668	\$1,998,631,412
Net Pension Liability as a Percentage of Covered Payroll	302.40%	314.33%	265.59%

SCHEDULE OF EMPLOYERS' NET PENSION LIABILITY (ASSET)*

Year Ending Dec. 31	(a) Total Pension Liability	(b) Plan Fiduciary Net Position	(a)-(b)=(c) Net Pension Liability (Surplus)	(b) / (a) Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	(d) Covered Payroll	(c) / (d) Net Pension Liability (Surplus) as a Percentage of Covered Payroll
2021	\$25,024,339,943	\$18,776,918,381	\$6,247,421,562	75.03%	\$2,526,179,170	247.31%
2020	23,228,215,004	16,411,125,257	6,817,089,747	70.65%	2,475,784,283	275.35%
2019	22,373,124,957	15,636,590,807	6,736,534,150	69.89%	2,373,429,623	283.83%
2018	22,103,699,175	13,941,056,807	8,162,642,368	63.07%	2,302,436,015	354.52%
2017	21,101,065,550	14,963,614,004	6,137,451,546	70.91%	2,224,675,422	275.88%
2016	20,016,288,888	13,682,389,240	6,333,899,648	68.36%	2,094,550,962	302.40%
2015	19,357,013,332	12,923,943,156	6,433,070,176	66.77%	2,046,601,668	314.33%
2014	18,761,561,462	13,453,447,836	5,308,113,626	71.71%	1,998,631,412	265.59%
2013	18,152,090,344	13,166,077,870	4,986,012,474	72.53%		

* Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

SCHEDULE OF EMPLOYER CONTRIBUTIONS - PENSION TRUST FUND

Year Ended Dec. 31	(a) Statutorily Due Employer Contributions	(b) Actual Employer Contributions	(a)-(b)=(c) Contribution Deficiency (Excess)	(d) Covered Payroll*	(a) / (d) Contributions as a Percentage of Covered Payroll
2021	\$539,130,428	\$539,130,428	\$-	\$2,381,764,788	22.64%
2020	518,204,527	518,204,527	-	2,313,631,090	22.40%
2019	502,043,282	502,043,282	-	2,218,017,387	22.63%
2018	478,294,974	478,294,974	-	2,209,258,449	21.65%
2017	462,047,728	462,047,728	-	2,180,910,604	21.19%
2016	454,745,371	454,745,371	-	2,060,850,564	22.07%
2015	428,526,214	428,526,214	-	1,986,568,535	21.57%
2014	417,993,316	417,993,316	-	1,942,269,436	21.52%
2013	349,461,765	349,461,765	-	1,913,382,667	18.26%
2012	286,752,750	286,752,750	-	1,897,413,344	15.11%

* Actuarial Estimate

SCHEDULE OF INVESTMENT RETURNS*

	2021	2020	2019	2018	2017	2016	2015	2014
Annual Money Weighted Rate of Return								
Net of Investment Expenses	19.230%	9.212%	17.279%	(2.854)%	13.867%	10.048%	0.187%	6.540%

* Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

NOTES TO REQUIRED SUPPLEMENTARY PENSION INFORMATION

1. SCHEDULE OF CHANGES IN THE EMPLOYERS' NET PENSION LIABILITY

The total pension liability contained in this schedule was provided by OP&F's actuary, Cavanaugh Macdonald Consulting, LLC. The net pension liability is measured as the total pension liability less the amount of OP&F's fiduciary net position.

2. SCHEDULE OF EMPLOYER CONTRIBUTIONS

The required employer contributions and percent of those contributions actually made are presented in the schedule of employer contributions.

3. ACTUARIAL ASSUMPTIONS

The actuarial assumptions, aside from the discount rate, were adopted as of Jan. 1, 2017, based on a five-year experience review covering the period of 2012 through 2016. The discount rate of 7.50% was adopted by the Board in February 2022. The next review of actuarial assumptions is to be completed for adoption with the Jan. 1, 2022 valuation.

The information presented in the required supplementary schedules was used in the actuarial valuation for purposes of calculating the actuarially determined contribution rate. The assumptions and methods used for this actuarial valuation were recommended by the actuary and adopted by the Board of Trustees. Additional information as of the latest actuarial valuation follows.

DEFINED BENEFIT PLAN – PENSION TRUST FUND

Actuarial Assumptions

Valuation date	Jan. 1, 2021
Actuarial cost method	Entry age
Amortization method	Level percent of payroll, open
Amortization period	30 years
Asset valuation method	4-year adjusted fair value with a corridor of 20% of the fair value.
Investment rate of return	7.50% (Approved by Board in Feb. 2022)
Projected salary increases	3.75% - 10.50%
Payroll increases	3.25%
Inflation assumptions	2.75%
Cost-of-living adjustments	2.20% simple

REQUIRED SUPPLEMENTARY OPEB INFORMATION (UNAUDITED)

SCHEDULE OF CHANGES IN NET OTHER POST-EMPLOYMENT BENEFIT (OPEB) LIABILITY AND RELATED RATIOS*

	Year Ending Dec. 31, 2021	Year Ending Dec. 31, 2020	Year Ending Dec. 31, 2019	Year Ending Dec. 31, 2018	Year Ending Dec. 31, 2017
Total OPEB Liability					
Service Cost	\$63,158,602	\$56,072,373	\$43,042,991	\$269,913,915	\$230,753,065
Interest	58,048,633	66,955,703	79,675,059	220,193,164	220,886,126
Changes of Benefit Terms	-	-	-	(4,945,194,650)	-
Differences Between Expected and Actual Experience	57,238,179	(98,438,400)	(99,155,482)	-	(32,754,010)
Changes in Assumptions	30,190,286	134,298,234	214,763,191	(293,714,580)	633,696,010
Net Benefit Payments	(86,947,802)	(84,249,181)	(76,303,134)	(144,706,189)	(103,062,283)
NET CHANGE IN TOTAL OPEB LIABILITY	121,687,898	74,638,729	162,022,625	(4,893,508,340)	949,518,908
TOTAL OPEB LIABILITY - BEGINNING	1,941,100,749	1,866,462,020	1,704,439,395	6,597,947,735	5,648,428,827
TOTAL OPEB LIABILITY - ENDING (a)	\$2,062,788,647	\$1,941,100,749	\$1,866,462,020	\$1,704,439,395	\$6,597,947,735
Plan Fiduciary Net Position					
Contributions - Employer	\$12,758,046	\$12,166,558	\$11,973,144	\$11,337,852	\$18,894,974
Net Investment Income (Loss)	159,553,600	75,292,783	149,595,598	(4,191,504)	115,417,360
Benefit Payments	(86,947,802)	(84,249,181)	(76,303,134)	(144,706,189)	(103,062,283)
Administrative Expenses	(245,662)	(314,740)	(362,607)	(741,952)	(815,977)
NET CHANGE IN PLAN FIDUCIARY NET POSITION	85,118,182	2,895,420	84,903,001	(138,301,793)	30,434,074
PLAN FIDUCIARY NET POSITION - BEGINNING	881,584,417	878,688,997	793,785,996	932,087,789	901,653,715
PLAN FIDUCIARY NET POSITION - ENDING (b)	\$966,702,599	\$881,584,417	\$878,688,997	\$793,785,996	\$932,087,789
NET OPEB LIABILITY (SURPLUS) - ENDING (a)-(b)	\$1,096,086,048	\$1,059,516,332	\$987,773,023	\$910,653,399	\$5,665,859,946
Plan Fiduciary Net Position as a Percentage of the total OPEB Liability	46.86%	45.42%	47.08%	46.57%	14.13%
Covered Payroll	\$2,526,179,170	\$2,475,784,283	\$2,373,429,623	\$2,302,436,015	\$2,180,910,604
Net OPEB Liability as a Percentage of Covered Payroll	43.39%	42.80%	41.62%	39.55%	259.79%

* Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

SCHEDULE OF NET OPEB LIABILITY (ASSET)*

Year Ending Dec. 31	(a) Total OPEB Liability	(b) Plan Fiduciary Net Position	(a)-(b)=(c) Net OPEB Liability (Surplus)	(b) / (a) Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability	(d) Covered Payroll	(c) / (d) Net OPEB Liability (Surplus) as a Percentage of Covered Payroll
2021	\$2,062,788,647	\$966,702,599	\$1,096,086,048	46.86%	\$2,526,179,170	43.39%
2020	1,941,100,749	881,584,417	1,059,516,332	45.42%	2,475,784,283	42.80%
2019	1,866,462,020	878,688,997	987,773,023	47.08%	2,373,429,623	41.62%
2018	1,704,439,395	793,785,996	910,653,399	46.57%	2,302,436,015	39.55%
2017	6,597,947,735	932,087,789	5,665,859,946	14.13%	2,180,910,604	259.79%

* Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

SCHEDULE OF EMPLOYER CONTRIBUTIONS - RETIREE HEALTH CARE TRUST FUND

Year Ended Dec. 31	(a) Statutorily Due Employer Contributions	(b) Actual Employer Contributions	(a)-(b)=(c) Contribution Deficiency (Excess)	(d) Covered Payroll*	(a) / (d) Contributions as a Percentage of Covered Payroll
2021	\$12,758,046	\$12,758,046	\$-	\$2,381,764,788	0.54%
2020	12,166,558	12,166,558	-	2,313,631,090	0.53%
2019	11,973,144	11,973,144	-	2,218,017,387	0.54%
2018	11,337,852	11,337,852	-	2,209,258,449	0.51%
2017	10,871,479	10,871,479	-	2,180,910,604	0.50%
2016	10,708,739	10,708,739	-	2,060,850,584	0.52%
2015	10,211,723	10,211,723	-	1,986,568,535	0.51%
2014	9,895,274	9,895,274	-	1,942,269,436	0.51%
2013	68,720,879	68,720,879	-	1,913,382,667	3.59%
2012	130,285,935	130,285,935	-	1,897,413,344	6.87%

* Actuarial Estimate.

SCHEDULE OF INVESTMENT RETURNS*

	2021	2020	2019	2018	2017	2016	2015	2014
Annual Money Weighted Rate of Return Net of Investment Expenses	19.230%	9.212%	17.279%	(2.854)%	13.867%	10.048%	0.187%	6.540%

* Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

NOTES TO REQUIRED SUPPLEMENTARY OPEB INFORMATION

1. SCHEDULE OF CHANGES IN THE EMPLOYERS' NET OPEB LIABILITY

The total OPEB liability contained in this schedule was provided by OP&F's actuary, Cavanaugh Macdonald Consulting, LLC. The net OPEB liability is measured as the total OPEB liability less the amount of OP&F's fiduciary net position.

2. SCHEDULE OF EMPLOYER CONTRIBUTIONS

The required employer contributions and percent of those contributions actually made are presented in the schedule of employer contributions.

3. ACTUARIAL ASSUMPTIONS

The actuarial assumptions, aside from the discount rate, were adopted as of Jan. 1, 2017, based on a five-year experience review covering the period of 2012 through 2016. The discount rate of 7.50% was adopted by the Board in February 2022. The next review of actuarial assumptions is to be completed for adoption with the Jan. 1, 2022 valuation.

The information presented in the required supplementary schedules was used in the actuarial valuation for purposes of calculating the actuarially determined contribution rate. The assumptions and methods used for this actuarial valuation were recommended by the actuary and adopted by the Board of Trustees. Additional information as of the latest actuarial valuation follows.

RETIREE HEALTH CARE BENEFITS – HEALTH CARE TRUST FUND

Actuarial Assumptions

Valuation date	Jan. 1, 2021
Actuarial cost method	Entry age
Amortization method	Level percent of payroll, open
Amortization period	30 years
Asset valuation method	Fair value
Investment rate of return	7.50% (Board approved change from 8.00% in Feb. 2022)
Projected salary increases	3.75% - 10.50%
Payroll increases	3.25%
Inflation assumptions	2.75%

OPERS RELATED REQUIRED SUPPLEMENTARY PENSION INFORMATION

SCHEDULE OF OHIO POLICE & FIRE PENSION FUND'S (OP&F) PROPORTIONATE SHARE OF THE NET PENSION LIABILITY OHIO PUBLIC EMPLOYEES RETIREMENT PLAN

TRADITIONAL PENSION PLAN - LAST 10 FISCAL YEARS*

	2021	2020	2019	2018	2017	2016	2015
OP&F's proportion of the net pension liability (asset)	\$9,451,241	\$12,222,305	\$17,148,431	\$9,597,642	\$13,874,911	\$10,779,540	\$7,534,305
OP&F's proportionate share of the net pension liability (asset)	0.064%	0.062%	0.063%	0.061%	0.061%	0.062%	0.062%
OP&F's covered payroll	\$8,989,514	\$8,700,257	\$8,457,043	\$7,507,300	\$7,290,938	\$7,745,508	\$7,649,967
OP&F's proportionate share of the net pension liability (asset) as a percentage of its covered payroll	105.14%	140.48%	202.77%	127.84%	190.30%	139.17%	98.49%
Plan fiduciary net position as a percentage of the total pension liability	86.88%	82.17%	74.70%	84.66%	77.25%	81.08%	86.45%

COMBINED PENSION PLAN - LAST 10 FISCAL YEARS*

	2021	2020	2019	2018	2017	2016	2015
OP&F's proportion of the net pension liability (asset)	\$(427,358)	\$(312,234)	\$(139,322)	\$(175,453)	\$(69,235)	\$(63,275)	\$(52,363)
OP&F's proportionate share of the net pension liability (asset)	0.148%	0.150%	0.125%	0.129%	0.124%	0.130%	0.136%
OP&F's covered payroll	\$652,443	\$666,550	\$532,871	\$490,143	\$446,969	\$473,208	\$478,275
OP&F's proportionate share of the net pension liability (asset) as a percentage of its covered payroll	(65.50)%	(46.84)%	(26.15)%	(35.80)%	(15.49)%	(13.37)%	(10.95)%
Plan fiduciary net position as a percentage of the total pension liability	157.67%	145.28%	126.64%	137.28%	116.55%	116.90%	114.83%

MEMBER DIRECTED PLAN - LAST 10 FISCAL YEARS*

	2021	2020	2019	2018	2017	2016	2015
OP&F's proportion of the net pension liability (asset)	\$(37,311)	\$(9,296)	\$(5,909)	\$(8,942)	\$(1,011)	\$(837)	\$(1,441)
OP&F's proportionate share of the net pension liability (asset)	0.205%	0.246%	0.259%	0.256%	0.243%	0.219%	0.245%
OP&F's covered payroll	\$878,064	\$1,044,186	\$1,058,871	\$1,002,986	\$900,093	\$1,045,000	\$1,076,864
OP&F's proportionate share of the net pension liability (asset) as a percentage of its covered payroll	(4.25)%	(0.89)%	(0.56)%	(0.89)%	(0.11)%	(0.08)%	(0.13)%
Plan fiduciary net position as a percentage of the total pension liability	188.21%	118.84%	113.42%	124.46%	103.40%	103.91%	N/A

* The amounts presented were determined as of Dec. 31 of the prior calendar year. GASB 68 was implemented in 2015. This schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

SCHEDULE OF CONTRIBUTIONS OHIO PUBLIC EMPLOYEES RETIREMENT PLAN

TRADITIONAL PENSION PLAN LAST 10 FISCAL YEARS*

	2021	2020	2019	2018	2017	2016	2015
Contractually required contributions	\$1,258,532	\$1,218,036	\$1,183,986	\$1,051,022	\$947,822	\$929,461	\$917,996
Contributions in relation to the contractually required contributions	\$1,258,532	\$1,218,036	\$1,183,986	\$1,051,022	\$947,822	\$929,461	\$917,996
Contribution deficiency (excess)	\$-	\$-	\$-	\$-	\$-	\$-	\$-
OP&F's covered payroll	\$8,989,514	\$8,700,257	\$8,457,043	\$7,507,300	\$7,290,938	\$7,745,508	\$7,649,967
Contributions as a percentage of covered payroll	14%	14%	14%	14%	13%	12%	12%

COMBINED PENSION PLAN LAST 10 FISCAL YEARS*

	2021	2020	2019	2018	2017	2016	2015
Contractually required contributions	\$91,342	\$93,317	\$74,602	\$68,620	\$58,106	\$56,785	\$57,393
Contributions in relation to the contractually required contributions	\$91,342	\$93,317	\$74,602	\$68,620	\$58,106	\$56,785	\$57,393
Contribution deficiency (excess)	\$-	\$-	\$-	\$-	\$-	\$-	\$-
OP&F's covered payroll	\$652,443	\$666,550	\$532,871	\$490,143	\$446,969	\$473,208	\$478,275
Contributions as a percentage of covered payroll	14%	14%	14%	14%	13%	12%	12%

MEMBER DIRECTED PLAN LAST 10 FISCAL YEARS*

	2021	2020	2019	2018	2017	2016	2015
Contractually required contributions	\$122,929	\$146,186	\$148,242	\$140,418	\$126,013	\$146,300	\$150,761
Contributions in relation to the contractually required contributions	\$122,929	\$146,186	\$148,242	\$140,418	\$126,013	\$146,300	\$150,761
Contribution deficiency (excess)	\$-	\$-	\$-	\$-	\$-	\$-	\$-
OP&F's covered payroll	\$878,064	\$1,044,186	\$1,058,871	\$1,002,986	\$900,093	\$1,045,000	\$1,076,864
Contributions as a percentage of covered payroll	14%	14%	14%	14%	14%	14%	14%

* The amounts presented were determined as of Dec. 31 of the prior calendar year. GASB 68 was implemented in 2015. This schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

OPERS RELATED REQUIRED SUPPLEMENTARY OPEB INFORMATION

SCHEDULE OF OP&F'S PROPORTIONATE SHARE OF THE NET OPEB LIABILITY OHIO PUBLIC EMPLOYEES RETIREMENT PLAN

- OPEB PLAN LAST 10 FISCAL YEARS*

	2021	2020	2019	2018	2017
OP&F's proportion of the net OPEB liability (asset)	\$(1,280,653)	\$9,900,318	\$9,413,176	\$7,679,441	\$7,047,680
OP&F's proportionate share of the net OPEB liability (asset)	0.072%	0.072%	0.072%	0.071%	0.070%
OP&F's covered payroll**	\$9,641,957	\$9,366,807	\$8,989,914	\$7,997,443	\$7,737,907
OP&F's proportionate share of the net OPEB liability (asset) as a percentage of its covered payroll**	(13.28)%	105.70%	104.71%	96.02%	91.08%
Plan fiduciary net position as a percentage of the total OPEB liability	115.57%	47.80%	46.33%	54.14%	54.05%

SCHEDULE OF OPEB CONTRIBUTIONS OHIO PUBLIC EMPLOYEES RETIREMENT PLAN LAST 10 FISCAL YEARS*

	2021	2020	2019	2018	2017
Contractually required contributions**	\$-	\$-	\$-	\$-	\$77,379
Contributions in relation to the contractually required contributions**	\$-	\$-	\$-	\$-	\$77,379
Contribution deficiency (excess)	\$-	\$-	\$-	\$-	\$-
OP&F's covered payroll**	\$9,641,957	\$9,366,807	\$8,989,914	\$7,997,443	\$7,737,907
Contributions as a percentage of covered payroll	-%	-%	-%	-%	1.00%

* The amounts presented were determined as of Dec. 31 of the prior calendar year. GASB 75 was implemented in 2018. This schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

** Excludes contributions and covered payroll related to OPERS - Member Directed Plan.

SCHEDULE OF ADMINISTRATIVE EXPENSES*

For the year ended Dec. 31, 2021

Personnel Services	Salaries and Wages	\$11,611,381
	OPERS Contributions	(8,921,262)
	Insurance	2,996,075
	Fringe Benefits/Employee Recognition	16,478
	Tuition Reimbursement	27,759
	TOTAL PERSONNEL SERVICES	5,730,431
Professional Services	Actuarial	275,928
	Audit	145,003
	Custodial Banking Fees	462,285
	Investment Fees and Consulting	54,373,558
	Other Consulting (Disability, Software, Legal and Health Care)	1,056,220
	Banking Expense	84,862
	TOTAL PROFESSIONAL SERVICES	56,397,856
Communications Expense	Printing and Postage	245,756
	Telephone	68,174
	Member/Employer Education	-
	Other Communications	87,000
	TOTAL COMMUNICATIONS EXPENSE	400,930
Other Operating Expense	Conferences and Education	46,100
	Travel	24,421
	Computer Technology	1,087,550
	Other Operating	559,523
	Warrant Clearing	380
	ORSC Expense	707,312
	Depreciation Expense - Capital	1,637,805
	TOTAL OTHER OPERATING EXPENSES	4,063,091
	NET BUILDING EXPENSES (includes rent)	1,217,504
	TOTAL OPERATING EXPENSES	67,809,812
	INVESTMENT EXPENSES	(58,029,109)
	NET ADMINISTRATIVE EXPENSES	\$9,780,703

* Includes investment related administrative expenses.

SCHEDULE OF INVESTMENT EXPENSES**

Category	2021
Investment Manager Services	\$52,694,824
Custodial Banking Fees	462,285
Other Professional Services	1,678,734
Other Direct Investment Expenses	2,545,069
Allocation of Other Administrative Expenses	648,197
	INVESTMENT EXPENSES
	\$58,029,109

** A portion of the non-Investment Department administrative expenses is allocated to Investment Expense based on the ratio of investment staff to total OP&F staff.

ADDITIONAL INFORMATION

COMBINING STATEMENT OF CHANGES IN ASSETS AND LIABILITIES - PUBLIC SAFETY OFFICERS DEATH BENEFIT FUND

PUBLIC SAFETY OFFICERS DEATH BENEFIT FUND FOR THE YEAR ENDING DEC. 31, 2021

	Balance Dec. 31, 2020	Additions	Subtractions	Balance Dec. 31, 2021
Assets:				
Cash and Short-term Investments	\$1,291,245	\$34,750,000	\$35,344,167	\$697,078
TOTAL ASSETS	1,291,245	34,750,000	35,344,167	697,078
Liabilities:				
Due to State of Ohio	1,291,245	34,750,000	35,344,167	697,078
TOTAL LIABILITIES	\$1,291,245	\$34,750,000	\$35,344,167	\$697,078

This page intentionally left blank.



INVESTMENTS

2021 ANNUAL COMPREHENSIVE FINANCIAL REPORT



INVESTMENT REPORT

INVESTMENT PORTFOLIO SUMMARY

TEN LARGEST COMMON STOCKS

TEN LARGEST BONDS AND OBLIGATIONS

TEN LARGEST REAL ESTATE HOLDINGS

SCHEDULE OF INVESTMENT RESULTS

INVESTMENT CONSULTANTS AND MONEY MANAGERS

SCHEDULE OF BROKERS' FEES PAID

INVESTMENT POLICY AND GUIDELINES

INVESTMENT REPORT

PREPARED BY A COMBINED EFFORT OF THE INVESTMENT DEPARTMENT

INTRODUCTION

The investment authority of OP&F is specified in Chapter 742 of the ORC. Importantly, the ORC requires that the Board of Trustees and other fiduciaries discharge their duties solely in the interest of the participants and beneficiaries, for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable expenses of administering OP&F. Within the guidelines of the ORC, OP&F has developed an Investment Policy and Guideline statement that provides for appropriate diversification of assets and an acceptable expected return on investments after consideration of investment risks. Investment performance returns are prepared by Wilshire. Investment activities are presented on a trade date basis and measurements are calculated using time weighted rates of return consistent with investment industry standards.

SIGNIFICANT DEVELOPMENTS IN 2021

Upon adoption of a new asset allocation policy in 2020, OP&F conducted an investment structure review of its Non-U.S. Equity allocation in 2021. In addition, OP&F revisited the allocation to Midstream Energy Infrastructure as a follow-up to the asset-only allocation review conducted in 2020 with the potential to reduce the target allocation further and to consider broadening the allocation to include other complementary public real assets exposures. Upon discussion, OP&F did not reduce the allocation to Midstream Energy Infrastructure nor decide to include other complimentary public real assets exposures. Instead, OP&F decided to continue those discussions as part of the Asset Liability Study in 2022. With respect to the investment structure review of the Non-U.S. Equity asset class, results were that OP&F remains 100% active management within its Non-U.S. Equity allocation but did reduce its target allocation to small capitalization stocks from 25% to 15% and shift the 10% to one of OP&F's existing large and mid-capitalization managers. Other significant noteworthy investment endeavors and issues addressed last year include the following:

- Amended OP&F's Investment Policy and Guidelines statement.
- Amended OP&F's Proxy Voting Policy.
- Amended OP&F's Private Markets Investment Policy.
- Hired Barings International Small Cap Equity for a Non-U.S. Equity small capitalization mandate.
- Approved investment manager guidelines for Barings International Small Cap Equity mandate.
- Continued redistribution of assets from a terminated Core Fixed Income mandate.

- Implemented the 2021 private markets investment plan:
 - Made commitments to Clearlake Capital Partners VII, GTCR Strategic Growth Fund, Primus IX, PSOO LP, TA XIV and Veritas Vantage Fund.
- Approved the 2022 private markets investment plan.
- Reviewed OP&F's Private Credit Investment Policy for possible revisions.
- Approved the 2021-2022 private credit investment plan.
- Continued to work toward target allocation to private credit:
 - Made a commitment to Capital Spring VI and additional commitments to Annaly Credit Opportunities Management Fund and Raven Asset Based Credit Fund II.
- Approved the 2021 real assets investment plan and the 2021 real assets investment plan mid-year update.
- Continued to work toward target allocation to real assets:
 - Made a commitment to KKR Core Diversified Infrastructure Fund.
- Reviewed OP&F's Real Assets Investment Policy for possible revisions.
- Reviewed OP&F's Real Estate Investment Policy for possible revisions.
- Approved the 2021 real estate investment plan and the 2021 real estate investment plan mid-year update.
- Continued to work toward target allocation in real estate:
 - Made commitments to Almanac Realty Securities IX, Cortland Enhanced Value Fund V, Prologis Targeted U.S. Logistics Fund and Ventas Life Sciences and Healthcare Real Estate Fund.
- Approved the 2021 real estate open-end fund rebalancing review:
 - Turned on the dividend reinvestment plans for Morgan Stanley Prime Property Fund and LaSalle Property Fund.

ECONOMIC ENVIRONMENT

As 2021 began, the economic rebound in the U.S. continued to take hold bolstered by the trillions of dollars of fiscal stimulus that had been pushed into the economy and a continued easy

monetary policy. Real gross domestic product (GDP) grew at a 6.3% annualized rate in first quarter 2021, followed by 6.7% in the second before moderating to 2.3% in the third quarter and finishing strong with a 6.9% annual pace in the fourth quarter. For all of 2021, U.S. Real GDP rose by 5.7%, its fastest full year growth since 1984. The consumer played their part as retail sales growth posted one of its strongest years on record, rising roughly 18% over the prior year. Payroll employment reentered positive territory in 2021 and remained there registering solid bounce-back gains throughout the year. In 2021, nonfarm payrolls averaged gains of more than 560,000 per month. Bolstered by these gains, the nation's unemployment rate continued a steady decline over the course of the year, ending at 3.9%. Nevertheless, the biggest story of the year is likely the return of inflation. The annual rate of U.S. inflation as measured by the Consumer Price Index (CPI) opened 2021 at a steady 1.4% annual rate, but ramped markedly higher in both the second and fourth quarters to end 2021 with a year-over-year increase of 7.0%, its highest level since the early 1980s. The Federal Reserve's (Fed's) preferred inflation measure, personal consumption expenditures, rose by 5.8% last year, well above the Federal Open Market Committee (FOMC's) longer-run target of 2.0%. Supply chain bottlenecks in the midst of rebounding demand combined to push prices higher. Rising prices of food, energy, housing and autos all caught the consumer's attention. Consumer confidence entered 2021 near its recent lows but quickly began to rebound into mid-year as the economy and employment growth maintained their momentum. However, the pickup in inflation and concern about a resurgence of COVID began to undermine confidence as the year progressed.

The FOMC kept federal funds rate at the zero bound, i.e., 0.0% to 0.25%, throughout 2021, maintaining this low level set in March 2020. Additionally, from June of 2020 until November 2021, the Federal Reserve expanded its holdings of Treasury securities by \$80 billion per month and its holdings of agency mortgage-backed securities by \$40 billion per month. Starting in November, the Fed began to slow the pace of its purchases, cut that buying even further in December and ultimately decided to end these purchases by March 2021. The improved employment picture and concerning inflation news had seemingly put the Fed on alert to switch to tightening mode depending on future economic data.

