



FY2022 ANNUAL COMPREHENSIVE FINANCIAL REPORT

A Pension Trust Fund of the State of Iowa for the Fiscal Year Ended June 30, 2022





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PREPARED BY IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
Gregory S. Samorajski, Chief Executive Officer

Fiscal Year 2022 Highlights

Membership

| | |
|------------------|---------|
| Active Members | 176,186 |
| Inactive Members | 84,835 |
| Retired Members* | 131,704 |
| Total | 392,725 |

Contributions

| | |
|-------------------|---------------|
| Employee | \$573,027,225 |
| Employer | \$853,201,521 |
| Service Purchases | \$4,610,315 |

Distributions

| | |
|---------------|-----------------|
| Benefits Paid | \$2,467,522,827 |
| Refunds Paid | \$64,516,746 |

Investments

| | |
|--|-------------------|
| Net Investment and Securities Lending Loss | (\$1,583,545,876) |
| Investment Rate of Return | -3.90% |

Financial

| | |
|--|------------------|
| Total Pension Liability | \$43,969,714,606 |
| Fiduciary Net Position | \$40,191,566,259 |
| Net Pension Liability | \$3,778,148,347 |
| Ratio of Fiduciary Net Position to Total Pension Liability | 91.40% |

Funding

| | |
|--|--------|
| Ratio of Actuarial Assets to Actuarial Liabilities | 89.50% |
|--|--------|

**Unless specifically noted, references to retirees throughout this report include beneficiaries and retired reemployed members.*

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INTRODUCTION



INTRODUCTION



Letter of Transmittal

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Benefits Advisory Committee

Professional and Consulting Services



Letter of Transmittal



Gregory S. Samorajski, CFA
Chief Executive Officer

Kim Reynolds
GOVERNOR

Adam Gregg
LT. GOVERNOR

December 15, 2022

To Governor Kim Reynolds, the General Assembly of the State of Iowa and IPERS members:

We are pleased to submit the Annual Comprehensive Financial Report (ACFR) of the Iowa Public Employees' Retirement System (IPERS, System or plan) for the fiscal year ended June 30, 2022 (FY2022). This report presents a thorough discussion of IPERS' activities and financial status.

This publication fulfills the requirements set forth in Iowa Code section 97B.4(4)(a). The preparation of this report and the financial statements are the result of the combined effort of the System's staff under the direction of the management and CEO, who are responsible for the contents of the report.

IPERS' objective is to provide reasonable, rather than absolute, assurance the financial statements are free of any material misstatements since the cost of internal control should not exceed the benefits obtained. To that end, IPERS' administration maintains an internal accounting control system. It ensures that transactions are executed as intended by the administration, assets are accounted for and the records of transactions are sufficient to permit preparation of the financial statements. Financial statements must be consistent with generally accepted accounting principles (GAAP) for governmental accounting and reporting. GAAP are pronounced or adopted by the Governmental Accounting Standards Board (GASB).

The Auditor of State is required by the Iowa Code to conduct an annual audit of the financial statements. The audit has been completed in accordance with generally accepted auditing standards, state law and Government Auditing Standards, and an unmodified opinion was issued. The Auditor's report is contained in the Financial section.

The Financial section also contains Management's Discussion and Analysis. This is intended to satisfy the GASB requirement that the System provide a narrative introduction, overview and analysis to accompany the basic financial statements. This letter of transmittal complements Management's Discussion and Analysis and should be read in conjunction with it.

Membership numbers in the Actuarial section differ from those in other sections because the Actuarial section reflects projections of future costs. Therefore, member deaths that occurred during the last month of the fiscal year are not counted in the membership numbers of that section. However, because there is a financial obligation for some of these members, they are included in the membership numbers in the remainder of this report.

System Overview

IPERS was established by the Iowa Legislature on July 4, 1953, to replace the Iowa Old-Age and Survivors' Insurance System (IOASI). At that time, the Legislature also voted to include Iowa's public employees in the federal Social Security plan retroactive to 1951.

Iowa Code chapter 97B was the chapter created to govern IPERS and the IPERS Trust Fund (the Fund). The Code establishes IPERS as an independent agency within the executive branch of state government. The Governor and the Iowa Legislature, as creators of the plan, are the plan sponsors.

Initially, IPERS was a money purchase system that calculated benefits based on contributions. Today, IPERS is a cost-sharing, contributory defined benefit plan with benefits based on a formula using a member's years of service, average salary and a multiplier. IPERS is diligent in maintaining its tax qualification under the Internal Revenue Code. IPERS benefits are designed to provide an adequate retirement income when combined with Social Security benefits and individual savings.

IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

7401 Register Drive P.O. Box 9117 Des Moines, IA 50306-9117 | 1-800-622-3849 | www.ipers.org

PHONE 515-281-0020 BENEFITS FAX 515-281-0053 LEGAL & INVESTMENTS FAX 515-281-0045 E-MAIL info@ipers.org

Most public employees in Iowa become members of IPERS when they start employment with a covered employer, which includes schools, state agencies, counties, cities, townships and other public entities. Public employees not covered by IPERS are judges, peace officers in the Iowa Department of Public Safety, police and fire personnel covered by the Municipal Fire and Police Retirement System of Iowa (MFPRSI) and university and community college personnel who elect other coverage.

As a multiple-employer, cost-sharing pension plan with 392,725 members, IPERS is the largest public pension system in Iowa. In FY2022, the IPERS Trust Fund paid \$2.468 billion in benefits. Of that, \$2.175 billion was paid to Iowans. One in 10 Iowans is an IPERS member.

Major Initiatives

Around the nation and in Iowa, employers are struggling to recruit workers. IPERS is committing its resources to address this important economic issue.

First, during the 2022 legislative session, IPERS worked with lawmakers to craft a policy amendment that increases the annual earnings limit for retired IPERS members who return to public sector employment. Senate File 2266 raised the earnings limit from \$30,000 to \$50,000 annually and sought to entice retired workers to re-enter the workforce and to work more hours. The bill enjoyed unanimous support in both houses of the legislature and was effective upon its enactment on March 23, 2022.

Second, as the country emerged from the grips of the COVID-19 pandemic, organizations like IPERS instituted new policies that balanced employees' desires for a flexible work environment with employers' needs for in-person, interpersonal and group interactions. In FY2022 IPERS introduced tools to further support a flexible workplace, including Okta, a single sign-on platform that allows staff to easily access multiple software applications remotely.

IPERS is dedicated to continually reevaluating its staffing structure to ensure it meets the needs of its members. In FY2022 IPERS reorganized its Information Management Division to become the Operations Division. The newly formed division has a broader scope and includes three key areas that are essential for the proper and efficient management of member records and the payment of benefits: information management, project management and operational risk management.

Membership Services

Members and employers have access to information online, over the phone and in print. IPERS' website contains news and announcements, publications, videos, forms and retirement calculators. Members have online access to their benefits statements, which are updated quarterly and mailed each spring. Members and employers can stay in touch with IPERS and learn about benefits on IPERS' Facebook and Twitter accounts.

IPERS publishes easy-to-read booklets to explain benefits at various career stages as well as a comprehensive Member Handbook. Annually, IPERS mails members information about benefits, plan changes, finances and performance. IPERS also offers one-on-one retirement counseling to members preparing to retire.

IPERS' 1,943 employers receive training and assistance to comply with IPERS' requirements. Employers also receive newsletters, a handbook of procedures and reporting requirements and a help guide about the online employer reporting system. IPERS' compliance officers conduct frequent employer audits.

Investments

IPERS manages a large and diversified investment portfolio using external investment advisors. IPERS' long-term horizon allows it to maximize investment returns and lower transaction costs on behalf of its members in a way an individual investor cannot.

A staff of professional investment officers oversees IPERS' investments. These investment officers, most of whom have earned the respected Chartered Financial Analyst (CFA) designation, oversee all asset classes in which IPERS invests. IPERS' investment officers and investment consultant make recommendations concerning asset allocation, investment policies, investment strategies and contractor selection to the IPERS Investment Board, which makes the final decisions. For more information, see the Investment Policy and Goal Statement beginning on page 64.

Fiscal Year 2022

| | |
|---------------------------------------|--------|
| Preretirement counseling sessions | 6,123 |
| Phone inquiries | 90,980 |
| E-mail replies | 17,068 |
| Benefit estimates prepared | 24,642 |
| Service purchase cost quotes prepared | 831 |
| Service purchases made | 71 |

IPERS' investment staff also manages the competitive selection process, negotiates detailed service contracts and monitors contractors' compliance with their IPERS service agreements. The investment management firms select individual investments in the IPERS portfolio. See page 48 in the Financial section for information on expenses related to these investment management firms and page 63 in the Investments section for the Schedule of Investment Fees and the Schedule of Brokerage Commissions Paid.

Financial Highlights

Total Net Position

Total net position restricted for pensions decreased from \$42.890 billion on June 30, 2021, to \$40.192 billion on June 30, 2022. These assets consist of capital assets (see page 33) owned by IPERS and net investment portfolio assets. An overview and analysis of IPERS' financial activities for FY2022 is in Management's Discussion and Analysis, which begins on page 18 in the Financial section of this report.

In FY2022, employee and employer contributions, including service purchases, totaled \$1.431 billion, while total member benefits equaled \$2.532 billion (monthly benefits, lump-sum retirement benefits, death benefits, refunds and dividend payments). The resulting \$1.101 billion contribution shortfall was funded with earnings and sales proceeds from the investment portfolio.

Investment Portfolio Assets

Investment portfolio assets are based on fair value, but are calculated according to industry standards that are different from the financial statement reporting requirements of GASB Statement No. 67, *Financial Reporting for Pension Plans*, which reports the investments at fair value as shown in the Financial section of this report. In FY2022, IPERS' investment expenses were 0.16 percent of the portfolio's total quarterly average fair value.

At the close of FY2022, IPERS' net investment portfolio assets had a fair value of \$40.134 billion. The change in fair value represents a decrease of \$2.721 billion from the \$42.855 billion investment asset fair value as of June 30, 2021. IPERS' -3.90 percent net investment return for the fiscal year was the main reason for the decrease in fair value.

IPERS' -3.90 percent investment return for the fiscal year beat the policy benchmark return of -4.05 percent but lagged the actuarial assumed investment return of 7 percent and the fiscal year's Consumer Price Index (CPI) return of 9.33 percent.

Funding

The ultimate test of any pension system's financial soundness is whether it is funding all its promised benefits payable today and in the decades ahead. Funding progress is typically expressed as a funded ratio of actuarial assets to actuarial liabilities. The goal of a funding plan is to steer toward a funded ratio of 100 percent or more. However, because a funding plan utilizes assumptions of future performance and experience, the plan's actual experience is annually reviewed and variances from assumptions are taken into account in the annual valuation process. As a result, the funded ratio will vary from year to year. In addition to determining the funded ratio as a measurement of progress toward full funding, the annual valuation process also determines the required contribution rates that, together with investment earnings, will keep the funding plan on track.

Periodically, the Investment Board engages the System's actuary to review the assumptions used in the valuation process and adjust as needed. In June 2022, IPERS completed its regularly scheduled quadrennial experience study, covering the four year period ending June 30, 2021. Based on the findings in the experience study, the System's actuary recommended some changes to the set of actuarial assumptions which were then adopted by the Investment Board. There were no changes to the benefit provisions or actuarial methods. As shown in the 2022 valuation report, IPERS experienced an actuarial gain of \$277.3 million. The gain was partially offset by an experience loss on the System's liabilities of \$142.0 million. The overall funded ratio increased to 89.50 percent from 88.34 percent.

The annual valuation also determines a minimum actuarial contribution rate for each membership group for the fiscal year following the presentation of the valuation; in the present case, for FY2024. Applying the System's Contribution Rate Funding Policy, the required contributions for the Regular membership and Protection Occupation members will not change; the required contribution rates for Sheriffs and Deputies will be reduced 0.50 percent of pay. Pursuant to the Contribution Rate Funding Policy, the required contribution rates for all three membership groups will be greater than the minimum actuarial contribution rates. This supports staying on the path to full funding and provides stability in contribution rates. IPERS remains on schedule to be 100 percent funded in 22 years.

Independent Performance Evaluations

To maintain a focus on effectively administering the plan, IPERS completed voluntary reviews of its performance during FY2022. CEM Benchmarking Inc., an independent company that reviews pension systems worldwide, conducted a benchmarking study on IPERS' benefits administration for the previous year. For the 14th consecutive year, IPERS was lowest in costs when compared to its peers, while continuing to receive high ratings for its services.

CEM also conducted a benchmarking study of IPERS' investment program that compared the Fund's costs and investment performance to results for peers in CEM's extensive pension fund database. The study covered a 5-year period that ended December 31, 2021. IPERS' investment program was rated by CEM as a low-cost program and IPERS' net value added was 1.4 percent for the 5-year period, which was 0.9 percent greater than peer public pension funds.

Wilshire, IPERS' investment consultant, reviews IPERS' investment performance against a peer group of U.S. public pension funds. IPERS' one-year investment return for FY2022 ranked in the top quartile of funds in the Investment Metrics' Universe of All Public Funds > \$1 Billion Index, while IPERS' 10-year return ranked in the 12th percentile. However, investment returns alone do not tell the whole story because they do not account for how much risk was taken in pursuit of those returns. Wilshire's data shows that IPERS' Sharpe ratio (a risk-adjusted measure of return used to evaluate a portfolio's performance) ranked in the top 7th percentile versus its peers in the Investment Metrics' Universe of All Public Funds > \$1 Billion Index for the 10-year period ended June 30, 2022.

Professional Awards

The Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to IPERS for its Annual Comprehensive Financial Report for the fiscal year ended June 30, 2021. A Certificate of Achievement is valid for only one year; this was the 29th consecutive year IPERS has earned this prestigious award. To receive a Certificate of Achievement, a governmental entity must publish an easy-to-read and efficiently organized ACFR that satisfies both generally accepted accounting principles and applicable legal requirements. We believe our current ACFR continues to meet the Certificate of Achievement program's requirements, and we are submitting it to the GFOA to determine its eligibility for another certificate.

In addition, IPERS' Summary Annual Financial Report for FY2021 earned the GFOA's Award for Outstanding Achievement in Popular Annual Financial Reporting. This was the fifth consecutive year IPERS received the award, which is valid for a period of one year only. We are preparing our current summary report in alignment with the award requirements and intend to apply for the award again this year.

For the 14th consecutive year, IPERS received the Public Pension Standards Award for the fiscal year ended June 30, 2022, from the Public Pension Coordinating Council (PPCC), in recognition of meeting the professional standards for plan funding and administration as set forth in the Public Pension Standards. The PPCC is a confederation of the National Association of State Retirement Administrators (NASRA), the National Conference on Public Employee Retirement Systems (NCPERS) and the National Council on Teacher Retirement (NCTR).

Acknowledgments

This report is available online or in hard copy by request. It is provided to the Governor, legislative leadership, IPERS Investment Board members, IPERS Benefits Advisory Committee members and state fiscal staff in the executive and legislative branches. IPERS also publishes an annual summary of the information contained in this report, which is offered to members, employers, policymakers and others.

This report is intended to provide complete and reliable information as a basis for management decisions, legal compliance and stewardship of the System's assets. We appreciate the dedication and commitment of IPERS' Board members and staff to provide the highest possible level of service to members and retirees.

Respectfully submitted,



Gregory S. Samorajski
Chief Executive Officer



Tara Hagan
Chief Financial Officer

Professional Awards

Government Finance Officers Association (GFOA)

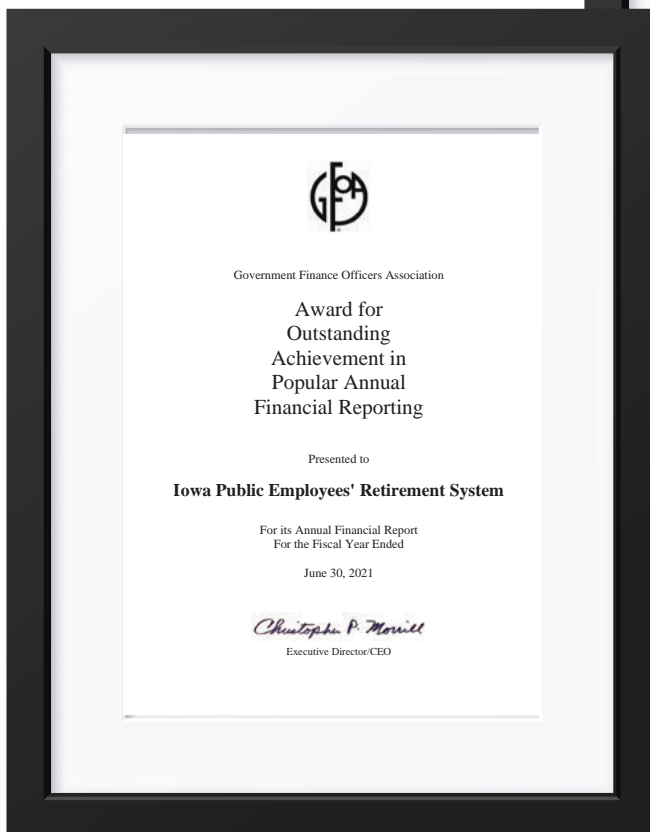
2021 Certificate of Achievement for Excellence in Financial Reporting

Public Pension Coordinating Council (PPCC)

2022 Public Pension Standards Award for Funding and Administration

Government Finance Officers Association (GFOA)

2021 Award for Outstanding Achievement in Popular Annual Financial Reporting



Administration

IPERS' primary purposes are to provide a secure core retirement benefit to Iowa's former and current public employees and to attract and retain quality employees in public service. The activities of the administration are designed to accomplish these purposes and include:

- Offering counseling services and retirement information to active and retired members.
- Paying retirement, disability and death benefits to members and beneficiaries.
- Providing refunds to members, which may be rolled over to other IRS-qualified retirement plans.
- Collecting employer contributions, employee contributions and employee wage information in accordance with state law and IPERS' administrative rules.
- Making recommendations to the Governor and General Assembly on plan design adjustments.
- Overseeing the investment of the System's funds in accordance with the Investment Policy and Goal Statement adopted by the Investment Board.

IPERS Leadership Team

As of Publication

Gregory S. Samorajski, Chief Executive Officer

Investments Division

Sriram Lakshminarayanan, Chief Investment Officer

Benefits Division

David Martin, Chief Benefits Officer

Communications Office

Shawna Lode, Director of Communications

Financial Division

Tara Hagan, Chief Financial Officer

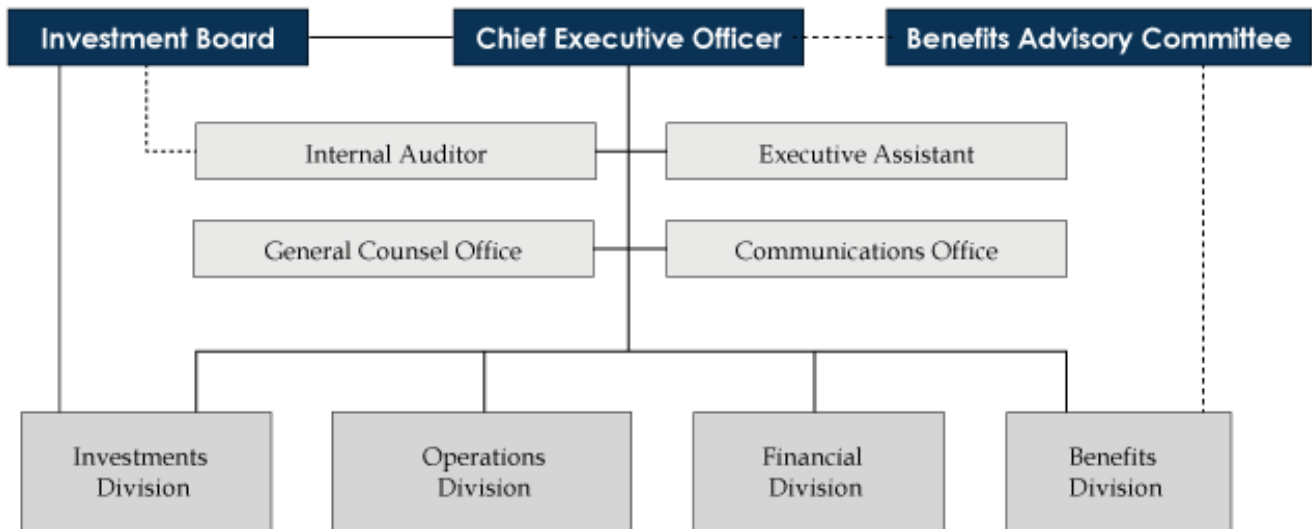
General Counsel Office

Elizabeth Hennessey, General Counsel

Operations Division

Rick Hindman, Chief Operations Officer

Table of Organization



Investment Board

The IPERS Investment Board is designated as the Fund's trustee. The Board has eleven members: seven voting members and four nonvoting members. The following voting members serve six-year terms:

- Three public members appointed by the Governor and confirmed by the Iowa Senate.
- Three members of the System appointed by the Governor and confirmed by the Iowa Senate.

The State Treasurer is an ex officio voting member. The nonvoting members include two state representatives and two state senators.

APPOINTED BY THE GOVERNOR:

Justin Kirchoff, Chairperson
Public Member
Term Ends: April 30, 2025

William (Bill) Bemis
Public Member
Term Ends: April 30, 2027

Michael Duncan
IPERS Educational Member
Term Ends: April 30, 2023

Tami Loge
Retired IPERS Member
Term Ends: April 30, 2028

Kris Rowley
Active IPERS Member
Term Ends: April 30, 2025

Lisa Stange
Public Member
Term Ends: April 30, 2023

EX OFFICIO MEMBER:

Michael Fitzgerald
State Treasurer

APPOINTED BY THE HOUSE SPEAKER AND MINORITY LEADER:

Representative Brian Lohse
State Representative
Term Ends: January 8, 2023

Representative Mary Mascher
State Representative
Term Ends: January 8, 2023

APPOINTED BY THE SENATE MAJORITY AND MINORITY LEADERS:

Senator Tim Goodwin
State Senator
Term Ends: January 8, 2023

Senator Pam Jochum
State Senator
Term Ends: January 8, 2023

Benefits Advisory Committee

The IPERS Benefits Advisory Committee (BAC) members represent major member, employer and retiree associations and have extensive experience in education, public safety, workforce development, human resources and other disciplines. While Iowa law names the constituent groups to serve on the BAC, each association chooses its BAC representative.

Len Cockman, Chairperson

Employer Representative
Iowa Association of School Boards

Lowell Dauenbaugh, Vice Chairperson

Public Member

Matt Carver

Member Representative
School Administrators of Iowa

Susanna Cave

Member Representative
State Police Officers Council

Matt Cosgrove

Employer Representative
Iowa State Association of Counties

Rick Eilander

Member Representative
American Federation of State, County and Municipal Employees

Andrew Hennesy

Member Representative
IPERS Improvement Association

Steve Hoffman

Member Representative
Iowa State Sheriffs and Deputies Association

Connie Kuennen

Employer Representative
Iowa Association of Community College Trustees

Erin Mullenix

Employer Representative
Iowa League of Cities

Melissa Peterson

Member Representative
Iowa State Education Association

Jim Romar

Member Representative
International Brotherhood of Teamsters

Adam Steen, Director

Ex Officio Employer Representative
Iowa Department of Administrative Services

Philip Tetzloff

Member Representative
Retired School Personnel Association

Professional and Consulting Services

Actuary

- Cavanaugh Macdonald Consulting LLC

Legal Counsel

- Foster Garvey PC
- Ice Miller LLP

Securities Litigation Monitoring Counsel

- Barrack, Rodos & Bacine
- Cohen Milstein
- Kessler Topaz Meltzer Check

Investment Management Consultant

- Wilshire

Master Custodian

- The Bank of New York Mellon

Securities Lending Agent

- Deutsche Bank AG

Overlay Management Services

- Parametric Portfolio Associates LLC

Liquid Absolute Return Strategies Administrator (LARS)

- New Hyde Park Alternative Funds LLC

Information Technology Consultant

- Vitech Systems Group Inc.

Benchmarking Consultant

- CEM Benchmarking Inc.

Investment Managers

Domestic Equity

- BlackRock Institutional Trust Company NA
- Mellon Investments Corporation

International Equity

- BlackRock Institutional Trust Company NA
- Columbia Management Investment Advisers LLC
- Mellon Investments Corporation
- PanAgora Asset Management Inc.
- Wellington Management Company LLP

Global Smart Beta Equity

- UBS Asset Management (Americas) Inc.

Core-Plus Fixed Income

- BlackRock Financial Management Inc.
- MacKay Shields LLC
- Mellon Investments Corporation
- PGIM Inc.
- Principal Global Investors LLC
- TCW Asset Management Company LLC
- Western Asset Management Company

Public Credit

- Aegon USA Investment Management LLC
- PGIM Inc.

Private Credit

- Ares Management LLC
- ArrowMark Asset Management LLC
- Audax Management Company (NY) LLC
- Crestline Management LP
- Kayne Anderson Capital Advisors LP
- KKR Goldfinch LP
- Marathon Asset Management LP
- Monroe Capital Private Credit Fund I LP
- Pathway Capital Management LP
- PGIM Real Estate Global Debt LP
- Principal Real Estate Debt Fund II LP
- TCP Direct Lending Fund VIII-A LLC

Private Equity

- Pathway Capital Management LP

Private Real Assets

- Brookfield Asset Management Private Credit Adviser (Canada)
- Clarion Partners LLC
- Forest Investment Associates LP
- INVESCO Advisers Inc.
- RREEF America LLC
- UBS Farmland Investors LLC
- UBS Realty Investors LLC

Liquid Absolute Return Strategies

- Aspect Capital Limited
- Fort LP
- Graham Capital Management LP
- Pacific Investment Management Company LLC
- P/E Global LLC
- PGIM Wadhvani LLP
- Welton Investment Partners LLC

Transition Management Services

- BlackRock Institutional Trust Company NA
- Northern Trust Investments Inc.
- Russell Investments Implementation Services LLC





FINANCIAL

FINANCIAL

Independent Auditor's Report

Management's Discussion and Analysis

Basic Financial Statements

Statement of Fiduciary Net Position

**Statement of Changes in
Fiduciary Net Position**

Notes to Financial Statements

Required Supplementary Information

Supplementary Information





OFFICE OF AUDITOR OF STATE
STATE OF IOWA

Rob Sand
Auditor of State

State Capitol Building
Des Moines, Iowa 50319-0006

Telephone (515) 281-5834 Facsimile (515) 281-6518

Independent Auditor's Report

To the Members of the Iowa Public Employees' Retirement System Investment Board:

Report on the Audit of the Financial Statements

Opinion

We have audited the accompanying Statement of Fiduciary Net Position of the Iowa Public Employees' Retirement System (IPERS) as of June 30, 2022, and the related Statement of Changes in Fiduciary Net Position for the year then ended and the related Notes to Financial Statements, which collectively comprise IPERS' basic financial statements listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective fiduciary net position of IPERS as of June 30, 2022 and the changes in its fiduciary net position for the year then ended in accordance with U.S. generally accepted accounting principles.

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America 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 Financial Statements section of our report. We are required to be independent of IPERS, and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Emphasis of Matters

As discussed in Note 1, the financial statements present the financial position and the changes in financial position of only that portion of the reporting entity of the State of Iowa that is attributable to the transactions of IPERS. They do not purport to, and do not, present fairly the financial position of the State of Iowa as of June 30, 2022 and the changes in its financial position and its cash flows, where applicable, for the year then ended in conformity with U.S. generally accepted accounting principles.

Report on Summarized Comparative Information

We have previously audited the financial statements of IPERS for the year ended June 30, 2021, and we expressed an unmodified audit opinion on those audited financial statements in our report dated December 8, 2021. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2021 is consistent, in all material respects, with the audited financial statements from which it has been derived.

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

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinions. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards 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 judgement made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards and Government Auditing Standards, we:

- Exercise professional judgement 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 IPERS' 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 judgement, there are conditions or events, considered in the aggregate, that raise substantial doubt about IPERS' 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 the Management's Discussion and Analysis, the Schedule of Changes in the Employer's Net Pension Liability and Related Ratios, the Schedule of Employer's Contributions, the Schedule of Investment Returns and the Schedule of IPERS' Proportionate Share of the Total OPEB Liability and Notes on pages 18 through 20 and 42 through 46 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.

Supplementary Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise IPERS' basic financial statements. The supplementary information included on pages 47 and 48, is presented for purposes of additional analysis and is not a required part of the basic financial statements.

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

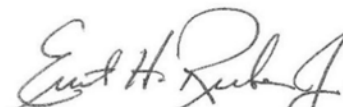
Other Information

Management is responsible for the other information included in the annual report. The other information comprises the Introduction, Investments, Actuarial and Statistical sections but does not include the basic financial statements and our auditor's report thereon. Our opinion on the basic financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the 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.

Other Reporting Required by Government Auditing Standards

Our report on IPERS' 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 required by Government Auditing Standards will be issued under separate cover. 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 IPERS' 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 IPERS' internal control over financial reporting and compliance.


Ernest H. Ruben, Jr., CPA
Deputy Auditor of State

December 14, 2022

Management's Discussion and Analysis

This discussion and analysis of the Iowa Public Employees' Retirement System provides an overview of the System's financial activities for the fiscal year ended June 30, 2022. It is intended to be used in conjunction with the transmittal letter and IPERS' financial statements and notes, which begin on page 21 of this report.

Using This Financial Report

This Annual Comprehensive Financial Report reflects the activities of the Iowa Public Employees' Retirement System as reported in the Statement of Fiduciary Net Position and the Statement of Changes in Fiduciary Net Position (see pages 21 - 22). These statements are presented on an accrual basis and reflect all Fund activities as incurred. The Notes to Financial Statements are an integral part of the financial statements and include additional information essential to understanding the basic financial statements. The Required Supplementary Information and Supplementary Information following the Notes to Financial Statements provide historical information and additional details considered useful in evaluating the condition of the plan. Investment data in the Financial section are presented at fair value. See the Actuarial section of this report for a detailed discussion of the actuarial value of assets and liabilities and the funded ratio.

Financial Highlights

IPERS' net position restricted for pensions decreased by \$2.698 billion during FY2022. On June 30, 2022, total plan assets (including capital assets of \$11.8 million) were \$42.420 billion. These assets, along with deferred outflows of resources of \$321,502, exceeded total liabilities of \$2.228 billion and deferred inflows of resources of \$344,220, resulting in a net position restricted for pensions of \$40.192 billion.

- Covered wages, from which both employee and employer contributions are calculated, increased \$369.2 million, or 4.27 percent, over the last fiscal year and totaled \$9.018 billion. In comparison, FY2021 wages totaled \$8.649 billion, a 3.06 percent increase over the prior fiscal year's wages of \$8.392 billion.
- Additions from employee and employer contributions totaled \$1.426 billion in FY2022, an increase of 4.36 percent. In comparison, FY2021 saw a 3.23 percent increase in contributions. Growth in covered payroll increased contributions in both years. But while the contribution rates for Regular members have held steady since FY2019, the rates

for each Special Service group decreased in each of those years.

- Service purchase contributions for FY2022 were \$4.6 million, an 11.68 percent decrease from FY2021 service purchase contributions of \$5.2 million. FY2021 saw a 33.40 percent increase from the FY2020 amount of \$3.9 million.
- Net investment and securities lending income, after all investment-related expenses, was a loss of \$1.584 billion in FY2022, with gains of \$9.895 billion in FY2021 and \$1.042 billion in FY2020. These differences are explained by the disparity in IPERS' investment returns — the FY2022 return was -3.90 percent, while the returns for FY2021 and FY2020 were 29.63 percent and 3.39 percent, respectively.
- Investment management expenses were \$70.3 million for FY2022. In comparison, investment management expenses were \$68.1 million for FY2021 and \$50.3 million for FY2020. The increase in investment management expenses in FY2022, despite the poor investment performance, is due to the increase in LARS' management fees due to its strong performance. The System's ratio of investment management expenses to the portfolio's quarterly average fair value of assets under management was 0.16 percent for FY2022, down from a ratio of 0.17 percent for FY2021, but more than a ratio of 0.15 percent for FY2020.
- Total contributions, investments and other income resulted in a reduction to the Fund of \$152.7 million in FY2022. This compares to total additions of \$11.267 billion in FY2021 and \$2.370 billion in FY2020. The reason for this atypical reduction is a negative investment return in FY2022, which somewhat offset the unusually high investment return of FY2021.
- FY2022 benefit payments increased \$102.3 million and refunds increased \$10.9 million. Benefit payments increased due to an increased number of retirees, as well as higher average monthly payments to new retirees. Benefit and refund payments increased from \$2.319 billion in FY2020, to \$2.419 billion in FY2021, to \$2.532 billion in FY2022.
- Capital assets were \$11.8 million in FY2022, down from \$13.1 million in FY2021 and \$14.2 million in FY2020 due mainly to depreciation. See page 33 in the Financial section for more detailed information on capital assets.

Analysis of Net Position

The investment rates of return for the current and preceding two fiscal years were -3.90 percent, 29.63 percent and 3.39 percent, respectively. IPERS' total net position decreased 6.29 percent in FY2022 after increasing by 25.97 percent in FY2021 and 0.11 percent in FY2020, the decrease in FY2022 and the increase in FY2021 were both driven by market conditions. The following table contains the FY2022 performance of each asset class and its respective benchmark, as well as the Fund's allocation to each asset class as a percentage of total Fund fair value at June 30, 2022. (See also the Investments section of this report beginning on page 49 for more information on rates of return.)

Investment Returns and Allocations

Fiscal Year Ended June 30, 2022

| Asset Class | Return (%) | Benchmark (%) | Allocation (%) |
|--------------------------|--------------|---------------|----------------|
| Domestic equity | -12.09 | -13.11 | 19.05 |
| International equity | -19.77 | -19.42 | 15.34 |
| Global smart beta equity | -11.98 | -11.81 | 5.13 |
| Core-plus fixed income | -11.60 | -10.89 | 22.13 |
| Public credit | -14.89 | -14.99 | 3.50 |
| Cash | 10.59 | 0.17 | 0.81 |
| Private equity | 23.47 | 23.47 | 21.03 |
| Private real assets | 30.37 | 30.37 | 8.86 |
| Private credit | 7.80 | 7.80 | 4.15 |
| Total Fund | -3.90 | -4.05 | 100.00 |

The two tables on the next page present condensed summaries of IPERS' net position and a breakdown of the changes in the net position with comparison to the previous two fiscal years.

A large percentage of total assets, 96 percent, is represented by investments held to provide retirement, death and disability benefits to qualified members and their beneficiaries. Other assets, including cash and cash equivalents, receivables from employee and employer contributions, receivables from investment-related transactions, and capital assets, make up 4 percent of total assets.

Total liabilities in the following table represent current liabilities and do not reflect the actuarial liabilities discussed in other sections of this report. These current liabilities chiefly consist of amounts owed for investment-related transactions, including the value of rebates and collateral due back to borrowers of securities at the conclusion of securities lending transactions, amounts owed to members or their beneficiaries and amounts owed to contractors and vendors. Total liabilities increased \$228.9 million from FY2021 to FY2022. In comparison, liabilities decreased by \$79.4 million between FY2020 and

FY2021. These fluctuations are primarily related to investment payables.

Benefits paid out exceeded contributions received by \$1.101 billion, \$1.047 and \$991.3 million for FY2022, FY2021 and FY2020, respectively. This excess of benefits paid relative to contributions received is characteristic of a mature pension plan such as IPERS.

Fiduciary Net Position

(Dollar Values Expressed in Thousands)
Fiscal Years Ended June 30

| | 2022 | 2021 | 2022/2021 Percentage Change | 2020 | 2021/2020 Percentage Change |
|---------------------------------------|---------------------|---------------------|-----------------------------------|---------------------|-----------------------------------|
| Cash and investments at fair value | \$41,283,686 | \$43,661,649 | (5.4) | \$35,334,054 | 23.6 |
| Receivables | 1,123,264 | 1,213,789 | (7.5) | 777,650 | 56.1 |
| Capital assets | 11,848 | 13,127 | (9.7) | 14,167 | (7.3) |
| Other assets | 1,071 | 628 | 70.5 | 530 | 18.5 |
| Total assets | 42,419,869 | 44,889,193 | (5.5) | 36,126,401 | 24.3 |
| Deferred outflows of resources | 322 | 99 | 225.3 | 83 | 19.3 |
| Total liabilities | 2,228,280 | 1,999,337 | 11.5 | 2,078,741 | (3.8) |
| Deferred inflows of resources | 344 | 79 | 335.4 | 51 | 54.9 |
| Total net position | \$40,191,566 | \$42,889,876 | (6.3) | \$34,047,692 | 26.0 |

Changes in Fiduciary Net Position

(Dollar Values Expressed in Thousands)
Fiscal Years Ended June 30

| | 2022 | 2021 | 2022/2021 Percentage Change | 2020 | 2021/2020 Percentage Change |
|---|----------------------|--------------------|-----------------------------------|------------------|-----------------------------------|
| Additions | | | | | |
| Contributions and service purchases | \$1,430,839 | \$1,371,873 | 4.3 | \$1,327,865 | 3.3 |
| Net investment and securities lending income/(loss) | (1,583,546) | 9,895,374 | (116.0) | 1,041,873 | 849.8 |
| Total additions | (152,707) | 11,267,247 | (101.4) | 2,369,738 | 375.5 |
| Deductions | | | | | |
| Benefits and refunds | 2,532,040 | 2,418,811 | 4.7 | 2,319,143 | 4.3 |
| Administrative expenses | 13,563 | 13,852 | (2.1) | 13,584 | 2.0 |
| Total deductions | 2,545,603 | 2,432,663 | 4.6 | 2,332,727 | 4.3 |
| Extraordinary item* | — | 7,600 | — | — | — |
| Increase/(decrease) in net position | (\$2,698,309) | \$8,842,184 | (130.5) | \$37,011 | 23,790.7 |

*IPERS received the final settlement payment from the Westridge Capital fraud case, CFTC v. Walsh / SEC v. WG. This payment resulted in an extraordinary item during fiscal year 2021.

Request for Information

This financial report is designed to provide the Governor and Iowa Legislature (plan sponsors), the Investment Board, the Benefits Advisory Committee, as well as the System's members, contributors, taxpayers and creditors with a general overview of the System's finances and to demonstrate the System's accountability for the money it manages. Questions about this report or requests for additional financial information should be directed to the Iowa Public Employees' Retirement System by e-mail at info@ipers.org, by phone at 515-281-0020 or 800-622-3849 or by mail at P.O. Box 9117, Des Moines, IA 50306-9117.

Basic Financial Statements

Statement of Fiduciary Net Position

June 30, 2022 and 2021

| | 2022 | 2021 |
|--|-------------------------|-------------------------|
| ASSETS | | |
| Cash and cash equivalents | \$385,144,343 | \$510,183,595 |
| Receivables | | |
| Contributions | 78,765,264 | 70,352,770 |
| Accrued interest and dividends | 89,595,578 | 82,517,253 |
| Investment sales | 636,929,120 | 743,009,050 |
| Foreign exchange contracts | 317,973,564 | 317,903,040 |
| Miscellaneous | 408 | 7,169 |
| Total receivables | 1,123,263,934 | 1,213,789,282 |
| Investments at fair value | | |
| Core-plus fixed income | 9,102,326,153 | 11,053,888,512 |
| Public credit | 1,381,712,598 | 1,622,969,356 |
| Domestic equity | 7,843,655,808 | 9,251,230,206 |
| International equity | 6,102,781,659 | 7,170,300,088 |
| Global smart beta equity | 2,154,927,858 | 2,479,166,220 |
| Private real assets | 3,559,951,650 | 2,360,617,476 |
| Private credit | 1,667,818,931 | 1,147,138,648 |
| Private equity | 8,442,876,742 | 7,505,536,652 |
| Total investments at fair value | 40,256,051,399 | 42,590,847,158 |
| Securities lending collateral pool | 642,490,415 | 560,617,655 |
| Capital assets | | |
| Depreciable assets, net of accumulated depreciation | 11,348,298 | 12,627,389 |
| Nondepreciable assets: land | 500,000 | 500,000 |
| Total capital assets | 11,848,298 | 13,127,389 |
| Other assets | 1,070,563 | 628,079 |
| Total assets | 42,419,868,952 | 44,889,193,158 |
| DEFERRED OUTFLOWS OF RESOURCES | | |
| Other postemployment benefits | 321,502 | 98,881 |
| LIABILITIES | | |
| Accounts payable and accrued expenses | 56,589,505 | 60,119,213 |
| Investment purchases payable | 1,211,063,452 | 1,061,544,560 |
| Rebates and collateral payable | 642,343,152 | 560,520,289 |
| Foreign exchange contracts payable | 318,283,866 | 317,153,643 |
| Total liabilities | 2,228,279,975 | 1,999,337,705 |
| DEFERRED INFLOWS OF RESOURCES | | |
| Other postemployment benefits | 344,220 | 78,652 |
| Net position restricted for pensions (Note 7, page 41) | \$40,191,566,259 | \$42,889,875,682 |

Notes to Financial Statements begin on page 23.

Statement of Changes in Fiduciary Net Position

Years Ended June 30, 2022 and 2021

| | 2022 | 2021 |
|--|-------------------------|-------------------------|
| ADDITIONS | | |
| Contributions | | |
| Employer contributions | \$853,201,521 | \$817,561,450 |
| Employee contributions | 573,027,225 | 549,090,640 |
| Service purchases | 4,610,315 | 5,220,222 |
| Total contributions | 1,430,839,061 | 1,371,872,312 |
| Investments | | |
| Interest | 405,051,470 | 388,896,368 |
| Dividends ¹ | 149,237,117 | 118,248,610 |
| Real assets and private equity | 367,259,453 | 65,299,796 |
| Net appreciation/(depreciation) in fair value of investments | (2,436,458,280) | 9,389,337,076 |
| Recaptured commissions | 2,804 | 8,247 |
| Investment management expenses | (70,250,470) | (68,106,255) |
| Net investment income (loss) | (1,585,157,906) | 9,893,683,842 |
| Securities lending | | |
| Securities lending income | 2,618,564 | 2,105,750 |
| Securities lending expenses | (1,006,534) | (415,211) |
| Net securities lending income | 1,612,030 | 1,690,539 |
| Total net investment income/(loss) | (1,583,545,876) | 9,895,374,381 |
| Total additions | (152,706,815) | 11,267,246,693 |
| DEDUCTIONS | | |
| Benefit payments | 2,467,522,827 | 2,365,175,073 |
| Member refunds | 64,516,746 | 53,635,685 |
| Administrative expenses | 13,563,035 | 13,851,969 |
| Total deductions | 2,545,602,608 | 2,432,662,727 |
| EXTRAORDINARY ITEM² | — | 7,599,604 |
| Net increase/(decrease) | (2,698,309,423) | 8,842,183,570 |
| Net position restricted for pensions, beginning of year | 42,889,875,682 | 34,047,692,112 |
| Net position restricted for pensions (Note 7, page 41) | \$40,191,566,259 | \$42,889,875,682 |

¹Dividends earned by commingled funds from their underlying investments are reinvested and are, therefore, reported as increases to the net asset value of the funds, and reflected in "net appreciation in fair value of investments" rather than as dividends.