Economies worldwide rebounded throughout 2021 but began to slow as the year came to a close due to renewed shutdowns because of the resurgence of COVID-19, specifically the Omicron variant. Eurozone Real GDP in 2021 came in at a 5.40% growth rate in a rebound from 2020's dismal negative growth. For all of 2021, GDP growth in China registered 8.0%, 1.9% in Japan and 4.0% in South Korea. Growth in China, in particular, slowed to just 4.0% in the fourth quarter compared to 4.9% in the previous three months. China, along with Hong

Kong, continues to maintain a zero COVID-19 containment policy. The shutdowns in China continue to lead to supply disruptions on a worldwide basis. These supply disruptions, along with Russia's invasion of Ukraine, have caused raw materials and energy prices to increase significantly. Inflation is now a concern among many policymakers on a worldwide basis. Along with the Fed, Australia is ending its quantitative easing program as well. Various other central banks are increasing their borrowing rates to combat inflation.

As 2022 began, high and accelerating inflation had moved to the forefront of concerns and played a role in dampening enthusiasm for any additional major fiscal stimulus. First quarter real GDP surprised and fell at a (1.40)% annual rate, following an increase of 6.9% in the fourth quarter of 2021. In the first quarter, there was a resurgence of COVID-19 cases from the Omicron variant and decreases in government pandemic assistance payments. The unemployment rate continued on its downward path falling to 3.6% in March. Nonfarm payrolls have averaged a healthy 562,000 monthly gain in the first quarter. CPI continued to climb to dizzying heights with 7.5%, 7.9% and 8.5% year-over-year increases in January, February and March 2022. In response to the highest inflation in four decades, in March, the FOMC increased the federal funds rate by 25 basis points (bps) to a 0.25% to 0.50% range. The markets are pricing in the FOMC to continue on a more aggressive policy tightening path with several 50 bps hikes expected over the remainder of the year and the Fed is expected to begin actively shrinking its balance sheet.

TOTAL FUND

The total portfolio, on a trade date basis, was valued at \$19.71 billion at the end of 2021, up from \$17.27 billion at the end of 2020. Within OP&F's portfolio, very strong absolute returns in U.S. equity, Non-U.S. equity, private markets, private credit, U.S. Treasury Inflation Protected Securities (TIPS), midstream energy infrastructure and real estate along with moderate returns from real assets and high yield were offset by weak returns in core fixed income. The large number of asset classes providing strong absolute returns, along with the magnitude of these returns, combined to deliver a very strong total portfolio return in 2021. For calendar year 2021, the total portfolio's investment return was 20.48% gross of fees, and 19.63% net, compared to a policy index return of 16.27%. This represents an outperformance of the total portfolio's policy index by 421 bps gross and 336 bps net. OP&F's investments in high yield and real assets were the only asset class composites to underperform their respective asset class benchmarks over the course of 2021 on a net of fee basis. Also, the derivatives overlay strategy managed by Russell Investments subtracted one bps from the total fund performance.

Last year's performance not surprisingly also translated into strong relative peer group performance. The total portfolio's 2021 results ranked in the 5th percentile of Wilshire's All Public Plans – Total Fund Universe, while the three-year, five-year and 10-year results ranked in the 44th, 36th and 15th percentiles, respectively, of that same peer universe. With 2021's result, OP&F's three-year annualized gross of fees return now stands at 15.55%, and 14.85% net, while the five-year annualized gross of fees return is 11.62%, and 10.95% net. OP&F's 10-year gross of fees return is 10.81%, and 10.21% net. The strong outperformance versus the policy index in 2021 kept OP&F's three-year relative return above the policy index return of 14.28% for the same period, while OP&F's five-year return also beat the policy return of 10.18%. The 10-year return also bested the policy return of 9.43%.

Upon turning the calendar to 2022, investors quickly turned their attention to increasing inflationary pressures and what that might mean for the Fed and interest rates. In addition, Russia's invasion of Ukraine on Feb. 24, 2022 weighed on investors. As a result of the invasion, Morgan Stanley Capital International (MSCI) reclassified the Russian equity market from emerging to a standalone market since Russian equities are currently un-investable. In response and as directed by its Board, OP&F prohibited its public markets separate account managers from purchasing any Russian securities and directed its managers to divest Russian assets as they are able.

For the first quarter of 2022, OP&F's unaudited total portfolio return was an estimated (1.30)%, slightly outpacing its benchmark's (1.70)% return for the quarter. While the negative results are disappointing, this comes in the context of both global equities and fixed income falling even further, in the range of (4.6)% to (6.0)%. OP&F's midstream energy portfolio has returned an incredible 23.6% through the first quarter. The gold allocation returned 6.5%, while real estate and real assets contributed 10.4% and 3.8%, respectively. The remaining positive return contributor came from private credit registering a 2.7% return for the quarter. On the negative side, OP&F's core fixed income and U.S. TIPS portfolios, both levered 2 times, posted negative absolute returns of (11.9)% and (1.7)%, respectively. OP&F's U.S. and international equity manager composites have dropped (4.4)% and (7.4)%, respectively. To round out the public markets composites, OP&F's high yield managers' composite return was (4.2)%. Private equity is down (3.1)%, impacted somewhat by the discount taken on a secondary sale of many of its older partnerships and fund-of-funds holdings. Lastly, the derivatives overlay strategy has subtracted (16) bps from the total fund performance through March, as all three of its asset class exposures have turned in negative performance so far. All told, the total portfolio value fell to roughly \$19.0 billion at March 31. After a discouraging start to the year, OP&F's 2022 full year results will be linked to the FOMC's new found determination and efforts to

aggressively rein in the runaway inflation it helped create. This would not seem to bode well for the markets in the near term. Finally, to be as current as possible, the month of April has been brutal as all of OP&F's public markets asset classes turned in negative results ranging from (2.1)% for gold and midstream energy to (8.7)% for the S&P 500. As a result, the unaudited portfolio value estimate through April is down to \$18.3 billion.

As mentioned elsewhere, OP&F initiated a comprehensive asset liability study in early 2022 in conjunction with lowering its assumed rate of return from 8.0% to 7.5%. The goal is to determine if there is a more efficient mix of assets than its current policy provides. Key considerations for the 2022 asset liability study include: (1) the recent reduction of the assumed rate of return, (2) understanding the challenges of the current environment including low interest rates, a low expected return environment, maintaining a long-term focus and continuing to emphasize a risk balanced approach, (3) identifying opportunities to modestly improve the overall portfolio by exploring a potential increase to illiquid assets, specifically private markets, and considering broadening midstream energy infrastructure to include other complementary public real assets exposures such as global listed infrastructure and commodities.

The Board of Trustees and staff believe that a well-diversified portfolio will serve OP&F well over the long-term. As mentioned in prior reports, the Board of Trustees' 2010 adoption of risk parity at the asset allocation level and their ongoing reaffirmation and implementation of that approach demonstrate that OP&F is committed to creating and maintaining a well-diversified portfolio. Staff and consultants are constantly evaluating the environment and different approaches to maintain a risk-balanced portfolio within the risk parity construct. As in the past, OP&F has and will continue to evaluate non-correlated, non-traditional strategies and asset classes in its search for optimal risk-adjusted returns.

EQUITIES – U.S. AND NON-U.S.

Equity returns in 2021 were strong in the U.S. but mixed in international markets. U.S. stock returns for the calendar year were 26.70% as measured by the FT Wilshire 5000 Total Market Index and 28.71% for the S&P 500. The Russell 2000 Index, an index that tracks smaller capitalization companies, rose 14.82%. As has been the case for a number of years, large cap growth stocks outperformed large cap value stocks in 2021, however small cap value stocks outperformed small cap growth stocks. The large cap growth vs. value spread was 4.5% while small cap growth stocks underperformed value by approximately 19%. The large cap growth spread benefitted from the continued rally in large cap technology stocks while small cap value stocks benefitted from large gains in energy, media and transportation stocks.

Non-U.S. equity returns lagged those of domestic stocks. The MSCI ACWI ex-U.S. Index, which includes both developed and emerging market companies, rose 8.30% (in U.S. dollar terms), lagging the S&P 500 by 20.41%. Emerging Markets, as measured by the MSCI Emerging Markets Index, declined 2.2%. The tailwind generated by higher growth companies and sectors was not present outside of the U.S. as technology companies in China were sharply lower. The MSCI ACWI ex-U.S. Growth Index underperformed the Value Index by approximately 6.2%. For calendar 2021, major developed country currencies declined against the U.S. dollar, which was a modest negative factor for U.S. based investors in overseas markets, depending on the region or country.

Following strong equity market returns in 2020, the U.S. stock market rallied by approximately 6.0% in the first quarter of 2021, and continued to advance to record levels through the end of 2021, then declined into early 2022. The continued strong equity market returns in 2021 were driven by strong economic growth, continued low interest rates and relatively benign inflation expectations, as growing inflationary pressures were viewed as transitory by the Fed.

As mentioned previously, growth stocks continued to drive markets domestically while value stocks led the markets abroad. Value-oriented indices and managers tended to lag in 2020 but outperformed in 2021 as they are often more heavily weighted in energy, financials and materials, and have less exposure to growth-focused areas like some consumer and technology companies. The primary driver of this continuing value underperformance trend in the U.S. was the fundamental strength in secular, organic large-cap growth companies combined with a willingness of investors to place ever-increasing valuations on such companies.

In calendar year 2021, OP&F's U.S. Equity Composite rose 29.52% (net of fees). This compared favorably to the FT Wilshire 5000 Total Market Index, which returned 26.70% and the S&P 500 which rose 28.71%.

The OP&F Total International Equity Composite in 2021 rose 11.36% (net of fees) which outperformed the benchmark MSCI ACWI ex-U.S. Iran and Sudan Free Policy Index, which was up 8.53%, by 2.83%.

MIDSTREAM ENERGY INFRASTRUCTURE

Midstream Energy/Master Limited Partnerships (MLPs) massively outperformed the broad equity markets in 2021. The Midstream Energy Infrastructure asset class policy index increased 38.42% in 2021. The Midstream energy sector climbed throughout 2021 due to strong demand for both oil and natural gas.

The publicly traded midstream pipeline industry has gone through some structural changes in the last several years. The MLP structure, which benefits from favorable tax treatment, was made less attractive after the tax code changes and corporate tax cuts of a couple years ago. The cost of capital for MLPs also rose and became less attractive due to the partnership structure. This created headwinds for MLPs to raise capital at a reasonable cost. This gradually became more problematic as MLPs were not able to fund their growth internally via cash flow but had to increasingly rely on relatively high cost debt.

Ultimately, management teams decided to reduce their growth plans in order to fund their businesses with internally generated free cash flow because externally raised debt or equity had become too expensive. Consequently, over the last couple of years, midstream management teams have taken several actions to increase shareholder value including (1) buying in partnerships (MLPs) in order to reduce corporate and financial complexity, (2) slowing pipeline expansion and build-outs leading to reduced capital spending to improve free cash flow generation and (3) reducing distributions to unit holders to preserve cash and improve free cash flow.

From a market structure standpoint, the gradual reduction in the number of publicly traded MLPs due to the previously mentioned buy-in of many MLPs by their parent corporations caused an undesirable level of concentration in various MLP Indices, including that of OP&F's benchmark, the Alerian MLP Index. As a result of analysis by our consultant, Wilshire, OP&F Staff and our managers, in early 2019 the investment guidelines for our midstream managers were amended to change the benchmark to the Alerian Midstream Energy Index as well as open up allowable investments to securities traded in North America rather than just the United States. This had the effect of improving the diversity, both geographically and by corporate structure, of the benchmark index and consequently the midstream portfolios within this asset class.

As stated in prior OP&F ACFRs, midstream energy company securities' prices should not be particularly correlated with crude oil/natural gas prices in normal commodity environments because midstream operations (including pipeline transmission, distribution, storage and related businesses) tend to have relatively stable business models and should not be particularly dependent on changes in oil or natural gas prices. This business model stability is because midstream companies (1) sign very long term (10 years or more) customer contracts, (2) have contracts that obligate their Exploration and Production customers to pay the pipeline company regardless of the volumes pushed through the pipelines, and (3) pipeline companies have a history of positive cash flow and increasing distributions. However, Midstream stock prices and commodity price correlations can rise if energy prices fall too far causing investors to begin to fear a major dislocation in the production

of and demand for oil and the financial viability of the oil and gas producers.

During the second half of 2020, the allocation to Midstream Energy Infrastructure was lowered from 8.0% to 5.0% following an asset allocation review by Wilshire.

FIXED INCOME – CORE AND INFLATION PROTECTED BONDS

The economic rebound that started in 2020 continued into 2021 due to the global COVID-19 pandemic stimulus programs, U.S. Federal Reserve interest rate cuts and pent-up consumer demand. This provided upward pressure on the 10-year U.S. Treasury yield during 2021 as inflation expectations increased. The 10-year Treasury yield started 2021 at 0.93% then climbed to 1.52% by year-end 2021 and increased to 2.32% by March 31, 2022 as the bond market's focus turned to the prospects for higher inflation and Federal Reserve interest rate increases.

The Yield Curve, as displayed by the difference between 10-year U.S. Treasury yields and two-year U.S. Treasury yields, flattened by 1.54% from March 31, 2021 to March 31, 2022 as short-term interest rates increased significantly as the market began pricing in a series of interest rate hikes by the Fed.

Inflation expectations also increased in 2021, as the inflation rate required to outperform nominal 10-year U.S. Treasury yields increased from 2.35% at March 31, 2021 to approximately 2.83% at March 31, 2022.

The OP&F Core Fixed Income Composite returned a negative 3.13% (net of fees) for the year, outperforming by 0.27% the Bloomberg U.S. Aggregate Bond Index return of negative 3.40%.

The OP&F U.S. Treasury Inflation Protected Securities (U.S. TIPS) Composite rose nicely in 2021, up 14.40% (net of fees) beating the TIPS Policy benchmark of 11.80%.

HIGH YIELD

After a strong year of performance in 2020, the U.S. high yield bond market continued its multi-year rally to return more than 5.0% (net of fees) in 2021. High yield spreads versus the 10-year U.S. Treasury yield spiked during the COVID-19 market debacle then narrowed over the course of 2020 and 2021. Relatively low interest rates, a benign credit environment and record low bond defaults in 2021 provided a good environment for high yield bonds.

Unlike last year, the lower quality end of the credit spectrum outperformed higher quality bonds. In 2021 bonds of

lower quality, more leveraged company bonds such as CCCs significantly outperformed higher quality ones such as BBs. However, in 2020 BBs rose 10.2% while CCCs were up just 2.3%. Bonds of some Energy companies in the CCC rating sector and the lower credit tiers that were sharply lower in early 2020 recovered and rallied throughout 2021.

The OP&F High Yield Composite rose 5.05% (net of fees) in 2021, under performing the 5.33% return of the B of A U.S. High Yield Constrained Index by 0.28%.

REAL ESTATE

For the year ended Dec. 31, 2021, OP&F's total real estate portfolio delivered a 20.24% return (net of fees). OP&F's net return exceeded the Open-End Diversified Core Equity (ODCE) index net of fees by 6.60% during the year.

The portfolio is designed to exceed the ODCE index by 50 bps per year on a net basis over full market cycles. It has accomplished that goal over most long-term measurement periods. Over the trailing 10-year period, OP&F's portfolio exceeded the ODCE by 2.15% per year (net of fees).

OP&F's real estate program is divided into a lower-risk, lower-return strategic portfolio and a higher-risk, higher-return tactical portfolio. At Dec. 31, 2021, OP&F's exposure to the strategic portfolio stood at 46.1% of the total real estate program, which was well within the permitted range. The lower-risk strategic portfolio is designed to deliver performance similar to the ODCE index.

In contrast, the tactical portfolio provides OP&F greater flexibility to deviate from the benchmark and to take calculated risk in pursuit of higher returns. The tactical portfolio is expected to deliver long-term performance that exceeds the ODCE index, while also introducing higher risk levels and short-term volatility. Within the higher-risk tactical portfolio, OP&F has sought to temper its overall level of downside exposure by blending in some moderate-risk core plus funds, by seeking funds with more durable capital structures, and through strategy and manager selection.

Past ACFRs have discussed a divergence among property types, with industrial (warehouse) performing well and with retail, office, and hospitality lagging. These trends have generally continued. Apartment assets have also performed very well. OP&F has maintained, and seeks to continue, an overweight to the industrial sector.

OP&F's real estate portfolio is U.S.-focused (approximately 90.6%), with select investments in other parts of the world.

In addition to seeking to achieve its return target, OP&F remains focused on real estate's other strategic objectives: diversifying OP&F's broader portfolio and serving as a partial inflation hedge. Each investment is selected based on its risk/return profile and on its expected ability to advance these other goals.

At the end of 2021, OP&F's market exposure to real estate was 9.86%. Exposure was below the 12% target allocation, but within the targeted range for real estate. OP&F is maintaining its philosophy of investing patiently and prioritizing attractive risk-adjusted returns.

REAL ASSETS

OP&F established an allocation to real assets in 2016. The allocation currently covers timberland, agriculture, and infrastructure, and is distinct from the separate allocations that OP&F has established for real estate and for midstream energy infrastructure. The program is designed to provide diversification, to hedge against inflation, to preserve capital, and to generate attractive risk-adjusted returns through a combination of income and appreciation.

For the year ended Dec. 31, 2021, the portfolio delivered a 7.85% time-weighted return net of fees. For the trailing five-year period, the net return was 5.35% per year.

The real assets portfolio is designed to deliver a return that exceeds a custom benchmark, which is constructed by blending a private-market timberland index, a private-market farmland index, and a public market infrastructure index. The program does not yet have a sufficient history to measure a full market cycle. Based on the trailing five-year return, the real assets portfolio is underperforming the benchmark by 10 bps. Part of this measurement period predates OP&F's first infrastructure and agriculture investments. As the portfolio continues to mature, comparisons against this benchmark will become more meaningful.

The real assets program is still in development. At the end of the year, the program represented 3.51% of OP&F's total portfolio relative to a long-term target of 8.0%. Unfunded commitments represented another 1.6% of OP&F's total portfolio. Portfolio development is progressing, with all three sub-asset classes now within targeted ranges for relative exposure based on current market value. The portfolio is tilted toward lower risk (and lower expected return) strategic investments, and away from higher risk (and higher expected return) tactical investments.

Ongoing portfolio construction objectives include: building total exposure gradually; building diversification across the program's three main sectors; calibrating the appropriate balance between lower risk strategic and higher-risk tactical

investments; maintaining a focus on developed markets; and building long-term returns while controlling risk.

PRIVATE MARKETS

For the year ending Dec. 31, 2021 (private market returns are lagged by one quarter), OP&F's private markets portfolio provided a net return, on a time-weighted basis, of 54.51%. To note, evaluating private markets performance over short-time periods can be misleading. With that said, for the 10-year period ending Dec. 31, 2021, the portfolio provided an annualized net return of 18.22%.

In 2014, OP&F adopted changes to how it evaluates the performance of the private markets portfolio. The methodology evaluates the performance of the private markets program by developing a Public Markets Equivalent (PME) comparison. A PME comparison utilizes an Internal Rate of Return (IRR) calculation of all historical cash flows and compares the resulting performance to a public market proxy index, by assuming that all of the same cash flows are invested in the public market index. This methodology allows for the purest comparison of the private markets program performance to that of a public market alternative. Secondly, the performance of the private markets program is evaluated relative to the Refinitiv Thompson ONE Private Equity Pooled Horizon IRR: Net to Limited Partners peer universe, or equivalent. The peer universe data allows OP&F to compare the private markets program to other private markets programs and managers over specified time periods. For the 10-year period ending Sept. 30, 2021, OP&F's private markets program provided a net IRR of 17.7%, outperforming the FT Wilshire 5000 Total Market Index PME by 1.4% annualized. In addition, OP&F's private markets program has outperformed the FT Wilshire 5000 Total Market Index PME on a net of fee basis since inception.

2021 appears to be a stand-out year for private markets across multiple fronts. Deal activity hit record levels and given the exuberant market environment, a significant number of private markets managers came back to market to raise larger pools of capital, with the largest funds, pursuing even larger fundraises. Additionally, many firms have had success launching new products based on the results of their flagship funds. However, with an abundance of opportunities, a number of limited partners (OP&F included), were fully allocated by mid-year or asking private markets managers to push fund closings into 2022. Despite increased allocations to the asset class in recent years and a flurry of exit activity in 2021, indicators point to a number of limited partners currently over allocated to private markets. Valuation multiples (i.e., pricing) remained elevated through 2021, resulting in a robust realization environment with favorable exit dynamics and opportunities for multiple expansion. Higher valuations have boosted the values of unrealized investments contributing to a strong year for

private markets returns. One of the primary contributors to a record year in 2021 for exit value was public listings through initial public offerings (IPOs) and special purpose acquisition companies (SPAC), shell or blank check companies that trade publicly. As such, 2021 was a strong year for realizations and a substantial amount of capital was returned to limited partners during the year. These returns have been crystalized and are not just unrealized paper gains.

In 2020, OP&F began implementation of a co-investment strategy that allows OP&F to opportunistically pursue co-investments alongside private markets funds. The strategy will allow OP&F to average down overall program costs, provide greater control over vintage year, geographical, and industry exposure and enhance program returns through proper deal selection.

On an invested basis, private markets comprised approximately 10.21% of OP&F's total assets as of year-end. Although the allocation at year-end was above the long-term target allocation of 8.0%, the private markets allocation is within the policy range of 5.6% to 10.4%. However, given the significant over allocation to the private markets asset class, OP&F engaged a secondary broker in 2021 to help facilitate a secondary sale which commenced in 2022. The secondary sale targeted a portion of the underlying partnerships within the private markets program, mainly tail-end and non-core partnerships. Benefits of the secondary sale include significant near-term liquidity, the ability to re-balance the portfolio to be more in line with OP&F's long-term target allocation to the asset class, sustainability of the newly formed co-investment program, and improved efficiencies in terms of portfolio monitoring and reporting. OP&F will continue to manage the private markets allocation to OP&F's long-term target by adopting annual private markets investment plans that allow OP&F the flexibility to manage the private markets portfolio based on suitable investment opportunities while also taking into consideration current market conditions. In addition, the annual private markets investment plans will seek to maintain appropriate vintage year diversification for the private markets portfolio. OP&F will mainly target commitments to primary partnerships, and on an opportunistic basis, co-investments and secondary partnerships. As always, OP&F and its dedicated private markets investment consultant will prudently recommend commitments that seek for the private markets portfolio to remain compliant with applicable policies and guidelines.

PRIVATE CREDIT

Since the adoption of the private credit asset class, OP&F has focused on senior secured lending in the corporate middle market space, also known as direct lending. As has been the case for the prior couple of years, the private credit allocation will increase going forward as OP&F reduces its high yield

bond allocation. Research has demonstrated that historically the relatively higher quality end of the direct lending market (direct loans to mostly private, corporate small and mid-sized companies) has provided better yields and returns, better loan covenant protections, lower default rates and higher recoveries than the public high yield bond market. Private lending became more aggressive in recent years so it will be interesting to see if these dynamics unfold similarly to past recessions during the next economic slowdown.

As public high yield bond spreads are correlated to direct lending spreads, the narrowing of spreads in 2021 creates some challenges for direct lending managers given their typically higher yields than the public markets. As mentioned, some private credit managers have relaxed covenant requirements and other terms to stay competitive. OP&F works to reduce some of these risks by committing to strategies that are mostly senior secured, first lien loans and by investing with experienced managers with a history of operating in difficult environments while generating good overall returns through the cycle.

As described above in the Private Markets section, OP&F has also adopted a PME approach to evaluating the performance of its private credit portfolio. Since the initial investment in April of 2014 through Sept. 30, 2021, the net IRR for OP&F's private credit program was 7.6%. This compares very favorably to its benchmark's PME annualized return of 4.6%. As of the end of 2021, the program had thirteen different funds managed by ten distinct private credit managers. In addition, in the first quarter of 2022, one fund was added with a new manager.

2022 DEVELOPMENTS AND CHALLENGES AHEAD

OP&F lowered its assumed rate of return in early 2022 from 8.0% to 7.5% based on current capital market assumptions. In conjunction, OP&F initiated a comprehensive asset liability study to determine if there is a more efficient mix of assets than its current policy provides. The goal is to complete the asset liability study by mid-year. Prior to this year, OP&F's last comprehensive asset liability study was conducted in 2017. In 2020, OP&F conducted an asset-only allocation study in which liability projections were not included. Asset allocation is the most important decision institutional investors make, accounting for 90% or more of a portfolio's variation in return. OP&F feels it is important to revisit asset allocation periodically to ensure that OP&F's policy is still appropriate for its long-term objectives. Key considerations for the 2022 asset liability study include: (1) the recent reduction of the assumed rate of return, (2) understanding the challenges of the current environment including low interest rates, a low expected return environment, maintaining a long-term focus and continuing to emphasize a risk balanced approach, (3) identifying opportunities to modestly improve the overall portfolio by exploring a potential

increase to illiquid assets, specifically Private Markets, and considering broadening Midstream Energy Infrastructure to include other complimentary public real assets exposures such as global listed infrastructure and commodities. Below are some of the other items already addressed in 2022 and a number that still lie ahead:

- Amended OP&F's Investment Policy and Guidelines statement.
- Amended OP&F's Investment Manager Monitoring and Evaluation Policy.
- Amended OP&F's Proxy Voting Policy.
- Approved the 2022 real assets investment plan.
- Implemented the 2022 private markets investment plan.
- Made commitments to Advent International GPE X, Francisco VII and Veritas VII.
- Approved the 2022 real estate investment plan.
- Began implementation of the 2022 real estate investment plan.
- Made a commitment to EQT Exeter Industrial Core Plus Fund IV.
- Continued implementation of the 2021-2022 private credit investment plan.
- Made a commitment to Proterra Credit Fund 2.
- Complete implementation of the 2022 real estate investment plan.
- Complete implementation of the 2022 real assets investment plan.
- Approve the 2022-2023 private credit investment plan.
- Approve the 2022 real estate investment plan mid-year update.
- Approve the 2022 real estate open-end fund rebalancing review.
- Approve the 2022 real assets investment plan mid-year update.
- Approve the 2022 private markets investment plan mid-year update.
- Approve the 2023 private markets investment plan.
- Review OP&F's Real Estate Investment Policy for possible revisions.
- Review OP&F's Real Assets Investment Policy for possible revisions.
- Review OP&F's Private Credit Investment Policy for possible revisions.

- Review OP&F's Private Markets Investment Policy for possible revisions.

Beyond the already mentioned initiatives, OP&F will continue to look for ways to reduce the costs of OP&F's operations as well as to compare OP&F's current procedures to other approaches or best practices for areas of improvement or better efficiencies.

INVESTMENT PORTFOLIO SUMMARY

INVESTMENT PORTFOLIO SUMMARY - AS OF DEC. 31, 2021

Investment Type	Percent of Net Investment Value	Fair Value
Cash and Cash Equivalents*	10.29%	\$ 2,026,066,746
Corporate Bond and Obligations	10.66%	2,099,508,171
Domestic and International Derivatives	-%	(47,107)
Domestic Commingled Bonds	6.04%	1,191,008,869
Domestic Equities	14.50%	2,859,016,568
Domestic Pooled Equities	9.92%	1,956,261,722
International Bonds	-%	39,802
International Equities	14.40%	2,837,742,346
Master Limited Partnerships	2.57%	506,919,095
Municipal Bond Obligations	0.03%	5,397,677
Non-Agency Mortgage and Asset-Backed Securities	2.77%	546,953,390
Private Debt	2.46%	485,048,767
Private Equity	10.52%	2,074,193,267
Real Assets	3.66%	721,109,102
Real Estate	9.69%	1,909,307,717
U.S. Agency Mortgage and Asset-Backed Securities	1.35%	266,408,968
U.S. Government Treasury Obligations	1.67%	329,690,366
U.S. Government Treasury STRIPS	0.06%	12,012,105
TOTAL FAIR VALUE - CASH AND SECURITIES	100.59%	\$19,826,637,571
Accrued Income	0.21%	41,941,442
Sales Receivable	0.07%	14,202,896
Purchases Payable	(0.87)%	(171,582,696)
NET INVESTMENT VALUE (TRADE DATE BASIS)	100.00%	\$19,711,199,213

* Cash and cash equivalents are included in cash and short-term investments on the Statement of Fiduciary Net Position.

TEN LARGEST COMMON STOCKS

(BY FAIR VALUE)

Stocks	Shares	Fair Value
Cheniere Energy Inc.	1,451,165	\$147,177,154
Targa Resources Corp	1,875,216	97,961,284
iShares Core S&P 500 ETF	172,812	82,429,596
Owl Rock Capital Corp	4,891,679	69,266,175
Oneok Inc.	1,064,571	62,554,192
Western Midstream Partners	2,731,745	60,835,961
Williams Cos.	1,939,815	50,512,783
Pembina Pipeline Corporation	1,578,611	47,879,272
Taiwan Semiconductor-SP ADR	379,132	45,613,371
Roche Holdings AG-Genusschein	94,381	39,268,877

TEN LARGEST BONDS AND OBLIGATIONS

(BY FAIR VALUE)

Description	Coupon	Maturity Date	Par Value	Fair Value
U.S. Treasury Note	3.125	Nov. 15, 2028	\$40,345,000	\$44,880,661
U.S. Treasury Bond	1.125	May 15, 2040	32,310,000	28,408,820
U.S. Treasury Bond	0.750	Aug. 31, 2026	26,060,000	25,491,973
U.S. Treasury Bond	2.250	May 15, 2041	20,810,000	21,925,286
U.S. Treasury Note	0.125	July 15, 2023	21,445,000	21,287,508
U.S. Treasury Bond	2.000	Nov. 15, 2041	19,685,000	19,974,123
U.S. Treasury Bond	1.250	Nov. 30, 2026	16,685,000	16,685,000
U.S. Treasury Bond	1.375	Nov. 15, 2040	17,015,000	15,556,097
FHR 4897 Federal Mortgage Backed Security	0.510	July 15, 2049	13,749,753	13,922,979
U.S. Treasury Bond	4.250	Nov. 15, 2040	9,750,000	13,523,174

TEN LARGEST REAL ESTATE HOLDINGS

(BY FAIR VALUE)

Description	Fair Value
Prudential PRISA	\$254,463,769
JP Morgan Strategic Property	146,211,950
Lion Industrial Trust	139,573,264
Morgan Stanley Prime Property	118,592,575
Heitman Core Property Fund	105,408,532
PW Real Estate Fund III LP	100,962,452
LaSalle Property Fund, LP	99,197,614
Manulife U.S. Real Estate Fund	87,694,399
UBS Trumbull Property Fund	79,054,071
Jamestown Premier Property Fund	76,953,885

A complete listing of portfolio holdings is available upon request.

SCHEDULE OF INVESTMENT RESULTS (Gross of Fees)

(FOR THE YEAR ENDED DEC. 31, 2021)

	Annualized Rates of Return		
	1-Year	3-Year	5-Year
U.S. Equity			
OP&F	30.14%	28.18%	20.04%
FT Wilshire 5000 Total Market Index	26.70%	26.11%	18.11%
International Equity			
OP&F	11.78%	15.73%	10.60%
International Equity Policy Benchmark	8.53%	13.62%	9.83%
Private Markets**			
OP&F	54.51%	29.02%	24.88%
Actual Private Markets Composite (NOF)	54.51%	29.02%	24.88%
High Yield			
OP&F	5.39%	8.47%	6.34%
B of A ML U.S. High Yield Constrained Index	5.33%	8.53%	6.07%
Private Credit**			
OP&F	15.80%	8.00%	8.72%
S&P LSTA Levered Loan Index + 2.0%	10.57%	6.23%	6.67%
Treasury Inflation Protected Securities (TIPS)			
OP&F	15.47%	17.07%	10.49%
Bloomberg U.S. Gov't Inflation Linked Bond Index	11.80%	16.62%	8.95%
Real Estate**			
OP&F	24.22%	10.59%	11.15%
NCREIF ODCE Index	13.64%	6.13%	6.56%
Real Assets* **			
OP&F	9.37%	5.81%	6.75%
Custom Index*	9.84%	5.52%	5.45%
Midstream Energy Infrastructure			
OP&F	41.02%	5.75%	(0.28)%
Alerian Midstream Energy Index*	38.42%	7.53%	0.36%
Fixed Income			
OP&F - Core	(2.97)%	4.04%	3.52%
Bloomberg U.S. Aggregate	(3.40)%	4.27%	3.26%
Total Portfolio			
OP&F	20.48%	15.55%	11.62%
Policy Index***	16.27%	14.28%	10.18%

* a) Midstream Energy Infrastructure benchmark is a blend of the Alerian MLP Index from July 1, 2013 thru June 30, 2019, and the Alerian Midstream Energy Index from July 1, 2019 forward. b) Real Assets benchmark updated in 2020 and made retroactive - blend of 45% FTSE Dev Core 50/50 Infrastructure Index, 35% NCREIF Timberland Index, and 20% NCREIF Farmland Index.

** One quarter in arrears.

*** Interim Policy Index: 23.1% FT Wilshire 5000 Total Market Index, 14% MSCI ACWI ex-U.S. Iran/Sudan Free IMI Index, 23% Bloomberg U.S. Aggregate 2x (-) Cost of Financing, 8.75% B of A ML U.S. High Yield Constrained Index, 3.25% S&P LSTA Levered Loan Index + 2.0% Lagged, 17% Bloomberg U.S. Gov't Inflation Linked Bond Index X2 (-) Libor, 12% NCREIF ODCE Index (Net) Lagged, 8.0% Actual Private Markets Composite (NOF) Lagged, 4.5% Blend of 45% FTSE Dev Core 50/50 Infrastructure Index, 35% NCREIF Timberland Index, and 20% NCREIF Farmland Index Lagged, 5.0% Alerian Midstream Energy Index, 6.4% S&P GSCI Gold Index (-) Cost of Financing.

Long-Term Policy: 21% FT Wilshire 5000 Total Market Index, 14% MSCI ACWI ex-U.S. Iran/Sudan Free IMI Index, 23% Bloomberg U.S. Aggregate X2 (-) Cost of Financing, 7.0% B of A ML U.S. High Yield Constrained Index, 5.0% S&P LSTA Levered Loan Index + 2.0% Lagged, 17% Bloomberg U.S. Gov't Inflation Linked Bond Index X2 (-) Libor, 12% NCREIF ODCE Index (Net) Lagged, 8.0% Actual Private Markets Composite (NOF) Lagged, 8.0% Blend of 45% FTSE Dev Core 50/50 Infrastructure Index, 35% NCREIF Timberland Index, and 20% NCREIF Farmland Index Lagged, 5.0% Alerian Midstream Energy Index, 5.0% S&P GSCI Gold Index (-) Cost of Financing, (adds to 125% as "Risk Parity" approach uses 2x levered U.S. Gov't Inflation-Protected Securities and 2x levered Core Fixed Income).

Acronyms and abbreviations used in this chart are explained at the end of the Statistical Section, in the the List of Professional Acronyms, Symbols and Abbreviations.

INVESTMENT CONSULTANTS AND MONEY MANAGERS

(FOR THE YEAR ENDED DEC. 31, 2021)

INVESTMENT CONSULTANTS

Aksia CA, LLC
Townsend Holdings, LLC
Wilshire Advisors LLC

INVESTMENT MANAGERS – U.S. EQUITY

Bridgewater Associates, LP
Grosvenor Capital Management, LP
Investcorp Investment Advisers, LLC
Macquarie Investment Management Business Trust
SSGA Funds Management, Inc.

INVESTMENT MANAGERS – INTERNATIONAL EQUITY

Arrowstreet Capital, LP
Barings LLC
Causeway Capital Management, LLC
Dimensional Fund Advisors, LP
Harding Loevner, LP
Russell Investments Implementation Services, LLC

INVESTMENT MANAGERS - REAL ESTATE

Aermont Capital Management S.A.R.L.
AEW Capital Management, LP
Ares Management LLC
Asana Partners, LP
Blackstone Real Estate Advisors, LP
Brookfield Asset Management Private
Institutional Capital Adviser US, LLC
Clarion Partners, LLC
Colony Capital Investment Advisors, LLC
Cortland Investment Management, LLC
DivcoWest Real Estate Services, LLC
Exeter Property Group, LLC
FIG, LLC
Gerrity Retail Management, LLC
Greystar Investment Group, LLC
Heitman Capital Management, LLC
Jamestown, LP
JP Morgan Investment Management, Inc.
LaSalle Investment Management, Inc.
Lone Star Americas Acquisitions, Inc.
Manulife Investment Management Private
Markets (US), LLC
Morgan Stanley Real Estate Advisors, Inc.
NB Alternatives Advisers, LLC
Oaktree Capital Management LP
PGIM, Inc.
Prologis, LP
Savanna Investment Management, LLC
Starwood Capital Group Management, LLC
Stockbridge Capital Group, LLC
Tricon Capital Group, Inc.
Trigate Management, LLC
UBS Realty Investors, LLC
US Equity Advisors, LLC

VBI Real Estate Gestao de Carteiros Ltda.
VLSHRE Fund GP, LLC
Walton Street Capital, LLC
Waterton Associates, LLC
Westbrook Realty Management

INVESTMENT MANAGERS – MIDSTREAM ENERGY INFRASTRUCTURE

Harvest Fund Advisors, LLC
Salient Capital Advisors, LLC
Tortoise Capital Advisors, LLC

INVESTMENT MANAGERS – REAL ASSETS

ACM Management Company, LLC
Axiom Infrastructure US Inc.
Brookfield Asset Management Private Institutional
Capital Adviser (Canada), LP
Brookfield Brasil Asset Management
Investimentos Ltda.
Forest Investment Associates, LP
Global Forest Partners, LP
iCon Infrastructure, LLP
IFM Investors (US) Advisor, LLC
Kohlberg, Kravis Roberts & Co. LP
Manulife Investment Management Timberland and Agriculture Inc.
Meridian Infrastructure North America Corporation

INVESTMENT MANAGERS – FIXED INCOME

Bridgewater Associates, LP
Loomis Sayles & Company, LP
MacKay Shields, LLC
Neuberger Berman Investment Advisers, LLC
Pacific Investment Management Company, LLC
PGIM Inc.
Western Asset Management Company, LLC

INVESTMENT MANAGERS – PRIVATE CREDIT

Annaly Credit Opportunities Management, LLC
ArrowMark Colorado Holdings, LLC
BlackRock Capital Investment Advisors, Inc.
Blackstone Alternative Credit Advisors, LP
Crayhill Capital Management, LP
CSFC Management Company, LLC
KKR Credit Advisors (US), LLC
MC Credit Partners, LP
Raven Capital Management, LLC
Tennenbaum Capital Partners, LLC

INVESTMENT MANAGERS – PRIVATE EQUITY

Abbott Capital Management, LLC
Adams Street Partners, LLC
Advent International Corp.

Aksia CA, LLC
Altaris Capital Partners, LLC
Apollo Management, LP
Blackstone Management Partners, LLC
Blue Chip Venture Company, LTD
Blue Point Capital Partners, LP
Cinven Capital Management (VI) GP LTD
Clearlake Capital Group, LP
Coller Capital Limited
Cortec Group Management Services, LLC
EQT Partners, Inc.
Francisco Partners Management, LP
Glendon Capital Management, LP
GTCR, LLC
HarbourVest Partners, LLC
Harvest Partners, LP
Horsley Bridge Partners, LLC
(The) Jordan Company, LP
Kohlberg Kravis Roberts & Co., LP
Landmark Equity Advisors, LLC
Leonard Green & Partners, LP
Lexington Partners, LP
Linsalata Capital Management, LLC
Littlejohn & Co LLC
Marlin Management Co. LLC
MBK Management, Inc.
Morgenthaler Management Corp.
NGP Energy Capital Management, LLC
Northgate Capital, LP
Odyssey Investment Partners, LLC
Park Street Capital Advisers, LLC
Primus Capital Partners, Inc.
Rhône Group, LLC
Riverside Partners, LLC
Riverstone Investment Group, LLC
RRJ Management LTD
Stone Point Capital, LLC
Summit Partners, LP
TA Associates Management, LP
Tenex Capital Management, LP
Veritas Capital Fund Management, LLC
Vista Equity Partners Management, LLC
Warburg Pincus, LLC
Wilshire Advisors, LLC

INVESTMENT MANAGERS - DERIVATIVE OVERLAY SERVICES

Russell Investments Implementation Services, LLC

SECURITIES LENDING AGENTS

Key Bank Securities Lending
Northern Trust

OTHER PROFESSIONAL CONSULTANTS (see Page vii)

SCHEDULE OF BROKERS' FEES PAID

(FOR THE YEAR ENDED DEC. 31, 2021)

Broker Name	Fees Paid	Units Traded	Average Cost Per Unit
Goldman Sachs & Co. LLC	\$828,459	7,137,891	\$0.1161
Credit Suisse First Boston	186,012	28,123,247	0.0066
B. Riley Securities Inc.	142,758	5,150,425	0.0277
Barclays Securities Inc.	101,923	9,328,357	0.0109
Morgan Stanley	100,831	9,629,833	0.0105
Jefferies & Co., Inc.	99,000	12,117,993	0.0082
Merrill Lynch	82,826	9,671,819	0.0086
JP Morgan	75,770	18,851,136	0.0040
Citigroup	72,758	15,304,475	0.0048
Instinet	67,419	12,257,007	0.0055
Macquarie	65,799	48,159,371	0.0014
RBC Capital Markets	64,183	9,925,940	0.0065
UBS Securities	62,745	4,933,000	0.0127
Sanford C. Bernstein	59,506	10,073,828	0.0059
HSBC	48,584	15,386,092	0.0032
CLSA Securities	41,471	6,072,701	0.0068
Wells Fargo Securities	28,505	3,679,015	0.0077
Piper Jaffray	27,180	1,611,230	0.0169
Tudor Pickering Holt	20,093	1,074,325	0.0187
Brokers Less than \$20,000	225,530	21,602,223	0.0104
TOTAL	\$2,401,352	250,089,908	\$0.0096

INVESTMENT POLICY AND GUIDELINES

Minor formatting edits have been made to the Board of Trustee approved investment policy and guidelines in order to provide style consistency throughout the Annual Comprehensive Financial Report.

1. INTRODUCTION

The purpose of this Investment Policy and Guidelines (Policy or Statement) is to define the framework for investing the assets (Total Portfolio) of the Ohio Police & Fire Pension Fund (OP&F or Plan). This Statement is intended to provide general principles for establishing the goals of OP&F, the allocation of assets and the employment of outside asset management. The statutory investment authority of the Board of Trustees (or the Board) is set forth in Sections 742.11 to 742.113 and Sections 742.114, 742.116 of the Ohio Revised Code (ORC), as amended from time to time. The Board may delegate these duties to an Investment Committee.

The objectives of OP&F have been established in conjunction with a comprehensive review of the current and projected financial requirements. These objectives are:

- To have the ability to pay all benefit and expense obligations when due.
- To maintain the purchasing power of the current assets and all future contributions by maximizing the rate of return on OP&F's assets at a reasonable level of risk.
- To maintain 30-year funding and achieve full funding on an actuarial accrued liability basis.
- To control the costs of administering OP&F and managing the investments.

The investment objectives of the Total Portfolio are:

- Long-term returns on Plan investments, in addition to contributions received from members and employers, should satisfy any current funding obligations of the Plan when and as prescribed by law and, once the Plan is fully funded, should keep pace with the growth of Plan liabilities.
- The investment performance goal for the Total Portfolio is to meet or exceed the return of the Total Portfolio policy benchmark over a full market cycle, generally measured over three-to five-years, without taking on additional risk as measured by standard deviation of returns. The Total Portfolio policy benchmark is a weighted average, based on the allocation target defined in Section 3 below, of each asset class benchmark.

In order to achieve these objectives, the Board of Trustees will conduct itself in accordance with ORC Section 742.11, which provides "The Board and other Fiduciaries shall discharge their duties with respect to OP&F solely in the interest of the participants and beneficiaries." These duties shall also be carried out "with care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and like aims", as referenced in ORC Section 742.11. All aspects of this Statement should be interpreted in a manner consistent with OP&F's objectives. At least annually, the Board shall review and adopt policies, objectives or criteria for the operation of the investment program and make such changes as appropriate.

Investment policies and Investment Manager(s) guidelines referenced in this document are separate policies governing specific aspects of managing the Total Portfolio and are not reproduced in this Statement, but are incorporated by reference as governing documents of the Plan.

2. DEFINITION OF RESPONSIBILITIES

A. BOARD OF TRUSTEES/INVESTMENT COMMITTEE

The statutory investment authority of the Board with regard to the Plan is set forth in Chapter 742, as described above, provides that in its capacity as a fiduciary, the Board of Trustees/Investment Committee must discharge its duties in a prudent manner and for the exclusive benefit of the participants and beneficiaries of the Plan.

In discharging its duties, the responsibilities of the Board of Trustees/Investment Committee pursuant to this Policy include the following:

- Establish the strategic investment policy (Asset Allocation Policy) for OP&F in accordance with the above goals, and periodically review Asset Allocation Policy in light of any changes in actuarial variables and/or market conditions.
- Approve the investment structure for applicable asset classes identified in the Asset Allocation Policy.
- Select qualified Investment Consultant(s) and Investment Manager(s) to advise on and manage OP&F's assets recognizing the goals set forth in ORC Sections 742.11 and 742.116.
- Monitor and review the performance of selected Investment Manager(s) to determine achievement of goals and compliance with policy guidelines.
- Monitor the costs of the investment operations at least annually.

- Review, at least annually, the current investment policies of OP&F and make such changes as appropriate.
- Review applicable annual investment plan(s) prepared by the staff and/or Investment Consultant(s). As conditions warrant, revise the annual investment plan(s) as the year progresses.
- Monitor investment activity for compliance with Board policies and adherence by Investment Manager(s) to strategy and direction.
- Review the overall investment performance to determine whether it meets established benchmarks.
- Evaluate and assign all Investment Manager(s) to a rating category as outlined in OP&F's Investment Manager Monitoring and Evaluation Policy.
- Review suggested changes or additions to the functions and operations regarding the investment operations of similar institutional investors.
- Review the proposed investment department annual operating budget and report its recommendations to the Finance Committee.
- Fulfill any other responsibilities as provided in the ORC and Investment Committee Charter.
- Implement Board decisions regarding asset allocation, investment structure, Investment Manager(s) selection, and portfolio rebalancing procedures.
- Coordinate the Investment Manager(s) selection, evaluation, and retention decisions for the Plan's investments, consistent with OP&F's Investment Manager Search Policy and OP&F's Investment Manager Monitoring and Evaluation Policy.
- Monitor both internally and externally managed assets to ensure compliance with guidelines set forth in this Policy.
- Establish a process to promptly vote all proxies and related actions in a manner consistent with OP&F's long-term interests and objectives set forth herein and OP&F's Proxy Voting Policy. Maintain detailed records of said voting of proxies and related actions and comply with all regulatory objectives related thereto.
- Manage the overall liquidity in the Total Portfolio to ensure timely payment of member benefit payments and Plan expenses and the investment of contributions consistent with established asset allocation and portfolio rebalancing policies.
- Report to the Board at least quarterly regarding the status of the Total Portfolio and its performance for various time periods. Meet with the Board at least annually to report on Investment Manager(s) performance and compliance with goals and objectives.
- Acknowledge and agree in writing to their fiduciary responsibility to fully comply with this Policy set forth herein, and as modified in the future.

The Board of Trustees/Investment Committee may authorize others such as OP&F staff, and may utilize the services of external advisors, such as actuaries, auditors, consultants and legal counsel, to implement decisions made by the Board. The comments and recommendations of such parties will be considered by the Board in conjunction with Board discussion of the issues for the purpose of making informed and prudent decisions.

B. STAFF

Staff will be the primary liaison between the Board of Trustees/Investment Committee and the Investment Consultant(s), the Investment Manager(s), and the custodial bank(s). The Chief Investment Officer, Deputy Chief Investment Officer, Sr. Investment Officer or Sr. Investment Officer – Public Markets are authorized in between meetings of the Board to take such actions as necessary in the best interests of the Total Portfolio and the Plan in keeping with the policies, strictures and guidelines which apply to the Board of Trustees. Staff's transactional authority is limited to ten percent of the Total Portfolio. In doing so, the staff will:

- Manage OP&F assets under its care and/or control in accordance with this Policy's objectives and guidelines set forth herein.

C. INVESTMENT CONSULTANT(S)

The Board of Trustees/Investment Committee may retain an investment consulting organization or organizations (the Investment Consultant(s)) to assist in the overall strategic investment direction of the Total Portfolio, or specific asset classes, and its implementation. Each such Investment Consultant(s), in recognition of its role as a fiduciary of the Plan, will assume specific duties. These duties shall generally include the following:

- Provide independent and unbiased information.
- Assist in the development of this Policy and other policies that govern the Plan investments.
- Assist in monitoring compliance with this Policy.
- Assist in the development and recommendation of strategic asset allocation targets, investment structure, and rebalancing procedures for the Total Portfolio or for a specified asset class.

- Assist in development of performance measurement standards.
- Assist in the Investment Manager(s) search and selection process consistent with OP&F's Investment Manager Search Policy.
- Monitor, evaluate and report to the Board on Total Portfolio and/or Asset Class and Investment Manager(s) performance on an ongoing basis.
- Conduct due diligence when an Investment Manager(s) fails to meet a standard.
- Establish a procedural due diligence search process.

D. INVESTMENT MANAGER(S)

The Board of Trustees/Investment Committee may, from time to time, cause the Plan to retain one or more qualified investment managers ("Investment Manager(s)") to manage a portion of the Plan assets. When applicable, the Board of Trustees/Investment Committee shall approve each Investment Manager(s) guidelines, which may set forth the purpose, Investment Manager(s) philosophy and approach, authorized investments, prohibitions, typical portfolio characteristics, performance objectives and evaluation, and Investment Manager(s) communications. The Investment Manager(s) have certain responsibilities that include the following:

- Manage OP&F assets under its care, custody, where applicable, and/or control in accordance with this Policy's objectives and guidelines set forth herein and its governing agreement with OP&F.
- Exercise full investment discretion over the assets in their care within the guidelines set forth in this Policy and, where applicable, the specific guidelines established for the Investment Manager(s) in the governing agreements with OP&F.
- Constructing a portfolio of securities that reflects the execution of a specific investment strategy.
- Promptly inform the Board and staff in writing regarding all changes of a material nature pertaining to the firm's organization and professional staff.
- If directed, promptly vote all proxies and related actions in a manner consistent with OP&F's long-term interests and objectives set forth herein and OP&F's Proxy Voting Policy. Each Investment Manager(s) designated to vote shall keep detailed records of said voting of proxies and related actions and will comply with all regulatory obligations related thereto.
- Provide reporting to the Board or staff or Investment Consultant(s) quarterly regarding the status of the portion of the Total Portfolio managed by the Investment Manager(s) and its performance for various

time periods. Meet or participate via teleconference or webcast with the Board or staff or Investment Consultant(s) annually or as needed to report on their performance and compliance with goals and objectives.

- Acknowledge and agree in writing to their fiduciary responsibility to fully comply with this Policy set forth herein, and as modified in the future.

E. OFFICE OF THE OHIO TREASURER/BOARD OF DEPOSIT/CUSTODIAN(S)

Per Section 742.11 of the ORC, the Treasurer of the State of Ohio (the Treasurer of State) is designated as custodian of investment assets. As custodian, the Treasurer of State or its designee (as described below) will be responsible for holding and safekeeping Plan assets, settling purchases and sales of securities; and identifying and collecting income which becomes due and payable on assets held. The Treasurer of State may engage a qualified bank or trust company, as authorized agent of the Treasurer of State, to perform certain services on behalf of the Treasurer of State to fulfill its responsibilities as custodian, including sweeping uninvested cash into designated money market funds when the level of uninvested cash exceeds a predetermined amount.

3. ASSET ALLOCATION AND REBALANCING

It is the responsibility of the Board to determine the allocation of assets among distinct public and private market asset classes. The allocation will be completed in a manner consistent with commonly recognized financial principles. Application of these principles is expected to lead to a portfolio with the highest level of return consistent with the risk tolerance of OP&F.

The procedure for determining the allocation will consider the relevant characteristics of the liabilities and potential assets of OP&F. The liability considerations shall include, but not be limited to, current and expected future values of the benefits, and future contributions. These factors are important for identifying the investment horizon of OP&F and its cash flow requirements. The asset characteristics considered shall include, but not be limited to, current asset value, the potential return relative to the potential risk, and diversification characteristics.

The asset allocation must be consistent with the investment standards specified in ORC Section 742.11.

The risk/return characteristics of OP&F shall be reviewed on a periodic basis (no less than every five years) through a comprehensive asset liability valuation study. The goal of the study shall be to formulate an Asset Allocation Policy which

maximizes return while minimizing overall risk through the most efficient combination of acceptable asset classes under the prudent person standard. On an interim basis, an asset-only allocation study may be conducted.

Based on an asset liability valuation study or asset-only allocation study, which analyzed the expected returns, risk and correlations of various asset classes, projected liabilities (only in the case of an asset liability valuation study), liquidity, and the risks associated with alternative asset mix strategies, the Board has established the following Asset Allocation Policy. The asset classes are “bucketed” or grouped together into macro-asset class buckets (i.e. growth, safety-oriented and inflation-oriented) based on their expected correlations to one another to create a better understanding of risk and diversification, and based on asset class exposures to the economic factors of growth and inflation.

Asset Class	Long-Term Target Allocation - Notional Exposure	Range
Domestic Equity	21.0%	± 6.3%
Non-U.S. Equity	14.0%	± 4.2%
Private Markets	8.0%	± 2.4%
High Yield	7.0%	± 2.1%
Private Credit	5.0%	± 1.5%
TOTAL GROWTH ASSETS	55.0%	± 9.5%
Core Fixed Income	23.0%	± 4.6%
Cash	-%	+ 3.0%
TOTAL SAFETY-ORIENTED ASSETS	23.0%	- 4.6% / + 7.6%
U.S. Inflation Linked Bonds	17.0%	± 3.4%
Real Estate	12.0%	± 3.6%
Real Assets	8.0%	± 2.4%
Midstream Energy Infrastructure	5.0%	± 1.5%
Gold	5.0%	± 1.5%
TOTAL INFLATION-ORIENTED ASSETS	47.0%	± 9.4%
TOTAL	125.0%	± 5.0%

The most recent study has shown that this is a favorable asset mix for meeting longer-term goals under multiple market conditions. In addition, this study incorporates the “risk parity” concept into OP&F’s asset allocation with the goal of balancing economic factor risk exposures. The Total Portfolio has long-term target allocations that total 125% due to the application of leverage in core fixed income and U.S. inflation linked bonds and the implementation approach for gold.

The Asset Allocation Policy represents a long-term strategy and thus, the Total Portfolio should strategically meet its performance objectives in the long-term but not necessarily every year.

Short term market shifts may cause the asset mix to drift from the allocation targets. Should the actual percentage fall out of the indicated range for a particular asset class, the staff shall direct rebalancing transactions to reallocate assets from the over-allocated asset class to the under-allocated asset class. This rebalancing discipline is intended to encourage “buying low” and “selling high” and to keep the Total Portfolio invested at an appropriate overall risk level. Except when there is a perceived extraordinary downside risk in a particular asset class, movement outside the normal ranges should be avoided.

Investments in private markets, private credit, private real estate and private real assets are generally less liquid than investments in public markets securities and are typically implemented via periodic commitments to funds with limited partnership structures. As a result, actual allocations to these asset classes may deviate from their strategic targets for extended periods. Actual vs. target deviations for these asset classes shall not be considered in violation of the Asset Allocation Policy. Under/overweights to these asset classes shall be invested in public markets securities with the most similar risk/return characteristics as a short-term proxy for the private asset classes. Similarly, resulting deviations to those public market asset classes shall not be considered in violation of the Asset Allocation Policy. However, broad economic factor bucket ranges of Growth, Safety-Oriented, and Inflation-Oriented Assets shall remain within their targeted ranges.

To assist in rebalancing, OP&F has retained a derivative overlay Investment Manager(s) which provides several benefits including: (1) reduce OP&F’s tracking error relative to target allocations; (2) improve Total Portfolio returns; (3) enhance liquidity, and (4) reduce the administrative burden associated with management of monthly cash flows.

The Board may adopt interim Asset Allocation Policy target allocations to reflect the transition from previous policy target allocations to new policy target allocations. The interim target allocations will reflect dollar cost averaging and/or opportunistic implementation to most prudently reach the new policy target allocations over time.

4. INVESTMENT IMPLEMENTATION

The implementation of an investment portfolio designed to achieve the Total Portfolio objectives must be consistent with governing statutes as specified in Sections 742.11 to 742.114, and Section 742.116 and with the Ohio-Qualified Investment Manager Policy, the Ohio-Qualified Broker Policy, and OP&F’s Broker Policy.

Where appropriate, OP&F will invest assets through the use of qualified Investment Manager(s). The allocations to these Investment Manager(s) will be made in accordance with the results of the asset liability valuation study or asset-only allocation study, investment structure analysis, and established procedures. For a complete description of the selection of Investment Manager(s), please see OP&F's Investment Manager Search Policy.