²IPERS received the final settlement payment from the Westridge Capital fraud case, CFTC v. Walsh / SEC v. WG. This payment resulted in an extraordinary item during fiscal year 2021.

Notes to Financial Statements begin on page 23.

Notes to Financial Statements

June 30, 2022 and 2021

(1) SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

IPERS, a public employee retirement system, was created by the Iowa Legislature. IPERS is an integral part of the primary government of the state of Iowa and, accordingly, is included as a pension trust fund in the Iowa Annual Comprehensive Financial Report and has its own stand-alone ACFR. The state's ACFR may be viewed on the Iowa Department of Administrative Services' website.

For financial reporting purposes, IPERS considers all potential component units for which it is financially accountable and other organizations for which the nature and significance of their relationship with IPERS is such that exclusion would cause IPERS' financial statements to be misleading or incomplete. The GASB has set forth criteria to be considered in determining financial accountability. These criteria are (1) whether IPERS could appoint a voting majority of an organization's governing body, (2) the ability of IPERS to impose its will on that organization and (3) the potential for the organization to provide specific benefits to or impose specific financial burdens on IPERS. IPERS has no component units that meet the GASB criteria.

A. Basis of Accounting

IPERS' financial statements have been prepared using the accrual basis of accounting in conformity with U.S. generally accepted accounting principles (GAAP) as applied to governmental accounting for fiduciary funds. The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses. Actual amounts could differ from those estimates.

The System is funded through a combination of employee and employer contributions and investment income. Revenues are recognized when they are earned and become measurable. Employee contributions are recognized in the period in which the contributions are due. Employer contributions are recognized when due and the employer has made a formal commitment to provide them.

Expenses are recognized when the liability is incurred. Benefits and refunds are recognized when due and payable according to the terms of the plan.

Investment sales and purchases are recorded as of their trade date. All investments are reported at fair value. The determination of fair value is generally based on published market prices and quotations from major investment brokers. Investments without

quoted market prices are valued based on yields and maturities currently available on comparable securities of similar issue. Fair values for real estate investments are based on periodic assessments or appraisals of the underlying investments. Private equities and eight private credit investments (KKR Goldfinch LP, Monroe Capital Private Credit Fund I LP, TCP Direct Lending Fund VIII-A LLC, Audax Management Company (NY) LLC, Crestline Management LP, Marathon Asset Management LP, ArrowMark Asset Management LLC and Pathway Capital Management LP) are valued based on March 31 net asset values plus or minus purchases, sales and cash flows from April 1 through June 30 of the reporting year. Futures contracts are valued daily with the resulting adjustments recorded as realized gains/losses arising from the daily settlement of the variation margin.

B. Cash and Cash Equivalents

For the purpose of financial reporting, cash and cash equivalents represent cash and money market investments with an original maturity of three months or less held by the System's administration, and cash allocated to the System's investment managers for investment.

C. Foreign Exchange Contracts

The System's investment managers enter into forward foreign exchange contracts to obtain or short an exposure to foreign currencies or to minimize the short-term impact of currency fluctuations on their foreign investments. The gains or losses on these contracts are recorded in the period in which the exchange rates change.

D. Investments

Iowa Code section 97B.7 requires the IPERS Investment Board to establish investment policies. These policies are documented in the Investment Policy and Goal Statement and reviewed at least annually by the Investment Board. The Investment Policy and Goal Statement in effect on June 30, 2022, begins on page 64.

On December 2, 2021, the Investment Board revised the Investment Policy and Goal Statement to change the domestic equity benchmark index from the Wilshire 5000 Index to the Russell 3000 Index effective April 1, 2022.

The investment activities of the System are designed to provide a return on the Fund that, when coupled with the periodic contributions of the membership and employers, will meet or exceed the funding requirements of the plan over time while staying within the Investment Board's tolerance for risk as expressed in the Investment Policy and Goal Statement.

Maintaining adequate funding to provide for the payment of the plan's benefits over time is of primary consideration. The following are the Investment Board's adopted long term, asset allocation targets as of June 30, 2022.

Target Allocations

As of June 30, 2022

| Asset Class | Target Allocation |
|--------------------------|-------------------|
| Domestic equity | 22.0% |
| International equity | 17.5% |
| Global smart beta equity | 6.0% |
| Core-plus fixed income | 20.0% |
| Public credit | 4.0% |
| Cash | 1.0% |
| Private equity | 13.0% |
| Private real assets | 8.5% |
| Private credit | 8.0% |

For the fiscal year ended June 30, 2022, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expenses, was -3.74 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

The Treasurer of State is the statutory custodian of the System, and in this capacity, has arranged to have the custodial bank account collateralized or covered by the State Sinking Fund. The Treasurer of State selected the Bank of New York Mellon, a bank rated AA by Fitch Ratings, to serve as the custodian bank for IPERS.

Consistent with the System's investment policy, all of IPERS' investment securities are held by the System's custodial bank in the System's name, except for securities and cash held at brokers as collateral for derivative instruments, investment securities on loan with brokers for cash collateral, investments in mutual and commingled funds, real estate properties and limited partnerships. Investments in the Short-Term Investment Funds (STIF) are held in a collective trust fund offered through the System's custodial bank. The fair value of the position in the trust fund equals the value of the fund shares.

IPERS has categorized its fair value measurements within the fair value hierarchy established by generally accepted accounting principles.

Fair Value Hierarchy Levels

| | |
|---------|--|
| Level 1 | Unadjusted quoted prices for identical instruments in active markets. |
| Level 2 | Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable. |
| Level 3 | Valuations derived from valuation techniques in which significant inputs are unobservable. |

Investments that are measured at fair value using the net asset value (NAV) per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy.

Where inputs used to measure fair value fall into different levels in the fair value hierarchy, fair value measurements in their entirety are categorized based on the lowest-level input that is significant to the valuation. The System's assessment of the significance of particular inputs to these fair value measurements requires judgment and considers factors specific to each asset or liability. The table on page 25 shows the fair value level of the investments for the System.

Short-term securities generally include investments in money market-type securities reported at cost plus accrued interest, which approximates fair value. Debt, equity and derivative instrument securities classified in Level 1 are valued using prices quoted in active markets for those securities. Derivative instrument securities classified in Level 2 are securities whose values are either derived daily from associated traded securities or are determined by using a market approach that considers benchmark interest rates.

Debt and debt derivative instrument securities classified in Level 2 and Level 3 are valued using either a bid evaluation or a matrix pricing technique. Bid evaluations may include market quotations, yields, maturities, call features and ratings. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices. Level 2 debt securities have nonproprietary information that is readily available to market participants, from multiple independent sources, which are known to be actively involved in the market. Level 3 debt securities are solely composed of bank loans and these investments use proprietary information or single-source pricing.

Other real assets and private real estate separate accounts classified in Level 3 are investments generally valued using one or a combination of the following accepted valuation approaches: market, cost or income. Independent third-party appraisals are required every three years. Annual appraisals are done internally by the advisors, and all portfolios have audited financials completed at fiscal year-end.

Investments and Derivative Instruments Measured at Fair Value

(Dollar Values Expressed in Thousands)

June 30, 2022

| Investment Type | Fair Value Measurements Using | | | |
|--|-------------------------------|---|---|---|
| | Total Fair Value | Active Markets for Identical Assets (Level 1) | Significant Other Observable Inputs (Level 2) | Significant Unobservable Inputs (Level 3) |
| Collateral at broker | \$52,153 | — | \$52,153 | — |
| Cash equivalents | (74) | — | (74) | — |
| Equity investments | | | | |
| Common stocks | 3,554,292 | \$3,554,292 | — | — |
| Real estate investment trusts | 96,827 | 96,827 | — | — |
| Preferred stock | 43,660 | 14,790 | 25,795 | \$3,075 |
| Other equities | 4,155 | 4,155 | — | — |
| Total equity investments | 3,698,934 | 3,670,064 | 25,795 | 3,075 |
| Fixed-income investments | | | | |
| U.S. Treasuries | 1,213,436 | 1,213,436 | — | — |
| Agencies | 1,485,842 | — | 1,485,842 | — |
| Collateralized mortgage-backed securities | 148,165 | — | 148,165 | — |
| Collateralized mortgage obligations | 30,503 | — | 30,503 | — |
| Other government mortgage-backed securities | 191 | — | 191 | — |
| Other government fixed income | 423,616 | 1,134 | 422,482 | — |
| Corporate bonds | 2,340,756 | — | 2,194,951 | 145,805 |
| Corporate asset-backed securities | 128,905 | — | 128,905 | — |
| Private placements | 2,146,021 | — | 2,146,021 | — |
| State and local obligations | 33,988 | — | 33,988 | — |
| Convertible bonds | 3,823 | — | — | 3,823 |
| Other fixed income | 481,984 | — | — | 481,984 |
| Total fixed-income investments | 8,437,230 | 1,214,570 | 6,591,048 | 631,612 |
| Other investments | | | | |
| Private real estate separate accounts | 3,267,009 | — | — | 3,267,009 |
| Other real assets | 292,943 | — | — | 292,943 |
| Total other investments | 3,559,952 | — | — | 3,559,952 |
| Total investments by fair value level | \$15,748,195 | \$4,884,634 | \$6,668,922 | \$4,194,639 |
| Investments measured at the net asset value | | | | |
| Equity commingled funds | | | | |
| Developed markets | \$11,541,185 | | | |
| Emerging markets | 739,111 | | | |
| Invested securities lending collateral | | | | |
| Money market funds | 198,052 | | | |
| Overnight repurchase agreements | 259,447 | | | |
| Fixed-income commingled funds | 1,546,086 | | | |
| Pooled funds and mutual funds | 907,487 | | | |
| Private equity funds | 8,440,302 | | | |
| Private credit funds | 1,667,818 | | | |
| Total investments measured at the NAV | \$25,299,488 | | | |
| Total investments measured at fair value | \$41,047,683 | | | |
| Investment derivative instruments | | | | |
| Futures | (\$4,748) | (\$4,748) | — | — |
| Options | (5,875) | — | (\$5,875) | — |
| Swaps | | | | |
| Credit default | 8,061 | — | 8,061 | — |
| Interest rate | 22,772 | — | 22,772 | — |
| Total investment derivative instruments | \$20,210 | (\$4,748) | \$24,958 | — |

The valuation method for investments measured at the net asset value per share, or equivalent, is presented in the table below.

Investments Measured at the Net Asset Value

(Dollar Values Expressed in Thousands)
June 30, 2022

| Investment Type | Fair Value | Unfunded Commitments | Redemption Frequency (If Currently Eligible) | Redemption Notice Period |
|--|---------------------|----------------------|--|--------------------------|
| Equity commingled funds | | | | |
| Developed markets ¹ | \$11,541,185 | | Daily | 2 days |
| Emerging markets ¹ | 739,111 | | Daily, Monthly | 2-3 days |
| Invested securities lending collateral | | | | |
| Money market funds | 198,052 | | Daily | NA |
| Overnight repurchase agreements | 259,447 | | NA | NA |
| Fixed-income commingled funds ¹ | 1,546,086 | | Daily, Monthly | 2 days |
| Pooled funds and mutual funds | 907,487 | | Daily | NA |
| Private equity funds ² | 8,440,302 | \$2,460,523 | | |
| Private credit funds ³ | 1,667,818 | 1,037,576 | | |
| Total investments measured at the NAV | \$25,299,488 | \$3,498,099 | | |

¹Consists of various collective trust funds where assets are commingled for investment purposes. Each are valued at the net asset value of the units held at the end of the period based upon the fair value of the underlying investments.

²IPERS' private equity portfolio consists of 133 active partnerships within a legacy program and a fund-of-one investment that invests primarily in buyout, venture capital, special situations and distressed debt funds. The fair values of these funds and the fund-of-one have been determined using net assets valued one quarter in arrears plus current quarter cash flows. These funds are not eligible for redemption. As underlying investments within the funds are liquidated, which on average can occur over the span of 5 to 10 years, distributions are received.

³IPERS' private credit portfolio consists of 16 partnerships. Eight of the funds – KKR Goldfinch LP, Monroe Capital Private Credit Fund I LP, TCP Direct Lending Fund VIII-A LLC, Audax Management Company (NY) LLC, Crestline Management LP, Marathon Asset Management LP, ArrowMark Asset Management LLC and Pathway Capital Management LP – determine fair value by utilizing net asset values from one quarter in arrears plus current quarter cash flows. Three of the funds – Ares Management LLC, Principal Real Estate Debt Fund II LP and PGIM Real Estate Global Debt LP – determine fair value by utilizing net asset values from the current quarter. Five private credit funds have not yet been funded. None of the private credit funds are eligible for redemption. As underlying investments within the funds are liquidated, which on average can occur over the span of 3 to 7 years, distributions are received.

Invested Assets

(Dollar Values Expressed in Thousands)
June 30, 2022

| Investment Type | Total Fair Value | Fair Value on Loan |
|---|---------------------|--------------------|
| Cash | \$1,690 | — |
| Cash collateral at broker | 79,481 | — |
| Pooled funds and mutual funds | 907,487 | — |
| Treasuries | 200,264 | \$99,928 |
| Short-term investments | 1,107,751 | 99,928 |
| Common stocks | 3,554,292 | 47,926 |
| Real estate investment trusts | 96,827 | 680 |
| Preferred stock | 43,660 | 5,814 |
| Other equities | 4,155 | 4,155 |
| Equity investments | 3,698,934 | 58,575 |
| U.S. TIPS | 15,658 | — |
| U.S. Treasury notes | 497,493 | — |
| U.S. Treasury bonds | 500,021 | 1,063 |
| Ginnie Mae | 229,031 | — |
| Freddie Mac | 308,999 | — |
| Fannie Mae | 945,135 | — |
| Other government agencies | 2,677 | — |
| Collateralized mortgage-backed securities | 148,165 | — |
| Collateralized mortgage obligations | 30,503 | — |
| Other government mortgage-backed securities | 191 | — |
| Other government fixed income | 423,616 | 23,318 |
| Corporate bonds | 2,340,756 | 218,422 |
| Corporate asset-backed securities | 128,905 | 1,708 |
| Private placements | 2,146,021 | 210,681 |
| State and local obligations | 33,988 | — |
| Convertible bonds | 3,823 | — |
| Other fixed income | 481,984 | — |
| Fixed-income investments | 8,236,966 | 455,192 |
| Derivative Instruments | 20,210 | — |
| Equity commingled funds | 12,280,296 | — |
| Fixed-income commingled funds | 1,546,086 | — |
| Commingled funds | 13,826,382 | — |
| Special equity | 7,858,960 | — |
| Venture capital | 581,342 | — |
| Private equity | 8,440,302 | — |
| Private real assets | 3,559,952 | — |
| Private credit | 1,667,818 | — |
| Total | \$40,639,486 | \$613,695 |
| Total from above | \$40,639,486 | |
| Cash in managers' accounts | (383,435) | |
| Investments on Statement of Fiduciary Net Position | \$40,256,051 | |

GASB Statement No. 40, *Deposit and Investment Risk Disclosures*, addresses common deposit and investment risks related to credit risk, concentration of credit risk, custodial credit risk, interest rate risk and foreign currency risk. Each risk identified in GASB 40, as it relates to the System, is discussed in the remainder of this note. No System-wide formal policy exists specific to investment-related risks identified in GASB 40. Each portfolio is managed in accordance with an investment contract that identifies and seeks to control the various types of investment-related risks.

Prior-year disclosures for investment type, credit risk quality ratings and effective duration have not been included because the information is not believed to be of continuing significance.

Credit Risk

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations to IPERS. Credit risk associated with all fixed-income holdings, including collateral for repurchase agreements and securities lending collateral, is included in this report.

The tables summarize IPERS' fixed-income portfolio exposure levels and credit quality ratings. The following table includes \$1.839 billion of U.S. Treasury obligations and \$229.0 million of Ginnie Mae obligations. These securities are explicitly guaranteed by the U.S. government and represent 19.0 percent of the total Fund's fixed-income exposure. Therefore, as of June 30, 2022, IPERS' fixed-income assets that are not explicitly government-guaranteed represented 81.0 percent of the fixed-income portfolio.

As a matter of practice, there are no overarching limitations or policies for credit risk exposures within the overall fixed-income portfolio. Each fixed-income portfolio is managed in accordance with an investment contract that is specific about permissible credit quality ranges and the average credit quality of the overall portfolios. In circumstances where downgrades occurred after the purchase, investment managers are permitted to hold a downgraded security if the manager believes it is prudent to do so. Credit risk for derivative instruments held by the System results from counterparty risk assumed by IPERS. This is essentially the risk the counterparty will be unable to meet its obligation. Information regarding IPERS' credit risk related to derivative instruments is found under the derivative instrument disclosures beginning on page 30. Policies related to credit risk pertaining to IPERS' securities lending program are found under the securities lending disclosures on page 32.

Credit Risk: S&P Quality Ratings

(Dollar Values Expressed in Thousands)

June 30, 2022

| Investment Type | Total | TSY | AGY | AAA | AA | A | BBB | BB | B | CCC & Below | NR |
|---|---------------------|--------------------|------------------|------------------|--------------------|--------------------|--------------------|------------------|------------------|------------------|--------------------|
| Pooled and mutual funds | \$907,487 | — | — | — | — | \$620 | — | — | — | — | \$906,867 |
| Treasuries | 200,264 | \$200,264 | — | — | — | — | — | — | — | — | — |
| Short-term investments | 1,107,751 | 200,264 | — | — | — | 620 | — | — | — | — | 906,867 |
| U.S. TIPS | 15,658 | 15,658 | — | — | — | — | — | — | — | — | — |
| U.S. Treasury notes | 497,493 | 497,493 | — | — | — | — | — | — | — | — | — |
| U.S. Treasury bonds | 500,021 | 500,021 | — | — | — | — | — | — | — | — | — |
| Ginnie Mae | 229,031 | — | \$229,031 | — | — | — | — | — | — | — | — |
| Freddie Mac* | 308,999 | — | — | — | \$297,262 | — | — | — | — | — | 11,737 |
| Fannie Mae* | 945,135 | — | — | — | 601,855 | — | — | — | — | — | 343,280 |
| Other govt agencies | 2,677 | — | — | — | 2,677 | — | — | — | — | — | — |
| Collateralized mortgage-backed securities | 148,165 | — | — | \$8,133 | 635 | — | — | — | \$6 | — | 139,391 |
| Collateralized mortgage obligations | 30,503 | — | — | — | 1,340 | 3,975 | \$2,947 | \$2,052 | 2,385 | \$6,727 | 11,077 |
| Other govt mortgage-backed securities | 191 | — | — | — | 191 | — | — | — | — | — | — |
| Other govt fixed income | 423,616 | — | — | — | 20,901 | 10,678 | 138,058 | 89,310 | 27,502 | 16,911 | 120,256 |
| Corporate bonds | 2,340,756 | — | — | 7,793 | 52,159 | 449,010 | 1,188,501 | 408,346 | 148,767 | 12,591 | 73,589 |
| Corporate asset-backed securities | 128,905 | — | — | 16,062 | 8,540 | 7,364 | 15,657 | 17,286 | 19,744 | 13,230 | 31,022 |
| Private placements | 2,146,021 | — | — | 167,983 | 56,511 | 129,988 | 367,922 | 433,287 | 399,776 | 91,111 | 499,443 |
| State & local obligations | 33,988 | — | — | 3,803 | 19,784 | 3,675 | 3,527 | — | — | — | 3,199 |
| Convertible bonds | 3,823 | — | — | — | — | — | — | — | — | — | 3,823 |
| Other fixed income | 481,984 | — | — | — | — | 481,984 | — | — | — | — | — |
| Fixed-income investments | 8,236,966 | 1,013,172 | 229,031 | 203,774 | 1,061,855 | 1,086,674 | 1,716,612 | 950,281 | 598,180 | 140,570 | 1,236,817 |
| Commingled bond funds | 1,546,086 | 625,855 | — | 511,600 | 47,929 | 163,421 | 197,281 | — | — | — | — |
| Total | \$10,890,803 | \$1,839,291 | \$229,031 | \$715,374 | \$1,109,784 | \$1,250,715 | \$1,913,893 | \$950,281 | \$598,180 | \$140,570 | \$2,143,684 |

*Freddie Mac and Fannie Mae mortgage pools consist of thousands of mortgages. Because of the complexity of these pools, hiring ratings agencies to rate each pool is cost-prohibitive. With no explicit ratings given to the pools, investors consider the ratings to be the same as the issuer's long-term rating and the pools are reported as such in this table.

Concentration of Credit Risk

Concentration of credit risk is the risk of loss that may be attributed to the magnitude of investment in a single issuer. IPERS' guidelines for each investment manager establish limits on investments in any corporate entity. The System has no separate account investment in any specific stock or bond issues of any commercial or industrial organization other than the U.S. government and its instrumentalities whose fair value exceeds 5 percent of IPERS' net position restricted for pensions.

Custodial Credit Risk

Custodial credit risk is the risk that, in the event of a failure of the counterparty, the System will not be able to recover the value of its investment or collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in IPERS' name and are held by either the counterparty or the counterparty's trust department or agent. IPERS' cash investments are required to be collateralized under Iowa law. Securities lent are also required to be fully collateralized. See securities lending section on page 32.

Interest Rate Risk

Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of a fixed-income investment. This risk is measured using the effective duration (or option-adjusted) methodology. The methodology takes into account optionality on bonds and scales the risk of price changes on bonds depending upon the degree of change in rates and the slope of the yield curve.