5. ASSET CLASS OBJECTIVES, CHARACTERISTICS AND INVESTMENT STRUCTURE

Investment structure targets will be established within applicable asset classes to address risk and return factors present in the respective asset class. For example, the domestic equity composite portfolio structural targets will be established to ensure style (growth vs. value) and market capitalization neutrality relative to the overall market, and to address active versus passive implementation decisions. External Investment Manager(s) will be hired to implement the structural targets in a diversified manner and will therefore have derived target weightings within the overall investment program. Where applicable, these are set forth below.

A. GROWTH ASSETS

1. DOMESTIC EQUITY

Investment Objectives

Total return of the domestic equity composite portfolio should exceed the return of the FT Wilshire 5000 Total Market Index over a full market cycle on an annualized basis. Total return of each Investment Manager'(s) portfolio should rank above the median when compared to their peer group, if applicable, over a full market cycle on an annualized basis and should exceed their benchmark return as specified in each Investment Manager'(s) guidelines or applicable documentation.

Investment Characteristics

The main focus of investing will be on companies headquartered and/or domiciled in the United States. The domestic equity composite portfolio shall have similar portfolio characteristics as that of the FT Wilshire 5000 Total Market Index, and should not exhibit size (market capitalization) or style (value vs. growth) bias.

Investment Structure

The structure of the domestic equity composite portfolio will be diversified among passive and active investment strategies as follows:

a. Passive Large Capitalization Core Exposure

The passive large capitalization core component has a

target allocation of 30% of the domestic equity composite portfolio. This passive portfolio is intended to provide broad market exposure for and diversification to OP&F's domestic equity composite portfolio through holdings in large- and mid- capitalization equities or futures.

b. Active Large Capitalization Portable Alpha Exposure

The active large capitalization portable alpha component has a target allocation of 60% of the domestic equity composite portfolio. The implementation of this portable alpha component will not be considered leverage in relation to the long-term target allocations for the Total Portfolio. The overall objective is to provide risk-adjusted returns greater than the return of the Standard & Poor's (S&P) 500 Index. S&P 500 market exposure, obtained through the use of derivatives and/or physicals, will be combined with strategies that represent diversified sources of alpha with a broad range of risk characteristics. For a complete description of the appropriate use of derivatives, please see OP&F's Derivatives Policy Statement.

c. Active Small Capitalization Core Exposure

The active small capitalization core component has a target allocation of 7.5% of the domestic equity composite portfolio.

d. Synthetic Small Capitalization Exposure

The synthetic small capitalization component has a target allocation of 2.5% of the domestic equity composite portfolio.

2. NON-U.S. EQUITY

Investment Objectives

Total return of the Non-U.S. equity composite portfolio should exceed the return of the Morgan Stanley Capital International All Country World Index ex-U.S. Investible Market Index – Iran and Sudan Free (MSCI ACWI ex-U.S. IMI I/S Free Index) over a full market cycle on an annualized basis. Total return of each Investment Manager'(s) portfolio should rank above the median when compared to their peer group, if applicable, over a full market cycle on an annualized basis and should exceed their benchmark return as specified in each Investment Manager'(s) guidelines or applicable documentation.

Investment Characteristics

The main focus of investing will be on companies headquartered or domiciled in the MSCI ACWI ex-U.S. IMI countries, which includes both developed and emerging markets. The Non-U.S. Equity composite portfolio shall have similar portfolio characteristics as that of the MSCI ACWI ex-U.S. IMI I/S Free Index.

Investment Structure

Non-U.S. equity assets will be managed on an active basis in order to exploit the perceived inefficiencies in the Non-U.S. equity markets. The structure of the Non-U.S. equity composite portfolio will be diversified among active ACWI ex-U.S. strategies and dedicated ACWI ex-U.S. small capitalization strategies as follows:

a. Active ACWI-ex U.S. Large and Mid Capitalization Exposure

The Active ACWI-ex U.S. Large and Mid Capitalization component has a target allocation of 85% of the Non-U.S. equity composite portfolio.

b. Active ACWI-ex U.S. Small Capitalization Exposure

The dedicated Active ACWI-ex U.S. Small Capitalization component has a target allocation of 15% of the Non-U.S. equity composite portfolio.

3. PRIVATE MARKETS*Investment Objectives*

The performance objectives for the private markets composite portfolio and for individual investments are set forth in OP&F's Private Markets Investment Policy. Both the returns for the private markets composite portfolio and respective benchmark are lagged one quarter.

Investment Characteristics

Investments will be diversified by certain criteria as set forth in OP&F's Private Markets Investment Policy.

Investment Structure

The target allocation of Total Portfolio assets to private markets will be established by OP&F's long-term Asset Allocation Policy, including a range around the target allocation to allow flexibility as the underlying private markets investments are funded over time. In order to meet this allocation target, the Board of Trustees/Investment Committee approves a private markets investment plan setting forth the proposed investment activity for a specified period of time. The private markets investment plan shall be reviewed at least annually, and more frequently if necessary or appropriate, to reflect market conditions.

4. HIGH YIELD*Investment Objectives*

Total return of the high yield fixed income composite portfolio should exceed the return of the B of A ML U.S. High Yield Constrained Index over a full market cycle on an annualized basis. Total return of each Investment Manager'(s') portfolio should rank above the median when compared to their peer group,

if applicable, over a full market cycle on an annualized basis and should exceed their benchmark return as specified in each Investment Manager'(s') guidelines or applicable documentation.

Investment Characteristics

The main focus of investing will be on below investment grade fixed income securities, those securities rated below BBB- or equivalent. Positions may include publicly traded high yield bonds as well as public and private bank loans. The high yield fixed income composite portfolio shall have similar portfolio characteristics as that of the B of A ML U.S. High Yield Constrained Index. Each Investment Manager'(s') portfolio shall have similar portfolio characteristics as that of their respective benchmark.

Investment Structure

High yield fixed income assets will be managed solely on an active basis in order to exploit the perceived inefficiencies in the high yield fixed income markets and to minimize the probability of exposure to securities in default.

5. PRIVATE CREDIT*Investment Objectives*

The performance objectives for the private credit composite portfolio are set forth in OP&F's Private Credit Investment Policy. Both the returns for the private credit composite portfolio and respective benchmark are lagged one quarter.

Investment Characteristics

Investments will be diversified by certain criteria as set forth in OP&F's Private Credit Investment Policy.

Investment Structure

The target allocation of Total Portfolio assets to private credit will be established by OP&F's long-term Asset Allocation Policy, including a range around the target allocation to allow flexibility as the underlying private credit investments are funded over time. In order to meet this allocation target, the Board of Trustees/Investment Committee approves a private credit investment plan setting forth the proposed investment activity for a specified period of time. The private credit investment plan shall be reviewed at least annually, and more frequently if necessary or appropriate, to reflect market conditions.

B. SAFETY-ORIENTED ASSETS**1. CORE FIXED INCOME***Investment Objectives*

Total return of the core fixed income composite should exceed the applicable levered return of the Bloomberg U.S. Aggregate

Index minus the cost of financing over a full market cycle on an annualized basis. Total return of each Investment Manager'(s') portfolio should rank above the median when compared to their peer group, if applicable, over a full market cycle on an annualized basis and exceed their benchmark return as specified in each Investment Manager'(s') guidelines or applicable documentation.

Investment Characteristics

The main focus of investing will be a diversified mix of traditional fixed income securities. The core fixed income composite portfolio shall have similar portfolio characteristics as that of the Bloomberg U.S. Aggregate Index.

Investment Structure

Given the core fixed income allocation target set forth in the Asset Allocation Policy above, the core fixed income composite portfolio will be levered approximately 2.0x. The structure of the core fixed income composite portfolio shall be diversified among active investment strategies and synthetic overlays as follows:

a. Active Core Fixed Income Exposure

The active core fixed income component has a target allocation of 50% of the core fixed income composite portfolio on a notional basis. The overall objective is to provide risk-adjusted returns greater than the return of the Bloomberg U.S. Aggregate Index.

b. Synthetic Core Fixed Income Exposure

The synthetic core fixed income component has a target allocation of 50% of the core fixed income composite portfolio on a notional basis. The synthetic core fixed income component shall be implemented to provide either U.S. Treasury exposure or Bloomberg U.S. Aggregate exposure or some combination of both.

2. CASH

Investment Objectives

Cash is managed with a focus on capital preservation and providing a high degree of liquidity to meet ongoing cash flow needs of the Plan. Total return of externally managed cash should meet or exceed a 3-month London Interbank Offered Rate (LIBOR) benchmark over rolling twelve-month periods.

Investment Characteristics

For externally managed cash, the portfolio is expected to be invested in cash equivalents consistent with 2a7 money market rules and other short-duration fixed income securities that align with the specific mandate of the Investment Manager(s), including backing derivatives exposure for a total portfolio derivatives overlay program, and being a source of funds for

near term benefit payments. Therefore, the portfolio will be managed to maintain a high amount of liquidity and may be laddered to meet cash flow needs.

Investment Structure

For externally managed cash, the portfolio will be actively managed consistent with the individual Investment Manager'(s') guidelines.

C. INFLATION-ORIENTED ASSETS

1. U.S. INFLATION LINKED BONDS (TIPS)

Investment Objectives

Total return of the TIPS composite portfolio should exceed two times the Bloomberg U.S. Government Inflation-Linked Bond Index minus the cost of financing over a full market cycle on an annualized basis. Total return of each Investment Manager'(s') portfolio should exceed their benchmark return as specified in each Investment Manager'(s') guidelines or applicable documentation. In addition, there is a portable alpha component to the TIPS composite portfolio whereas the overall objective is to provide risk-adjusted returns greater than two times the return of the Bloomberg U.S. Government Inflation-Linked Bond Index minus the cost of financing. The implementation of this portable alpha component will not be considered leverage in relation to the long-term target allocations for the Total Portfolio.

Investment Characteristics

The main focus of investing will be on U.S. inflation-linked securities. The TIPS composite portfolio, as well as each Investment Manager'(s') portfolio, shall have similar portfolio characteristics as that of the Bloomberg U.S. Government Inflation-Linked Bond Index.

Investment Structure

The TIPS allocation will be managed on an active basis. Given the TIPS allocation target set forth in the Asset Allocation Policy above, the TIPS composite portfolio will be levered approximately 2.0x, excluding the portable alpha component. TIPS exposure, obtained through the use of derivatives and/or physical bonds, may be combined with a strategy that provides a diversified source of alpha with customized risk tolerances. Implementation of the TIPS composite portfolio will be consistent with OP&F's Derivatives Policy Statement, which provides a complete description of the appropriate use of derivatives in the Plan.

2. REAL ESTATE

Investment Objectives

The performance objectives for the real estate composite portfolio are set forth in OP&F's Real Estate Investment Policy. Both the returns for the real estate composite portfolio and respective benchmark(s) are lagged one quarter.

Investment Characteristics

Investments will be diversified by certain criteria as set forth in OP&F's Real Estate Investment Policy.

Investment Structure

The target allocation of Total Portfolio assets to real estate will be established by OP&F's long-term Asset Allocation Policy, including a range around the target allocation to allow flexibility as the underlying private real estate investments are funded over time. In order to meet this allocation target, the Board of Trustees/Investment Committee approves a real estate investment plan setting forth the proposed investment activity for a specified period of time. The real estate investment plan shall be reviewed at least annually, and more frequently if necessary or appropriate, to reflect market conditions.

3. REAL ASSETS

Investment Objectives

The performance objectives for the real assets composite portfolio are set forth in OP&F's Real Assets Investment Policy. Both the returns for the real assets composite portfolio and respective benchmark are lagged one quarter.

Investment Characteristics

Real assets investments will be diversified by certain criteria as set forth in OP&F's Real Assets Investment Policy.

Investment Structure

The target allocation of Total Portfolio assets to real assets will be established by OP&F's long-term Asset Allocation Policy, including a range around the target allocation to allow flexibility as the underlying real assets investments are funded over time. In order to meet this allocation target, the Board of Trustees/Investment Committee approves a real assets investment plan setting forth the proposed investment activity for a specified period of time. The real assets investment plan shall be reviewed at least annually, and more frequently if necessary or appropriate, to reflect market conditions.

4. MIDSTREAM ENERGY INFRASTRUCTURE

Investment Objectives

Total return of the midstream energy infrastructure composite portfolio should exceed the return of the

Alerian Midstream Energy Index over a full market cycle on an annualized basis. Total return of each Investment Manager'(s) portfolio should rank above the median when compared to their peer group, if applicable, over a full market cycle on an annualized basis and should exceed their benchmark return as specified in each Investment Manager'(s) guidelines or applicable documentation.

Investment Characteristics

The main focus of investing will be on publicly traded midstream energy infrastructure opportunities. Investments may consist of master limited partnerships (MLPs) and securities of energy related C-corporations. The midstream energy infrastructure composite portfolio as well as each Investment Manager'(s) portfolio shall have similar portfolio characteristics as that of the Alerian Midstream Energy Index.

Investment Structure

Midstream energy infrastructure assets will be managed solely on an active basis in order to exploit the perceived inefficiencies in the publicly traded midstream energy infrastructure markets.

5. GOLD

Investment Objectives

Total return of the gold composite portfolio should match the return of the S&P GSCI Gold Index Total Return minus the cost of financing over a full market cycle on an annualized basis.

Investment Characteristics

The gold allocation will be implemented through the derivatives markets and will be unfunded with the exception of necessary cash collateral and where gold is used to address deviations in certain private market asset classes with similar risk/return characteristics. Gold has been identified as one of the asset classes to hold an underweight for the asset class of real assets. In these cases, the gold allocation will be fully funded with cash collateral so as not to increase the Total Portfolio leverage from this purpose.

Investment Structure

The gold allocation will be managed on a passive basis. Given the gold allocation target set forth in the Asset Allocation Policy above, the gold composite portfolio should be considered as leverage, except where gold is used to address deviations in certain private market asset classes with similar risk/return characteristics. Implementation of the gold composite portfolio will be consistent with OP&F's Derivatives Policy Statement, which provides a complete description of the appropriate use of derivatives in the Plan.

6. PROXY VOTING

OP&F's Board of Trustees believes that common stock proxies are valuable and should be voted in the long-term interests and objectives of the Plan set forth herein and OP&F's Proxy Voting Policy and International Proxy Voting Policy. Common stock proxies may be executed by the Sr. Investment Officer – Public Markets or the Chief Investment Officer, or their designees. Staff or their designee that exercises a proxy vote shall keep detailed records of said voting of proxies and related actions and will comply with all regulatory obligations related thereto and the policies set forth in OP&F's Proxy Voting Policy and International Proxy Voting Policy. Staff shall provide a semi-annual summary report of proxy voting actions to the Board of Trustees/Investment Committee.

7. SECURITIES LENDING

The investment objective for the securities lending program is to generate incremental income within a high quality investment program that safeguards the return of principal, maintains adequate daily liquidity, ensures diversification and tightly controls exposure to fluctuating interest rates. The program may be operated by a bank trustee or a third party lending agent. Marking to market shall be performed daily by the agent(s) and a minimum average of at least 102 percent for domestic, and 105 percent for Non-U.S. collateral shall be diligently maintained. Securities lending reports shall be provided monthly by the agent(s) to staff. Staff will present a semi-annual summary report to Board of Trustees/Investment Committee.

8. INVESTMENT MANAGER MONITORING AND EVALUATION POLICY

The purpose of OP&F's Investment Manager Monitoring and Evaluation Policy is to establish the process and discipline for managing the Investment Manager(s) relationship. The policy states the process, responsibilities and important factors for consideration in the monitoring and evaluation process. For a complete description of the monitoring and evaluation process, please see OP&F's Investment Manager Monitoring and Evaluation Policy.

9. COMMUNICATIONS

Each Investment Manager(s) will provide hard copy reports at least quarterly, including performance measurement, asset inventories, transaction summaries, market commentary or anything else deemed significant at the time of reporting. Each Investment Manager(s) is expected to meet or participate via teleconference or webcast with OP&F's Board or staff or Investment Consultant(s) annually or as needed.

10. INVESTMENT MANAGER SEARCH POLICY

When applicable, the selection of Investment Manager(s) will be conducted under a Request for Proposal (RFP) process and the search may be on a closed or open manager universe basis. For a complete description of the selection of Investment Manager(s), please see OP&F's Investment Manager Search Policy.

11. SECURITIES LITIGATION POLICY

The Securities Litigation Policy has been adopted to ensure that OP&F takes prudent, effective, appropriate, and efficient actions to protect and increase the value of OP&F investments and to ensure that OP&F receives all money or assets which are due it as a result of the resolution of class action suits in a cost effective manner consistent with the Board's fiduciary duties. For a complete description of the policy objectives, monitoring, reporting requirements, procedures, etc., please see OP&F's Securities Litigation Policy.

12. IRAN AND SUDAN DIVESTMENT POLICY

As required by uncodified provisions of Chapter 742 of the ORC, OP&F has adopted an Iran and Sudan Divestment Policy, the purpose of which is to divest and restrict the purchase of stocks and bonds issued by a publicly traded company with scrutinized business operations in Iran and Sudan, subject to the fiduciary responsibilities of the Board of Trustees, as set forth in Chapter 742 of the ORC. For a complete description of the responsibilities, process, reporting requirements, etc., please see OP&F's Iran and Sudan Divestment Policy and Iran and Sudan Divestment Processes.

13. DERIVATIVES POLICY STATEMENT

The Derivatives Policy Statement is intended to supplement this Statement and serves as the overall guideline on the use of derivatives within OP&F and its related investment manager guidelines. The Derivatives Policy Statement sets forth controls and risk management procedures for traditional investment strategies that may employ derivatives but are primarily invested in equity or fixed income securities, and separately for investment strategies which OP&F determines to be implemented primarily through the use of derivative securities.

14. BROKER POLICY AND OHIO-QUALIFIED BROKER POLICY

The Broker Policy sets forth the general and specific directions toward trading activities of all assets of OP&F. The Ohio-Qualified Broker Policy sets forth the specific criteria regarding OP&F's goal to increase the utilization of Ohio-qualified agents (brokers) for the execution of domestic equity and domestic fixed income trades.

15. OHIO-QUALIFIED INVESTMENT MANAGER POLICY

The Ohio-Qualified Investment Manager Policy sets forth the specific criteria regarding OP&F's goal to increase the utilization of Ohio-qualified investment managers.



ACTUARIAL

2021 ANNUAL COMPREHENSIVE FINANCIAL REPORT



REPORT OF ACTUARY

**DESCRIPTION OF ACTUARIAL ASSUMPTIONS
AND METHODS**

PLAN SUMMARY

**ANALYSIS OF FINANCIAL EXPERIENCE – PENSION
TRUST FUND**

SHORT-TERM SOLVENCY TEST – PENSION TRUST FUND

**ACTIVE MEMBER VALUATION DATA – PENSION
TRUST FUND**

**RETIREES AND BENEFICIARIES ADDED TO AND
REMOVED FROM ROLLS – PENSION TRUST FUND**

**CALCULATION OF ACTUARIAL VALUE ASSETS –
PENSION TRUST FUND**

**SCHEDULE OF FUNDING PROGRESS – PENSION
TRUST FUND**

EMPLOYER CONTRIBUTION RATES

MEMBER CONTRIBUTION RATES

REPORT OF ACTUARY



Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

October 2021

Board of Trustees
Ohio Police & Fire Pension Fund
140 East Town Street
Columbus, Ohio 43215

Members of the Board:

Cavanaugh Macdonald (CMC) is pleased to present this report on the results of the actuarial valuation of the Ohio Police & Fire Pension Fund (OP&F). This report presents the results of the annual actuarial valuation of the assets and liabilities of OP&F as of January 1, 2021, prepared in accordance with Chapter 742 of the Ohio Revised Code (ORC), as amended by Senate Bill No. 340. The valuation takes into account all of the promised benefits to which members are entitled, including pension and survivor benefits.

The principal results of the valuation do not take into account Medicare Part B premium reimbursements or any other health care benefits. However, at the request of the Ohio Retirement Study Council (ORSC), supplemental results have been prepared that do take into account the liability for Medicare Part B premium reimbursements and are presented in Table 1A in the report.

The purpose of the valuation is to determine the financial status of OP&F on an actuarial basis. Use of this report for any other purpose may not be appropriate and may result in mistaken conclusions due to failure to understand applicable assumptions, methodologies, or inapplicability of the report for that purpose. CMC will not accept any liability for any statement made about the report without prior review by CMC.

Where presented, references to “funded ratio” and “unfunded accrued liability” typically are measured on an actuarial value of assets basis. It should be noted that the same measurements using market value of assets would result in different funded ratios and unfunded accrued liabilities. Moreover, the funded ratio presented is appropriate for evaluating the need and level of future contributions but makes no assessment regarding the funded status of the plan if the plan were to settle (i.e. purchase annuities) for a portion or all of its liabilities.

3550 Busbee Pkwy, Suite 250, Kennesaw, GA 30144
Phone (678) 388-1700 • Fax (678) 388-1730
www.CavMacConsulting.com
Offices in Kennesaw, GA • Bellevue, NE



Board of Trustees
October 2021
Page 2

This report does not include accounting disclosure information under Governmental Accounting Standards Board (GASB) Statement Nos. 67 and 68. CMC will provide disclosure information under Statement Nos. 67 and 68 in a separate report after OP&F's 2021 year-end. CMC also prepares a separate valuation of OP&F retiree health care benefits.

The valuation was based on the actuarial assumptions and methods that have been adopted by the Board of Trustees, including a valuation interest rate of 8.00 percent per annum compounded annually. The assumptions were effective January 1, 2017 and recommended by the actuary based on a five-year experience review covering the period 2012-2016. The next experience review will cover the five-year period 2017-2021. Actuarial Standards of Practice require that the likelihood and extent of future mortality improvements be considered. We have reflected future mortality improvement in the valuation.

Assets and Membership Data

OP&F reported to the actuary the individual data for members as of the valuation date. While we did not verify the data at their source, we did perform tests for internal consistency and reasonableness. The amount of assets in the pension trust fund taken into account in the valuation was based on financial statements prepared for us by OP&F.

An assumption is made by CMC to account for salary adjustments reported by employers assumed to occur after the census information has been provided to CMC by OP&F.

Funding Objectives and Progress

The actuary uses an actuarial cost method to determine the portion of OP&F's liabilities accrued by the members as of the valuation date and the portion that is attributable to future years of service. The rate of contribution necessary to systematically fund the future service liabilities, the normal cost rate, is calculated under the cost method to be a level percentage of active member payroll. The portion of the liabilities accrued as of the valuation date, the actuarial accrued liability (AAL), is compared to a market-related, actuarial value of OP&F's assets. The amount of liabilities in excess of the assets is called the unfunded actuarial accrued liability (UAAL).

The actuary determines how many years are required by OP&F to completely amortize the UAAL (the funding period), using the member and employer contributions reduced by the amount allocated to health care and the amount of normal cost for the year. For 2003-2012, the funding period was infinite years, meaning the annual contribution toward the unfunded when compared to the unfunded amount was not sufficient to pay it off. As a result of benefit and member contribution changes under Senate Bill No. 340, changes to the DROP program, and a reduction in the contribution allocation to the Health Care Stabilization Fund by the Board of Trustees, and favorable asset investment gains, the pension funding period has decreased from 47 years as of January 1, 2013 to 28 years as of January 1, 2020. As of January 1, 2021, the funding period decreased three years to 25 years.



Board of Trustees
October 2021
Page 3

Section 742.16 of the ORC, as adopted by Senate Bill No. 82, sets forth an objective that the funding period is no more than 30 years. If the funding period exceeds 30 years, a plan shall be developed and presented by the Board of Trustees to the ORSC to reduce the funding period to not more than 30 years. Section 742.14 of the ORC, as amended by Senate Bill No. 340, sets forth that the 30-year funding analysis be performed every three years and the 30-year funding plan, if necessary, be developed and presented not later than 90 days after the Board of Trustees' receipt of the actuarial valuation and 30-year funding analysis. The most recent triennial analysis was based on the January 1, 2019 actuarial valuation, and showed the funding period was 29 years, so no 30-year funding plan is required. The next analysis will be performed based on the January 1, 2022 actuarial valuation.

The funded ratio (i.e., the ratio of actuarial assets to the AAL) determined as of January 1, 2021 is 71.2 percent, compared to 69.7 percent as of as of January 1, 2020. If measured using the market value of assets, the funded ratio would be higher at 72.5 percent on account of net investment gains not yet reflected in the actuarial assets. Taking into account the AAL for Medicare Part B premium reimbursements, the funded ratio would be 70.4 percent using the actuarial assets and 71.7 percent using the market value of assets. The funded ratio is not intended to measure the adequacy of funding in any analysis of a possible settlement of plan liabilities.

Supporting Schedules and Certification

The valuation report shows detailed summaries of the financial results of the valuation and membership data used in preparing this valuation. The actuary prepared the following supporting schedules for inclusion in the Actuarial and Statistical Sections of the OP&F Comprehensive Annual Financial Report: Analysis of Financial Experience, Short-Term Solvency Test, Schedule of Funding Progress, Calculation of Actuarial Value of Assets, and Retirees and Beneficiaries Added to and Removed from the Rolls.

The valuation assumptions were chosen by the Board of Trustees with the advice of the actuary. The assumptions used to develop the January 1, 2021 valuation are individually reasonable and in combination represent our best estimate of anticipated experience under the plan.

Future actuarial measurements may differ significantly from current measurements due to plan experience differing from that anticipated by the economic and demographic assumptions, increases or decreases expected as part of the natural operation of the methodology used for these measurements, and changes in plan provisions or applicable law. Because of limited scope, CMC performed no analysis of the potential range of such future differences.

During 2018 OP&F retained Cavanaugh Macdonald as their actuary. The January 1, 2019 valuation was the first valuation completed by Cavanaugh Macdonald. All results presented in this report for years prior to the December 31, 2018 were performed by the prior actuary(s).



Board of Trustees
October 2021
Page 4

The consultants who worked on this assignment are pension actuaries. CMC's advice is not intended to be a substitute for qualified legal or accounting counsel.

This is to certify that the independent consulting actuaries are members of the American Academy of Actuaries, have experience in performing valuations for public retirement plans, and meet the qualification standards of the American Academy of Actuaries to render the actuarial opinion contained herein. The valuation was prepared in accordance with principles of practice prescribed by the Actuarial Standards Board and the actuarial calculations were performed by qualified actuaries in accordance with accepted actuarial procedures, based on the current provisions of the retirement plan and on actuarial assumptions that are internally consistent and reasonable based on the actual experience of the Fund and future expectations. However, the Board of Trustees has the final decision regarding the selection of the assumptions and adopted them as indicated in Appendix C.

Respectfully submitted,

Handwritten signature of Larry Langer in blue ink.

Larry Langer, ASA, EA, FCA, MAAA
Principal and Consulting Actuary

Handwritten signature of Wendy T. Ludbrook in blue ink.

Wendy T. Ludbrook, FSA, EA, FCA, MAAA
Senior Actuary

Handwritten signature of Ryan Gunderson in blue ink.

Ryan Gunderson
Senior Consultant

DESCRIPTION OF ACTUARIAL ASSUMPTIONS AND METHODS

The actuarial assumptions were adopted as of January 1, 2017, based on a five-year experience review covering the period 2012 through 2016. The next review of the actuarial assumptions is to be completed for adoption with the January 1, 2022 valuation.

INTEREST RATE

8.00% per annum, compounded annually.

SALARY INCREASE RATES

Assumed annual salary increases are as follows:

Years of Service	Salary Increase Rate
Less than 1	10.50%
1	9.00%
2	8.00%
3	6.00%
4	4.50%
5 or more	3.75%

PAYROLL GROWTH

3.25% per annum, compounded annually, consisting of inflation rate of 2.75% plus productivity increase rate of 0.5%.

DROP INTEREST CREDITING RATE

4.0% per annum, compounded annually.

CPI-BASED COLA

2.2% simple for increases based on the lesser of the increase in CPI and 3.0%.

WITHDRAWAL RATES

The following sample withdrawal rates are based on age and service (for causes other than death, disability, or retirement):

POLICE

Years of Service	Age							
	25	30	35	40	45	50	55	60
0	9.62%	9.94%	15.93%	17.85%	15.22%	22.00%	18.68%	19.23%
1	5.88%	5.54%	6.49%	7.65%	5.99%	10.15%	11.21%	11.54%
2	3.27%	4.21%	3.92%	5.87%	5.80%	9.90%	9.34%	9.62%
3	4.11%	3.35%	4.66%	5.74%	5.61%	9.17%	8.78%	9.04%
4	3.64%	3.06%	4.29%	5.23%	4.95%	7.95%	7.47%	7.69%
5	2.59%	2.65%	3.49%	4.22%	4.22%	7.57%	8.79%	6.50%
6	2.64%	2.56%	3.28%	3.57%	3.44%	5.86%	7.03%	5.20%
7	2.58%	2.21%	3.18%	3.46%	3.44%	5.71%	6.90%	5.10%
8	2.39%	1.95%	2.56%	1.95%	2.06%	5.57%	6.63%	4.90%
9	2.12%	1.59%	1.74%	1.62%	1.18%	4.43%	6.09%	4.50%
10	1.56%	1.56%	1.66%	1.59%	1.09%	4.31%	6.03%	4.46%
11	1.49%	1.49%	1.58%	1.56%	1.00%	4.20%	5.98%	4.42%
12	1.41%	1.41%	1.50%	1.52%	0.91%	4.09%	5.92%	4.38%
13	1.31%	1.31%	1.42%	1.49%	0.83%	3.97%	5.87%	4.34%
14	1.21%	1.21%	1.33%	1.46%	0.74%	3.86%	5.82%	4.30%
15+	1.17%	1.17%	1.17%	0.91%	0.79%	0.91%	1.10%	1.96%

FIREFIGHTERS

Years of Service	Age							
	25	30	35	40	45	50	55	60
0	2.69%	3.46%	3.66%	6.22%	8.48%	6.93%	8.73%	19.11%
1	2.11%	1.46%	2.96%	4.98%	7.01%	5.00%	7.16%	15.66%
2	1.53%	1.64%	1.83%	3.04%	4.98%	4.54%	7.16%	15.66%
3	1.44%	1.55%	1.74%	2.90%	4.80%	4.32%	7.16%	15.66%
4	1.15%	1.46%	1.66%	2.77%	4.61%	3.97%	5.73%	12.53%
5	0.83%	0.94%	1.33%	1.64%	2.05%	2.91%	5.33%	11.94%
6	0.78%	0.87%	1.24%	1.53%	1.72%	2.58%	3.66%	8.19%
7	0.78%	0.80%	1.19%	1.42%	1.51%	2.37%	3.35%	7.51%
8	0.72%	0.73%	1.05%	1.31%	1.40%	2.26%	3.05%	6.82%
9	0.73%	0.73%	0.86%	1.10%	1.18%	1.62%	2.29%	5.12%
10	0.73%	0.73%	0.84%	1.07%	1.16%	1.55%	2.21%	4.95%
11	0.71%	1.71%	0.82%	1.05%	1.14%	1.49%	2.13%	4.78%
12	0.68%	0.68%	0.80%	1.03%	1.12%	1.42%	2.06%	4.60%
13	0.65%	0.65%	0.78%	1.01%	1.10%	1.36%	1.98%	4.43%
14	0.61%	0.61%	0.76%	0.99%	1.07%	1.29%	1.91%	4.26%
15+	0.90%	0.90%	0.90%	0.47%	0.50%	0.59%	0.92%	1.21%

RATES OF DISABILITY

The following are sample rates of disability and occurrence of disability by type:

Age	Police		Fire	
	Hired Before July 2, 2013	Hired After July 1, 2013	Hired Before July 2, 2013	Hired After July 1, 2013
20	0.001%	0.001%	0.001%	0.001%
25	0.007%	0.007%	0.005%	0.005%
30	0.089%	0.089%	0.002%	0.022%
35	0.154%	0.154%	0.091%	0.091%
40	0.403%	0.403%	0.204%	0.204%
45	0.533%	0.533%	0.347%	0.347%
50	1.351%	0.691%	1.337%	0.475%
55	1.119%	1.119%	2.025%	2.025%
60	2.078%	2.078%	3.060%	3.060%
64	3.099%	3.099%	7.190%	7.190%

Upon attainment of normal retirement eligibility, the rate is 0.300%.

Type of Disability	
On duty permanent and total	17%
On duty partial	58%
Off duty ordinary	25%

RETIREMENT RATES

The following rates of retirement apply to members who have not elected to be in DROP:

Age	Police	Firefighter
48	-%	-%
48-50	5%	4%
51	6%	4%
52	6%	6%
53	10%	6%
54	10%	7%
55-57	11%	11%
58	5%	16%
59	10%	16%
60	18%	20%
61	19%	20%
62	25%	50%
63	25%	20%
64	25%	25%
65-69	35%	25%
70	100%	100%

DEFERRED RETIREMENT OPTION PLAN ELECTIONS

90% of members who do not retire when first eligible are assumed to elect DROP.

DROP RETIREMENT RATES

The following rates of retirement apply to members in DROP on or before July 1, 2013:

POLICE

Age	Years in DROP								
	0	1	2	3	4	5	6	7	8
48	5%	5%							
49	4%	5%							
50	4%	5%	4%						
51	4%	5%	4%	10%					
52	3%	5%	4%	9%	9%				
53	3%	5%	4%	9%	8%	12%			
54	4%	5%	5%	10%	9%	13%	13%		
55	5%	5%	5%	16%	16%	14%	18%	44%	
56	5%	5%	5%	15%	15%	13%	17%	41%	100%
57	5%	5%	5%	16%	15%	14%	17%	43%	100%
58	5%	5%	5%	16%	15%	14%	17%	42%	100%
59	15%	5%	5%	15%	16%	16%	18%	44%	100%
60	17%	5%	5%	16%	17%	18%	19%	47%	100%
61	17%	5%	5%	17%	18%	18%	20%	48%	100%
62	16%	5%	5%	16%	17%	17%	19%	46%	100%
63	18%	6%	6%	18%	19%	19%	21%	50%	100%
64	19%	5%	5%	17%	17%	18%	19%	49%	100%
65	24%	6%	6%	23%	22%	22%	25%	59%	100%
66	24%	6%	6%	20%	19%	22%	22%	54%	100%
67	24%	5%	5%	20%	19%	22%	22%	53%	100%
68	24%	5%	5%	15%	19%	22%	22%	53%	100%
69	24%	5%	5%	20%	19%	22%	22%	47%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%

FIREFIGHTER

Age	Years in DROP								
	0	1	2	3	4	5	6	7	8
48	2%								
49	4%	3%							
50	5%	4%	4%						
51	3%	3%	3%	9%					
52	3%	3%	3%	8%	9%				
53	4%	3%	4%	10%	11%	13%			
54	4%	3%	3%	9%	11%	13%	13%		
55	6%	4%	4%	13%	13%	15%	17%	38%	
56	5%	3%	4%	13%	12%	14%	17%	37%	100%
57	5%	3%	4%	13%	12%	14%	17%	37%	100%
58	5%	3%	4%	17%	15%	15%	17%	46%	100%
59	6%	3%	4%	17%	15%	16%	18%	46%	100%
60	6%	3%	4%	18%	16%	16%	19%	48%	100%
61	6%	3%	4%	17%	15%	15%	19%	45%	100%
62	6%	3%	4%	17%	15%	16%	18%	46%	100%
63	29%	3%	4%	20%	18%	20%	18%	52%	100%
64	32%	3%	4%	21%	20%	22%	19%	55%	100%
65	33%	4%	4%	22%	21%	23%	20%	57%	100%
66	38%	4%	5%	26%	24%	23%	24%	64%	100%
67	38%	4%	5%	26%	24%	23%	24%	65%	100%
68	38%	4%	5%	26%	24%	23%	24%	65%	100%
69	38%	4%	5%	20%	25%	23%	24%	65%	100%
70	100%	100%	100%	100%	100%	100%	100%	100%	100%

The same rates apply for members entering DROP after July 1, 2013, except the rates for years three and four are replaced with the rates for year two.

The following rates of retirement apply to members who are not yet in DROP but may become eligible in the future:

POLICE

Age	Years Eligible for DROP										
	0	1	2	3	4	5	6	7	8	9+	
47	6%										
48	12%										
49	7%	5%									
50	6%	5%	5%								
51	6%	5%	5%	5%							
52	6%	5%	5%	5%	5%						
53	11%	5%	5%	5%	5%	12%					
54	10%	5%	5%	5%	5%	13%	13%				
55	12%	6%	6%	6%	6%	14%	18%	43%			
56	12%	6%	5%	5%	5%	13%	17%	41%	96%		
57	13%	6%	5%	5%	5%	14%	17%	43%	94%	100%	
58	7%	5%	5%	5%	5%	13%	17%	43%	98%	100%	
59	10%	5%	5%	5%	5%	17%	18%	45%	97%	100%	
60	20%	8%	6%	6%	6%	18%	20%	48%	98%	100%	
61	32%	6%	5%	5%	5%	18%	19%	46%	93%	100%	
62	29%	9%	5%	5%	5%	16%	17%	42%	92%	100%	
63	33%	5%	7%	7%	7%	18%	19%	46%	95%	100%	
64	31%	11%	7%	7%	7%	18%	19%	49%	93%	100%	
65	47%	13%	6%	6%	6%	20%	22%	54%	100%	100%	
66	47%	13%	5%	5%	5%	20%	20%	50%	100%	100%	
67	47%	13%	18%	18%	18%	20%	20%	46%	100%	100%	
68	47%	13%	18%	18%	18%	20%	20%	46%	100%	100%	
69	47%	13%	18%	18%	18%	20%	20%	46%	100%	100%	
70	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

FIREFIGHTER

Age	Years Eligible for DROP										
	0	1	2	3	4	5	6	7	8	9+	
47	3%										
48	6%										
49	6%	4%									
50	6%	4%	4%								
51	5%	3%	4%	4%							
52	5%	3%	3%	3%	3%						
53	5%	4%	4%	4%	4%	13%					
54	5%	3%	4%	4%	4%	13%	13%				
55	8%	5%	5%	5%	5%	15%	18%	38%			
56	8%	5%	4%	4%	4%	14%	17%	38%	95%		
57	8%	4%	5%	5%	5%	15%	17%	38%	98%	100%	
58	8%	5%	4%	4%	4%	16%	19%	46%	97%	100%	
59	9%	5%	5%	5%	5%	16%	19%	46%	97%	100%	
60	10%	5%	7%	7%	7%	17%	20%	49%	86%	100%	
61	11%	5%	4%	4%	4%	16%	19%	45%	93%	100%	
62	15%	7%	12%	12%	12%	16%	20%	49%	95%	100%	
63	33%	7%	4%	4%	4%	19%	16%	48%	100%	100%	
64	37%	7%	3%	3%	3%	20%	18%	49%	100%	100%	
65	37%	7%	8%	8%	8%	20%	18%	51%	100%	100%	
66	37%	7%	4%	4%	4%	23%	23%	61%	100%	100%	
67	37%	7%	4%	4%	4%	23%	23%	53%	100%	100%	
68	37%	7%	4%	4%	4%	23%	23%	53%	100%	100%	
69	37%	7%	4%	4%	4%	23%	23%	47%	100%	100%	
70	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	

RETIREMENT AGE FOR INACTIVE VESTED PARTICIPANTS

Commencement at age 48 and 25 years of service from full-time hire date, whichever is later.

HEALTHY MORTALITY

Mortality for non-disabled participants is based on the RP-2014 Total Employee and Healthy Annuitant Mortality Tables rolled back to 2006, adjusted according to the rates in the following table, and projected with the Buck Modified 2016 Improvement Scale. Rates for surviving beneficiaries are adjusted by 120%.

Age	Police	Fire
67 or less	77%	68%
68-77	105%	87%
78 and up	115%	120%

DISABLED MORTALITY

Mortality for disabled participants is based on the RP-2014 Disabled Mortality Tables rolled back to 2006, adjusted according to the rates in the following table, and projected with the Buck Modified 2016 Improvement Scale.

Age	Police	Fire
59 or less	35%	35%
60-69	60%	45%
70-79	75%	70%
80 and up	100%	90%

CREDITED SERVICE

Credited service on the valuation date, as provided by OP&F, includes all service credited under the plan, including service transferred from other municipal plans and purchased service. The valuation assumes future service will be credited at the rate of one year per year worked, with no assumed future crediting of transferred service or purchased service.

415 LIMITS

Benefits are limited by the Internal Revenue Code (IRC) Section 415, assumed to increase 2.75% per annum.

FUTURE EXPENSES

The normal cost is increased by all administrative expenses budgeted, net of the State Subsidy received from the State of Ohio.

UNKNOWN DATA FOR MEMBERS

Same as those exhibited by members with similar known characteristics. Deferred benefits are estimated at termination until OP&F has determined the actual amount at retirement. Reported salaries that are less than \$10,000 when annualized are assumed to be anomalous and are reset to \$60,000. The adjustment for late reported salaries is not applied in this case.

LATE REPORTED SALARIES

A 1.137% load is added to the 2020 reported salaries to account for salaries accrued but not reported for the valuation. This adjustment is based on an average of plan experience from the prior three years. The raw adjustment rates for each year are as follows:

Pay for Calendar Year	Raw Adjustment
2020	0.820%
2019	1.335%
2018	1.256%

This adjustment will be reviewed annually for future late reported salaries.

PERCENT MARRIED

75% of active members are assumed to be married.

AGE OF SPOUSE

Wives are assumed to be three years younger than their husbands.

OPTIONAL FORM ELECTION

33% of service retirees and 10% of disability retirees are assumed to elect the 40% Joint and Survivor pension at retirement. If the joint annuitant predeceases the retiree, the increase, or pop-up, in the retiree's benefit associated with the 40% Joint and Survivor pension is assumed to be 14.36% for disability retirees and 10.50% for all other retirees.

DROP ACCOUNT DISTRIBUTIONS

For members who terminate DROP before the required three or five years, distribution of the account balance is assumed to be made in a lump sum payment at the end of the three or five year period. Distributions for other members are assumed to be made in a lump sum or installments at retirements in a pattern equivalent to 25% receiving lump sums, 30% receiving installments over two years, and 45% receiving installments over 10 years.

DEPENDENT PARENTS

None anticipated, but dependency of any dependent parent in receipt of benefits is assumed to continue for the parent's lifetime.

DEPENDENT CHILDREN

Each member is assumed to have two children, born when the member was age 26. Dependency is assumed to cease when the child is 22.

MEDICARE PART B PREMIUM REIMBURSEMENT

For service and disability retirements, as well as survivors, Ohio Police & Fire reimburses the standard Medicare Part B premium (\$107.00 per month for 2021) provided the retiree is not eligible for reimbursement from any other sources.

It is assumed that 88% of members are eligible for reimbursement once they reach age 65.

The Medicare Part B Premium assumptions are only used to determine the cost if the Medicare Part B reimbursement payments were to be paid from the pension trust instead of the Health Care Stabilization Fund.

METHODS**ACTUARIAL COST METHOD**

Projected benefit method with individual level percentage entry age normal cost and actuarial accrued liability. Gains and losses are reflected in the actuarial accrued liability. Prior to January 1, 2015, to be consistent with the asset methodology employed by OP&F, DROP balances were netted out of the liabilities

ADJUSTMENT FOR RE-EMPLOYED RETIREES

The present value of future benefits and the actuarial accrued liability are increased by an amount for the re-employed retirees' defined contribution plan benefit equal to two times the re-employed retirees' post-retirement contribution balances on the valuation date.

ADJUSTMENT FOR EMPLOYER ACCRUED LIABILITY

The actuarial accrued liability is reduced by the present value of special employer contributions -- referred to as "Local Funds." Local governments are required by state statute to pay the unfunded portion of the actuarially-determined liability of the local police and firefighter's relief and pension funds that were merged to form OP&F in 1967. The ORC designates this obligation of the local governments to the Employers' Accrued Liability. Interest on the outstanding balance is being

accrued at the rate of 4.25%, compounded semiannually. Local governments began repayment in 1969 and payments are required to be made until 2035. The present value of the remaining payments on the valuation date is determined using the valuation interest rate.

ASSET VALUATION METHOD

A four-year moving average market value of assets that spreads the difference between the actual investment income and the expected income on the market value (based on the valuation interest rate) over a period of four years. The actuarial value shall not be less than 80% or more than 120% of market value.

DATA**CENSUS AND ASSETS**

The valuation was based on members of OP&F as of the valuation date and does not take into account future members. All census and asset data was supplied by OP&F. Salaries and benefits tabulated in the tables in this report were summed to pennies, but displayed to whole dollars, thus, totals may not be consistent with amounts displayed due to rounding.

PLAN SUMMARY

SUMMARY OF MAIN BENEFIT PROVISIONS

The following is intended to summarize the key provisions valued in this valuation. Members of OP&F and other parties should not rely on this summary as a substitute for or legal interpretation of the laws and rules covering this retirement plan.

MEMBERSHIP

Membership in OP&F is mandatory under Ohio law for all full-time police officers employed by Ohio municipalities and appointed under the required statutory provisions. Membership is also mandatory for all full-time firefighters employed by Ohio municipalities, townships, villages, joint fire districts or other political subdivisions. In order to become members of OP&F, full-time firefighters are required to satisfactorily complete, or have satisfactorily completed, a firefighter training course approved under former Section 3303.07, or Section 4765.55 or conducted under Section 3737.33 of the ORC.

ELIGIBILITY FOR MEMBERSHIP

Full-time police officers or firefighters are eligible for membership in OP&F immediately upon commencement of employment as a full-time police officer or firefighter.

CONTRIBUTIONS

Employer and member contributions are established by statute and both are due monthly. Employers of police officers pay 19.5% of salary; employers of firefighters pay 24% of salary. The member contribution rate equaled 12.25% in 2021.

EMPLOYER CONTRIBUTION RATES – PERCENTAGE OF ACTIVE MEMBER PAYROLL:

Time Frame of Rates	Police	Fire
Jan 1, 1986 thru Present	19.50%	24.00%

MEMBER CONTRIBUTION RATES – PERCENTAGE OF ACTIVE MEMBER PAYROLL:

Time Frame of Rates	Police	Fire
July 2, 2015 and Thereafter	12.25%	12.25%

BENEFITS

SERVICE RETIREMENT

Upon attaining a qualifying age with sufficient years of service, a member of OP&F may retire and receive a lifetime monthly pension. OP&F offers four types of service retirement: normal, service commuted, age/service commuted and actuarially reduced. Each type has different eligibility guidelines and is calculated using the member's average annual salary.

Since average annual salary is subject to certain statutory and administrative limitations, not all salary, earnings, or compensation may be used in the calculation. OP&F calculates allowable average annual salary as follows:

- For OP&F members with 15 or more years of service credit as of July 1, 2013, average annual salary is an average of the three years of highest allowable earnings, regardless of when in their career the highest years occurred.
- For OP&F members with less than 15 years of service credit as of July 1, 2013, average annual salary is an average of the five years of highest allowable earnings, regardless of when in their career the highest years occurred.
- A salary benchmark is established for members with 15 or more years of service credit as of July 1, 2013, under which certain increases are excluded from salary for the purpose of determining allowable average annual salary. This benchmarking does not apply to members with less than 15 years of service credit as of July 1, 2013.

NORMAL SERVICE RETIREMENT

ELIGIBILITY

- For members hired into an OP&F-covered position after July 1, 2013, minimum retirement age is 52 with at least 25 years of service credit.
- For members hired into an OP&F-covered position on or before July 1, 2013, minimum retirement age is 48 with 25 years of service credit.

BENEFIT

An annual pension equal to a percentage of the allowable average annual salary. The percentage equals 2.5% for each of the first 20 years of service, 2.0% for each of the next five years of service, and 1.5% for each year of service in excess of 25 years. The maximum pension of 72% of the allowable average annual salary is paid after 33 years of service credit.

SERVICE COMMUTED RETIREMENT

ELIGIBILITY

- For members hired into an OP&F-covered position after July 1, 2013, the minimum retirement age is 52, they must have at least 15 years of service credit and 25 years elapsed from the date of their full-time hire.
- For members hired into an OP&F-covered position on or before July 1, 2013, the minimum retirement age is 48, they must have at least 15 years of service credit and 25 years have elapsed from the date of their full-time hire.

BENEFIT

An annual pension equal to 1.5% of the allowable average annual salary multiplied by the number of full years of service credit (up to 25 years of service credit).

AGE/SERVICE COMMUTED RETIREMENT

ELIGIBILITY

Age 62, 15 years of service credit and still working as a full-time police officer or firefighter.

BENEFIT

An annual pension that uses the same formula as for the Normal Service Retirement benefit (up to 25 years of service credit).

ACTUARIALLY REDUCED

ELIGIBILITY

For members hired into an OP&F-covered position after July 1, 2013, age 48 with 25 years of service.

BENEFIT

An annual pension reduced to the actuarial equivalent of the amount payable had the member retired at age 52.

RIGHTS UPON SEPARATION FROM SERVICE

DEFERRED PENSION

If a member meets the years of service credit required for any of the service retirement pensions but leaves service before attaining the minimum retirement age, a pension becomes payable upon attainment of the qualifying age and filing the appropriate paperwork with OP&F.

REFUND OF EMPLOYEE CONTRIBUTIONS

Upon separation from service, a member can receive the contributions that he or she made to the plan or the employee share of member contributions picked-up on the member's behalf by their employer. Employer contributions are not refundable.

TERMINATION BEFORE RETIREMENT WITH 25 YEARS OF SERVICE CREDIT

BENEFIT

Same as the Normal Service Retirement benefit, except benefit commences once the member reaches minimum retirement age.

- For members hired into an OP&F-covered position after July 1, 2013, minimum retirement age is 52.
- For members hired into an OP&F-covered position on or before July 1, 2013, minimum retirement age is 48.

TERMINATION BEFORE RETIREMENT WITH 15 YEARS OF SERVICE CREDIT

BENEFIT

Same as the Service Commuted Retirement, except benefit commences once the member reaches minimum retirement age and 25 years have elapsed from the date of full-time hire.

- For members hired into an OP&F-covered position after July 1, 2013, the minimum retirement age is 52.
- For members hired into an OP&F-covered position on or before July 1, 2013, the minimum retirement age is 48.

TERMINATION BEFORE RETIREMENT WITH LESS THAN 15 YEARS OF SERVICE CREDIT

BENEFIT

A lump sum amount equal to the sum of the member's contributions to OP&F.

DEFERRED RETIREMENT OPTION PLAN

ELIGIBILITY

A member is eligible to participate in DROP when he or she is eligible for a normal service retirement.

- For members hired into an OP&F-covered position after July 1, 2013, normal service retirement eligibility is age 52 with at least 25 years of service credit.
- For members hired into an OP&F-covered position on or before July 1, 2013, normal service retirement eligibility is age 48 with at least 25 years of service credit.

BENEFIT

DROP is a cost neutral benefit offered by OP&F. Upon the DROP effective date, the member's pension is calculated as if that were their date of retirement. While the member continues to work and draw their normal salary, the amount they would have received in retirement benefits accumulates tax-deferred at OP&F on their behalf, as well as a portion of their OP&F employee contributions and interest. Since the member's pension has already been calculated:

- The years of DROP service do not apply towards the member's normal service retirement.
- If a member earns a higher salary after their DROP effective date due to a raise, job promotion, etc., it will not be used to recalculate their pension and, therefore, will not result in that member receiving a higher pension upon retirement.

The DROP interest rate is set by administrative rule and is subject to change at any time. OP&F credits interest to all DROP balances each month at a rate equal to the 10-year United States (U.S.) Treasury Note Business Day Series, as published by the U.S. Department of the Treasury, with a cap of 5.0% and a floor of 2.5%. This variable interest rate is compounded annually and adjusted quarterly to match the published 10-year U.S. Treasury Note rate for the last trading business day of the preceding quarter and is in effect for the subsequent quarter.

Members whose election to participate in DROP is effective after July 1, 2013 do not qualify for annual cost-of-living allowances (COLA) at any time during DROP. Members whose election to participate in DROP is effective on or before July 1, 2013 will continue to receive a cost-of-living allowance during DROP, but only when they reach 55 years of age and have been participating in DROP for at least one year. Those members whose enrollment date into DROP

qualify them for a cost-of-living allowance during DROP will receive 3.0% of their base pension.

Member contributions are credited to their DROP account based on the number of years of DROP service. For those members whose election to participate in DROP is effective after July 1, 2013, OP&F applies contributions to DROP in the following manner:

Years of DROP Service	Percentage of Member Contributions
Years 1-3	50% of member's contributions
Years 4-5	75% of member's contribution
Years 6-8	100% of member's contributions

For this group of members, the minimum participation in DROP, without penalty, is five years and the maximum is eight.

- If a member terminates employment within the first five years of electing to participate in DROP, then the member forfeits all of their DROP interest. In addition to losing their accumulated interest, members who choose to terminate employment before completing their required participation period cannot withdraw any of the funds in their DROP account until the minimum participation period has expired. The only exception to this rule is if the member dies during the minimum participation period. The member's surviving spouse, designated beneficiary or estate, as applicable, will receive the entire DROP account balance determined at the time of death.
- If a member chooses to continue working after eight years in DROP, the member forfeits all DROP benefits and receives the Normal Service Retirement benefit upon retirement, which will be calculated to include the service credit earned during the DROP participation period.

For those members whose election to participate in DROP was on or before July 1, 2013, member contributions are applied to DROP under the following schedule:

Years of DROP Service	Percentage of Member Contributions
Years 1-2	50% of member's contributions
Year 3	75% of member's contribution
Years 4-8	100% of member's contributions

For this group of members, the minimum participation in DROP, without penalty, is three years and the maximum is eight years.

- If a member terminates employment within the first three years of electing to participate in DROP, then the member forfeits all of their DROP interest. In addition to losing their accumulated interest, members who choose to terminate employment before completing their required participation period cannot withdraw any of the funds in their DROP account until the minimum participation period has expired. The only exception to this rule is if the member dies during the minimum participation period. The member's surviving spouse, designated beneficiary or estate, as applicable, will receive the entire DROP account balance determined at the time of death.
- If a member chooses to continue working after eight years in DROP, the member forfeits all DROP benefits and receives the Normal Service Retirement benefit upon retirement, which will be calculated to include the service credit earned during the DROP participation period.

All DROP members retiring before the eight-year max receive their Normal Service Retirement benefit determined at the time of DROP entry, with the COLA adjustment (if applicable) to their date of retirement when eligible. These members will also receive the DROP account balance as a lump sum or monthly distribution.

If a member dies while participating in DROP, the member's surviving spouse, designated beneficiary or estate will receive the entire DROP account balance determined at the time of death. Also, the member's surviving spouse or contingent dependent beneficiary will receive either a 50% joint and survivor annuity or the annuity plan selected by the member, whichever is greater. All other statutory death benefits will apply.

If the member becomes disabled while in DROP, and has not terminated employment, the member must choose either to receive a disability benefit or a service retirement with DROP. If the member chooses the disability benefit, the member forfeits all DROP benefits and receives the disability benefit, with service credit during the DROP period included.

DISABILITY BENEFITS

Members who become unable to perform their official duties and whose earning capacities are impaired may qualify for disability benefits. Disability benefits are classified as either service-incurred (on-duty) or non-service-incurred (off-duty) and differ in eligibility requirements and benefit formulas. Annual medical evaluations are required for disability benefit recipients who would not have met the age and service requirements for a Normal Service Retirement, unless the Board of Trustees waives this requirement based upon an OP&F physician's certification that the disability is ongoing and further evaluation would not be cost effective. Annual earnings statements are also required to be submitted to OP&F.

PERMANENT AND TOTAL DISABILITY (ON-DUTY)

ELIGIBILITY

No age or service requirement.

BENEFIT

An annual benefit equal to 72% of the allowable average annual salary.

PARTIAL DISABILITY (ON-DUTY)

ELIGIBILITY

No age or service requirement.

BENEFIT

If the member has less than 25 years of service credit, an annual benefit fixed by the Board of Trustees to be a certain percent up to 60% of the allowable average annual salary. If the member has 25 or more years of service credit, the annual disability benefit is equal to the Normal Service Retirement amount.

NON-SERVICE INCURRED DISABILITY (OFF-DUTY)

ELIGIBILITY

Any age and at least five years of service credit.

BENEFIT

An annual amount is the percent awarded by the Board of Trustees and may not exceed 60% of the allowable average annual salary. Service over 25 years cannot be used in calculating an off-duty disability award.

PRE-RETIREMENT SURVIVOR ANNUITY

ELIGIBILITY

Upon death before retirement, but after having satisfied the requirements for a Normal Service Retirement or an Age/Service Commuted retirement.

BENEFIT

The surviving spouse or contingent dependent beneficiary will receive the equivalent of a 50% joint and survivor annuity, calculated under the assumption that the decedent had retired effective the day following his/her death.

STATUTORY SURVIVOR BENEFITS**ELIGIBILITY**

Upon death of any active or retired member of OP&F.

BENEFIT*Surviving Spouse's Benefit*

An annual amount equal to \$6,600 (\$550 monthly), plus an annual COLA of 3.0% of the original base benefit, paid each July 1, beginning July 1, 2000. The benefit is paid to the surviving spouse for life.

Surviving Child's Benefit

An annual amount equal to \$1,800 (\$150 monthly), payable until such child attains age 22 or marries, whichever occurs first. A dependent disabled child, regardless of age at time of member's death, is entitled to a benefit until death or recovery from disability. A COLA of 3.0% of the original base is payable each July 1.