There are no organization-wide policies for interest rate risk exposure within the overall fixed-income portfolio. The System's core-plus fixed-income investment contracts generally require the effective duration of the manager's portfolio to remain between 80 and 120 percent of the effective duration measure of a specific fixed-income index. However, all of IPERS' core-plus managers have authority under their contracts to reduce the interest rate sensitivity of their portfolios to less than 80 percent of the benchmark's effective duration (up to zero effective duration) if the managers forecast a period of rising interest rates. For high-yield bond portfolios, the effective duration must remain between 75 and 125 percent of the benchmark's effective duration. The reporting of effective duration found in the following table quantifies to the fullest extent possible the interest rate risk of the System's fixed-income assets. Interest rate risks associated with swaps and other derivative instruments are found in the derivative instrument disclosures beginning on page 30. No interest rate futures or options positions

will be established that affect the duration or weighted average maturity of a fixed-income managed account by more than one year.

Effective Duration

(Dollar Values Expressed in Thousands)
June 30, 2022

| Investment Type | Fair Value | Effective Duration in Years |
|------------------------------------|---------------------|-----------------------------|
| Pooled funds and mutual funds | \$907,487 | 0.08 |
| Treasuries | 200,264 | 0.14 |
| Short-term investments | 1,107,751 | 0.09 |
| U.S. TIPS | 15,658 | 8.38 |
| U.S. Treasury notes | 497,493 | 4.46 |
| U.S. Treasury bonds | 500,021 | 17.67 |
| Ginnie Mae | 229,031 | 5.42 |
| Freddie Mac | 308,999 | 5.77 |
| Fannie Mae | 945,135 | 6.07 |
| Other government agencies | 2,677 | 7.24 |
| Collateralized mort.-backed secs. | 148,165 | 2.82 |
| Collateralized mort. obligations | 30,503 | 0.39 |
| Other govt mort.-backed securities | 191 | 4.50 |
| Other government fixed income | 423,616 | 7.56 |
| Corporate bonds | 2,340,756 | 5.88 |
| Corporate asset-backed securities | 128,905 | 1.35 |
| Private placements | 2,146,021 | 4.06 |
| State and local obligations | 33,988 | 8.50 |
| Convertible bonds | 3,823 | 0.00 |
| Other fixed income | 481,984 | 5.73 |
| Fixed-income investments | 8,236,966 | 6.39 |
| Commingled bond funds | 1,546,086 | 6.45 |
| Total | \$10,890,803 | 5.27 |

Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of investments. IPERS' currency policy allows its investment managers the discretion to hedge their foreign currency exposures. IPERS generally does not allow its managers to enter into currency positions greater than 100 percent or less than 0 percent of the underlying asset exposure in their respective portfolios. Exceptions are (1) as it relates to specific cross-hedging activity, which may be permitted in certain investment manager contracts, and (2) in liquid absolute return strategies (LARS) where the managers are permitted to tactically allocate across several asset classes and strategies, including currency. The net foreign currency exposure of the LARS managers was less than one percent of the System's total foreign currency exposure on June 30, 2022.

Foreign Currency Risk by Investment Type

(Dollar Values Expressed in Thousands)

June 30, 2022

| Currency | Total | Cash & Cash Equivalents | Derivative Instruments | Equity | Fixed Income |
|-----------------------------|--------------------|----------------------------|---------------------------|--------------------|------------------|
| Australian Dollar | \$173,198 | \$1,485 | \$939 | \$170,774 | – |
| Brazilian Real | 50,561 | 706 | – | 49,855 | – |
| British Pound | 284,864 | (9,155) | (62) | 282,400 | \$11,681 |
| Canadian Dollar | 50,501 | 481 | (756) | 50,776 | – |
| Chilean Peso | 4,707 | 231 | – | 4,476 | – |
| Chinese Yuan Renminbi | 81,683 | 348 | – | 81,335 | – |
| Chinese Yuan | (21,754) | (21,754) | – | – | – |
| Colombian Peso | 354 | (26) | – | 380 | – |
| Czech Koruna | 778 | 8 | – | 770 | – |
| Danish Krone | 48,492 | 1,052 | – | 47,440 | – |
| Egyptian Pound | 3,356 | 242 | – | 3,114 | – |
| Euro | 598,605 | (53,821) | 1,442 | 591,406 | 59,578 |
| Hong Kong Dollar | 138,858 | 856 | 102 | 137,900 | – |
| Hungarian Forint | 8,212 | 9 | – | 8,203 | – |
| Indian Rupee | 93,016 | 4,421 | – | 88,595 | – |
| Indonesian Rupiah | 34,358 | 1,929 | – | 17,035 | 15,394 |
| Israeli Shekel | 21,700 | 21 | – | 21,679 | – |
| Japanese Yen | 398,012 | 3,539 | (471) | 394,944 | – |
| Kuwaiti Dinar | 2,335 | (134) | – | 2,469 | – |
| Malaysian Ringgit | 11,917 | (319) | 131 | 12,105 | – |
| Mexican Peso | 53,769 | (6,527) | 328 | 17,282 | 42,686 |
| New Zealand Dollar | 10,512 | 23 | – | 10,489 | – |
| Norwegian Krone | 17,805 | 80 | (194) | 17,919 | – |
| Philippine Peso | 6,599 | 183 | – | 6,416 | – |
| Polish Zloty | 16,337 | 443 | – | 15,894 | – |
| Qatari Riyal | 3,492 | (178) | – | 3,670 | – |
| Russian Ruble | 867 | 867 | – | – | – |
| Saudi Arabian Riyal | 8,059 | 20 | – | 8,039 | – |
| Singapore Dollar | 57,691 | 23 | 146 | 57,522 | – |
| South African Rand | 32,482 | 57 | 140 | 32,285 | – |
| South Korean Won | 74,274 | 477 | 252 | 73,545 | – |
| Swedish Krona | 66,669 | 1,278 | (92) | 65,483 | – |
| Swiss Franc | 141,849 | 3,767 | (14) | 138,096 | – |
| Taiwanese Dollar | 80,331 | 5,246 | – | 75,085 | – |
| Thai Baht | 26,343 | (391) | (418) | 27,152 | – |
| Turkish Lira | 7,368 | 11 | (28) | 7,385 | – |
| United Arab Emirates Dirham | 2,926 | (157) | – | 3,083 | – |
| Total | \$2,591,126 | (\$64,659) | \$1,445 | \$2,525,001 | \$129,339 |

Derivative Instruments

GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*, requires the fair value of financial arrangements called “derivative instruments” to be reported in the financial statements of state and local governments. The statement further requires derivative instruments to be categorized as either hedging derivative instruments or investment derivative instruments. All of the System’s derivative

instrument exposures at June 30, 2022, are categorized as investment derivative instruments, and therefore the hedge accounting provisions of GASB 53 are not applicable. Additionally, no derivatives held by IPERS contain contingent features as defined by GASB 53.

Some of the System’s external investment managers may be permitted through their individual investment contracts to use derivative instruments, subject to the System’s derivative instruments policy contained in its Investment Policy and Goal Statement. Derivative

instruments are contracts or securities whose returns are derived from the returns of other securities, indexes or derivative instruments. This definition includes the most common type of derivative instrument, collateralized mortgage obligations (which typically make up a portion of the System's fixed-income portfolio), it also includes (but is not limited to) futures, forwards, options, options on futures, swaps and swaptions. The System's managers are not permitted to utilize derivative instruments for speculative purposes, but may use them to efficiently access desired markets and to control and manage portfolio risk. Examples of appropriate applications of derivative instrument strategies include hedging interest rate and currency risk, maintaining exposure to a desired asset class while effecting asset allocation changes, managing duration risk, augmenting index fund performance through index arbitrage and implementing portable alpha strategies, including liquid absolute return strategies.

The various derivative instruments utilized by the System's investment managers are described below. Although the notional values associated with these derivative instruments are not recorded in the financial statements, the fair value amounts of exposure (unrealized gains/losses) are reported in the Statement of Fiduciary Net Position. IPERS holds investments in limited partnerships and commingled investment funds, which may occasionally utilize derivative instruments for hedging purposes; however, any derivative instruments held by these types of investment vehicles are not included in this Note. IPERS could be exposed to risk if the counterparties to derivative instrument contracts are unable to meet the terms of the contracts (credit risk). IPERS' investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, exposure monitoring procedures and in some cases the collateralization of gains or losses. IPERS anticipates the counterparties will be able to satisfy their obligations under the contracts. Limited partnerships and commingled investment vehicles in which IPERS invests may also have exposure to counterparty risk from the use of derivative instruments for hedging purposes.

Futures and Options Contracts

IPERS had investments in various futures and options in FY2022. The Statement of Fiduciary Net Position reports these contracts at fair value.

A summary of contracts by sector that were outstanding at June 30, 2022, follows. Futures and options can potentially offer lower-cost, more efficient alternatives to buying the underlying securities or currency. They can also serve to minimize certain

unwanted risks within the portfolio. The market, currency and credit risk of the futures were the same as if IPERS had owned the underlying securities or currency.

Futures Exposure Summary

(Dollar Values Expressed in Thousands)

June 30, 2022

| | Number of Contracts | Notional Value | Fair Value | % of Total Fund NAV |
|----------------------|---------------------|----------------------|-------------------|---------------------|
| Long Futures | | | | |
| Agriculture | 823 | \$31,657 | (\$1,934) | (0.00482) |
| Currency | 1,624 | 47,265 | (279) | (0.00070) |
| Energy | 1,511 | 88,786 | (7,016) | (0.01748) |
| Index | 828 | 30,751 | (110) | (0.00027) |
| Interest | 24,917 | 3,512,857 | (9,557) | (0.02381) |
| Metal | 426 | 34,281 | (6,193) | (0.01543) |
| Total | 30,129 | \$3,745,597 | (\$25,089) | (0.06252) |
| Short Futures | | | | |
| Agriculture | (946) | (\$29,460) | \$1,619 | 0.00403 |
| Currency | (4,664) | (319,800) | 5,709 | 0.01423 |
| Energy | (846) | (48,144) | 3,454 | 0.00861 |
| Index | (3,720) | (258,114) | 737 | 0.00184 |
| Interest | (10,400) | (1,476,593) | 1,740 | 0.00434 |
| Metal | (786) | (63,456) | 7,082 | 0.01765 |
| Total | (21,362) | (\$2,195,567) | \$20,341 | 0.05068 |

Options Exposure Summary

(Dollar Values Expressed in Thousands)

June 30, 2022

| | Fair Value | % of Total Fund NAV |
|--------------------------|------------------|---------------------|
| Options Purchased | | |
| Interest | (\$6,669) | (0.01662) |
| Total | (\$6,669) | (0.01662) |
| Options Written | | |
| Interest | \$794 | 0.00198 |
| Total | \$794 | 0.00198 |

Credit Default Swaps

The System had investments in credit default swaps during the year. These credit default swaps are derivative instruments used to hedge or to replicate investments in debt obligations of corporate bond issuers. The risk of the credit default swap is comparable to the credit risk of the reference security. At June 30, 2022, the net notional value of the credit default swaps held in the System's fixed-income portfolio was \$-47.4 million. The credit default swaps are reported at a fair value of \$8.0 million in the Statement of Fiduciary Net Position.

Interest Rate Swaps

Interest rate swaps are transactions between two parties in which interest payments from different indexes are swapped. Interest rate swaps are often used to alter the portfolios' exposure to interest rate fluctuations by swapping fixed-rate obligations for floating-rate obligations or vice versa. By utilizing interest rate swaps, IPERS' investment managers are able to alter their interest rate exposure and bring it in line with their strategic objectives for interest rate risk. At June 30, 2022, the net notional value of the interest rate swaps held in the System's fixed-income portfolio was \$8.800 billion. All interest rate swaps held by the System are reported at a fair value of \$22.1 million in the Statement of Fiduciary Net Position.

Mortgage-Backed Securities

The System invests in mortgage-backed securities, which are reported in the Statement of Fiduciary Net Position at fair value based on estimated future cash flows from the interest and principal payments of the underlying mortgages. Mortgage-backed securities prices are sensitive to prepayments by mortgagees, a scenario that is more likely in declining-interest-rate environments. The System invests in mortgage-backed securities to diversify the portfolio and earn the return premium associated with prepayment risk. Details on interest rate risks for these investments are included in the interest rate risk disclosures on page 29.

Securities Lending

IPERS participates in the securities lending program administered by the Treasurer of State, as authorized by Iowa Code section 12.8. Deutsche Bank serves as the lending agent for IPERS' securities lending program. In this capacity, Deutsche Bank is responsible for operating the program and is permitted to lend IPERS' securities to broker-dealers and other entities in exchange for collateral.

Deutsche Bank is permitted to accept collateral in the form of cash in U.S. dollars, U.S. government securities or irrevocable letters of credit. A borrower is

required to initially deliver collateral in an amount equal to 102 percent of the fair value of any U.S. securities lent or 105 percent of the fair value of any non-U.S. securities lent. Borrowers are required to provide additional collateral anytime the value of the collateral drops below 100 percent of the value of the security lent plus accrued investment income.

At fiscal year end, IPERS did not have any exposure, where the amount on loan by IPERS exceeds the amount owed to IPERS. The contract with Deutsche Bank requires it to indemnify IPERS only if (1) a borrower becomes insolvent, or (2) a loss is incurred from an investment of collateral in an overnight repurchase agreement.

The securities lending contract does not allow IPERS to pledge or sell any collateral securities unless the borrower defaults. As of June 30, 2022, IPERS had securities on loan, including accrued interest income, with a fair value (carrying value) of \$613.7 million. Cash and non-cash collateral for said securities, including borrower rebate, have total fair values (carrying values) of \$457.5 million and \$184.8 million respectively.

The majority of securities loans are open loans, that is, one-day maturity, where the rebate rate due to the borrower is renegotiated daily. Either IPERS or the borrower can terminate all securities loans on demand.

Cash collateral received from borrowers is invested in a cash collateral investment account, which is managed by Deutsche Bank in accordance with investment guidelines established by the Treasurer of State and reviewed by IPERS. The investment guidelines do not require a matching of investment maturities with loan maturities, but do establish minimum levels of liquidity and other investment restrictions designed to minimize the risks associated with not matching the maturity of the investments with the maturity of the loans. The effective duration of the cash collateral account at June 30, 2022, was 1.00. Credit quality and years-to-maturity statistics for the cash collateral account at June 30, 2022, are shown in the following table.

Securities Lending Cash Collateral Account

(Dollar Values Expressed in Thousands)

June 30, 2022

| Investment Type | Fair Value | Credit Risk: S&P Quality Rating | | | Investment Maturity (Years) |
|---------------------------------|------------------|---------------------------------|----------------|------------------|-----------------------------|
| | | AAA | AA | Not Rated | |
| Money market funds | \$198,052 | \$198,052 | – | – | Less than 1 |
| Overnight repurchase agreements | 259,446 | – | \$3,506 | \$255,940 | Less than 1 |
| Total | \$457,498 | \$198,052 | \$3,506 | \$255,940 | |

E. Capital Assets

The IPERS headquarters at 7401 Register Drive, Des Moines, Iowa is held as a capital asset. Building and land are recorded at cost, including the costs of acquisition and remodeling. IPERS has set a capitalization threshold of \$5,000 to determine if purchases should be capitalized and depreciated over their useful lives or expensed as incurred. The building is being depreciated using the straight-line method and a useful life of 39 years. Land, a nonexhaustible asset, is not depreciated. The capitalization threshold for land improvements is \$50,000. Other capital assets consist primarily of office equipment, data processing equipment and software.

All purchased equipment is recorded at cost with capitalization thresholds of \$5,000 for equipment and \$500,000 for intangible assets such as software. Depreciation on equipment is computed using the straight-line method based on estimated useful lives ranging from 3 to 10 years. Software is depreciated over 15 to 25 years.

Total depreciation expense for the year ended June 30, 2022, was \$1.5 million. Of that amount, \$32,677 was reclassified as an investment-related expense on the Schedule of Investment-Related Expenses on page 48. In FY2022, capital asset additions of \$233,379 were capitalized.

Summary of Capital Assets

As of June 30, 2022 and 2021

| | Land | Building and Improvements | Land Improvements | Furniture, Equipment and Software | Total Capital Assets |
|---|------------------|---------------------------|-------------------|-----------------------------------|----------------------|
| Capital Assets | | | | | |
| Balances as of June 30, 2021 | \$500,000 | \$7,104,865 | \$413,226 | \$28,406,808 | \$36,424,899 |
| Additions | — | — | — | 233,379 | 233,379 |
| Deletions | — | — | — | (24,717) | (24,717) |
| Balances as of June 30, 2022 | 500,000 | 7,104,865 | 413,226 | 28,615,470 | 36,633,561 |
| Accumulated Depreciation | | | | | |
| Balances as of June 30, 2021 | — | 3,362,414 | 117,081 | 19,818,015 | 23,297,510 |
| Depreciation expense | — | 214,180 | 13,774 | 1,284,516 | 1,512,470 |
| Deletions | — | — | — | (24,717) | (24,717) |
| Balances as of June 30, 2022 | — | 3,576,594 | 130,855 | 21,077,814 | 24,785,263 |
| Net capital assets as of June 30, 2022 | \$500,000 | \$3,528,271 | \$282,371 | \$7,537,656 | \$11,848,298 |

F. Compensated Absences

IPERS staff members, as state of Iowa employees, participate in the benefits available to all state of Iowa employees. Expenses related to accumulated vacation and sick leave earned by IPERS employees are recorded when earned.

IPERS has recorded liabilities of \$830,219 related to the Sick Leave Insurance Program (SLIP). The SLIP calculates a dollar value based on the unused sick leave balance to be credited to a retiree's account and used to pay the employer's share of the selected state group health insurance premium.

G. Other Postemployment Benefits (OPEB)

IPERS has recorded liabilities for OPEB provided through the State of Iowa OPEB Plan (State OPEB Plan). These accrued liabilities are included in accounts payable and accrued expenses in the Statement of Fiduciary Net Position on page 21.

Plan Description

The State OPEB Plan is a cost-sharing, multiple-employer defined benefit plan administered by the state of Iowa. At June 30, 2022, there were 70 active and nine retired IPERS participants in the plan.

The state of Iowa provides access to postretirement medical benefits to all retirees as required by Iowa Code section 509A.13. Although the retirees generally must pay 100 percent of the premium rate, GASB 75 requires that employers recognize the implicit rate subsidy that exists in postretirement medical plans provided by governmental employers.

Implicit rate subsidy refers to the concept that retirees under the age of 65, who are not eligible for Medicare, generate higher claims on average than active participants. When a medical plan is self-insured or fully insured through a third-party administrator, a premium is usually determined by analyzing the claims of the entire population in the plan and adjusting for administrative costs. The resulting premium is called a blended premium because it blends the claims of active and retired participants. Since individuals generally have more

and higher claims as they age, the blended premium paid for retirees is lower than their expected claims. Another way of considering this is if the retirees were removed from the plan, the premium for the active group would be lower; therefore, the retirees' premiums are being subsidized by the active group. Since the employer generally pays a large portion or all of the premiums for the active group, this subsidy creates a liability for the employer. The difference between the expected claims for the retiree group and the blended premium is called the implicit rate subsidy.

Plan Benefits

The State OPEB Plan currently offers three plans to participants: the Iowa Choice Plan, the National Choice Plan and the State Police Officers Council Plan.

The contribution requirements of the plan participants are established and may be amended by the Iowa Legislature. The state currently finances the retiree benefit plan on a pay-as-you-go basis.

Liability, Expense, Deferred Outflows and Deferred Inflows of Resources

At June 30, 2022, IPERS reported a liability of \$963,072 for its proportionate share of the total OPEB liability. The total OPEB liability was measured as of June 30, 2022, determined by an actuarial valuation, using generally accepted actuarial principles and a modified roll-forward approach. IPERS' proportion of the total OPEB liability was based on the ratio of IPERS' active employees in relation to all active employees of the state of Iowa OPEB Plan. At June 30, 2022, IPERS' proportion was 0.43 percent.

For the year ended June 30, 2022, IPERS' proportionate share of the total OPEB expense was \$95,276. At June 30, 2022, IPERS reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources:

| | Deferred Outflows of Resources (\$000) | Deferred Inflows of Resources (\$000) |
|---|--|---------------------------------------|
| Differences between expected and actual experience | \$238 | \$42 |
| Changes in proportion and differences in employer contributions and IPERS' proportionate share of contributions | 36 | 57 |
| Assumption changes | 47 | 245 |
| Total | \$321 | \$344 |

The net -\$22,718 reported as deferred outflows and deferred inflows of resources related to OPEB will be recognized in pension expense, with -\$89 recognized annually from FY2023 through FY2025, -\$659 recognized in FY2026, -\$3,360 recognized in FY2021, and the remaining -\$18,432 recognized thereafter.

Actuarial Methods and Assumptions

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

| | |
|-----------------------------|---|
| Actuarial cost method | Entry age normal |
| Discount rate | 3.54% |
| Inflation rate | 3.25% |
| Healthcare cost trend rates | Medical: 7.00%, trending down to 4.50% over 10 years; Rx: 8.00%, trending down to 4.50% over 14 years |

The discount rate is based on the Bond Buyer 20-Bond Municipal Index as of the end of June 2022.

The majority of state of Iowa employees are participants in IPERS. For this reason, the economic and demographic assumptions used in the OPEB valuation were based on the results of an actuarial experience study prepared for IPERS covering the period of July 1, 2017 – June 30, 2021. Other assumptions were determined by the actuary.

Changes in the Total OPEB Liability

There are no assets accumulated in a trust that meet the criteria in paragraph 4 of GASB 75.

| | Increase/(Decrease) (\$000) |
|--|-----------------------------|
| Total OPEB liability at June 30, 2021 | \$939 |
| Service cost | 75 |
| Interest | 21 |
| Differences between expected and actual experience | 24 |
| Assumption changes | (67) |
| Implicit employer contributions | (29) |
| Net changes in total OPEB liability | 24 |
| Total OPEB liability at June 30, 2022 | \$963 |

Sensitivity of IPERS' Total OPEB Liability to Changes in the Discount Rate

GASB 75 requires the disclosure of the sensitivity of the total OPEB liability to changes in the discount rate. The table below shows the total OPEB liability if it were calculated using discount rates of 2.54 percent and 4.54 percent, which are 1 percentage point lower and 1 percentage point higher than the current discount rate.

| 1% Decrease: | Current Discount Rate: | 1% Increase: |
|--------------|------------------------|--------------|
| 2.54% | 3.54% | 4.54% |
| (\$000) | (\$000) | (\$000) |
| \$1,027 | \$963 | \$902 |

Sensitivity of IPERS' Total OPEB Liability to Changes in the Healthcare Cost Trend Rates

The proportionate share of the total OPEB liability was calculated using healthcare cost trend rates of Medical: 7.00%, trending down to 4.50% over 10 years and Rx: 8.00%, trending down to 4.50% over 14 years. The sensitivity of the proportionate share of the total OPEB liability to changes in the healthcare cost trend rates is shown in the table below.

| 1% Decrease in Healthcare Cost Trend Rates: | Current Healthcare Cost Trend Rates: | 1% Increase in Healthcare Cost Trend Rates: |
|---|--------------------------------------|---|
| (\$000) | (\$000) | (\$000) |
| \$866 | \$963 | \$1,077 |

Payables to the OPEB Plan

There were no amounts due to the State OPEB Plan at June 30, 2022.

(2) PLAN DESCRIPTION

A. Administration

IPERS is a cost-sharing, multiple-employer, contributory defined benefit public employee retirement system. Administrative expenses are appropriated each year by the Iowa Legislature and paid from the Trust Fund.

The Governor and Iowa Legislature are the plan sponsors and have the authority to establish and amend IPERS' benefit provisions.

The IPERS Investment Board is designated as the Fund's trustee. It sets investment policies and oversees the System's actuarial program. The Board holds public meetings regularly to review actuarial findings and investment performance and to formalize policies with the administration.

Eleven members serve on the Investment Board: seven voting members and four nonvoting members.

The voting members include:

- Three public members, appointed by the Governor, who have substantial institutional investment or financial experience and are not IPERS members.
- Three members, appointed by the Governor, who are members of IPERS: an active member who is an employee of a school district, area education agency or merged area; an active member who is not an employee of a school; and a retired member of IPERS.
- The Treasurer of State.

The nonvoting members include:

- Two state representatives (one appointed by the speaker of the Iowa House of Representatives and one appointed by the minority leader of the Iowa House).
- Two state senators (one appointed by the majority leader of the Iowa Senate and one appointed by the minority leader of the Iowa Senate).

Gubernatorial appointees serve six-year terms and must be confirmed by the Iowa Senate.

The IPERS Benefits Advisory Committee is statutorily charged to make benefit and service recommendations to IPERS and the General Assembly.

The Committee is composed of representatives of constituent groups concerned with the System and includes representatives of all major employer groups and major active and retired member associations.

B. Membership

IPERS participation is mandatory for most employees of the state of Iowa and its political subdivisions, including public school systems. Exceptions include those employees covered by a retirement system at least partially supported by public contributions, other than Social Security. Membership is optional for the members of the Iowa General Assembly and certain other individuals.

At June 30, 2022, IPERS had 176,186 contributing (active) members, employed by 1,943 public employers. The number of active members increased by 1.73 percent in FY2022. The Plan Membership tables and pie charts on the following page provide further information.

Plan Membership

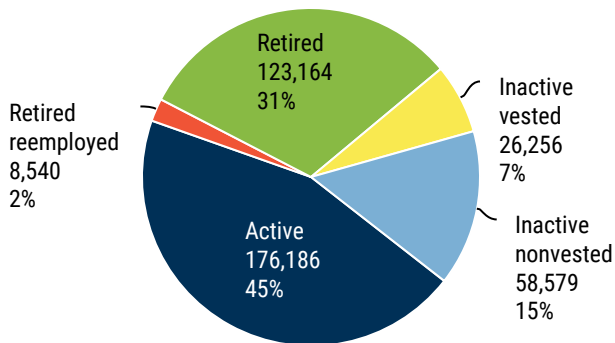
Fiscal Years Ended June 30

| Members | 2022 | 2021 |
|----------------------------|----------------|----------------|
| Retirees and beneficiaries | 131,704 | 129,026 |
| Active vested | 102,167 | 102,241 |
| Inactive vested | 26,256 | 25,770 |
| Active nonvested | 74,019 | 70,945 |
| Inactive nonvested | 58,579 | 53,940 |
| Total | 392,725 | 381,922 |

Note: Retired reemployed members are included in the number of retirees and beneficiaries. Retired reemployed members consist of all retirees who have at any time returned to covered employment but have not subsequently requested a refund or a benefit recalculation.

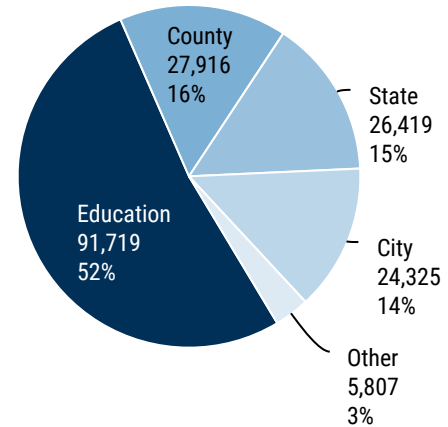
| Employer Type | 2022 | | 2021 | |
|---------------|--------------------|------------------------|--------------------|------------------------|
| | Number of Entities | Covered Wages | Number of Entities | Covered Wages |
| City | 959 | \$1,200,914,896 | 961 | \$1,129,071,456 |
| Education | 351 | 4,614,797,417 | 351 | 4,431,535,067 |
| County | 350 | 1,599,271,265 | 350 | 1,514,800,915 |
| Other | 154 | 155,727,312 | 153 | 146,365,303 |
| Utilities | 128 | 125,696,615 | 127 | 120,260,432 |
| State | 1 | 1,321,612,445 | 1 | 1,306,750,363 |
| Total | 1,943 | \$9,018,019,950 | 1,943 | \$8,648,783,536 |

Membership Status



Note: Due to rounding, chart may not equal 100%

Active Members by Major Employer Type



C. Benefit Plan

IPERS benefits are established under Iowa Code chapter 97B and the administrative rules thereunder. Chapter 97B and the administrative rules are the official plan documents. The following brief description is for general informational purposes only. The plan documents contain more information.

Vesting

Regular members who complete seven years of covered service or reach the age of 65 while in IPERS-covered employment become vested. Special Service members who complete four years of covered service or reach the age of 55 while in IPERS-covered employment become vested.

Service Purchases

At retirement, members who have reached the years-of-service requirement for vesting may purchase service. These members may restore (buy back) previously refunded member service, purchase (buy in) IPERS service credit for employment elsewhere or time spent away from work or convert (buy up) Regular service credit to Special Service credit.

Refunds

IPERS members who terminate public employment for any reason may request a full refund of their accumulated contributions. Vested members requesting a refund also receive a portion of their accumulated employer contributions. Acceptance of the refund automatically terminates IPERS membership and all claims to future benefits. If an employee works in covered employment for less than six months, the employer may file a wage adjustment and the applicable IPERS contributions will be refunded to the individual and employer.

Eligibility for Pensions

A Regular member may receive retirement benefits when the member is vested, is no longer working for an IPERS-covered employer, is at least 55 years old and has reached a normal retirement age.

Normal retirement age, when a permanent early-retirement reduction no longer applies, is one of the following, whichever comes first:

- Years of service plus age equals at least 88
- Age 62 with 20 or more years of service
- Age 65

Members who are age 70 and working for an IPERS-covered employer may apply to begin receiving IPERS retirement benefits while still employed.

Protection Occupation members are eligible for retirement benefits when the member is vested, is no longer working for an IPERS-covered employer and is at least 55 years old.

Sheriffs and Deputies are eligible for retirement benefits when the member is vested, is no longer working for an IPERS-covered employer and is at least 50 years old with 22 years of service. Members with fewer than 22 years of service are not eligible for retirement benefits before age 55.

Pension Benefit Formula

The formula used to calculate a Regular member's monthly IPERS benefit includes:

- A multiplier (based on years of service).
- The member's highest five-year average salary. (For members with service before June 30, 2012, the highest three-year average salary as of that date will be used if it is greater than the highest five-year average salary.)
- An early-retirement reduction, only if the first benefit is paid before the member reaches normal retirement age.

If a Regular member receives benefits before normal retirement age, a permanent early-retirement reduction will apply. For service earned before July 1, 2012, a reduction of 3 percent a year is applied for each year the benefit is paid before normal retirement age. For service earned after June 30, 2012, the reduction is 6 percent for each year of retirement before age 65.

The formula used to calculate a Special Service member's monthly IPERS benefit includes:

- A multiplier (based on years of service).
- The member's highest three-year average salary.

Benefit Options

Upon retirement, an IPERS member may choose from six benefit options. Each of the six options provides a lifetime benefit for the IPERS member. The amount of the member's benefits and the amount and availability of death benefits vary according to the option selected.

Option 1

A member receives a lifetime monthly benefit. At retirement, the member specifies a lump-sum death benefit amount, in an increment of \$1,000, to be paid to a designated beneficiary upon the death of the member. The death benefit cannot exceed the member's accumulated contributions. The death benefit cannot lower the monthly benefit as calculated under Option 2 by more than 50 percent.

Option 2

A member receives a lifetime monthly benefit. When the member dies, the designated beneficiary receives a lump-sum refund of the excess, if any, of the member's accumulated contributions minus the amount of all retirement benefits paid to the member prior to death.

Option 3

A member receives the maximum lifetime monthly benefit. No payment is made to a beneficiary upon the member's death.

Option 4

A member receives a lifetime monthly benefit actuarially reduced to provide for a lifetime monthly benefit to the contingent annuitant upon the member's death. The age of the contingent annuitant can affect the cost of the lifetime payments to the member based on actuarial tables. The contingent annuitant can receive 100 percent, 75 percent, 50 percent or 25 percent of the member's monthly benefit. The choice in percentages is limited if the contingent annuitant is not the member's spouse and is more than 10 years younger than the member.

Option 5

A member receives a lifetime benefit with a 10-year guarantee. If the member dies before 10 full years have passed (120 monthly payments are made), the member's designated beneficiary will receive a monthly benefit for the remainder of the 10 years. If the beneficiary dies before the 10 years expire, the beneficiary's estate will receive a commuted lump-sum settlement. If the member designates more than one beneficiary, payments will be made in a lump sum only. Members who are age 90 as of the first month of entitlement are not allowed to select this option.

Option 6

The member receives a reduced monthly benefit so that a lifetime monthly benefit may be provided after the member's death to the person named by the member as the contingent annuitant. In addition, the monthly amounts are reduced to pay for a pop-up feature. The pop-up feature provides that if the contingent annuitant dies before the member, the member's benefit will pop back up to what it would

have been under IPERS Option 2, and death benefits may be payable to the member's designated beneficiary if certain conditions are met.

Level Payment Options

Special Service members may choose to apply a level payment feature to Options 1 – 5. Level payment options provide for a lifetime monthly benefit that will be permanently reduced when the member reaches age 62. Level payment options allow members to receive approximately equal payments before and after they begin receiving Social Security benefits. The death benefit provisions for each level payment option match the provisions of the corresponding "normal" option.

Dividend Payments

Once a member selects a benefit option, a monthly benefit is calculated and remains the same for the rest of the member's life.

However, for retirees who began receiving benefits prior to July 1990, a guaranteed dividend is included with the November benefit payment. The dividend payable in any given year is the sum of the dollar amount of the dividend payable in the previous November and a dividend adjustment. The dividend adjustment, established in Iowa Code section 97B.49F(1)(b), is calculated by multiplying the total of the retiree's monthly benefit payments and the dividend payable to the retiree in the previous calendar year by the applicable percentage, up to 3 percent.

For retirees who began receiving benefits after June 30, 1990, a Favorable Experience Dividend (FED) may be paid if there are funds in the FED reserve account. There are currently no funds in the FED reserve account. Pursuant to Iowa Code section 97B.49F(2)(c)(5), IPERS cannot transfer additional funds to the FED reserve account until the Fund is fully funded and would remain so after the transfer.

Disability Benefits

Vested members who are awarded federal Social Security disability or Railroad Retirement disability benefits are eligible for IPERS disability benefits. Disability benefits are not reduced for early retirement.

Special Service members who retire because of a disability may meet the requirements for IPERS Regular or Special Service disability benefits.

Death Benefits

Preretirement Death Benefits

If an IPERS member dies before retirement, the member's designated beneficiary may receive a lump-

sum payment based on the greater of the following two formulas:

$$\text{Death benefit} = \text{The actuarial present value of the member's accrued benefit as of date of death}$$

$$\text{Death benefit} = \text{Member's accumulated contributions} + \left[\text{Member's highest annual covered wage} \times \frac{\text{Years of service}}{30^*} \right]$$

*The denominator is 22 for all Special Service members.

If the member's designated beneficiary is a sole individual, the beneficiary will be offered a choice between a lump sum or a lifetime annuity.

Postretirement Death Benefits

If an IPERS member dies after retirement, payment is made to the beneficiary according to the option selected by the member at the time of retirement.

(3) ACTUARIAL CONTRIBUTIONS COMPARED TO CONTRIBUTIONS PAID

Each year, IPERS' actuary performs a valuation of the liabilities and assets of the IPERS Trust Fund in accordance with Iowa Code section 97B.4(4)(d). The actuary also calculates an actuarial contribution rate for each membership group, which is the contribution rate necessary to fully fund the benefits provided under Iowa Code chapter 97B.

IPERS' Contribution Rate Funding Policy requires the actuarial contribution rate be determined using the entry age normal actuarial cost method and the actuarial assumptions and methods approved by the IPERS Investment Board. The actuarial contribution rate covers normal cost plus an unfunded actuarial liability payment. The payment to amortize the unfunded actuarial liability is determined as a level percentage of payroll based on the actuarial amortization method adopted by the Investment Board.

Although the actuarial contribution rates are calculated each year for all three membership groups, the contribution rates for the Regular membership were set in law through June 30, 2012. From FY2002 through FY2013, the rate allowed by statute was less than the actuarial rate, in spite of rate increases passed by the Iowa Legislature in 2006 and 2010. Effective July 1, 2012, as a result of a 2010 law change, the contribution rates are established by IPERS following the annual actuarial valuation, which applies IPERS' Contribution Rate Funding Policy and actuarial amortization method. Statute limits the amount rates can vary each year to 1 percentage point for Regular members.

In FY2014 and FY2019, the contribution rate for Regular members equaled the actuarial rate and in FY2015 – FY2018 and FY2020 – FY2022, it exceeded the actuarial rate. According to the Contribution Rate Funding Policy, the contributions paid will not decline to a lowered actuarial contribution rate unless two conditions are met: the funded ratio is at least 95 percent, and the actuarial contribution rate is at least 50 basis points lower than the contribution rate paid in the previous year.

Iowa statute authorizes the contribution rates for the Special Service groups to be set pursuant to the Contribution Rate Funding Policy. Therefore, these groups have paid the rates needed to fully fund their benefits each year through FY2014 and again in FY2019. In FY2015 – FY2018 and FY2020 – FY2022, the rates for the Special Service members exceeded the actuarial rates.

Contribution Rates

Fiscal Year 2022

| | Employee | Employer | Total |
|-------------------------------|----------|----------|--------|
| Regular members | 6.29% | 9.44% | 15.73% |
| Sheriffs and Deputies | 9.01% | 9.01% | 18.02% |
| Protection Occupation members | 6.21% | 9.31% | 15.52% |

Contributions are remitted by participating employers. IPERS, as a participating employer, is subject to paying contributions at the Regular membership rate.

Wages were covered up to the Internal Revenue Code section 401(a)(17) compensation limits of \$290,000 for calendar year 2021 and \$305,000 for calendar year 2022. A detailed Schedule of Employers' Contributions encompassing 10 years can be found on page 44 in the Required Supplementary Information following these notes.

(4) NET PENSION LIABILITY

As a result of IPERS' -3.90 percent investment return for FY2022, the plan fiduciary net position was less than the total pension liability, resulting in a net pension asset at June 30, 2022. The calculation of the net pension liability (NPL) is shown in the following table:

| | |
|--|------------------|
| Total pension liability | \$43,969,714,606 |
| Plan fiduciary net position | \$40,191,566,259 |
| Employers' net pension liability/(asset) | \$3,778,148,347 |
| Plan fiduciary net position as a percentage of the total pension liability | 91.40% |

The total pension liability (TPL) was determined by an actuarial valuation as of June 30, 2022. Actuarial valuations involve projections of benefit payments, contributions and other amounts decades into the future. These projections are based on actuarial assumptions and methods adopted by the IPERS Investment Board.

Assumptions such as salary increases, investment rates of return, retirement and disability rates, mortality rates and inflation rates are compared against actual experience in actuarial experience studies conducted every four years. These studies assist IPERS in evaluating the accuracy with which the assumptions predict actual experience. An actuarial experience study covering the period of July 1, 2017 – June 30, 2021, was presented to the Investment Board in June 2022.

Several factors are considered in evaluating the actuarial assumed investment return including long-term historical data, estimates inherent in current market data, along with estimates of variability and correlations for each asset class, and an analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of investment expense and inflation) were developed by the System's investment consultant. These ranges were combined to develop the actuarial assumed investment return by weighting the expected future real rates of return by the target asset allocation percentage and then adding expected inflation. The actuarial assumed investment return reflects the anticipated returns on current and future plan assets and provides a discount rate to determine the present value of future benefit payments.

The Investment Board adopted and approved the use of the assumptions and methods shown in the following table. These are the assumptions the actuary used to comply with GASB 67. Additional methods and assumptions used in the actuarial valuation for funding purposes are listed in the Actuarial section of this report.

Actuarial Methods and Assumptions

| | |
|----------------------------|--|
| Actuarial cost method | Entry age normal |
| Assumed investment return | 7% |
| Projected salary increases | 3.25% – 16.25%, including inflation, depending on years of service |
| Mortality tables | PubG-2010 Employee and Healthy Annuitant Tables using MP-2021 generational adjustments |
| Inflation rate | 2.6% |
| Payroll increase | 3.25% |

Best estimates of geometric real rates of return for each major asset class included in IPERS' target asset allocation as of June 30, 2022, are shown in the following table.

Target Allocations and Long-Term Expected Real Rates of Return

As of June 30, 2022

| Asset Class | Target Allocation | Long-Term Expected Real Rate of Return |
|--------------------------|-------------------|--|
| Domestic equity | 22.0% | 3.57% |
| International equity | 17.5% | 4.79% |
| Global smart beta equity | 6.0% | 4.16% |
| Core-plus fixed income | 20.0% | 1.66% |
| Public credit | 4.0% | 3.77% |
| Cash | 1.0% | 0.77% |
| Private equity | 13.0% | 7.57% |
| Private real assets | 8.5% | 3.55% |
| Private credit | 8.0% | 3.63% |

A. Discount Rate

The discount rate used to calculate the TPL is 7 percent. The projection of cash flows used to determine the discount rate assumed that contributions from employees and employers will be made at the contractually required rates, which are set by the Contribution Rate Funding Policy and derived from the actuarial valuation. Based on those assumptions, IPERS' fiduciary net position is projected to be available to make all projected future benefit payments of current plan members. Therefore, the actuarial assumed investment return was applied to all periods of projected benefit payments to determine the TPL.

B. Net Pension Liability Sensitivity

GASB 67 requires the disclosure of the sensitivity of the NPL to changes in the discount rate. The table below shows the NPL if it were calculated using discount rates 1 percentage point lower and 1 percentage point higher than the actuarial assumed investment return of 7 percent.

| 1% Decrease: 6% | Current Discount Rate: 7% | 1% Increase: 8% |
|--------------------|---------------------------------|--------------------|
| \$7,453,592,404 | \$3,778,148,347 | \$540,345,201 |

C. Proportioning the Net Pension Liability

Many of IPERS-covered employers implemented GASB Statement No. 68, *Accounting and Financial Reporting for Pensions*, in FY2015. This standard requires employers following U.S. generally accepted accounting principles (GAAP) to record, on their financial statements, several measures related to IPERS and any other defined benefit pension plans administered through trusts in which they participate.

GASB 68 requires employers to report their proportionate share of IPERS' NPL, a measure of pension expense, deferred inflows of resources and deferred outflows of resources. GASB 68 also requires additional note disclosures, as well as tables and related notes in the Required Supplementary Information. Previously, employers reported only their pension plan contributions paid.

IPERS, in association with the Auditor of State, provides information necessary for employers to comply with GASB 68. Employers with a June 30 fiscal year-end employ a one-year lag by using IPERS' June 30, 2021, information for their June 30, 2022, reporting, as allowed by the GASB. The FY2022 NPL of \$3.778 billion will be apportioned to employers for their FY2023 financial reporting. The NPL is apportioned based on the amount of contributions paid by each employer in FY2022, expressed as a percentage of the total amount of employer contributions received by IPERS during the year.

(5) LITIGATION AND CONTINGENCIES

IPERS monitors, evaluates and takes the necessary actions related to litigation for or against IPERS. This includes, but is not limited to, federal and state court actions and defending administrative appeals filed against IPERS. IPERS employs outside legal counsel, utilizes the legal services of Iowa's Office of the Attorney General and utilizes in-house legal counsel to assert and defend claims for IPERS.