Dependent Parents' Benefit

If there is no surviving spouse or dependent children, an annual amount of \$2,400 (\$200 monthly) is payable to one dependent parent or \$1,200 (\$100 monthly) each to two dependent parents for life or until dependency ceases or remarriage. A COLA of 3.0% of the original base is payable each July 1.

Survivors	Monthly Pension	Causes of Termination
Widow / Widower	current amount + future COLA	Death
Child	current amount + future COLA	Death Marriage Attainment of age 22
Dependent disabled child	current amount + future COLA	Death Recovery from disability
One dependent parent	current amount + future COLA	Death Re-marriage
Two dependent parents	½ current amount (each) + future COLA	Termination of dependency

Benefit Type	Base Monthly Benefit Amount	Base Monthly Benefit Amount Plus Increases Through July 1, 2021	Monthly Increases Effective July 1, 2022
Spouse	\$550	\$908.60*	\$16.50
Child	150	247.80**	4.50
One Parent	200	330.40***	6.00
Two Parents	100	165.20	3.00

* On July 1, 2000 the Statutory Surviving Spouse Benefit increased by \$12.10 per month. This increase was a percentage of the original benefit amount, equaling the percentage increase in the CPI plus unused prior increases, to a maximum of 3.0%. Every year after 2000, the monthly increase was \$16.50 or 3.0% of the base benefit.

** On July 1, 2000 the Statutory Child Benefit increased by \$3.30 per month. This increase was a percentage of the original benefit amount, equaling the percentage increase in the CPI plus unused prior increases, to a maximum of 3.0%. Every year after 2000, the monthly increase was \$4.50 or 3.0% of base benefit.

*** On July 1, 2000 the Statutory Surviving One Parent Benefit increased by \$4.40 per month. This increase was a percentage of the original benefit amount, equaling the percentage increase in the CPI plus unused prior increases, to a maximum of 3.0%. Every year after 2000, the monthly increase was \$6.00 or 3.0% of base benefit.

LUMP SUM DEATH BENEFIT

ELIGIBILITY

Upon death of any retired or disabled member of OP&F.

BENEFIT

A lump sum payment of \$1,000 is paid to the member's surviving spouse or, if no surviving spouse, to a designated beneficiary. If there is no surviving spouse or beneficiary, then it is paid to the member's estate.

STATE OF OHIO PUBLIC SAFETY OFFICERS DEATH BENEFIT FUND (DBF)

BENEFIT

The Death Benefit Fund is funded by the State of Ohio and provides special benefits to eligible survivors of public safety officers who are killed in the line of duty or who die from injuries or disease incurred in the performance of official duties. These eligible survivors are entitled to receive the member's full monthly salary received by the public safety officer prior to his or her death in the line of duty, plus any increases in salary that would have been granted to the deceased public safety officer. The benefit is paid to the public safety officer's eligible survivors as a group until the public safety officer's maximum pension eligibility date. This is the date on which the deceased public safety officer would have become eligible for the maximum annual retirement allowance or pension that may be paid to a member from the member's retirement system (OP&F, OPERS, State Highway Patrol Retirement System or the Cincinnati Retirement System) had the member continued to accrue service credit from that system, which will be reduced at the member's maximum pension eligibility date. These death benefit payments are in addition to the statutory survivor benefit and any optional payment plan benefits elected by the member.

ANNUITIES

Effective Feb. 28, 1980, for those members who are retiring on either a service pension or a disability benefit, optional annuity plans can be chosen, subject to certain limitations. The member can elect actuarially reduced benefits under a joint and survivor annuity, life annuity certain and continuous, or multiple beneficiary annuity plan. The optional annuity plans allow the member's beneficiary(ies) to receive a lifetime payment upon the member's death.

ANNUITY TYPES

SINGLE LIFE ANNUITY

For unmarried members, this is the standard annuity plan. Married members may elect this plan only if the spouse consents to the selection in writing. This plan pays

the maximum retirement allowance that the member is entitled to receive and, upon the member's death, none of the pension or benefit is continued to any beneficiary.

JOINT AND SURVIVOR ANNUITY (JSA)

Under this plan, a member designates that, upon his or her death, a certain percentage of the member's actuarially reduced benefit is continued to a surviving designated beneficiary for life.

Any percentage between 1.0% and 100% of the member's reduced pension may be continued to the surviving designated beneficiary, but the percent continued may be limited based on the beneficiary's age. If a member is married at the time benefits are elected, the standard plan is a 50% JSA continuing one-half of the member's reduced monthly benefit to his or her surviving spouse. If the member wants to select a plan which provides for the continuation of benefits for someone other than the spouse or less than 50% JSA to the spouse, the spouse must consent in writing to this choice. This plan automatically terminates upon death of the beneficiary, to be effective the month following OP&F's receipt of notice of death. Also, this plan may be cancelled upon divorce or dissolution of marriage with the consent of the member's spouse or a specific court order, at which point the annuity reverts to the single life annuity to the member. An elected option may be cancelled within one year after benefits commence, with the consent of the beneficiary.

MULTIPLE BENEFICIARY ANNUITY

Under the multiple beneficiary annuity plan, a member may designate up to four beneficiaries at the time of retirement so that, upon death, a certain percentage of the member's actuarially reduced benefit is continued to the surviving beneficiaries for their lives. If the member is married at the time of retirement, the spouse must consent in writing for an annuity selection that provides for less than 50% JSA payable to the spouse.

LIFE ANNUITY CERTAIN AND CONTINUOUS (LACC)

This plan provides a lifetime allowance to the member and will only be paid to a designated beneficiary if the member dies and the period elected by the member has not expired. The minimum guarantee period is five years and the maximum is 20 years. 100% of the member's reduced pension continues to the beneficiary for the guarantee period selected. An elected option may be cancelled within one-year after benefits commence, with the consent of the beneficiary. If the member is married at the time of retirement, the spouse must consent in writing for an annuity selection that provides for less than a 50% JSA payable to the spouse.

TIERED RETIREMENT PLAN – COLA OR TERMINAL PAY (NON-COLA)

Members retiring on or after July 24, 1986, who had 15 or more years of service credit as of January 1, 1989, are eligible to select between two different pension calculation plans. Under the terminal pay method, a member's monthly pension benefit is calculated using terminal payouts at the time of retirement such as accrued sick leave and vacation compensation to increase the amount of the average annual salary, but subject to certain limitations, and these members are not eligible to receive cost-of-living allowance adjustments. Under the COLA method, terminal payments are not included in the calculation of a member's average annual salary, but the member is eligible to receive COLA increases. The COLA method is the automatic calculation method for any active member with fewer than 15 years of service as of January 1, 1989.

Under the COLA method, members who are at least 55 years old and have been receiving OP&F pension benefits for at least one year are eligible for cost-of-living allowance adjustments. The age 55 provision for receiving a COLA does not apply to those who are receiving a permanent and total disability benefit, surviving beneficiaries under optional plans and statutory survivors.

The COLA amount for members who have 15 or more years of service credit as of July 1, 2013, and members who are receiving a pension benefit that became effective before July 1, 2013, will be equal to 3.0% of the member's base pension benefit.

The COLA amount for members who have less than 15 years of service credit as of July 1, 2013, and members whose pension benefit became effective on or after July 1, 2013, will be equal to a percentage of the member's base pension benefit where the percentage is the lesser of 3.0% or the percentage increase in the consumer price index, if any, over the twelve-month period that ends on the thirtieth day of September of the immediately preceding year, rounded to the nearest one-tenth of one percent.

Members who retired prior to July 24, 1986, or their surviving beneficiaries under optional plans are entitled to cost-of-living allowance increases. The annual increase is paid on July 1st of each year. The annual COLA increase is \$360 under a Single Life Annuity Plan with proportional reductions for optional payment plans.

RE-EMPLOYED RETIREE'S DEFINED CONTRIBUTION PLAN BENEFIT

Effective June 30, 1991, every person who is retired under an Ohio public pension plan and who is re-employed in an OP&F covered position must contribute to OP&F at the same rate as other police officers or firefighters. The employer pays the normal rate as well. If the re-employed member terminates employment before age 60, Ohio law allows the member to receive a lump sum payment of post-retirement employee contributions made

during the period of re-employment, plus interest. If the member waits until age 60 to receive this benefit, he or she can choose to receive either a lump sum payment in an amount equal to twice his or her contributions, plus interest, or a lifetime annuity paid monthly. If, after calculation, the member's lifetime monthly annuity is less than \$25, the member may only select the lump sum payment option. If the member is married, spousal consent is required before payment can occur.

HEALTH CARE STIPEND AND MEDICARE

Although support for retiree health care is not a vested right and is a discretionary benefit from OP&F subject to change at any time, the Board of Trustees has elected to subsidize health care.

Beginning in 1974, OP&F sponsored a group health care program for retirees and their dependents by covering all or part of the plan premiums, in addition to paying all claims.

Effective July 1992, retirees and survivors made monthly medical benefit contributions which are credited to the Health Care Stabilization Fund. These contributions were reviewed on an annual basis to determine adequacy with the rising cost of health care. In 2004, a new contribution strategy was implemented. Retirees and survivors then paid a percentage of the full cost of the benefit based on the year of retirement. Due to the rising cost of health care and the primary source requirements of pension reform legislation enacted in 2013, OP&F is no longer able to offer a plan as in the past. On Dec. 31, 2018, the group health care plan ended.

On Jan. 1, 2019, a stipend-based health care model replaced the self-insured group health care plan. OP&F contracted with a vendor who assists eligible retirees in choosing health care plans that are available where they live (both Medicare eligible and pre-65 populations). A stipend funded by OP&F is available to these members through a Health Reimbursement Arrangement and can be used to reimburse retirees for qualified health care expenses. As a result of this change, it is expected that the solvency of the HCSF will be extended allowing OP&F to provide stipends to eligible participants.

Regardless of a benefit recipient's participation in the health care program, OP&F is required by law to pay eligible recipients of a service pension, disability benefit and spousal survivor benefit for their Medicare Part B insurance premium, up to the statutory maximum provided the benefit recipient is not eligible to receive reimbursement from any other source. Once OP&F receives the necessary documentation, a monthly reimbursement is included as part of the recipient's next benefit payment.

Note: This benefit is not included in the principal valuation results, but it is included in the results of the retiree health care valuation.

ANALYSIS OF FINANCIAL EXPERIENCE - PENSION TRUST FUND

GAIN/(LOSS) AS OF JAN. 1, 2021

Type of Activity	Experience Gain (Loss)
Plan experience:	
Turnover	\$(9,775,170)
If more liabilities are released by withdrawal separations from active membership than assumed, there is a gain. If smaller releases, there is a loss.	
Retirement	(77,855,153)
If members retire at older ages than assumed, there is a gain. If younger, there is a loss.	
Death among retired members and beneficiaries	(23,792,783)
If more deaths occur than assumed, there is a gain. If fewer deaths than assumed, there is a loss.	
Disability Retirements	11,252,059
If disability claims are less than assumed, there is a gain. If more claims, there is a loss.	
Salary increase/decrease	57,863,583
If there are smaller pay increases than assumed, there is a gain. If greater increases, there is a loss.	
Return to work	(1,684,844)
If participants return to work with previous service restored, there is a loss.	
New Entrants	(6,031,951)
If new entrants join OP&F, there is a loss.	
Deaths among actives	(469,122)
If claim costs are less than assumed, there is a gain. If more claim costs, there is a loss.	
Other Experience and Payroll Growth	141,764,732
If other experience, including less than expected payroll growth, increases the unfunded liability, there is a loss. Otherwise, there is a gain.	
Adjustment for Late Reported Pays	2,220,399
Change in liability due to the pay being loaded to reflect late reported pay.	
Investment	134,992,475
If there is a greater investment return than assumed, there is a gain. If less return, there is a loss.	
NET GAIN (OR LOSS) DURING THE YEAR DUE TO PLAN EXPERIENCE	\$228,484,225

SHORT-TERM SOLVENCY TEST

A short-term solvency test is one means of checking a system's progress under its funding program. In a short-term solvency test, the plan's valuation assets are compared with: (1) Active member contributions on deposit; (2) The liability for future benefits to present retired lived; (3) The liability for service already rendered by active members. In a system that has been following the discipline of level percent of payroll financing, the liability for active member contributions on deposit (Liability 1) and the liabilities for future benefits

to present retired lives (Liability 2) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by active members (Liability 3) will be partially covered by the remainder of present assets. Generally, if the system has been using level cost financing, the funding portion of the liability 3 will increase over time. Liability 3 being fully funded is very rare.

SHORT-TERM SOLVENCY TEST - PENSION TRUST FUND

(DOLLARS IN THOUSANDS)

	Valuation as of Jan. 1	(1) Active Member Contributions	(2) Retirees and Beneficiaries	(3) Active Members (Employer Financed Portion)	Valuation Assets	Portion of Accrued Liabilities Covered by Valuation Assets		
						(1)	(2)	(3)
Police	2021	\$1,703,012	\$7,687,534	\$3,015,833	\$8,833,660	100%	93%	-%
Fire	2021	1,552,817	5,881,373	2,788,022	7,278,477	100%	97%	-%
Police	2020	1,650,362	7,361,618	3,077,379	8,423,682	100%	92%	-%
Fire	2020	1,489,023	5,589,542	2,876,359	6,936,441	100%	97%	-%
Police	2019	1,584,057	7,107,922	2,987,107	8,102,788	100%	92%	-%
Fire	2019	1,423,619	5,373,749	2,788,255	6,650,372	100%	97%	-%
Police	2018	1,515,993	6,870,423	3,138,109	8,052,548	100%	95%	-%
Fire	2018	1,345,237	5,150,080	2,867,386	6,542,014	100%	100%	2%
Police	2017	1,451,473	6,576,192	3,184,383	7,825,895	100%	97%	-%
Fire	2017	1,276,582	4,922,990	2,878,774	6,336,593	100%	100%	5%
Police	2016	1,386,649	6,085,896	3,002,889	7,473,979	100%	100%	-%
Fire	2016	1,213,330	4,614,250	2,832,862	6,179,025	100%	100%	12%
Police	2015	1,210,400	5,857,146	3,015,390	7,141,575	100%	100%	2%
Fire	2015	1,062,097	4,337,819	2,912,741	5,887,716	100%	100%	17%
Police	2014	1,171,496	5,368,637	2,583,711	6,088,816	100%	92%	-%
Fire	2014	1,028,465	3,924,388	2,501,058	4,974,383	100%	100%	1%
Police	2013	1,131,664	5,166,808	2,532,580	5,670,069	100%	88%	-%
Fire	2013	974,362	3,751,279	2,451,195	4,607,962	100%	97%	-%
Police	2012	1,100,146	4,960,051	2,969,900	5,694,783	100%	93%	-%
Fire	2012	965,598	3,581,800	2,769,204	4,614,176	100%	100%	2%

ACTIVE MEMBER VALUATION DATA - PENSION TRUST FUND

Valuation as of Jan. 1	Number of Employers		Number of Active Members*		Average Annual Salary		Percentage of Average Annual Salary Increases		Annual Payroll (Millions)
	Police	Fire	Police	Fire	Police	Fire	Police	Fire	
2021	527	426	15,620	13,743	\$81,303	\$84,632	2.2%	3.4%	\$2,381.8
2020	525	419	15,840	13,711	79,568	81,845	2.6%	2.8%	2,313.6
2019	526	408	15,630	13,457	77,544	79,579	1.5%	2.2%	2,218.0
2018	528	398	15,214	13,194	76,397	77,870	0.8%	0.4%	2,209.3
2017	530	396	15,205	12,970	75,772	77,583	3.8%	4.5%	2,180.9
2016	527	388	14,846	12,778	72,976	74,229	4.2%	4.2%	2,060.9
2015	529	388	14,919	12,850	70,033	71,228	1.9%	1.6%	1,986.6
2014	532	386	14,841	12,764	68,724	70,087	0.8%	1.0%	1,942.3
2013	531	380	14,745	12,699	68,163	69,360	1.6%	1.0%	1,913.4
2012	537	380	14,854	12,769	67,094	68,663	2.2%	1.6%	1,897.4

* Includes rehired retirees.

RETIREES AND BENEFICIARIES ADDED TO AND REMOVED FROM ROLLS - PENSION TRUST FUND
(DOLLARS IN THOUSANDS)

Year Ended Dec. 31	Added to rolls		Removed from rolls		Rolls end of year		Percentage Change in Allowance	Average Annual Allowances	Percentage Change in Membership
	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances			
2020	1,550	\$79,764	1,169	\$31,201	30,372	\$1,199,289	4.22%	\$39.49	1.27%
2019	1,552	73,909	1,127	29,045	29,991	1,150,725	4.06%	38.37	1.44%
2018	1,292	66,129	1,087	28,036	29,566	1,105,862	3.57%	37.40	0.70%
2017	1,458	50,476	1,010	24,321	29,361	1,067,769	4.53%	36.37	1.55%
2016	1,401	47,436	890	21,186	28,913	1,021,509	4.67%	35.33	1.80%
2015	1,450	48,864	1,011	22,141	28,402	975,929	4.81%	34.36	1.57%
2014	1,261	41,378	859	17,204	27,963	931,176	4.59%	33.30	1.46%
2013	1,362	44,842	1,044	23,851	27,561	890,288	4.42%	32.30	1.17%
2012	1,390	48,249	1,225	19,469	27,243	852,602	5.58%	31.30	0.61%
2011	1,783	65,572	779	16,397	27,078	807,550	8.52%	29.82	3.85%

CALCULATION OF ACTUARIAL VALUE OF ASSETS - PENSION TRUST FUND

Item	Amount				
1. Market Value of Assets as of Dec. 31, 2020	\$16,411,125,257				
2. Determination of Deferred Gain (Loss)					
Return on Market Value of Assets					
Year	Actual	Expected	Gain/(Loss)	Percentage Deferred	Deferred Amount
2020	\$1,361,969,084	\$1,227,428,820	\$134,540,264	75%	\$100,905,198
2019	2,304,356,918	1,090,925,194	1,213,431,724	50%	606,715,862
2018	(460,216,086)	1,174,313,569	(1,634,529,655)	25%	(408,632,414)
2017	1,808,150,698	1,073,514,102	734,636,596	-%	-
Total Deferred Gain (Loss)					298,988,645
Total Deferred Gain					298,988,645
3. Adjustment for 20% corridor					-
4. Actuarial Value of Assets available for benefits (1) - (2) + (3)					\$16,112,136,611

SCHEDULE OF FUNDING PROGRESS - PENSION TRUST FUND

FOR THE VALUATION YEAR ENDING JAN. 1, 2021
(DOLLARS IN MILLIONS)

Valuation Year Jan. 1	Valuation Assets*	Actuarial Accrued Liabilities (AAL)	Unfunded Actuarial Accrued Liabilities (UAAL)	Ratio of Assets to AAL	Active Member Payroll	UAAL as a Percentage of Active Member Payroll
2021	\$16,112.1	\$22,628.6	\$6,516.5	71.2%	\$2,381.8	273.6%
2020	15,360.1	22,044.3	6,684.2	69.7%	2,313.6	288.9%
2019	14,753.2	21,264.7	6,511.5	69.4%	2,218.0	293.6%
2018	14,594.6	20,887.2	6,292.6	69.9%	2,209.3	284.8%
2017	14,162.5	20,290.4	6,127.9	69.8%	2,180.9	281.0%
2016	13,653.0	19,135.9	5,482.9	71.3%	2,060.9	266.1%
2015	13,029.3	18,395.6	5,366.3	70.8%	1,986.6	270.1%
2014	11,063.2	16,577.8	5,514.6	66.7%	1,942.3	283.9%
2013	10,278.0	16,007.9	5,729.9	64.2%	1,913.4	299.5%
2012	10,309.0	16,346.7	6,037.7	63.1%	1,897.4	318.2%

* The amounts reported in this schedule do not include assets or liabilities for post-employment health care benefits.

EMPLOYER CONTRIBUTION RATES

(1967 - PRESENT)*

Time Frame of Rates	Employer Rates	
	Police	Fire
Jan. 1, 1986 thru Present	19.50%	24.00%
Jan. 1, 1985 thru Dec. 31, 1985	20.03%	24.59%
Jan. 1, 1984 thru Dec. 31, 1984	21.35%	24.59%
Jan. 1, 1983 thru Dec. 31, 1983	18.45%	23.57%
Jan. 1, 1982 thru Dec. 31, 1982	16.62%	22.39%
Jan. 1, 1981 thru Dec. 31, 1981	15.60%	20.72%
Jan. 1, 1980 thru Dec. 31, 1980	15.70%	19.87%
Jan. 1, 1979 thru Dec. 31, 1979	18.40%	20.11%
Jan. 1, 1978 thru Dec. 31, 1978	17.53%	18.90%
Jan. 1, 1977 thru Dec. 31, 1977	15.34%	16.77%
Jan. 1, 1976 thru Dec. 31, 1976	14.02%	15.57%
Jan. 1, 1975 thru Dec. 31, 1975	12.49%	13.78%
Jan. 1, 1974 thru Dec. 31, 1974	12.88%	13.60%
Jan. 1, 1973 thru Dec. 31, 1973	12.85%	13.41%
Jan. 1, 1972 thru Dec. 31, 1972	12.96%	13.26%
Jan. 1, 1971 thru Dec. 31, 1971	12.81%	12.96%
Jan. 1, 1970 thru Dec. 31, 1970	15.52%	15.52%
Jan. 1, 1969 thru Dec. 31, 1969	14.68%	14.49%
Jan. 1, 1968 thru Dec. 31, 1968	13.66%	13.50%
Jan. 1, 1967 thru Dec. 31, 1967	13.55%	13.13%

* For employer billing purposes, the September 1988 billing was carried through Sept. 30, 1988 and was not cut off at Sept. 8, 1988. The same goes for the employee rates for the most part.

MEMBER CONTRIBUTION RATES

Time Frame of Rates	Member Rates	
	Police	Fire
July 2, 2015 thru Present	12.25%	12.25%
July 2, 2014 thru July 1, 2015	11.50%	11.50%
July 2, 2013 thru July 1, 2014	10.75%	10.75%
Sept. 9, 1988 thru July 1, 2013	10.00%	10.00%
Aug. 1, 1986 thru Sept. 8, 1988	9.50%	9.50%
March 1, 1980 thru July 31, 1986	8.50%	8.50%
Jan. 1, 1968 thru Feb. 28, 1980	7.00%	7.00%
Jan. 1, 1967 thru Dec. 31, 1967	6.00%	6.00%



STATISTICAL

2021 ANNUAL COMPREHENSIVE FINANCIAL REPORT



STATISTICAL OBJECTIVES

FINANCIAL TRENDS

Changes in Fiduciary Net Position

Revenues by Source

Expenses by Type

Benefit Expenses by Type

DROP Program Balances

REVENUE CAPACITY INFORMATION

Active Member and Total Payroll Base Statistics

Active Membership Data

Retired Membership by Type of Benefits

Retirees and Beneficiaries Statistics

Average Monthly Benefit Payments

Member Health Care Information

State of Ohio Subsidy Payments

OP&F's Cost-of-Living Allowance (COLA) History

Employer Contribution Rates

Member Contribution Rates

Health Care Allocation Rates from Employer Contributions

Actuarial Interest Rates

DROP and Re-employed Interest Rates

DROP Member Count Roll Forward

Actuarial Valuation Information – Pension Trust Fund

Historical Annual Investment Results

DEBT CAPACITY INFORMATION

DEMOGRAPHIC AND ECONOMIC INFORMATION

Number of Employer Units

OPERATING INFORMATION

Retired Membership by Type of Benefits and Average Annual Allowance

Schedule of Average Benefits

Principal Participating Employers

OP&F Employee Budgeted Position Counts

Personnel Salaries by Year

OP&F Budget

Other Operating Statistics

Death Benefit Fund

LIST OF PROFESSIONAL ACRONYMS, SYMBOLS AND ABBREVIATIONS

STATISTICAL OBJECTIVES

The objectives of the statistical section are to provide additional historical perspective, context and relevant details to assist readers in using information in the financial statements, notes to the financial statements and RSI in order to understand and assess OP&F's overall financial condition. In support of these objectives, OP&F reports information in this section in compliance with GASB Statement 44, Economic Condition Reporting: The Statistical Section. This statement establishes standardized reporting requirements relative to the supplementary information provided in this section.

The schedules that follow show financial trend information about the growth of OP&F's assets for the past 10 years. These schedules provide detailed information about the trends of key sources of additions and deductions to OP&F's assets, which assist in providing a context framing how OP&F's financial position has changed over time. The financial trend schedules presented are:

- Changes in Fiduciary Net Position.
- Revenues by Source.
- Expenses by Type.
- Benefit Expenses by Type.
- DROP Program Balances.

The schedules beginning on Page 111 show revenue capacity information, demographic and economic information and operating information. The demographic and economic information is designed to assist in understanding the environment in which OP&F operates. The operating information is intended to provide contextual information about OP&F's operations to assist in assessing OP&F's economic condition. The revenue capacity information, the demographic and economic information and the operating information presented include:

- Active Member and Total Payroll Base Statistics.
- Active Membership Data.
- Retired Membership by Type of Benefits.
- Retirees and Beneficiaries Statistics.
- Average Monthly Benefit Payments.
- Member Health Care Information.
- State of Ohio Subsidy Payments.
- OP&F's Cost-of-Living Allowance (COLA) History.
- Employer Contribution Rates.

- Member Contribution Rates.
- Health Care Allocation Rates from Employer Contributions.
- Actuarial Interest Rates.
- DROP and Reemployed Interest Rates.
- DROP Member Count Roll Forward.
- Actuarial Valuation Information – Pension Trust Fund.
- Historical Annual Investment Results.
- Number of Employer Units.
- Retired Membership by Type of Benefits and Average Annual Allowance.
- Schedule of Average Benefits.
- Principal Participating Employers.
- OP&F Employee Budgeted Position Counts.
- Personnel Salaries by Year.
- OP&F Budget.
- Other Operating Statistics.
- Death Benefit Fund.

To help readers of this ACFR, OP&F has added a List of Professional Acronyms, Symbols and Abbreviations at the end of the statistical section.

FINANCIAL TRENDS

CHANGES IN FIDUCIARY NET POSITION COMBINED TRUST FUND (DOLLARS IN MILLIONS)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Additions										
Employer Contributions	\$552.1	\$530.6	\$514.3	\$489.9	\$473.2	\$465.4	\$438.7	\$427.8	\$418.2	\$417.0
Member Contributions and Purchases	337.0	312.6	303.4	295.5	282.0	268.6	245.8	224.0	211.4	177.5
Investment Income	3,192.8	1,436.7	2,434.3	(487.9)	1,923.5	1,317.4	(10.0)	860.7	2,053.0	1,657.9
Health Care Contributions	-	-	0.5	73.2	74.5	73.2	71.2	70.0	66.6	65.1
Other Revenues	1.2	1.4	20.5	24.9	28.6	36.3	29.2	25.2	28.5	30.7
TOTAL ADDITIONS	4,083.1	2,281.3	3,273.0	395.6	2,781.8	2,160.9	774.9	1,607.7	2,777.7	2,348.2
Deductions										
Benefit Payments	1,598.2	1,467.2	1,457.1	1,514.1	1,429.2	1,396.4	1,369.9	1,310.5	1,302.5	1,236.4
Refund of Member Contributions	24.1	17.5	13.7	18.3	20.6	14.2	13.8	15.2	16.0	26.5
Administrative Expenses	9.9	19.2	21.8	17.0	20.3	19.6	16.3	16.2	15.9	15.4
TOTAL DEDUCTIONS	1,632.2	1,503.9	1,492.6	1,549.4	1,470.1	1,430.2	1,400.0	1,341.9	1,334.4	1,278.3
CHANGES IN FIDUCIARY NET POSITION	2,450.9	777.4	1,780.4	(1,153.8)	1,311.7	730.7	(625.1)	265.8	1,443.3	1,069.9
FIDUCIARY NET POSITION - BEGINNING OF YEAR	\$17,292.7	\$16,515.3	\$14,734.9	\$15,888.7	\$14,577.0*	\$13,853.3	\$14,478.4**	\$14,219.6	\$12,776.3***	\$10,468.5
FIDUCIARY NET POSITION - END OF YEAR	\$19,743.6	\$17,292.7	\$16,515.3	\$14,734.9	\$15,881.7	\$14,584.0	\$13,853.3	\$14,485.4	\$14,219.6	\$11,538.4
Reserve Fund Balances:										
Employers' Contribution Reserves	\$2,712.6	\$1,030.8	\$883.3	\$(291.5)	\$1,535.3	\$1,155.8	\$1,058.3	\$2,701.1	\$2,907.9	\$873.8
Members' Contribution Reserves	3,462.1	3,310.7	3,150.3	3,005.9	2,861.2	2,728.1	2,600.0	2,491.3	2,393.7	2,122.8
Health Care Contribution Reserves	966.7	881.6	878.7	793.8	932.1	901.6	929.4	1,031.9	1,053.5	935.6
Pension Reserves	12,602.2	12,069.6	11,603.0	11,226.7	10,560.1	9,798.5	9,265.6	8,261.1	7,864.5	7,606.2
TOTAL FIDUCIARY NET POSITION	\$19,743.6	\$17,292.7	\$16,515.3	\$14,734.9	\$15,881.7	\$14,584.0	\$13,853.3	\$14,485.4	\$14,219.6	\$11,538.4

* Net Position was restated due to the implementation of GASB 75 during 2018.