IPERS participates in federal securities class actions as the lead plaintiff, co-lead plaintiff, a named plaintiff or a member of the class action. In FY2022, IPERS made 26 recoveries benefiting the Trust Fund in the amount of \$354,642. An additional \$19,582 was recovered during this period from other settled cases. The recoveries are reflected in the financial statements for the year ended June 30, 2022.

(6) COMMITMENTS

At June 30, 2022, IPERS had commitments to fund an additional \$2.461 billion to various private equity/debt partnerships, \$209.1 million to real estate debt, \$255.6 million to corporate debt and \$572.9 million to opportunistic credit partnerships.

(7) NET POSITION RESTRICTED FOR PENSIONS

There is only one IPERS Trust Fund where all investment income, employee contributions and employer contributions are pooled. However, IPERS' three distinct membership groups are characterized by different benefit levels and occupation types. Because of these varied characteristics, each group has its own contribution rate. To calculate contribution rates, it is necessary to separately identify the liabilities and assets associated with each group. Assets of members with service in more than one membership group are aggregated in a single group, as noted on the "transfers between groups" line in the following table. The end result is a closer match of liabilities with assets and therefore more refined contribution rates.

Allocation of Net Position Restricted for Pensions

Fiscal Year Ended June 30, 2022

| | Regular Members | Sheriffs and Deputies | Protection Occupation Members | Total |
|--|-------------------------|-----------------------|-------------------------------|-------------------------|
| Net position as of June 30, 2021 | \$39,637,744,850 | \$957,673,108 | \$2,294,457,724 | \$42,889,875,682 |
| Additions | | | | |
| Contributions | 1,337,139,005 | 24,181,226 | 64,908,515 | 1,426,228,746 |
| Service purchases | 4,498,449 | 49,640 | 62,226 | 4,610,315 |
| Investment and miscellaneous income | (1,398,153,192) | (33,883,174) | (81,259,040) | (1,513,295,406) |
| Total additions | (56,515,738) | (9,652,308) | (16,288,299) | (82,456,345) |
| Deductions | | | | |
| Benefit payments | 2,324,075,936 | 42,858,054 | 100,588,837 | 2,467,522,827 |
| Member refunds | 57,001,120 | 933,871 | 6,581,755 | 64,516,746 |
| Administrative expenses | 12,973,132 | 108,684 | 481,219 | 13,563,035 |
| Investment expenses | 64,905,317 | 1,572,931 | 3,772,222 | 70,250,470 |
| Total deductions | 2,458,955,505 | 45,473,540 | 111,424,033 | 2,615,853,078 |
| Preliminary net position | 37,122,273,606 | 902,547,261 | 2,166,745,393 | 40,191,566,259 |
| Transfers between groups | (613,902) | 365,026 | 248,876 | — |
| Adjusted net position as of June 30, 2022 | \$37,121,659,704 | \$902,912,287 | \$2,166,994,269 | \$40,191,566,259 |

Required Supplementary Information

Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

Last 9 Fiscal Years

| | 2022 | 2021 | 2020 | 2019 |
|--|-------------------------|-------------------------|-------------------------|-------------------------|
| Total pension liability | | | | |
| Service cost | \$962,108,032 | \$930,439,635 | \$906,211,617 | \$882,446,881 |
| Interest | 2,891,002,885 | 2,791,843,382 | 2,706,296,570 | 2,628,521,116 |
| Differences between expected and actual experience | 146,527,929 | 168,748,951 | (22,277,226) | (129,806,972) |
| Assumption changes | (42,533,419) | — | — | — |
| Benefit payments, including member refunds | (2,532,039,573) | (2,418,810,758) | (2,319,142,218) | (2,222,655,881) |
| Net change in total pension liability | 1,425,065,856 | 1,472,221,210 | 1,271,088,743 | 1,158,505,144 |
| Total pension liability – beginning | 42,544,648,750 | 41,072,427,540 | 39,801,338,797 | 38,642,833,653 |
| Total pension liability – ending | \$43,969,714,606 | \$42,544,648,750 | \$41,072,427,540 | \$39,801,338,797 |
| Plan fiduciary net position | | | | |
| Employer contributions | \$853,201,521 | \$817,561,450 | \$792,016,980 | \$771,782,308 |
| Employee contributions | 573,027,225 | 549,090,640 | 531,934,462 | 518,344,451 |
| Service purchases | 4,610,315 | 5,220,222 | 3,913,118 | 4,311,722 |
| Net investment income, including net securities lending income ¹ | (1,583,545,876) | 9,902,973,985 | 1,041,873,426 | 2,640,007,063 |
| Benefit payments, including member refunds | (2,532,039,573) | (2,418,810,758) | (2,319,142,218) | (2,222,655,881) |
| Administrative expenses | (13,563,035) | (13,851,969) | (13,584,387) | (15,697,527) |
| Net change in plan fiduciary net position | (2,698,309,423) | 8,842,183,570 | 37,011,381 | 1,696,092,136 |
| Plan fiduciary net position – beginning² | 42,889,875,682 | 34,047,692,112 | 34,010,680,731 | 32,314,588,595 |
| Plan fiduciary net position – ending | \$40,191,566,259 | \$42,889,875,682 | \$34,047,692,112 | \$34,010,680,731 |
| Net pension liability/(asset) – ending | \$3,778,148,347 | (\$345,226,932) | \$7,024,735,428 | \$5,790,658,066 |
| Plan fiduciary net position as a percentage of the total pension liability | 91.40% | 100.81% | 82.90% | 85.45% |
| Covered payroll | \$9,018,019,950 | \$8,648,783,536 | \$8,391,856,350 | \$8,151,043,468 |
| Employers' net pension liability/(asset) as a percentage of covered payroll | 41.90% | (3.99%) | 83.71% | 71.04% |

Continued on page 43

¹IPERS received the final settlement payment from the Westridge Capital fraud case, CFTC / SEC v. WG, in FY2021. This payment resulted in an extraordinary item that is included in the net investment income, including net securities lending income line for purposes of this schedule.

²Due to implementing GASB 75 requirements, the beginning net position for FY2018 has been restated by -\$178,615.

Note: Schedule is intended to show a 10-year trend. Additional years will be reported as they become available.

Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

Last 9 Fiscal Years

Continued from page 42

| | 2018 | 2017 | 2016 | 2015 | 2014 |
|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| Total pension liability | | | | | |
| Service cost | \$862,716,803 | \$822,363,095 | \$801,587,441 | \$775,968,193 | \$710,882,930 |
| Interest | 2,548,179,239 | 2,523,074,401 | 2,433,180,831 | 2,334,357,588 | 2,229,800,454 |
| Differences between expected and actual experience | (131,727,462) | 36,106,061 | (95,355,071) | 47,305,303 | 41,027,658 |
| Assumption changes | 34,635,401 | 1,432,643,482 | – | – | 214,545,272 |
| Benefit payments, including member refunds | (2,111,352,357) | (1,993,554,157) | (1,889,982,785) | (1,791,768,441) | (1,812,184,860) |
| Net change in total pension liability | 1,202,451,624 | 2,820,632,882 | 1,249,430,416 | 1,365,862,643 | 1,384,071,454 |
| Total pension liability – beginning | 37,440,382,029 | 34,619,749,147 | 33,370,318,731 | 32,004,456,088 | 30,620,384,634 |
| Total pension liability – ending | \$38,642,833,653 | \$37,440,382,029 | \$34,619,749,147 | \$33,370,318,731 | \$32,004,456,088 |
| Plan fiduciary net position | | | | | |
| Employer contributions | \$716,752,781 | \$704,766,114 | \$684,664,998 | \$656,911,160 | \$639,001,548 |
| Employee contributions | 481,405,756 | 473,354,932 | 459,854,052 | 441,213,236 | 429,195,536 |
| Service purchases | 4,629,646 | 4,271,054 | 32,147,862 | 17,475,633 | 14,324,144 |
| Net investment income, including net securities lending income ¹ | 2,458,968,900 | 3,279,743,723 | 624,853,651 | 1,080,045,104 | 3,904,373,624 |
| Benefit payments, including member refunds | (2,111,352,357) | (1,993,554,157) | (1,889,982,785) | (1,791,768,441) | (1,812,184,860) |
| Administrative expenses | (14,753,842) | (15,898,996) | (14,938,951) | (12,591,756) | (14,866,128) |
| Net change in plan fiduciary net position | 1,535,650,884 | 2,452,682,670 | (103,401,173) | 391,284,936 | 3,159,843,864 |
| Plan fiduciary net position – beginning² | 30,778,937,711 | 28,326,433,656 | 28,429,834,829 | 28,038,549,893 | 24,878,706,029 |
| Plan fiduciary net position – ending | \$32,314,588,595 | \$30,779,116,326 | \$28,326,433,656 | \$28,429,834,829 | \$28,038,549,893 |
| Net pension liability/(asset) – ending | \$6,328,245,058 | \$6,661,265,703 | \$6,293,315,491 | \$4,940,483,902 | \$3,965,906,195 |
| Plan fiduciary net position as a percentage of the total pension liability | 83.62% | 82.21% | 81.82% | 85.19% | 87.61% |
| Covered payroll | \$7,983,219,527 | \$7,863,160,443 | \$7,556,515,720 | \$7,326,348,141 | \$7,099,277,280 |
| Employers' net pension liability/(asset) as a percentage of covered payroll | 79.27% | 84.71% | 83.28% | 67.43% | 55.86% |

¹IPERS received the final settlement payment from the Westridge Capital fraud case, CFTC / SEC v. WG, in FY2021. This payment resulted in an extraordinary item that is included in the net investment income, including net securities lending income line for purposes of this schedule.

²Due to implementing GASB 75 requirements, the beginning net position for FY2018 has been restated by –\$178,615.

Note: Schedule is intended to show a 10-year trend. Additional years will be reported as they become available.

Schedule of Employers' Contributions

Last 10 Fiscal Years

| Fiscal Year | Membership Group | Actuarial Contributions | Contributions Paid* | Contribution Deficiency (Excess) | Covered Payroll | Contributions Paid as a Percentage of Covered-Employee Payroll |
|-------------|-------------------------------|-------------------------|----------------------|----------------------------------|------------------------|--|
| 2022 | Regular members | \$791,572,690 | \$802,174,389 | (\$10,601,699) | \$8,468,458,536 | 9.47% |
| | Sheriffs and Deputies | 11,352,563 | 12,090,552 | (737,989) | 132,983,997 | 9.09% |
| | Protection Occupation members | 38,794,548 | 38,936,580 | (142,032) | 416,577,417 | 9.35% |
| | Total | \$841,719,801 | \$853,201,521 | (\$11,481,720) | \$9,018,019,950 | 9.46% |
| 2021 | Regular members | \$753,395,571 | \$767,476,814 | (\$14,081,243) | \$8,123,447,535 | 9.45% |
| | Sheriffs and Deputies | 10,720,930 | 11,762,537 | (1,041,607) | 126,886,204 | 9.27% |
| | Protection Occupation members | 36,727,006 | 38,322,099 | (1,595,093) | 398,449,797 | 9.62% |
| | Total | \$800,843,507 | \$817,561,450 | (\$16,717,943) | \$8,648,783,536 | 9.45% |
| 2020 | Regular members | \$741,160,205 | \$742,552,855 | (\$1,392,650) | \$7,887,362,749 | 9.41% |
| | Sheriffs and Deputies | 10,570,255 | 11,614,457 | (1,044,202) | 122,072,903 | 9.51% |
| | Protection Occupation members | 35,771,734 | 37,849,668 | (2,077,934) | 382,420,698 | 9.90% |
| | Total | \$787,502,194 | \$792,016,980 | (\$4,514,786) | \$8,391,856,350 | 9.44% |
| 2019 | Regular members | \$722,765,827 | \$722,765,827 | — | \$7,667,747,786 | 9.43% |
| | Sheriffs and Deputies | 11,468,737 | 11,468,737 | — | 117,564,234 | 9.76% |
| | Protection Occupation members | 37,547,744 | 37,547,744 | — | 365,731,448 | 10.27% |
| | Total | \$771,782,308 | \$771,782,308 | — | \$8,151,043,468 | 9.47% |
| 2018 | Regular members | \$641,386,156 | \$671,598,096 | (\$30,211,940) | \$7,519,889,472 | 8.93% |
| | Sheriffs and Deputies | 9,753,998 | 10,564,954 | (810,956) | 112,757,464 | 9.37% |
| | Protection Occupation members | 33,724,988 | 34,589,731 | (864,743) | 350,572,591 | 9.87% |
| | Total | \$684,865,142 | \$716,752,781 | (\$31,887,639) | \$7,983,219,527 | 8.98% |
| 2017 | Regular members | \$628,387,062 | \$659,859,251 | (\$31,472,189) | \$7,403,850,371 | 8.91% |
| | Sheriffs and Deputies | 9,507,927 | 10,464,153 | (956,226) | 108,818,023 | 9.62% |
| | Protection Occupation members | 33,623,646 | 34,442,710 | (819,064) | 350,492,049 | 9.83% |
| | Total | \$671,518,635 | \$704,766,114 | (\$33,247,479) | \$7,863,160,443 | 8.96% |
| 2016 | Regular members | \$618,051,508 | \$640,913,485 | (\$22,861,977) | \$7,117,418,476 | 9.00% |
| | Sheriffs and Deputies | 9,427,481 | 10,407,096 | (979,615) | 104,042,502 | 10.00% |
| | Protection Occupation members | 32,612,466 | 33,344,417 | (731,951) | 335,054,742 | 9.95% |
| | Total | \$660,091,455 | \$684,664,998 | (\$24,573,543) | \$7,556,515,720 | 9.06% |
| 2015 | Regular members | \$602,423,393 | \$613,976,718 | (\$11,553,325) | \$6,899,669,544 | 8.90% |
| | Sheriffs and Deputies | 9,588,844 | 9,817,386 | (228,542) | 99,568,974 | 9.86% |
| | Protection Occupation members | 32,548,775 | 33,117,056 | (568,281) | 327,109,623 | 10.12% |
| | Total | \$644,561,012 | \$656,911,160 | (\$12,350,148) | \$7,326,348,141 | 8.97% |
| 2014 | Regular members | \$596,983,323 | \$596,983,323 | — | \$6,683,171,236 | 8.93% |
| | Sheriffs and Deputies | 9,583,512 | 9,583,512 | — | 96,396,464 | 9.94% |
| | Protection Occupation members | 32,434,713 | 32,434,713 | — | 319,709,580 | 10.15% |
| | Total | \$639,001,548 | \$639,001,548 | — | \$7,099,277,280 | 9.00% |
| 2013 | Regular members | \$573,480,969 | \$560,587,243 | \$12,893,726 | \$6,473,445,372 | 8.66% |
| | Sheriffs and Deputies | 9,246,766 | 9,246,766 | — | 93,426,040 | 9.90% |
| | Protection Occupation members | 32,118,873 | 32,118,873 | — | 313,259,722 | 10.25% |
| | Total | \$614,846,608 | \$601,952,882 | \$12,893,726 | \$6,880,131,134 | 8.75% |

*Contributions paid and recognized by the System are the same as the contractually required contributions.

Schedule of Investment Returns

Last 9 Fiscal Years

| Fiscal Year | Annual money-weighted rate of return, net of investment expense |
|-------------|---|
| 2022 | -3.74% |
| 2021 | 29.56% |
| 2020 | 3.11% |
| 2019 | 8.30% |
| 2018 | 8.12% |
| 2017 | 11.77% |
| 2016 | 2.23% |
| 2015 | 3.91% |
| 2014 | 15.96% |

Note: Schedule is intended to show a 10-year trend. Additional years will be reported as they become available.

Schedule of IPERS' Proportionate Share of the Total OPEB Liability

(Dollar Values Expressed in Thousands)

Last 5 Fiscal Years

| Fiscal Year | Proportion of total OPEB liability | Share of total OPEB liability | Covered payroll | Share of total OPEB liability as a % of covered payroll |
|-------------|------------------------------------|-------------------------------|-----------------|---|
| 2022 | 0.43% | \$963 | \$7,473 | 12.89% |
| 2021 | 0.44% | 939 | 7,109 | 13.21% |
| 2020 | 0.41% | 875 | 6,531 | 13.40% |
| 2019 | 0.41% | 820 | 6,242 | 13.14% |
| 2018 | 0.42% | 790 | 6,207 | 12.73% |

Note: Schedule is intended to show a 10-year trend. Additional years will be reported as they become available.

Notes to Required Supplementary Information

Benefit terms, actuarial assumptions and methods and funding policies affect the actuarial contribution rates. Changes over the past 10 years that had a significant impact on the actuarial contribution rates are summarized below. More detail may be obtained from the annual valuation reports.

(1) CHANGES IN BENEFIT TERMS

There were no recent changes in benefit terms.

(2) CHANGES IN ACTUARIAL ASSUMPTIONS AND METHODS

The 2022 valuation incorporated the following refinements after a quadrennial experience study:

- Changed mortality assumptions to the PubG-2010 mortality tables with mortality improvements modeled using Scale MP-2021.
- Adjusted retirement rates for Regular members.
- Lowered disability rates for Regular members.
- Adjusted termination rates for all membership groups.

The 2018 valuation incorporated the following refinements after a demographic assumption study:

- Changed mortality assumptions to the RP-2014 mortality tables with mortality improvements modeled using Scale MP-2017.
- Adjusted retirement rates.
- Lowered disability rates.
- Adjusted the probability of a vested Regular member electing to receive a deferred benefit.
- Adjusted the merit component of the salary increase assumption.

The 2017 valuation incorporated the following refinements after an economic assumption study:

- Decreased the inflation assumption from 3.00 percent to 2.60 percent per year.
- Decreased the assumed rate of interest on member accounts from 3.75 percent to 3.50 percent per year.
- Decreased the investment return assumption from 7.50 percent to 7.00 percent.
- Decreased the wage growth assumption from 4.00 percent to 3.25 percent.
- Decreased the payroll growth assumption from 4.00 percent to 3.25 percent.

The 2014 valuation incorporated the following refinements after a quadrennial experience study:

- Decreased the inflation assumption from 3.25 percent to 3.00 percent per year.
- Decreased the assumed rate of interest on member accounts from 4.00 percent to 3.75 percent per year.
- Adjusted male mortality rates for retirees in the Regular membership group.
- Reduced retirement rates for Sheriffs and Deputies between the ages of 55 and 64.
- Moved from an open 30-year amortization period to a closed 30-year amortization period for the UAL beginning June 30, 2014. Each year thereafter, changes in the UAL from plan experience will be amortized on a separate closed 20-year period.

(3) FUNDING POLICIES

The difference between the actuarial contribution rates and contributions paid through FY2013 was due entirely to statutorily set contributions that differed from the actuarial contribution rates. Special Service members have always paid at least the actuarial contribution rates.

Contribution rates for Regular members were set in statute at 9.45 percent from 1979 to 2007. In 2006, legislation allowed a 0.50 percentage point increase for each of the following four years, leading to a rate of 11.45 percent effective for FY2011. In 2010, an additional contribution rate increase to 13.45 percent, effective in FY2012, was passed by the Legislature.

The same legislation authorized IPERS to change the contribution rates by 1 percentage point each year, to bring them closer in line with the actuarial contribution rates, starting in FY2013. The FY2013 required contribution rate for Regular members was capped at 14.45 percent because of the statutory restriction. In FY2014 and FY2019, the contribution rate for Regular members equaled the actuarial contribution rate and in FY2015 – FY2018 and FY2020 – FY2022, the rate exceeded the actuarial contribution rate.

The Contribution Rate Funding Policy adopted by the IPERS Investment Board establishes procedures for setting the contribution rates for all membership groups. The actuarial contributions in the Schedule of Employers' Contributions are calculated annually on each valuation date (June 30), and apply one year after the valuation. Accordingly, the actuarial methods and assumptions shown in the following table are from the June 30, 2020, actuarial valuation, which established the actuarially determined employer contributions for FY2022.

FY2020 Actuarial Methods and Assumptions

| | |
|----------------------------|---|
| Actuarial cost method | Entry age normal |
| Amortization method | Level percentage of payroll, closed |
| Amortization period | 2014 initial UAL: 24 years 2015 experience: 15 years 2016 experience: 16 years 2017 experience: 17 years 2018 experience: 18 years 2019 experience: 19 years 2020 experience: 20 years |
| Asset valuation method | Expected value plus 25% of difference between fair value and expected value |
| Inflation rate | 2.6% |
| Payroll increase | 3.25% |
| Projected salary increases | 3.25% – 16.25%, including inflation, depending on years of service |
| Assumed investment return | 7% compounded annually, net of investment expense and including inflation |
| Mortality tables | RP-2014 Employee and Healthy Annuitant Tables with MP-2017 generational adjustments, with age setbacks and age set-forwards as well as other adjustments based on different membership groups. Future mortality improvements are anticipated using Projection Scale AA. Different adjustments apply to preretirement, postretirement and postdisability mortality tables. |

(4) OPEB IMPLICIT RATE SUBSIDY

There are no assets accumulated in a trust that meets the criteria in paragraph 4 of GASB 75 to pay the related benefits.

Changes in assumptions and other inputs reflect the effects of changes in the discount rate each period. Discount rates of 3.54 percent, 2.16 percent and 2.21 percent, were used for the years ended June 30, 2022, 2021 and 2020, respectively.