** Net Position was restated due to the implementation of GASB 68 during 2015.

*** Net Position was restated due to the implementation of GASB 67 during 2014.

CHANGES IN FIDUCIARY NET POSITION

PENSION TRUST FUND (DOLLARS IN MILLIONS)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Additions										
Employer Contributions	\$539.3	\$518.4	\$502.3	\$478.6	\$462.3	\$454.7	\$428.5	\$418.0	\$349.5	\$286.7
Member Contributions and Purchases	337.0	312.6	303.4	295.5	282.0	268.6	245.8	224.0	211.4	177.5
Investment Income	3,033.5	1,362.0	2,304.3	(460.3)	1,808.1	1,232.6	(16.7)	779.8	1,893.9	1,531.0
Health Care Contributions	-	-	-	-	-	-	-	-	-	-
Other Revenues	1.0	0.8	0.9	1.5	4.5	8.4	5.9	7.2	12.9	9.5
TOTAL ADDITIONS	3,910.8	2,193.8	3,110.9	315.3	2,556.9	1,964.3	663.5	1,429.0	2,467.7	2,004.7
Deductions										
Benefit Payments	1,511.2	1,382.9	1,380.3	1,296.2	1,235.6	1,172.8	1,156.7	1,110.9	1,111.2	1,049.0
Refund of Member Contributions	24.1	17.5	13.7	18.3	20.6	14.2	13.8	15.2	16.0	26.5
Administrative Expenses	9.7	18.9	21.4	16.3	19.5	18.8	15.6	15.5	15.1	14.8
TOTAL DEDUCTIONS	1,545.0	1,419.3	1,415.4	1,330.8	1,275.7	1,205.8	1,186.1	1,141.6	1,142.3	1,090.3
CHANGES IN FIDUCIARY NET POSITION	2,365.8	774.5	1,695.5	(1,015.5)	1,281.2	758.5	(522.6)	287.4	1,325.4	914.4
FIDUCIARY NET POSITION - BEGINNING OF YEAR	\$16,411.1	\$15,636.6	\$13,941.1	\$14,956.6	\$13,675.4*	\$12,923.9	\$13,446.5**	\$13,166.1	\$11,840.7***	\$9,688.4
FIDUCIARY NET POSITION - END OF YEAR	\$18,776.9	\$16,411.1	\$15,636.6	\$13,941.1	\$14,956.6	\$13,682.4	\$12,923.9	\$13,453.5	\$13,166.1	\$10,602.8
Reserve Fund Balances:										
Employers' Contribution Reserves	\$2,712.6	\$1,030.8	\$883.3	\$(291.5)	\$1,535.3	\$1,155.8	\$1,058.3	\$2,701.1	\$2,907.9	\$873.8
Members' Contribution Reserves	3,462.1	3,310.7	3,150.3	3,005.9	2,861.2	2,728.1	2,600.0	2,491.3	2,393.7	2,122.8
Pension Reserves	12,602.2	12,069.6	11,603.0	11,226.7	10,560.1	9,798.5	9,265.6	8,261.1	7,864.5	7,606.2
TOTAL FIDUCIARY NET POSITION	\$18,776.9	\$16,411.1	\$15,636.6	\$13,941.1	\$14,956.6	\$13,682.4	\$12,923.9	\$13,453.5	\$13,166.1	\$10,602.8

* Net Position was restated due to the implementation of GASB 75 during 2018.

** Net Position was restated due to the implementation of GASB 68 during 2015.

*** Net Position was restated due to the implementation of GASB 67 during 2014.

CHANGES IN FIDUCIARY NET POSITION

RETIREE HEALTH CARE TRUST FUND (DOLLARS IN MILLIONS)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Additions										
Employer Contributions	\$12.8	\$12.2	\$12.0	\$11.3	\$10.9	\$10.7	\$10.2	\$9.8	\$68.7	\$130.3
Member Contributions and Purchases	-	-	-	-	-	-	-	-	-	-
Investment Income	159.3	74.7	130.0	(27.6)	115.4	84.8	6.7	80.9	159.1	126.9
Health Care Contributions	-	-	0.5	73.2	74.5	73.2	71.2	70.0	66.6	65.1
Other Revenues	0.2	0.6	19.6	23.4	24.1	27.9	23.3	18.0	15.6	21.2
TOTAL ADDITIONS	172.3	87.5	162.1	80.3	224.9	196.6	111.4	178.7	310.0	343.5
Deductions										
Benefit Payments	87.0	84.3	76.8	217.9	193.6	223.6	213.2	199.6	191.3	187.4
Refund of Member Contributions	-	-	-	-	-	-	-	-	-	-
Administrative Expenses	0.2	0.3	0.4	0.7	0.8	0.8	0.7	0.7	0.8	0.6
TOTAL DEDUCTIONS	87.2	84.6	77.2	218.6	194.4	224.4	213.9	200.3	192.1	188.0
CHANGES IN FIDUCIARY NET POSITION	85.1	2.9	84.9	(138.3)	30.5	(27.8)	(102.5)	(21.6)	117.9	155.5
FIDUCIARY NET POSITION - BEGINNING OF YEAR	\$881.6	\$878.7	\$793.8	\$932.1	\$901.6	\$929.4	\$1,031.9	\$1,053.5	\$935.6	\$780.1
FIDUCIARY NET POSITION - END OF YEAR	\$966.7	\$881.6	\$878.7	\$793.8	\$932.1	\$901.6	\$929.4	\$1,031.9	\$1,053.5	\$935.6
Reserve Fund Balances:										
Health Care Contribution Reserves	\$966.7	\$881.6	\$878.7	\$793.8	\$932.1	\$901.6	\$929.4	\$1,031.9	\$1,053.5	\$935.6
TOTAL FIDUCIARY NET POSITION	\$966.7	\$881.6	\$878.7	\$793.8	\$932.1	\$901.6	\$929.4	\$1,031.9	\$1,053.5	\$935.6

REVENUES BY SOURCE

(DOLLARS IN MILLIONS)

Year	Employer Contributions	Member Contributions and Purchases	Employer Contributions as a Percentage of Covered Payroll	Investment and Securities Lending Income	Health Care Contributions	Other Revenues	Total Revenues
2021	\$552.1	\$337.0	23.2%	\$3,192.8	\$-	\$1.2	\$4,083.1
2020	530.6	312.6	22.9%	1,436.7	-	1.4	2,281.3
2019	514.3	303.4	23.2%	2,434.3	0.5	20.5	3,273.0
2018	489.9	295.5	22.2%	(487.9)	73.2	24.9	395.6
2017	473.2	282.0	21.7%	1,923.5	74.5	28.6	2,781.8
2016	465.4	268.6	22.6%	1,317.4	73.2	36.3	2,160.9
2015	438.7	245.8	22.1%	(10.0)	71.2	29.2	774.9
2014	427.8	224.0	22.0%	860.7	70.0	25.2	1,607.7
2013	418.2	211.4	21.9%	2,053.0	66.6	28.5	2,777.7
2012	417.0	177.5	22.0%	1,657.9	65.1	30.7	2,348.2

EXPENSES BY TYPE

(DOLLARS IN MILLIONS)

Year	Benefit Payments	Refund of Member Contributions	Administrative Expenses	Total Expenses
2021	\$1,598.2	\$24.1	\$9.9	\$1,632.2
2020	1,467.2	17.5	19.2	1,503.9
2019	1,457.1	13.7	21.8	1,492.6
2018	1,514.1	18.3	17.0	1,549.4
2017	1,429.2	20.6	20.3	1,470.1
2016	1,396.4	14.2	19.6	1,430.2
2015	1,369.9	13.8	16.3	1,400.0
2014	1,310.5	15.2	16.2	1,341.9
2013	1,302.5	16.0	15.9	1,334.4
2012	1,236.4	26.5	15.4	1,278.3

BENEFIT EXPENSES BY TYPE

(DOLLARS IN MILLIONS)

Year	Service	Disability	Health Care	Survivor	DROP	Total Benefits
2021	\$878.7	\$259.6	\$87.0	\$97.9	\$275.0	\$1,598.2
2020	828.6	258.8	84.3	94.8	200.7	1,467.2
2019	789.1	257.4	76.8	92.5	241.3	1,457.1
2018	749.2	254.3	217.9	89.7	203.0	1,514.1
2017	710.3	252.0	193.6	86.9	186.4	1,429.2
2016	672.6	248.9	223.6	84.6	166.7	1,396.4
2015	631.6	245.7	213.2	82.1	197.3	1,369.9
2014	598.8	242.1	199.6	79.6	190.4	1,310.5
2013	563.2	239.0	191.3	76.8	232.2	1,302.5
2012	529.9	232.8	187.4	74.2	212.1	1,236.4

DEFERRED RETIREMENT OPTION PLAN (DROP) PROGRAM BALANCES

(DOLLARS IN MILLIONS)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Police										
DROP Program Beginning Balance	\$991.5	\$921.6	\$880.2	\$819.3	\$770.6	\$721.9	\$687.8	\$661.0	\$666.5	\$694.7
Accrued Pension and COLA	135.4	131.7	123.7	117.4	111.3	108.2	103.0	97.6	95.4	90.7
Accrued Member Share Contributions	19.8	19.1	18.1	17.3	16.8	18.7	15.2	12.3	11.9	11.3
Accrued Interest	23.1	22.5	18.8	22.4	18.2	13.8	14.6	15.1	14.2	17.8
Withdrawals	(145.7)	(103.4)	(119.2)	(96.2)	(97.6)	(92.0)	(98.7)	(98.2)	(127.0)	(148.0)
DROP PROGRAM ENDING BALANCE - POLICE	1,024.1	991.5	921.6	880.2	819.3	770.6	721.9	687.8	661.0	666.5
Fire										
DROP Program Beginning Balance	846.9	793.4	776.3	739.9	692.2	641.0	616.4	584.6	571.4	593.1
Accrued Pension and COLA	116.2	114.8	111.0	108.3	104.1	101.3	101.3	97.8	94.0	88.4
Accrued Member Share Contributions	18.2	17.3	16.4	16.2	15.9	17.2	14.9	12.9	12.0	11.0
Accrued Interest	20.1	19.2	16.5	20.2	16.5	12.2	13.1	13.3	12.4	15.2
Withdrawals	(129.6)	(97.8)	(126.8)	(108.3)	(88.8)	(79.5)	(104.7)	(92.2)	(105.2)	(136.3)
DROP PROGRAM ENDING BALANCE - FIRE	871.8	846.9	793.4	776.3	739.9	692.2	641.0	616.4	584.6	571.4
Combined Police and Fire										
DROP Program Beginning Balance	1,838.4	1,715.0	1,656.5	1,559.2	1,462.8	1,362.9	1,304.2	1,245.6	1,237.9	1,287.8
Accrued Pension and COLA	251.6	246.5	234.7	225.7	215.4	209.5	204.3	195.4	189.4	179.1
Accrued Member Share Contributions	38.0	36.4	34.5	33.5	32.7	35.9	30.1	25.2	23.9	22.3
Accrued Interest	43.2	41.7	35.3	42.6	34.7	26.0	27.7	28.4	26.6	33.0
Withdrawals	(275.3)	(201.2)	(246.0)	(204.5)	(186.4)	(171.5)	(203.4)	(190.4)	(232.2)	(284.3)
DROP PROGRAM ENDING BALANCE - COMBINED	\$1,895.9	\$1,838.4	\$1,715.0	\$1,656.5	\$1,559.2	\$1,462.8	\$1,362.9	\$1,304.2	\$1,245.6	\$1,237.9

REVENUE CAPACITY INFORMATION

ACTIVE MEMBER AND TOTAL PAYROLL BASE STATISTICS

(DOLLARS IN MILLIONS)

10-YEAR HISTORY OF MEMBERSHIP DATA*

Year	Total Annual Payroll	Member Contributions	Number of Active Members*	Percentage Change in Payroll	Percentage Change in Member Contributions	Percentage Change in Members
2021	\$2,381.8	\$337.0	29,363	2.9%	7.8%	(0.6)%
2020	2,313.6	312.6	29,551	4.3%	3.0%	1.6%
2019	2,218.0	303.4	29,087	0.4%	2.7%	2.4%
2018	2,209.3	295.5	28,408	1.3%	4.8%	0.8%
2017	2,180.9	282.0	28,175	5.8%	5.0%	2.0%
2016	2,060.9	268.6	27,624	3.7%	9.3%	(0.5)%
2015	1,986.6	245.8	27,769	2.3%	9.7%	0.6%
2014	1,942.3	224.0	27,605	1.5%	6.0%	0.6%
2013	1,913.4	211.4	27,444	0.8%	19.1%	(0.6)%
2012	1,897.4	177.5	27,623	1.5%	0.4%	(2.1)%

* Includes rehired retirees.

ACTIVE MEMBERSHIP DATA

NUMBER AND ALLOWABLE AVERAGE ANNUAL SALARY AS OF JAN. 1, 2021*

Age	Years of Service									TOTAL	
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40+		
Under 25	1,130	2									1,132
	\$56,743	\$67,767									\$56,763
25-29	2,932	507									3,439
	\$63,879	\$77,489									\$65,886
30-34	2,004	2,053	293								4,350
	\$65,376	\$79,953	\$88,563								\$73,818
35-39	868	1,441	1,518	366	3						4,196
	\$65,325	\$80,508	\$87,270	\$94,078	\$94,252						\$81,007
40-44	307	584	964	1,396	632	2					3,885
	\$61,058	\$79,191	\$85,763	\$91,970	\$95,868	\$91,834					\$86,700
45-49	149	169	419	1,009	2,153	622	11				4,532
	\$60,160	\$77,349	\$84,481	\$87,880	\$95,004	\$100,221	\$92,004				\$91,350
50-54	51	71	171	477	1,358	1,780	659	10	2		4,579
	\$62,537	\$76,177	\$81,863	\$85,880	\$92,386	\$97,711	\$101,198	\$102,711	\$91,549		\$94,092
55-59	25	23	59	154	416	774	813	57	-		2,321
	\$61,040	\$76,169	\$77,999	\$84,593	\$91,201	\$93,533	\$99,288	\$108,321	-		\$93,984
60-64	6	10	16	39	109	199	194	28	5		606
	\$51,010	\$61,908	\$75,226	\$77,321	\$88,369	\$88,952	\$94,715	\$102,615	\$112,681		\$89,586
Over 64	-	4	8	9	16	28	19	8	6		98
	\$-	\$61,913	\$66,020	\$85,336	\$88,633	\$89,570	\$89,394	\$94,523	\$110,495		\$87,628
TOTAL	7,472	4,864	3,448	3,450	4,687	3,405	1,696	103	13		29,138
	\$63,150	\$79,549	\$86,088	\$89,643	\$93,848	\$96,637	\$99,349	\$105,153	\$108,421		\$82,866

* Excludes rehired retirees.

RETIRED MEMBERSHIP BY TYPE OF BENEFITS

(SOURCE: ACTUARIAL VALUATION)

AS OF JAN. 1, 2021

Year	Service		Survivors		Disability		Total Beneficiaries
	Police	Fire	Police	Fire	Police	Fire	
2021	9,270	7,162	3,515	2,449	4,624	3,352	30,372
2020	8,995	6,948	4,592	3,394	3,582	2,480	29,991
2019	8,729	6,759	4,560	3,398	3,634	2,486	29,566
2018	8,558	6,612	4,540	3,414	3,710	2,527	29,361
2017	8,307	6,406	4,484	3,433	3,732	2,551	28,913
2016	8,048	6,207	4,424	3,406	3,754	2,563	28,402
2015	7,842	5,972	4,403	3,386	3,784	2,576	27,963
2014	7,623	5,784	4,395	3,351	3,820	2,588	27,561
2013	7,459	5,683	4,352	3,321	3,834	2,594	27,243
2012	7,204	5,540	4,543	3,389	3,825	2,577	27,078

RETIREES AND BENEFICIARIES STATISTICS

(DOLLARS IN MILLIONS)

Year	Benefit Payments*	Refunds	Total Payments*	Number of Benefit Recipients**	Percentage Change in Benefit Recipients	Percentage Change in Total Benefit Payments
2021	\$1,511.2	\$24.1	\$1,535.3	30,414	1.3%	9.6%
2020	1,382.9	17.5	1,400.4	30,014	0.7%	0.5%
2019	1,380.3	13.7	1,394.0	29,792	0.3%	6.0%
2018	1,296.2	18.3	1,314.5	29,707	2.0%	4.6%
2017	1,235.6	20.6	1,256.2	29,113	1.7%	5.8%
2016	1,172.8	14.2	1,187.0	28,638	1.8%	1.4%
2015	1,156.7	13.8	1,170.5	28,143	1.6%	3.9%
2014	1,110.9	15.2	1,126.1	27,703	1.2%	(0.1)%
2013	1,111.2	16.0	1,127.2	27,380	0.7%	4.8%
2012	1,049.0	26.5	1,075.5	27,184	3.7%	2.4%

* Excludes health care benefits.

** Includes terminated employees entitled to benefits but not yet receiving them.

AVERAGE MONTHLY BENEFIT PAYMENTS

(FOR MEMBERS PLACED ON RETIREMENT ROLLS)

SERVICE RETIREMENT*

Year	Normal	Service Commuted	Age Commuted	Age / Service
2021	\$4,148	\$1,804	\$-	\$3,173
2020	3,931	1,520	-	2,773
2019	3,948	1,688	-	3,166
2018	3,859	1,445	-	3,061
2017	3,797	1,268	-	2,569
2016	3,681	1,444	-	2,724
2015	3,651	1,522	-	2,707
2014	3,606	1,698	-	2,455
2013	3,530	1,292	-	2,590
2012	3,466	1,241	-	2,341

DISABILITY RETIREMENT*

Year	Permanent and Total	Permanent and Total Presumptive	Partial	Partial Presumptive	Off Duty
2021	\$4,222	\$4,608	\$3,559	\$4,019	\$3,269
2020	4,422	4,767	3,321	4,229	3,508
2019	4,614	4,313	3,100	5,172	2,368
2018	4,618	4,295	3,299	3,465	3,222
2017	4,466	3,998	2,970	2,696	2,809
2016	4,681	4,074	2,882	3,047	2,563
2015	3,864	3,602	2,757	3,239	2,647
2014	3,642	4,252	3,040	3,147	2,258
2013	3,997	5,038	2,865	2,599	2,731
2012	4,276	3,717	2,928	3,338	2,770

* Source: Numbers calculated by taking an average of final placements for retirees as listed in OP&F Board of Trustees monthly reports.

MEMBER HEALTH CARE INFORMATION

(DOLLARS IN MILLIONS)

Year	Premium Contributions	Percentage Change in Premium Contributions Received	Number of Covered Lives*	Health Care Benefit Payments	Percentage of Benefit Payments Covered by Premium Contributions	Net Benefit Payment Per Covered Life
2021	\$-	-%	24,680	\$87.0	-%	\$0.004
2020	-	(100)%	24,096	84.3	-%	0.003
2019	0.5	(99)%	24,969	76.8	1%	0.003
2018	73.2	(2)%	26,320	217.9	34%	0.005
2017	74.5	2%	26,587	193.6	38%	0.004
2016	73.2	3%	26,319	223.6	33%	0.006
2015	71.2	2%	26,822	213.2	33%	0.005
2014	70.0	5%	26,794	199.6	35%	0.005
2013	66.6	2%	26,723	191.3	35%	0.005
2012	65.1	4%	26,044	187.4	35%	0.005

* In 2012 OP&F restated the number of covered lives column using actuarially certified number of covered lives.

STATE OF OHIO SUBSIDY PAYMENTS

Year	Subsidy Amount	Percentage Change
2021	\$205,237	(9)%
2020	225,676	(13)%
2019	260,488	(13)%
2018	300,811	(13)%
2017	346,475	(13)%
2016	398,161	(11)%
2015	446,735	(11)%
2014	500,152	(6)%
2013	530,573	(9)%
2012	580,657	(9)%

OP&F'S COST-OF-LIVING ALLOWANCE (COLA) HISTORY

COLA Payment Dates	Members who are 55 years old with less than 15 years of service credit as of July 1, 2013 and have been receiving Benefits for at least one year COLA Paid	Members who are 55 years old with 15 or more years of service credit as of July 1, 2013 and have been receiving Benefits for at least one year COLA Paid	EDOR* July 1, 2000 to June 30, 2012 COLA Paid	EDOR* July 1, 1999 to June 30, 2000 COLA Paid	EDOR* July 1, 1998 to June 30, 1999 COLA Paid	EDOR* July 1, 1997 to June 30, 1998 COLA Paid
Nov. 1, 2021 thru Oct. 31, 2022	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Nov. 1, 2020 thru Oct. 31, 2021	1.50%	3.00%	3.00%	3.00%	3.00%	3.00%
Nov. 1, 2019 thru Oct. 31, 2020	1.50%	3.00%	3.00%	3.00%	3.00%	3.00%
Nov. 1, 2018 thru Oct. 31, 2019	2.30%	3.00%	3.00%	3.00%	3.00%	3.00%
Nov. 1, 2017 thru Oct. 31, 2018	2.30%	3.00%	3.00%	3.00%	3.00%	3.00%
Nov. 1, 2016 thru Oct. 31, 2017	1.20%	3.00%	3.00%	3.00%	3.00%	3.00%
Nov. 1, 2015 thru Oct. 31, 2016	-%	3.00%	3.00%	3.00%	3.00%	3.00%
Nov. 1, 2014 thru Oct. 31, 2015	1.70%	3.00%	3.00%	3.00%	3.00%	3.00%
Nov. 1, 2013 thru Oct. 31, 2014	1.20%	3.00%	3.00%	3.00%	3.00%	3.00%
July 1, 2013 thru Oct. 31, 2013	2.00%	3.00%	3.00%	3.00%	3.00%	3.00%
July 1, 2012 thru June 30, 2013			3.00%	3.00%	3.00%	3.00%
July 1, 2011 thru June 30, 2012			3.00%	3.00%	3.00%	3.00%
July 1, 2010 thru June 30, 2011			3.00%	3.00%	3.00%	3.00%
July 1, 2009 thru June 30, 2010			3.00%	3.00%	3.00%	3.00%
July 1, 2008 thru June 30, 2009			3.00%	3.00%	3.00%	3.00%
July 1, 2007 thru June 30, 2008			3.00%	3.00%	3.00%	3.00%
July 1, 2006 thru June 30, 2007			3.00%	3.00%	3.00%	3.00%
July 1, 2005 thru June 30, 2006			3.00%	3.00%	3.00%	3.00%
July 1, 2004 thru June 30, 2005			3.00%	3.00%	3.00%	3.00%
July 1, 2003 thru June 30, 2004			3.00%	3.00%	3.00%	3.00%
July 1, 2002 thru June 30, 2003			3.00%	3.00%	3.00%	3.00%
July 1, 2001 thru June 30, 2002			3.00%	3.00%	3.00%	3.00%
July 1, 2000 thru June 30, 2001				2.20%	2.20%	2.20%
July 1, 1999 thru June 30, 2000					1.30%	1.30%
July 1, 1998 thru June 30, 1999						2.30%
July 1, 1997 thru June 30, 1998						
July 1, 1996 thru June 30, 1997						
July 1, 1995 thru June 30, 1996						
July 1, 1994 thru June 30, 1995						
July 1, 1993 thru June 30, 1994						
July 1, 1992 thru June 30, 1993						
July 1, 1991 thru June 30, 1992						
July 1, 1990 thru June 30, 1991						
July 1, 1989 thru June 30, 1990						
July 1, 1988 thru June 30, 1989						

* Effective Date of Retirement (EDOR).

Additional Notes:

1) First COLAs were paid July 1, 1988 through June 30, 1989.

2) July 1, 2002 COLAs were a flat 3.0% (regardless of the Consumer Price Index (CPI)).

3) Beginning July 1, 2013:

A) Retired members who are at least 55 years old and have been receiving benefits for at least one year may be eligible for a cost-of-living allowance adjustment.

EMPLOYER CONTRIBUTION RATES

(1967 - PRESENT)*

Time Frame of Rates	Employer Rates	
	Police	Fire
Jan. 1, 1986 thru Present	19.50%	24.00%
Jan. 1, 1985 thru Dec. 31, 1985	20.03%	24.59%
Jan. 1, 1984 thru Dec. 31, 1984	21.35%	24.59%
Jan. 1, 1983 thru Dec. 31, 1983	18.45%	23.57%
Jan. 1, 1982 thru Dec. 31, 1982	16.62%	22.39%
Jan. 1, 1981 thru Dec. 31, 1981	15.60%	20.72%
Jan. 1, 1980 thru Dec. 31, 1980	15.70%	19.87%
Jan. 1, 1979 thru Dec. 31, 1979	18.40%	20.11%
Jan. 1, 1978 thru Dec. 31, 1978	17.53%	18.90%
Jan. 1, 1977 thru Dec. 31, 1977	15.34%	16.77%
Jan. 1, 1976 thru Dec. 31, 1976	14.02%	15.57%
Jan. 1, 1975 thru Dec. 31, 1975	12.49%	13.78%
Jan. 1, 1974 thru Dec. 31, 1974	12.88%	13.60%
Jan. 1, 1973 thru Dec. 31, 1973	12.85%	13.41%
Jan. 1, 1972 thru Dec. 31, 1972	12.96%	13.26%
Jan. 1, 1971 thru Dec. 31, 1971	12.81%	12.96%
Jan. 1, 1970 thru Dec. 31, 1970	15.52%	15.52%
Jan. 1, 1969 thru Dec. 31, 1969	14.68%	14.49%
Jan. 1, 1968 thru Dec. 31, 1968	13.66%	13.50%
Jan. 1, 1967 thru Dec. 31, 1967	13.55%	13.13%

* For employer billing purposes, the September 1988 billing was carried through Sept. 30, 1988 and was not cut off at Sept. 8, 1988. The same goes for the employee rates for the most part.