Supplementary Information

Schedule of Administrative Expenses

Fiscal Years Ended June 30, 2022 and 2021

| | 2022 | 2021 |
|--|---------------------|---------------------|
| Personnel | | |
| Salaries and wages | \$7,423,092 | \$7,206,558 |
| Travel | 36,723 | 6,163 |
| Professional and technical services | | |
| Professional | 476,781 | 580,867 |
| Actuary | 216,054 | 160,126 |
| Computer support services | 2,618,607 | 3,162,653 |
| Auditing | 167,352 | 161,152 |
| Communications | | |
| Telephone | 201,247 | 190,241 |
| Printing | 188,213 | 166,394 |
| Other expenses | | |
| Supplies | 614,633 | 599,702 |
| Utilities | 58,364 | 54,447 |
| Depreciation | 1,479,793 | 1,478,491 |
| Miscellaneous | 82,176 | 85,175 |
| Total administrative expenses | \$13,563,035 | \$13,851,969 |

Note: Administrative expenses related to investments do not appear here but are included in the investment expenses reported in the Schedule of Investment-Related Expenses on the next page.

Schedule of Investment-Related Expenses

Fiscal Years Ended June 30, 2022 and 2021

| | 2022 | 2021 |
|---|---------------------|---------------------|
| Aegon USA Investment Management LLC – Public credit | \$2,166,580 | \$702,805 |
| Ares Management LLC – Private credit | 319,315 | – |
| Audax Management Company (NY) LLC – Private credit | 395,216 | – |
| BlackRock Financial Management Inc. – Core-plus fixed income | 1,657,223 | 2,415,300 |
| BlackRock Institutional Trust Company NA – Domestic equity | 585,980 | 1,745,954 |
| BlackRock Institutional Trust Company NA – International equity | 1,483,649 | 3,072,166 |
| Blackstone Real Estate Debt Strategies II LP – Private credit | (3,768) | 15,367 |
| BMO Asset Management Corporation – International equity | 73,719 | 141,760 |
| Clarion Partners LLC – Private real assets | 2,338,314 | 2,061,044 |
| Columbia Mgmt Investment Advisers LLC – International equity | 79,520 | – |
| Crestline Management LP – Private credit | 120,938 | – |
| Forest Investment Associates LP – Private real assets | 1,263,469 | 1,167,593 |
| INVESCO Advisers Inc. – Private real assets | 3,280,666 | 2,482,146 |
| Janus Capital Management LLC – Domestic equity | 399,081 | 468,734 |
| KKR Goldfinch LP – Private credit | 1,008,711 | 884,334 |
| LARS Investments – Liquid absolute return strategies | 16,503,385 | 5,944,227 |
| MacKay Shields LLC – Core-plus fixed income | 312,836 | 302,323 |
| Marathon Asset Management LP – Private credit | 195,428 | – |
| Mellon Investments Corporation – Core-plus fixed income | 25,976 | 635 |
| Mellon Investments Corporation – Domestic equity | (32,196) | (31,593) |
| Mellon Investments Corporation – International equity | (28,996) | (14,320) |
| Monroe Capital Private Credit Fund I LP – Private credit | 1,086,864 | – |
| PanAgora Asset Management Inc. – International equity | 244,349 | 221,367 |
| Parametric Portfolio Associates LLC – Overlay management services | 249,773 | 215,545 |
| Pathway Capital Management LP – Private equity | 10,439,602 | 9,341,044 |
| PGIM Inc. – Core-plus fixed income | – | 3,354,567 |
| PGIM Inc. – Public credit | – | 3,052,517 |
| PGIM Real Estate Global Debt LP – Private credit | 605,816 | 377,293 |
| Principal Global Investors LLC – Core-plus fixed income | 1,098,512 | 2,341,611 |
| Principal Real Estate Debt Fund LP – Private credit | 1,165 | 7,401 |
| Principal Real Estate Debt Fund II LP – Private credit | 149,578 | 234,083 |
| RhumbLine Advisers LP – Domestic equity | 49,508 | 58,815 |
| RREEF America LLC – Private real assets | 3,461,515 | 2,876,379 |
| TCW Asset Management Company LLC – Core-plus fixed income | 1,516,491 | 777,403 |
| TCP Direct Lending Fund VIII-A LLC – Private credit | 3,144,034 | 2,905,108 |
| UBS Asset Management (Americas) Inc. – Global smart beta equity | 786,607 | 756,300 |
| UBS Farmland Investors LLC – Private real assets | 548,647 | 503,461 |
| UBS Realty Investors LLC – Private real assets | 1,909,926 | 1,612,007 |
| Western Asset Management Company – Core-plus fixed income | 422,922 | 2,605,786 |
| Wellington Management Company LLP – International equity | 2,113,677 | 7,647,995 |
| Total investment management fees | 59,974,032 | 60,247,157 |
| Wilshire – Investment consultant | 441,800 | 402,200 |
| The Bank of New York Mellon – Custodian | 635,879 | 668,181 |
| Treasurer of State – Custodian | 187,514 | 126,110 |
| Commission expenses | 4,977,733 | 3,416,469 |
| Investment staff and Board expenses | 2,247,921 | 2,277,757 |
| Miscellaneous expenses | 1,785,591 | 968,381 |
| Total other investment fees | 10,276,438 | 7,859,098 |
| Total investment-related expenses | \$70,250,470 | \$68,106,255 |
| Securities lending expenses | | |
| Securities lending borrower rebates | \$827,419 | \$227,373 |
| Securities lending management fees | 179,115 | 187,838 |
| Total securities lending expenses | \$1,006,534 | \$415,211 |



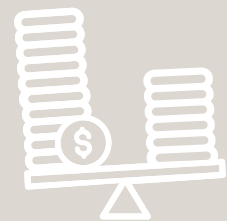
INVESTMENTS

INVESTMENTS

Investment Overview

Investment Results

Investment Policy and Goal Statement



Investment Overview

This section of the ACFR was compiled by IPERS' investment staff using information provided by Wilshire and the Bank of New York Mellon. Except where noted otherwise, investment returns are based on investment asset fair value and calculated using time-weighted return calculation methodologies.

Investment returns play an important role in the funded ratio of the IPERS Trust Fund. The Investment Board has adopted an Investment Policy and Goal Statement with the objective to benefit IPERS members by maximizing the total rate of return on investments within prudent risk parameters. IPERS' overall investment performance goal is to achieve an annualized rate of return which, when combined with employee and employer contributions, will meet or exceed the benefits and administrative funding requirements of the System. (See the Investment Policy and Goal Statement at the end of this section for more information about IPERS' investment return objectives.)

The System's investments are managed internally and by professional investment management firms based upon statutory investment authority, the investment policies adopted by the Investment Board and a detailed service contract with each manager. The investment staff coordinates and monitors the investment of the Fund's assets and assists the Investment Board in the formulation and implementation of investment policies and long-term investment strategy.

IPERS' net investment portfolio fair values reported in this section, and used as the basis for calculating investment returns, differ from those shown in the Financial and Actuarial sections of this report. The values used in this section are the appropriate industry standard basis for investment return calculation. Unlike the fair values shown in this report's Financial and Actuarial sections, the values reflected in this section are gross of investment receivables and cash in investment manager accounts and net of payables and securities lending collateral.

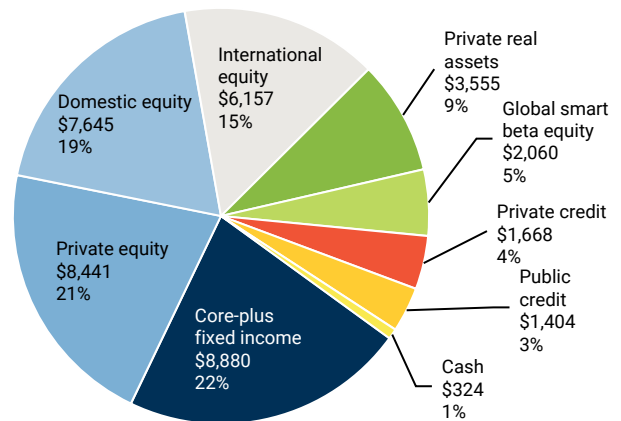
Asset Allocation and Diversification

Asset allocation is a process designed to construct an optimal long-term asset mix that achieves a specific set of investment objectives. The Investment Policy and Goal Statement establishes the System's asset allocation policy as designed to meet those objectives.

The asset allocation policy is adopted to provide for diversification of assets in an effort to maximize the investment return to IPERS consistent with prudent levels of market and economic risks. Of all the components of investment strategy formulation, the determination of asset allocation targets is the most important decision. The chart below illustrates the actual allocation to each type of investment as of June 30, 2022.

Summary of Investments by Asset Class

(Fair Values in Millions)
As of June 30, 2022



Note: Due to rounding, chart may not equal 100%

Risk is further diversified by utilizing active and passive management and using multiple investment management firms with a variety of investment styles. The investment performance at the total Fund level is not dependent upon the success of one particular investment style or manager.

The System also requires its investment managers to diversify their portfolios at the security level. Managers are required to diversify across sectors, industries and individual securities. IPERS develops specific contractual investment guidelines for each manager that control the risk of high concentrations in a particular sector, industry or security.

Diversification of the System's assets among various asset classes, investment management styles and individual securities mitigates risk and enhances the potential of the IPERS investment portfolio to achieve its long-term objectives.

Capital Markets Commentary

Fiscal year 2022 was a tough year overall for investors, including IPERS. Rising inflation, which began in late 2020-early 2021, continued to accelerate this year, reaching levels not seen in four decades. While energy was the leading expenditure category in terms of price increases (up 35 percent for the 12-months ending May), prices surged in nearly every segment of the overall Consumer Price Index. The largest component of the index, shelter, was up 5.5 percent with the next largest segment, food, up 10 percent during the past year. With such widespread inflationary pressures, the ability for the Federal Reserve to achieve a "soft landing" appears to be dissipating. The IPERS portfolio returned -3.90 percent during the fiscal year, with U.S. equities returning -12.09 percent, and international equities -19.77 percent.

With the Federal Open Market Committee becoming aggressively hawkish, the U.S. Treasury yield curve moved up across all maturities, most noticeably in the short end. The 10-year Treasury yield jumped to 3.02 percent at the end of the fiscal year and credit spreads widened across the board. Federal Reserve Chair Jerome Powell stated that controlling inflation at their 2 percent target in exchange for a higher unemployment rate would be a "successful outcome." Given the Fed's stance, fixed income assets also suffered in reaction to a higher interest rate environment. IPERS' core-plus fixed-income composite returned -11.60 percent during the fiscal year, while the public credit composite returned -14.89 percent for the fiscal year.

The bright spot for the IPERS portfolio was its private market investment performance. The private equity portfolio recorded a very strong fiscal year return of 23.47 percent and private credit returned

7.80 percent. Because of the potential for high inflationary environment to persist, IPERS' private real assets were particularly strong, returning 30.37 percent during the year. Cash composite returned 10.59 percent driven primarily by the LARS program.

Investment Portfolio Assets

At the close of FY2022, IPERS' net investment portfolio assets had a fair value of \$40.134 billion. This represents a decrease of \$2.721 billion from the \$42.855 billion investment asset fair value as of June 30, 2021. IPERS' -3.90 percent net investment return for the fiscal year was the main reason for the decrease in fair value.

Investment Results

IPERS posted a total portfolio net-of-fees investment return of -3.90 percent for the fiscal year ended June 30, 2022. This return exceeded the -4.05 percent return of IPERS' policy benchmark, a set of market indexes and weightings to those indexes that reflect IPERS' asset class targets. The performance of IPERS' portfolio exceeded the policy benchmark largely due to the outperformance of the domestic equity composite and liquid absolute return strategies.

IPERS' -3.90 percent return underperformed the actuarial assumed investment return of 7 percent and the annual rate of inflation, as measured by the Consumer Price Index, which was 9.33 percent for the fiscal year.

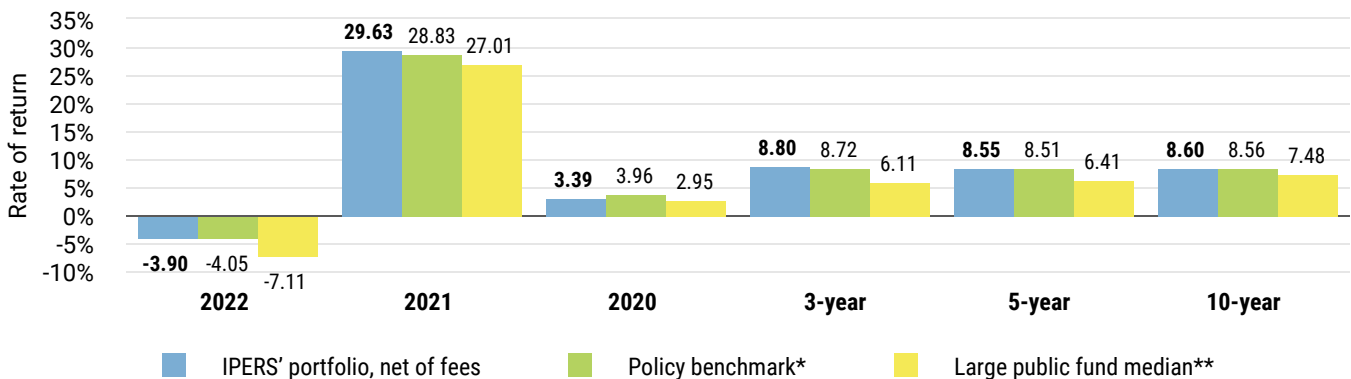
The following tables provide a historical perspective of IPERS' investment returns and performance over the last 10 years. IPERS' net-of-fees investment returns are shown for the total portfolio and for each asset class over various time periods. For comparison purposes, the benchmark for each asset class is also shown. Private real assets was the highest-returning asset class in FY2022 at 30.37 percent, while the international equity composite had the lowest return of -19.77 percent.

On December 2, 2021, the Investment Board revised the Investment Policy and Goal Statement to change the domestic equity benchmark index from the Wilshire 5000 Index to the Russell 3000 Index effective April 1, 2022.

The total return an investment portfolio achieves over the long term is largely determined by the level of risk the investor is willing to accept. In general, the greater the risk, the higher the return has to be over long time periods to compensate the investor for accepting that risk. A pension fund's willingness to accept additional risk is often the result of its need to achieve or maintain an actuarially sound funded ratio. Given the disparities in funding levels and the resulting differences in asset allocation that exist among pension funds, it is often difficult, if not impossible, to make meaningful comparisons of a pension system's investment performance based solely on returns.

Investment Performance Summary

For Periods Ended June 30



*A benchmark composed of market indexes with weightings reflective of IPERS' asset allocation targets.

**Investment Metrics' Universe of All Public Funds > \$1 Billion Index

Note: 3-, 5- and 10-year results are annualized returns.

Rates of Return

For Periods Ended June 30, 2022¹

| Asset Class | Annualized Returns (%) | | | |
|---|------------------------|--------|--------|---------|
| | 1-Year | 3-Year | 5-Year | 10-Year |
| Total Fund | | | | |
| IPERS | -3.90 | 8.80 | 8.55 | 8.60 |
| Policy benchmark ² | -4.05 | 8.72 | 8.51 | 8.56 |
| CPI + 3 percentage points | 12.33 | 8.12 | 7.00 | 5.67 |
| Actuarial assumed investment return | 7.00 | 7.00 | 7.00 | 7.20 |
| All Public Plans > \$1 Billion Index median | -7.11 | 6.11 | 6.41 | 7.48 |
| Domestic equity | | | | |
| IPERS | -12.09 | 10.05 | 10.76 | 12.72 |
| Benchmark ³ | -13.11 | 10.20 | 10.85 | 12.72 |
| International equity | | | | |
| IPERS | -19.77 | 1.43 | 2.39 | 5.16 |
| Benchmark ³ | -19.42 | 1.35 | 2.61 | 5.13 |
| Global smart beta equity | | | | |
| IPERS | -11.98 | 4.89 | NA | NA |
| Benchmark ³ | -11.81 | 5.04 | NA | NA |
| Core-plus fixed income | | | | |
| IPERS | -11.60 | -0.91 | 1.06 | 2.03 |
| Benchmark ³ | -10.89 | -0.94 | 0.94 | 1.83 |
| Public credit | | | | |
| IPERS | -14.89 | -1.04 | 1.16 | 3.47 |
| Benchmark ³ | -14.99 | -1.32 | 1.08 | 3.42 |
| Cash | | | | |
| IPERS | 10.59 | 6.03 | 6.12 | 3.14 |
| Benchmark ³ | 0.17 | 0.63 | 1.11 | 0.63 |
| Private equity | | | | |
| IPERS | 23.47 | 29.60 | 24.90 | 19.40 |
| Benchmark ⁴ | 23.47 | 29.60 | 24.90 | 19.89 |
| Private real assets | | | | |
| IPERS | 30.37 | 16.20 | 12.95 | NA |
| Benchmark ⁴ | 30.37 | 16.20 | 12.95 | NA |
| Private credit | | | | |
| IPERS | 7.80 | 7.10 | 7.51 | NA |
| Benchmark ⁴ | 7.80 | 7.10 | 7.51 | NA |

¹All returns are time-weighted returns. All returns beyond one year are annualized.

²The policy benchmark on June 30, 2022, consisted of 22 percent Russell 3000, 17.5 percent MSCI ACWI ex U.S., 6 percent global smart beta equity custom benchmark; 26 percent Barclays Universal, 4 percent custom public credit benchmark, 1 percent Treasury bills, 13 percent IPERS private equity portfolio, 7.5 percent IPERS private real assets and 3 percent IPERS private credit benchmark. The composition of the policy benchmark has changed over the 10-year period.

³See the descriptions for each asset class in this Investments section for the specific benchmarks for each asset class.

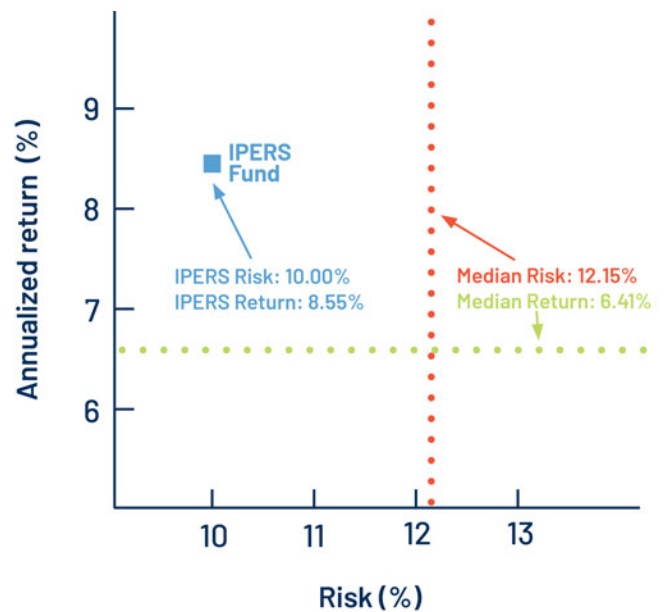
⁴The benchmark index for each private market asset class is the return of the portfolio itself. See Section IV of the Investment Policy and Goal Statement at the end of this Investments section for an explanation of private market benchmarking.

A more meaningful peer comparison is when returns are compared on the basis of how much return is earned for each unit of risk taken, where risk is measured by the volatility (standard deviation) of returns.

The following graph provides a comparison of IPERS' investment return per unit of risk taken for the last 5 years against Investment Metrics' Universe of All Public Funds > \$1 Billion Index. The vertical line represents the median level of risk experienced by this universe of funds. The horizontal line represents the median rate of return earned by the group of funds. As shown in the graph, the return on IPERS' investments for the 5 years ended June 30, 2022, was higher than the median large public pension fund return and was earned with less risk.

Risk vs. Total Return

Investment Metrics' Universe of All Public Funds > \$1 Billion Index
5 Years Ended June 30, 2022

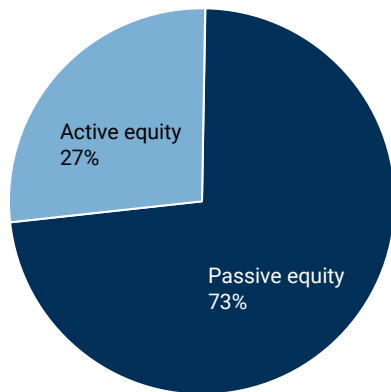


Domestic Equity

At June 30, 2022, 19.05 percent of IPERS' total portfolio was invested in domestic equities (U.S. stocks). The fair value of the domestic equity portfolio was \$7.645 billion. The portfolio is widely diversified across various equity market sectors and industries. The portfolio takes mainly a passive approach to the efficient U.S. stock market with 73 percent invested in passive investment strategies.

Domestic Equity Portfolio

June 30, 2022



Active Equity

IPERS utilizes active management in small- and large-capitalization stock strategies. The active portfolio is primarily invested in systematic strategies that attempt to be uncorrelated with traditional factor betas. The systematic investment strategies are expected to exceed the core benchmark over a full market cycle.