MEMBER CONTRIBUTION RATES

Time Frame of Rates	Member Rates	
	Police	Fire
July 2, 2015 thru Present	12.25%	12.25%
July 2, 2014 thru July 1, 2015	11.50%	11.50%
July 2, 2013 thru July 1, 2014	10.75%	10.75%
Sept. 9, 1988 thru July 1, 2013	10.00%	10.00%
Aug. 1, 1986 thru Sept. 8, 1988	9.50%	9.50%
March 1, 1980 thru July 31, 1986	8.50%	8.50%
Jan. 1, 1968 thru Feb. 28, 1980	7.00%	7.00%
Jan. 1, 1967 thru Dec. 31, 1967	6.00%	6.00%

HEALTH CARE ALLOCATION RATES FROM EMPLOYER CONTRIBUTIONS

Time Frame of Rates	Percentage
Jan. 1, 2014 thru Present	0.50%
June 1, 2013 thru Dec. 31, 2013	2.85%
Jan. 1, 2013 thru May 31, 2013	4.69%
Jan. 1, 2007 thru Dec. 31, 2012	6.75%
Jan. 1, 2002 thru Dec. 31, 2006	7.75%
Jan. 1, 2001 thru Dec. 31, 2001	7.50%
Jan. 1, 2000 thru Dec. 31, 2000	7.25%
Jan. 1, 1999 thru Dec. 31, 1999	7.00%
Jan. 1, 1992 thru Dec. 31, 1998	6.50%
Jan. 1, 1974 thru Dec. 31, 1991	Rate equal to dollar of Benefits Paid

ACTUARIAL INTEREST RATES

Time Frame of Rates	Actuarial Interest Rates	
	Police	Fire
Feb. 23, 2022 thru Present	7.500%	7.500%
Jan. 1, 2017 thru Feb. 22, 2022	8.000%	8.000%
Jan. 1, 1989 thru Dec. 31, 2016	8.250%	8.250%
Jan. 1, 1986 thru Dec. 31, 1988	7.750%	7.750%
Jan. 1, 1983 thru Dec. 31, 1985	7.500%	7.500%
Jan. 1, 1980 thru Dec. 31, 1982	6.375%	6.375%
Jan. 1, 1979 thru Dec. 31, 1979	6.000%	6.000%
Jan. 1, 1974 thru Dec. 31, 1978	5.000%	5.000%
Jan. 1, 1972 thru Dec. 31, 1973	4.750%	4.750%
Jan. 1, 1970 thru Dec. 31, 1971	4.625%	4.625%
Jan. 1, 1967 thru Dec. 31, 1969	4.250%	4.250%

DROP AND RE-EMPLOYED INTEREST RATES

Time Frame of Rates*	Member Rates	
	DROP	Re-Employed
April 1, 2022 thru June 30, 2022	2.50%	2.32%
Jan. 1, 2022 thru March 31, 2022	2.50%	1.52%
Oct. 1, 2021 thru Dec. 31, 2021	2.50%	1.52%
July 1, 2021 thru Sept. 30, 2021	2.50%	1.45%
April 1, 2021 thru June 30, 2021	2.50%	1.74%
Jan. 1, 2021 thru March 31, 2021	2.50%	0.93%
Oct. 1, 2020 thru Dec. 31, 2020	2.50%	0.69%
July 1, 2020 thru Sept. 30, 2020	2.50%	0.66%
April 1, 2020 thru June 30, 2020	2.50%	0.70%
Jan. 1, 2020 thru March 31, 2020	2.50%	1.92%
Oct. 1, 2019 thru Dec. 31, 2019	1.68%	1.68%
July 1, 2019 thru Sept. 30, 2019	2.00%	2.00%
April 1, 2019 thru June 30, 2019	2.41%	2.41%
Jan. 1, 2019 thru March 31, 2019	2.69%	2.69%
Oct. 1, 2018 thru Dec. 31, 2018	3.05%	3.05%
July 1, 2018 thru Sept. 30, 2018	2.85%	2.85%
April 1, 2018 thru June 30, 2018	2.74%	2.74%
Jan. 1, 2018 thru March 31, 2018	2.40%	2.40%
Oct. 1, 2017 thru Dec. 31, 2017	2.33%	2.33%
July 1, 2017 thru Sept. 30, 2017	2.31%	2.31%
April 1, 2017 thru June 30, 2017	2.40%	2.40%
Jan. 1, 2017 thru March 31, 2017	2.45%	2.45%
Oct. 1, 2016 thru Dec. 31, 2016	1.60%	1.60%
July 1, 2016 thru Sept. 30, 2016	1.49%	1.49%
April 1, 2016 thru June 30, 2016	1.78%	1.78%
Jan. 1, 2016 thru March 31, 2016	2.27%	2.27%
Oct. 1, 2015 thru Dec. 31, 2015	2.06%	2.06%
July 1, 2015 thru Sept. 30, 2015	2.35%	2.35%
April 1, 2015 thru June 30, 2015	1.94%	1.94%
Jan. 1, 2015 thru March 31, 2015	2.17%	2.17%
Oct. 1, 2014 thru Dec. 31, 2014	2.52%	2.52%
July 1, 2014 thru Sept. 30, 2014	2.53%	2.53%
April 1, 2014 thru June 30, 2014	2.73%	2.73%
Jan. 1, 2014 thru March 31, 2014	3.04%	3.04%
Oct. 1, 2013 thru Dec. 31, 2013	2.64%	2.64%
July 1, 2013 thru Sept. 30, 2013	2.52%	2.52%
April 1, 2013 thru June 30, 2013	1.87%	1.87%
Jan. 1, 2013 thru March 31, 2013	1.78%	1.78%
Oct. 1, 2012 thru Dec. 31, 2012	1.65%	1.65%
July 1, 2012 thru Sept. 30, 2012	1.67%	1.67%
April 2, 2012 thru June 30, 2012	2.23%	2.23%
Jan. 19, 2003 thru April 1, 2012	5.00%	5.00%

* Effective April 2, 2012 the interest rate is equal to the 10-year U.S. Treasury Note Business Day Series, as published by the United States Department of the Treasury, with a cap of 5.00%. Effective Jan. 1, 2020 the Board of Trustees approved a floor for the DROP interest rate equal to 2.50%.

DROP MEMBER COUNT ROLL FORWARD

(AS OF DEC. 31)

POLICE	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Balance Beginning of Year	2,270	2,331	2,245	2,158	2,050	2,001	1,918	1,883	1,795	1,801
Number of members that entered into DROP Increases	478	440	435	388	415	369	364	322	384	329
Number of members that terminated DROP Decreases	(375)	(501)	(349)	(301)	(307)	(320)	(281)	(287)	(296)	(335)
SUB-TOTAL AT YEAR END - POLICE	2,373	2,270	2,331	2,245	2,158	2,050	2,001	1,918	1,883	1,795
FIRE										
Balance Beginning of Year	1,975	2,026	2,028	1,996	1,902	1,887	1,907	1,862	1,741	1,740
Number of members that entered into DROP Increases	352	340	307	328	369	301	290	346	369	283
Number of members that terminated DROP Decreases	(304)	(391)	(309)	(296)	(275)	(286)	(310)	(301)	(248)	(282)
SUB-TOTAL AT YEAR END - FIRE	2,023	1,975	2,026	2,028	1,996	1,902	1,887	1,907	1,862	1,741
COMBINED POLICE AND FIRE										
Balance Beginning of Year	4,245	4,357	4,273	4,154	3,952	3,888	3,825	3,745	3,536	3,541
Number of members that entered into DROP Increases	830	780	742	716	784	670	654	668	753	612
Number of members that terminated DROP Decreases	(679)	(892)	(658)	(597)	(582)	(606)	(591)	(588)	(544)	(617)
TOTAL AT YEAR END - COMBINED	4,396	4,245	4,357	4,273	4,154	3,952	3,888	3,825	3,745	3,536

ACTUARIAL VALUATION INFORMATION - PENSION TRUST FUND

(DOLLARS IN MILLIONS)*

As of Jan. 1	Valuation Assets*	Actuarial Accrued Liabilities (AAL)*	Unfunded Actuarial Accrued Liabilities (UAAL)	Ratio of Assets to AAL	Active Member Payroll	UAAL as a Percentage of Active Member Payroll
2021	\$16,112.1	\$22,628.6	\$6,516.5	71.2%	\$2,381.8	273.6%
2020	15,360.1	22,044.3	6,684.2	69.7%	2,313.6	288.9%
2019	14,753.2	21,264.7	6,511.5	69.4%	2,218.0	293.6%
2018	14,594.6	20,887.2	6,292.6	69.9%	2,209.3	284.8%
2017	14,162.5	20,290.4	6,127.9	69.8%	2,180.9	281.1%
2016	13,653.0	19,135.9	5,482.9	71.3%	2,060.9	266.1%
2015	13,029.3	18,395.6	5,366.3	70.8%	1,986.6	270.1%
2014	11,063.2	16,577.8	5,514.6	66.7%	1,942.3	283.9%
2013	10,278.0	16,007.9	5,729.9	64.2%	1,913.4	299.5%
2012	10,309.0	16,346.7	6,037.7	63.1%	1,897.4	318.2%

* The amounts reported in this schedule do not include assets or liabilities for post-employment health care benefits.

HISTORICAL ANNUAL INVESTMENT RESULTS (Gross of Fees)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Domestic Equity										
OP&F	30.14%	22.80%	31.77%	(3.30)%	22.41%	15.60%	0.53%	11.27%	35.53%	15.88%
International Equity*										
OP&F	11.78%	12.41%	23.35%	(17.32)%	29.12%	2.75%	(0.77)%	(5.56)%	21.01%	19.96%
Private Markets**										
OP&F	54.51%	22.30%	13.65%	15.65%	21.80%	14.37%	12.06%	18.34%	11.50%	9.58%
High Yield*										
OP&F - High Yield	5.39%	6.71%	13.49%	(0.48)%	7.05%	12.80%	(0.95)%	2.81%	6.15%	15.64%
Private Credit**										
OP&F	15.80%	3.10%	11.62%	7.51%	N/A	N/A	N/A	N/A	N/A	N/A
Treasury Inflation Protected Securities (TIPS)										
OP&F - TIPS	15.47%	20.11%	15.70%	(0.26)%	2.89%	18.76%	0.26%	19.43%	(10.62)%	14.93%
Real Estate**										
OP&F	24.22%	0.11%	8.76%	13.69%	10.30%	13.14%	16.83%	18.57%	15.11%	13.06%
Real Assets**										
OP&F	9.37%	1.15%	7.08%	11.81%	4.65%	2.99%	1.03%	8.99%	3.37%	N/A
Midstream Energy Infrastructure*										
OP&F	41.02%	(26.09)%	13.46%	(13.06)%	(4.08)%	20.42%	(29.31)%	16.91%	32.25%	N/A
Fixed Income										
OP&F - Core	(2.97)%	7.35%	8.13%	1.24%	4.26%	4.14%	1.45%	4.07%	(1.05)%	6.31%
OP&F - Commercial Mortgages**	N/A	N/A	6.73%	5.29%	2.87%	5.63%	3.21%	8.56%	6.72%	5.28%
Total Portfolio										
OP&F	20.48%	9.21%	17.89%	(1.78)%	14.30%	11.51%	0.65%	6.79%	16.94%	15.41%
Policy Index***	16.27%	9.84%	16.32%	(2.67)%	12.41%	11.45%	(2.18)%	6.87%	14.61%	14.94%

* a) International Equity benchmark is a blend of the MSCI ACWI ex U.S. (Net) through June 30, 2011, the MSCI ACWI ex U.S. Iran/Sudan Free (I/S Free) from July 1, 2011 through Sept. 30, 2012 and the MSCI ACWI ex U.S. Iran/Sudan Free IMI Index from Oct. 1, 2012 forward. b) High Yield benchmark is a blend of the CS First Boston Dev. Countries HY through Aug. 31, 2016, the CS First Boston High Yield from Sept. 1, 2016 through Nov. 30, 2016, and the B of A ML U.S. High Yield Constrained Index from Dec. 1, 2016 forward. c) Midstream Energy Infrastructure benchmark is a blend of the Alerian MLP Index from July 1, 2013 thru June 30, 2019, and the Alerian Midstream Energy Index from July 1, 2019 forward. d) Real Assets benchmark updated in 2020 and made retroactive - blend of 45% FTSE Dev. Core 50/50 Infrastructure Index, 35% NCREIF Timberland Index, and 20% NCREIF Farmland Index.

** One quarter in arrears.

*** Interim Policy Index: 23.1% FT Wilshire 5000 Total Market Index, 14% MSCI ACWI ex-U.S. Iran/Sudan Free IMI Index, 23% Bloomberg U.S. Aggregate 2x (-) Cost of Financing, 8.75% B of A ML U.S. High Yield Constrained Index, 3.25% S&P LSTA Levered Loan Index + 2.0% Lagged, 17% Bloomberg U.S. Gov't Inflation Linked Bond Index X2 (-) LIBOR, 12% NCREIF ODCE Index (Net) Lagged, 8.0% Actual Private Markets Composite (NOF) Lagged, 4.5% Blend of 45% FTSE Dev. Core 50/50 Infrastructure, 35% NCREIF Timberland Index, and 20% NCREIF Farmland Index Lagged, 5.0% Alerian Midstream Energy Index, 6.4% S&P GSCI Gold Index (-) Cost of Financing.

Long-Term Policy: 21% FT Wilshire 5000 Total Market Index, 14% MSCI ACWI ex-U.S. Iran/Sudan Free IMI Index, 23% Bloomberg U.S. Aggregate X2 (-) Cost of Financing, 7.0% B of A ML U.S. High Yield Constrained Index, 5.0% S&P LSTA Levered Loan Index + 2.0% Lagged, 17% Bloomberg U.S. Gov't Inflation Linked Bond Index X2 (-) LIBOR, 12% NCREIF ODCE Index (Net) Lagged, 8.0% Actual Private Markets Composite (NOF) Lagged, 8.0% Blend of 45% FTSE Dev. Core 50/50 Infrastructure, 35% NCREIF Timberland Index, and 20% NCREIF Farmland Index Lagged, 5.0% Alerian Midstream Energy Index, 5.0% S&P GSCI Gold Index (-) Cost of Financing. (Adds to 125% as "Risk Parity" approach uses 2x levered U.S. Gov't Inflation-Protected Securities and 2x levered Core Fixed Income).

Time Weighted methodology, based upon fair values, is used when calculating performance. Acronyms and abbreviations used in this chart are explained at the end of the Statistical Section, in the List of Professional Acronyms, Symbols and Abbreviations.

DEBT CAPACITY INFORMATION

OP&F does not have any outstanding debt, nor are there any plans to ever pursue issuing debt anytime in the future.

DEMOGRAPHIC AND ECONOMIC INFORMATION

NUMBER OF EMPLOYER UNITS*

Year	Municipalities		Townships		Villages		Total		Total
	Police	Fire	Police	Fire	Police	Fire	Police	Fire	Combined
2021	249	204	-	182	278	40	527	426	953
2020	248	204	-	178	277	37	525	419	944
2019	248	201	-	170	278	37	526	408	934
2018	248	197	-	161	280	40	528	398	926
2017	248	199	-	162	282	35	530	396	926
2016	248	221	-	130	279	37	527	388	915
2015	249	220	-	131	280	37	529	388	917
2014	249	221	-	129	283	36	532	386	918
2013	249	223	-	124	282	33	531	380	911
2012	249	225	-	122	288	33	537	380	917

* Beginning in 2017 OP&F reclassified Fire Districts under Townships.

OPERATING INFORMATION

RETIRED MEMBERSHIP BY TYPE OF BENEFITS AND AVERAGE ANNUAL ALLOWANCE

(SOURCE: ACTUARIAL VALUATION) AS OF JAN. 1, 2021

Age Last Birthday	Number	Annual Allowance	Average Annual Allowance
Service Retirees			
Under 60	3,174	\$156,004,642	\$49,151
60 - 64	3,066	170,959,318	55,760
65 - 69	3,320	185,092,391	55,751
70 - 74	2,974	160,814,208	54,073
75 - 79	1,953	97,037,639	49,686
Over 79	1,945	77,188,855	39,686
TOTAL	16,432	\$847,097,053	\$51,552
Survivors and Beneficiaries			
Under 60	1,233	\$12,827,830	\$10,404
60 - 64	545	7,758,934	14,237
65 - 69	824	10,941,022	13,278
70 - 74	1,189	14,924,066	12,552
75 - 79	1,199	14,125,903	11,781
Over 79	2,986	32,636,926	10,930
TOTAL	7,976	\$93,214,681	\$11,687
Disability Retirees			
Under 60	1,928	\$81,353,232	\$42,196
60 - 64	857	40,748,919	47,548
65 - 69	1,002	46,888,396	46,795
70 - 74	1,027	45,947,908	44,740
75 - 79	640	26,093,513	40,771
Over 79	510	17,944,824	35,186
TOTAL	5,964	\$258,976,792	\$43,423

SCHEDULE OF AVERAGE BENEFITS*

This schedule displays the number of new retirees each year, grouped by years of credited service. Prior year numbers are not adjusted as members roll off the rolls. Retirement benefits are calculated based on the Final Average Salary (FAS) of the member. For members with 15 years or more of service credit as of July 1, 2013, FAS represents the member's three highest years

of allowable earnings. For members with less than 15 years of service credit as of July 1, 2013, FAS represents the member's five highest years of allowable earnings.

The Total New Retirees column represents the average monthly benefit and average FAS for the retiree counts listed in each year.

RETIREMENT EFFECTIVE DATES		YEARS CREDITED SERVICE							TOTAL NEW RETIREES
		0 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30+	
2021	Average Monthly Benefit	\$1,486	\$4,274	\$3,394	\$3,051	\$3,630	\$4,308	\$5,446	\$4,283
	Average Final Average Salary	\$59,442	\$74,899	\$70,148	\$75,490	\$84,296	\$84,481	\$90,595	\$84,353
	Number of Active Recipients	1	2	8	23	47	1,037	37	1,155
2020	Average Monthly Benefit	\$3,701	\$3,227	\$2,950	\$2,282	\$3,380	\$4,191	\$4,926	\$4,112
	Average Final Average Salary	\$61,675	\$71,464	\$65,660	\$72,417	\$83,497	\$81,323	\$80,717	\$80,941
	Number of Active Recipients	1	5	8	28	36	896	26	1,000
2019	Average Monthly Benefit	\$1,013	\$3,467	\$3,351	\$2,479	\$3,486	\$4,170	\$5,211	\$4,112
	Average Final Average Salary	\$51,667	\$70,342	\$69,191	\$71,050	\$77,710	\$79,431	\$81,773	\$79,011
	Number of Active Recipients	1	3	11	26	55	777	41	914
2018	Average Monthly Benefit	\$-	\$3,001	\$3,753	\$2,691	\$3,352	\$4,240	\$5,419	\$4,153
	Average Final Average Salary	\$-	\$60,515	\$78,920	\$73,634	\$76,564	\$79,029	\$84,710	\$78,769
	Number of Active Recipients	-	4	12	35	49	720	29	849
2017	Average Monthly Benefit	\$-	\$1,892	\$2,792	\$2,781	\$3,119	\$4,139	\$4,707	\$4,019
	Average Final Average Salary	\$-	\$46,107	\$68,897	\$69,634	\$70,690	\$77,000	\$74,777	\$76,051
	Number of Active Recipients	-	2	11	39	49	731	33	865
2016	Average Monthly Benefit	\$1,395	\$2,314	\$2,638	\$2,477	\$3,234	\$4,075	\$4,277	\$3,925
	Average Final Average Salary	\$34,158	\$59,041	\$59,716	\$63,590	\$73,762	\$75,132	\$69,681	\$73,889
	Number of Active Recipients	1	6	14	44	40	737	31	873
2015	Average Monthly Benefit	\$-	\$1,332	\$2,387	\$2,445	\$3,175	\$4,127	\$4,944	\$3,976
	Average Final Average Salary	\$-	\$49,515	\$59,939	\$64,106	\$71,568	\$75,267	\$77,280	\$74,128
	Number of Active Recipients	-	5	17	48	43	728	40	881
2014	Average Monthly Benefit	\$-	\$2,243	\$2,577	\$2,349	\$3,096	\$4,011	\$4,738	\$3,910
	Average Final Average Salary	\$-	\$62,465	\$58,188	\$62,903	\$72,772	\$72,161	\$76,831	\$71,822
	Number of Active Recipients	-	8	9	29	38	708	36	828
2013	Average Monthly Benefit	\$2,612	\$2,487	\$2,736	\$2,216	\$3,251	\$3,994	\$4,832	\$3,830
	Average Final Average Salary	\$52,748	\$69,490	\$61,462	\$61,232	\$71,553	\$71,014	\$74,792	\$70,293
	Number of Active Recipients	2	5	25	43	47	638	29	789
2012	Average Monthly Benefit	\$879	\$2,247	\$2,876	\$2,783	\$2,968	\$3,932	\$4,398	\$3,761
	Average Final Average Salary	\$42,089	\$55,994	\$65,733	\$63,252	\$68,219	\$68,661	\$68,067	\$67,858
	Number of Active Recipients	1	14	27	69	56	662	73	902

* All years begin Jan. 1 and end Dec. 31.

PRINCIPAL PARTICIPATING EMPLOYERS

AS OF DEC. 31, 2021

Employer Name	Covered Employees*	Rank	Percentage of Total Covered Members
City of Columbus	3,639	1	12.4%
City of Cleveland	2,444	2	8.3%
City of Cincinnati	1,857	3	6.3%
City of Toledo	1,260	4	4.3%
City of Akron	849	5	2.9%
City of Dayton	694	6	2.4%
City of Canton	352	7	1.2%
City of Springfield	285	9	1.0%
City of Youngstown	268	8	0.9%
City of Hamilton	242	10	0.8%
All Others	17,473		59.5%
TOTAL	29,363		100.0%

* Total covered employees ties to the actuarial report.

PRINCIPAL PARTICIPATING EMPLOYERS

AS OF DEC. 31, 2012

Employer Name	Covered Employees*	Rank	Percentage of Total Covered Members
City of Columbus	3,545	1	12.8%
City of Cleveland	2,414	2	8.8%
City of Cincinnati	1,849	3	6.7%
City of Toledo	1,204	4	4.4%
City of Akron	757	5	2.7%
City of Dayton	643	6	2.4%
City of Canton	314	7	1.1%
City of Springfield	259	8	0.9%
City of Parma	223	9	0.8%
City of Hamilton	221	10	0.8%
All Others	16,194		58.6%
TOTAL	27,623		100.0%

* Total covered employees ties to the actuarial report.

OP&F EMPLOYEE BUDGETED POSITION COUNTS

Department*	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Administration	19	19	19	19	20	19	36	48	47	45
Finance	24	25	25	24	21	21	21	21	22	22
Information Technology (IT)	39	40	41	41	45	44	26	25	24	24
Investments	17	17	17	16	16	15	14	14	14	15
Member Services	46	47	46	46	46	46	46	34	34	38
TOTAL FULL-TIME POSITIONS	145	148	148	146	148	145	143	142	141	144

* In 2018, Procurement was transitioned to Finance from IT. In 2015, Customer Service was transitioned to Member Services and Procurement was transitioned to IT from Administration. In 2012, Employer Services was transitioned to Finance from Member Services.

PERSONNEL SALARIES BY YEAR (DOLLARS IN THOUSANDS)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Salaries and Wages	\$11,611.4	\$11,318.5	\$11,227.3	\$10,801.4	\$10,317.3	\$9,971.3	\$9,635.1	\$9,054.2	\$9,248.5	\$8,756.9
Average Salary per Budgeted Staff	\$80.1	\$76.5	\$75.9	\$74.0	\$69.7	\$68.8	\$67.4	\$63.8	\$65.6	\$60.8

OP&F BUDGET (DOLLARS IN MILLIONS)

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Administrative Expenses (Actual)*	\$66.1	\$68.8	\$75.9	\$67.3	\$70.3	\$63.6	\$59.4	\$61.6	\$59.4	\$52.8
Administrative Expenses (Budget)*	\$70.1	\$77.3	\$77.3	\$72.5	\$70.2	\$66.0	\$65.4	\$62.6	\$62.6	\$58.7
Percentage of Budget vs Actual	94%	89%	98%	93%	100%	96%	91%	98%	95%	90%
Capital (Actual)	\$5.5	\$0.8	\$1.1	\$0.5	\$0.4	\$0.5	\$1.3	\$2.1	\$3.1	\$2.9
Capital (Budget)	\$27.7	\$4.3	\$3.1	\$2.9	\$4.3	\$4.6	\$3.0	\$2.8	\$3.4	\$3.4
Percentage of Budget vs Actual	20%	19%	35%	17%	9%	11%	43%	75%	91%	85%
Operating Expenses (Actual)*	\$8.1	\$18.1	\$20.5	\$15.8	\$18.9	\$17.9	\$14.6	\$14.4	\$14.3	\$13.6
Investment Expenses (Actual)*	\$58.0	\$50.7	\$55.4	\$51.5	\$51.4	\$45.7	\$44.8	\$47.2	\$45.1	\$39.2

* Excludes depreciation expense.

OTHER OPERATING STATISTICS

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total Staff	145	148	148	146	148	145	143	142	141	144
Investment Staff	17	17	17	16	16	15	14	14	14	15
Investment Actual Expenses	\$58.0	\$50.7	\$55.4	\$51.5	\$51.4	\$45.7	\$44.8	\$47.2	\$45.1	\$39.2
Investment Income	\$3,192.8	\$1,436.7	\$2,434.3	\$(487.9)	\$1,923.5	\$1,317.4	\$(10.0)	\$860.7	\$2,053.0	\$1,657.9
Investment Staff to Investment Expense Ratio	\$3.4	\$3.0	\$3.3	\$3.2	\$3.2	\$3.0	\$3.2	\$3.4	\$3.2	\$2.6
Total Staff to Investment Income Ratio	\$22.0	\$9.7	\$16.4	\$(3.3)	\$13.0	\$9.1	\$(0.1)	\$6.1	\$14.6	\$11.5
Investment Staff to Investment Income Ratio	\$187.8	\$84.5	\$143.2	\$(30.5)	\$120.2	\$87.8	\$(0.7)	\$61.5	\$146.6	\$110.5

DEATH BENEFIT FUND

Pursuant to Section 742.62 of the Ohio Revised Code, the Board of Trustees of OP&F administers the State of Ohio DBF. This program was established by the State of Ohio to provide monthly benefit payments to surviving family members of Ohio fire fighters and law enforcement officers who have been killed in the line of duty or die of a duty-related accident or illness. Funds are disbursed to OP&F, on a quarterly basis, each State fiscal year (July 1-June 30) and benefits are paid monthly by OP&F to eligible recipients. The unused balance at June 30 is returned to the State. The assets and liabilities of the DBF are included in the Fund's combining statement of plan net assets as of Dec. 31, 2021. The following is a schedule of DBF financial activity:

Balance Jan. 1, 2021	\$1,291,245
Less: Survivor Benefits Paid Jan. 1 thru June 30, 2021	(17,035,107)
Balance Returned to State of Ohio	(1,631,138)
State Funding Received	34,750,000
Less: Survivor Benefits Paid July 1 thru Dec. 31, 2021	(16,677,922)
BALANCE DEC. 31, 2021	\$ 697,078

LIST OF PROFESSIONAL ACRONYMS, SYMBOLS AND ABBREVIATIONS

AAL = Actuarial Accrued Liabilities	GFOA = Government Finance Officers Association of the U.S. and Canada
ACFR = Annual Comprehensive Financial Report	GNMA = Government National Mortgage Association
ACH = Automated Clearing House	Gov't = Government
ACWI Ex-U.S. = All Country World Index excluding the U.S.	GSCI = Goldman Sachs Commodity Index
Board = Board of Trustees	HCSF = Health Care Stabilization Fund
bps = Basis Points	HY = High Yield
CMC = Cavanaugh Macdonald	IMI = Investible Market Index
COLA = Cost-of-Living Allowance	IPO = Initial Public Offering
CPI = Consumer Price Index	IRC = Internal Revenue Code
CS = Credit Suisse	IRR = Internal Rate of Return
DBF = Death Benefit Fund	IRS = Internal Revenue Service
Dev. = Developed	I/S Free = Iran and Sudan Free
DROP = Deferred Retirement Option Plan	IT = Information Technology
EDOR = Effective Date of Retirement	JSA = Joint and Survivor Annuity
EMSI = Economic Modeling Specialist International	LACC = Life Annuity Certain and Continuous
€ = Euro	LIBOR = London Interbank Offered Rate
FAS = Final Average Salary	LSTA = Loan Syndication and Trading Association
FED = Federal Reserve	MD&A = Management Discussion and Analysis
FDIC = Federal Deposit Insurance Corporation	MLPs = Master Limited Partnerships
FF&C = Full Faith and Credit	MSCI = Morgan Stanley Capital International
FHLMC = Federal Home Loan Mortgage Corporation	N/A = Not Applicable
FNMA = Federal National Mortgage Association	NAV = Net Asset Value
401(h) Trust = 401(h) Health Care Trust	NCREIF = National Council of Real Estate Investment Fiduciaries
FOMC = Federal Open Market Committee	NOF = Net of Fees
FTSE Dev. = Financial Times Stock Exchange and Developed	NPL = Net Pension Liability
GASB = Government Accounting Standards Board	NR = Not Rated
GDP = Gross Domestic Product	ODCE = Open-End Diversified Core Equity

LIST OF PROFESSIONAL ACRONYMS, SYMBOLS AND ABBREVIATIONS - CONTINUED

OP&F = Ohio Police & Fire Pension Fund

OPEB = Other Post-Employment Benefit

OPERS = Ohio Public Employees Retirement System

ORC = Ohio Revised Code

ORSC = Ohio Retirement Study Council

PME = Public Market Equivalent

Policy or Statement = Investment Policy and Guidelines

PPCC = Public Pension Coordination Council

REMICs = Real Estate Mortgage Investment Conduits

RFP = Request for Proposal

RSI = Required Supplementary Information

S&P = Standard and Poor's

SPACs = Special Purpose Acquisition Company

SSGA = State Street Global Advisors

STRIPS = Separate Trading of Registered Interest and Principal Securities

TIPS = Treasury Inflation Protected Securities

X2 = Times Two

2x = Two Times

TTY = TeletypeWriter

UAAL = Unfunded Actuarial Accrued Liabilities

U.S. = United States of America

U.S.D. = United States Dollar

Vs. = Verses

This page intentionally left blank.



CUSTOMER SERVICE

1-888-864-8363

GENERAL INFORMATION

614-228-2975

TTY

614-221-3846

FAX

614-628-1777

E-MAIL

questions@op-f.org



PRUDENCE | INTEGRITY | EMPATHY

*Securing the future for Ohio's police
and firefighters*

140 East Town Street
Columbus, Ohio 43215

www.op-f.org