Passive Equity

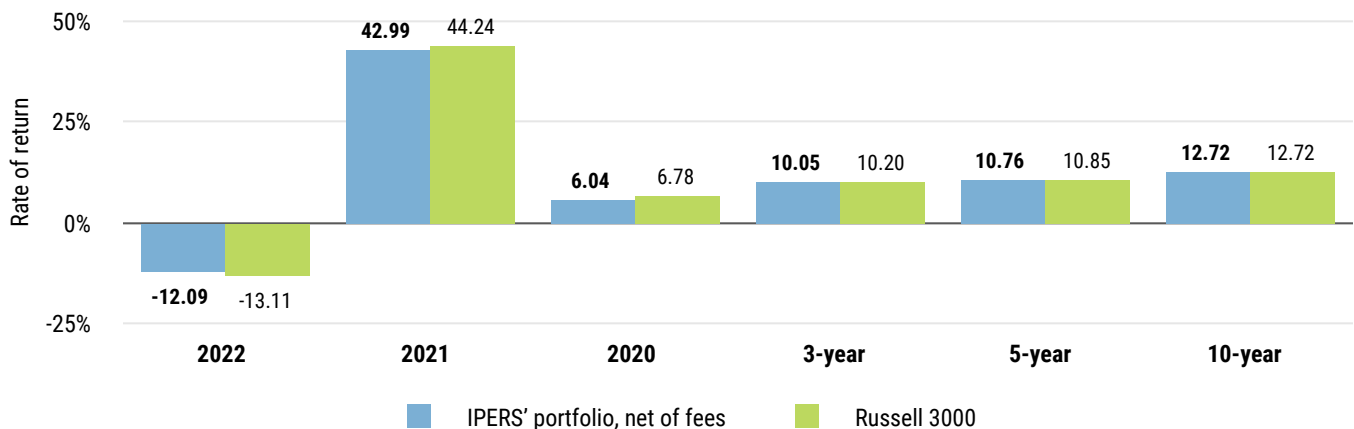
The passive component is divided into large-cap and small-cap strategies for management purposes and consists primarily of investments in commingled index funds, index futures and short-term securities. The return objective for each passive strategy is to track, within a certain range, the returns of a broad market index. The passive component is designed to add diversity to the full portfolio while complementing the active investment styles of IPERS' other domestic equity portfolios. The passive component constitutes an efficient, low-cost means of obtaining market exposure to the domestic stock markets.

Results

For the year ended June 30, 2022, IPERS' domestic equity portfolio delivered a return of -12.09 percent, compared to -13.11 percent for its benchmark, the Russell 3000 Index. The outperformance was primarily driven by synthetic rebalancing and active strategies within the portfolio.

Domestic Equity Performance

For Periods Ended June 30



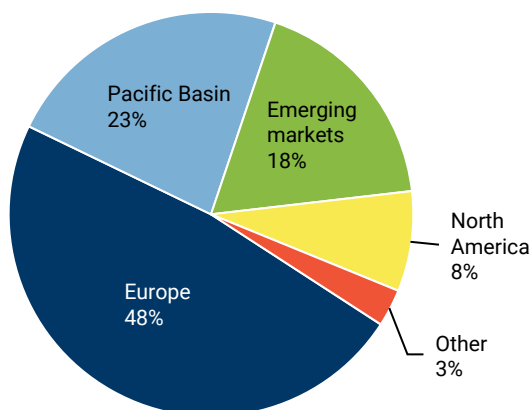
Note: 3-, 5- and 10-year results are annualized returns.

International Equity

At June 30, 2022, the international equity portfolio had a fair value of \$6.157 billion, representing 15.34 percent of the total IPERS portfolio. IPERS' international equity portfolio is composed primarily of publicly traded common stocks or equity commingled funds, foreign exchange contracts and cash. The portfolio assets are allocated across developed and emerging markets. Market weights are maintained in the same proportions as reflected in the MSCI All Country World ex U.S. asset class benchmark. The international equity portfolio utilizes both active and passive management strategies. On June 30, 2022, 57.13 percent of the portfolio was active strategies and 42.87 percent was in passive strategies.

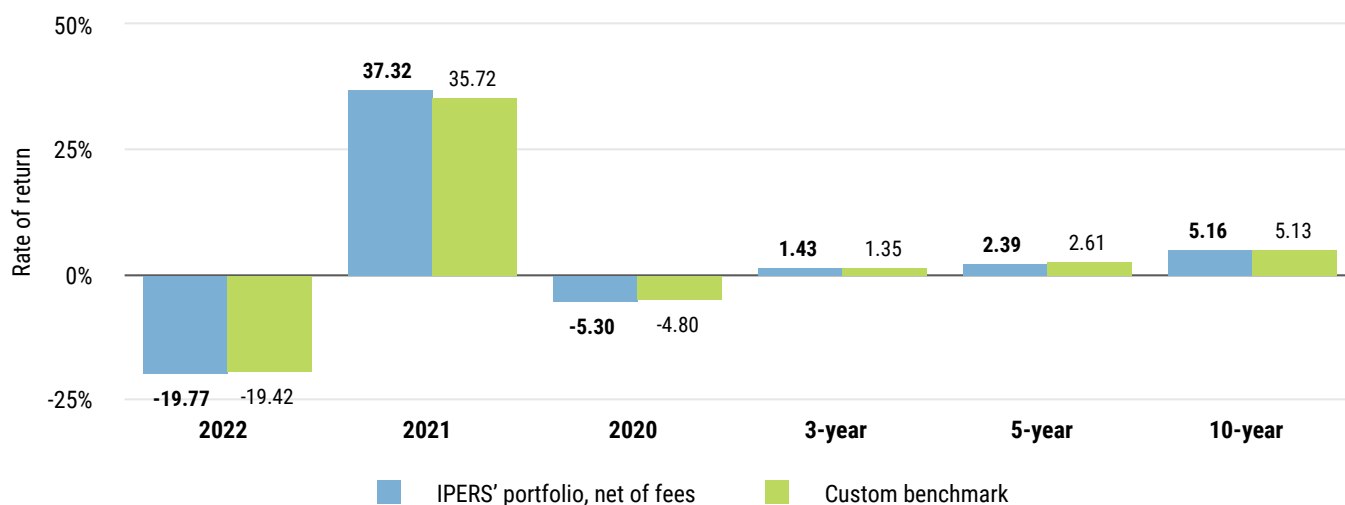
International Equity Portfolio

June 30, 2022



International Equity Performance

For Periods Ended June 30



Note: 3-, 5- and 10-year results are annualized returns.

Active Equity

This component is an actively managed diversified portfolio consisting primarily of equity securities issued by foreign companies in both developed and emerging countries. The active equity portfolio's performance objective is to exceed the return of the MSCI All Country World ex U.S. Index.

Passive Equity

This component is a passively managed diversified portfolio consisting of commingled index fund investments in Canadian, EAFE (European, Australasian and Far East) and global emerging market countries' corporate equity securities. The objective of the passive equity portfolios is to track the performance of the respective MSCI indexes for each region.

Results

The international equity market, as measured by the MSCI All Country World ex U.S. Index in U.S. dollars, returned -19.42 percent for the fiscal year ended June 30, 2022. IPERS' international equity portfolio underperformed its benchmark in FY2022, returning -19.77 percent net of fees. The underperformance was due mainly to weak returns from active management, particularly in emerging markets.

PUBLIC EQUITY PORTFOLIO: TOP TEN HOLDINGS

The top 10 holdings within the public equity portfolio (domestic and international combined) at June 30, 2022, follow. The list includes IPERS' pro rata share of holdings within commingled funds. A complete list of holdings is available upon request.

| Ten Largest Holdings at June 30, 2022 | Fair Value (\$000) | % of Total |
|--|--------------------|--------------|
| Apple, Inc. | \$423,153 | 3.07 |
| Microsoft Corporation | 406,379 | 2.94 |
| Alphabet, Inc. | 264,633 | 1.92 |
| Amazon.com, Inc. | 189,147 | 1.37 |
| Tesla Inc. | 118,568 | 0.86 |
| Taiwan Semiconductor Manufacturing Company Ltd | 116,927 | 0.85 |
| United Health Group | 104,786 | 0.76 |
| Johnson & Johnson | 100,526 | 0.73 |
| Berkshire Hathaway Inc. | 94,547 | 0.69 |
| Nestle SA | 87,190 | 0.63 |
| Total | \$1,905,856 | 13.82 |

Global Smart Beta Equity

At June 30, 2022, the global smart beta equity portfolio had a fair value of \$2.060 billion, representing 5.13 percent of the total IPERS portfolio. The program seeks to maintain regional weights of 56 percent U.S., 34 percent developed ex-U.S. and 10 percent emerging markets. The program creates a portfolio of stocks within each regional mandate that have positive exposures to a set of desired factors that have demonstrated a persistent ability to add value over long periods of time.

The global smart beta equity asset class was created in policy at the start of FY2018. Since the program is implemented passively, minimizing the tracking errors to the respective benchmark indexes is also critical. The Russell 1000 Comprehensive Factor Index is the benchmark for the U.S. region, the FTSE Developed Ex-U.S. Comprehensive Factor Index is the benchmark for the developed ex-U.S. region and the FTSE Emerging Markets Comprehensive Factor Index is the benchmark for the emerging markets region.

For FY2022 the program posted a -11.98 percent return, net of fees, versus its custom benchmark return of -11.81 percent. The program returned 4.89 percent for the three years ended June 30, 2022, versus 5.04 percent for its benchmark and 6.21 percent for the MSCI All Country World (Net) Index.

Fixed Income

IPERS has a significant allocation to fixed-income securities. At fiscal year-end, IPERS' core-plus portfolio was 22.13 percent of total Fund assets and the public credit portfolio was 3.50 percent of total Fund assets. The total return for the consolidated fixed-income portfolio (core-plus and public credit portfolios combined) for the year ended June 30, 2022, was -12.05 percent. The consolidated fixed-income portfolio fair value was \$10.284 billion and the average bond rating for the portfolio was "A."

Core-Plus Fixed Income

The objective of the core-plus fixed-income portfolio is to generate a return above the return of the core fixed-income market. Approximately 15 percent of the core-plus portfolio is allocated to a passively managed "core" investment in an index fund designed to earn the return of the Bloomberg Barclays U.S. Aggregate Index (Aggregate Index), an index consisting of high-quality U.S. investment-grade fixed-income securities. The remainder of the core-plus portfolio is actively managed with the objective of exceeding the return of the Bloomberg Barclays U.S. Universal Index (Universal Index), net of fees, over a full market cycle. The Universal Index is a broader index, consisting of the core Aggregate Index plus other fixed-income sectors available to U.S. investors, such as high-yield bonds, dollar-denominated emerging market debt and eurodollar bonds.

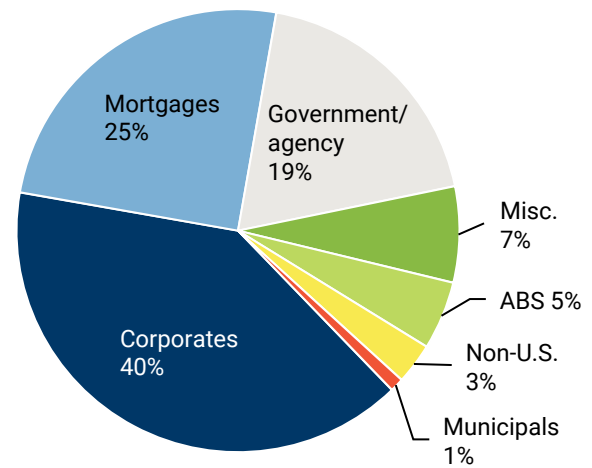
The core-plus portfolio is a diversified portfolio of fixed-income securities, utilizing cash and cash equivalents, forward foreign exchange contracts, swaps, currency options, financial futures, government and government agency bonds,

eurobonds, nondollar bonds, nonconvertible preferred stock, options on fixed-income instruments, mortgage-backed bonds, corporate bonds, commercial mortgage-backed securities, private placement corporate bonds and asset-backed securities. The actively managed portion of the core-plus portfolio is expected to have interest rate sensitivity similar to the Universal Index, and be diversified by industry, sector and security issuers.

IPERS' core-plus fixed-income portfolio return of -11.60 percent underperformed the Bloomberg Barclays Capital U.S. Universal Index return of -10.89 percent for the fiscal year ended June 30, 2022.

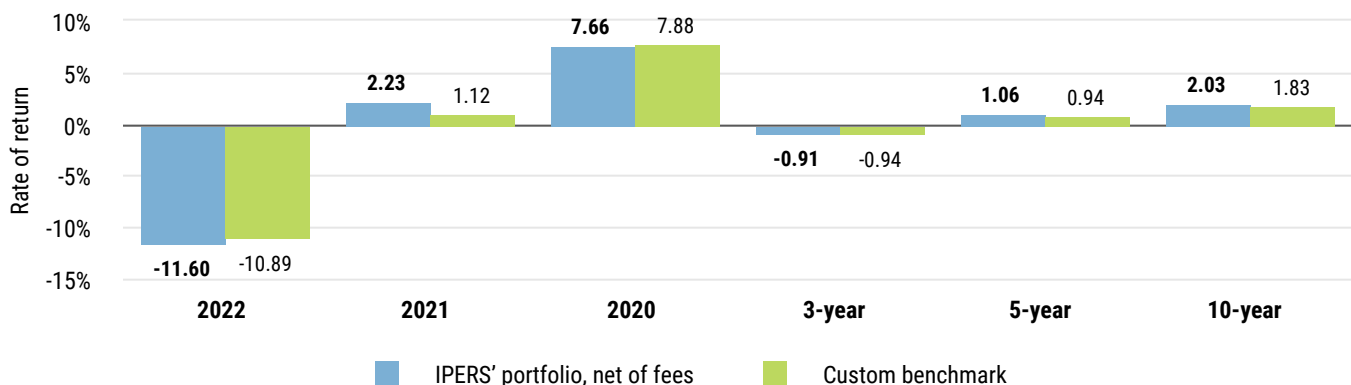
Core-Plus Fixed-Income Portfolio

June 30, 2022



Core-Plus Fixed-Income Performance

For Periods Ended June 30



Note: 3-, 5- and 10-year results are annualized returns.

Public Credit Fixed Income

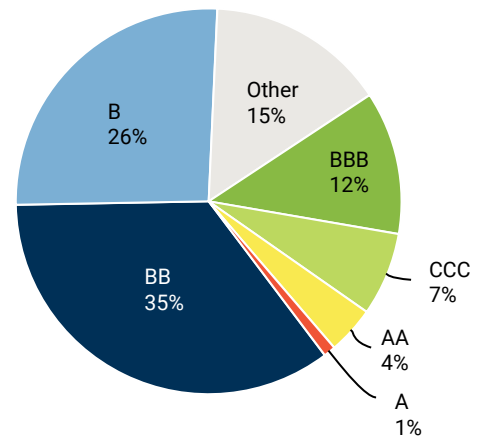
The objective of the public credit fixed-income portfolio is to enhance the long-term returns of the Fund, to provide current income and to provide diversification benefits. Approximately two-thirds of the public credit portfolio is invested in high-yield securities, while approximately one-third is invested in emerging market debt securities.

IPERS' public credit fixed-income portfolio generated a return of -14.89 percent for FY2022 versus its custom benchmark return of -14.99 percent.

The benchmark is defined as 67 percent Bloomberg Barclays U.S. High Yield 2 percent Issuer Capped Index + 33 percent JP Morgan EMBI Global Index. The high-yield portion of the portfolio provided a return of -11.65 percent, outperforming versus the benchmark return of -12.82 percent. The emerging market debt portion of the portfolio generated a return of -21.40 percent through June 30, 2022, underperforming the JP Morgan EMBI Global Index return of -19.25 percent.

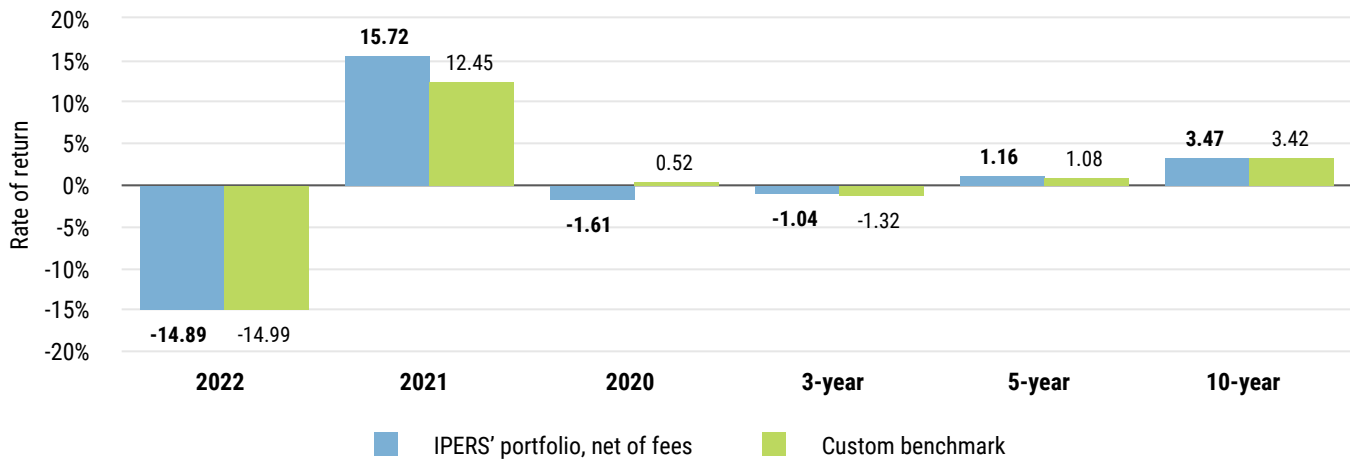
Public Credit Fixed-Income Portfolio

June 30, 2022



Public Credit Fixed-Income Performance

For Periods Ended June 30



Note: 3-, 5- and 10-year results are annualized returns.

FIXED-INCOME PORTFOLIO: TOP TEN HOLDINGS

The top 10 holdings within the consolidated fixed-income portfolio (core-plus and public credit combined) at June 30, 2022, are provided in the following table. The list includes IPERS' pro rata share of holdings within commingled funds. A complete list of holdings is available upon request.

Ten Largest Holdings at June 30, 2022

| | | |
|---------------------------------------|----------|------|
| U.S. Treasury Note - 2.875%, 4/30/29 | \$56,929 | 0.55 |
| U.S. Treasury Note - 2.625%, 4/15/25 | 51,503 | 0.50 |
| U.S. Treasury Bond - 1.250%, 5/15/50 | 47,610 | 0.46 |
| U.S. Treasury Bond - 2.875%, 5/15/52 | 43,155 | 0.42 |
| U.S. Treasury Bond - 3.250%, 5/15/42 | 38,725 | 0.38 |
| U.S. Treasury Bond - 2.000%, 11/15/41 | 30,808 | 0.30 |
| U.S. Treasury Note - 3.125%, 11/15/28 | 30,233 | 0.29 |
| U.S. Treasury Bond - 2.250%, 5/15/41 | 27,168 | 0.26 |
| U.S. Treasury Note - 2.875%, 6/15/25 | 26,469 | 0.26 |
| U.S. Treasury Note - 2.500%, 3/31/27 | 23,529 | 0.23 |

Total

| Fair Value (\$'000) | % of Total |
|---------------------|-------------|
| \$376,129 | 3.65 |

Private Equity

At June 30, 2022, IPERS' private equity/debt portfolio had a fair value of \$8.441 billion, representing 21.03 percent of the total IPERS portfolio. From the inception of the private equity/debt portfolio through June 30, 2022, the System has committed \$14.679 billion to 271 partnerships and one fund-of-one investment. During FY2022, IPERS committed a total of \$949.1 million to the fund-of-one investment. At June 30, 2022, commitments of \$2.461 billion remained to be called for investment.

IPERS seeks to minimize the risk associated with private equity by investing in a variety of top-tier partnerships with different investment styles and objectives. The portfolio is also diversified by industry focus, geographic location and, most importantly, vintage year, which means that capital is committed to partnerships over the full course of the business cycle and not concentrated in any one year.

IPERS' goal for the private equity/debt portfolio is to exceed the internal rate of return (IRR) of the Wilshire 5000 Index by 3 percentage points (net of investment management fees) over rolling 10-year periods. The internal rate of return is used because private equity investments are generally illiquid and cash inflows and outflows can be controlled by the general partner of the private equity partnership, making time-weighted returns inappropriate. Private equity investments typically span 10 years or more, so a longer evaluation time horizon is appropriate.

The private equity/debt portfolio returned 18.71 percent (net IRR) versus its benchmark return of 16.94 percent for the 10-year period ended June 30, 2022. Since inception in 1985, IPERS' total private equity/debt portfolio has returned 14.94 percent, slightly outperforming the 14.74 percent asset class benchmark for private equity (Wilshire 5000 plus 3 percentage points).

"Distributions to paid-in capital" (DPI) ratios, which measure the ratio of cumulative distributions to cumulative paid-in capital for the time period, is another metric for evaluating private equity performance. Since 1985, the total private equity/debt portfolio's DPI was 1.31.

The Burgiss All Regions Private Equity Composite performance database includes data from thousands of partnerships and makes it possible to compare a portfolio to a universe of private equity partnerships that raised capital over the same time period. As explained in the Summary of Significant Accounting Policies in the Financial section of this report, IPERS utilizes a one-quarter valuation lag for its private equity/debt investments. All Burgiss information is as of October 2022, with data current for reporting periods ended March 31, 2022 (that is, it is also lagged

by one quarter). Data is continuously updated and is therefore subject to change.

The following table compares the IRR and DPI of IPERS' private equity/debt portfolio to those calculated for all private equity partnerships in the Burgiss database for the period 1985–2022.

| Vintage Years 1985 – 2022 | IRR | DPI |
|--|--------|------|
| IPERS' private equity/debt portfolio | 14.94% | 1.31 |
| Burgiss All Regions Private Equity Composite | 14.87% | 1.01 |

Private Real Assets

Private real assets consist of investments in private equity real estate and other real assets (infrastructure, timberland and farmland). The real assets portfolio serves three distinct purposes for IPERS: diversification, income production and inflation protection. At June 30, 2022, \$3.555 billion, or 8.86 percent, of IPERS' total portfolio at fair value was invested in private real assets. There were no outstanding commitments at fiscal year-end within the private real assets portfolio.

IPERS' long-term return objective for the private real assets program is to exceed the CPI-U (NSA) by 5 percentage points (net of investment management fees) calculated on a time-weighted basis over rolling 10-year periods. As of June 30, 2022, the private real assets composite did not have 10 years of performance history. The composite inception was October 1, 2016. For FY2022, the portfolio posted a return of 30.37 percent versus the objective of 14.51 percent.

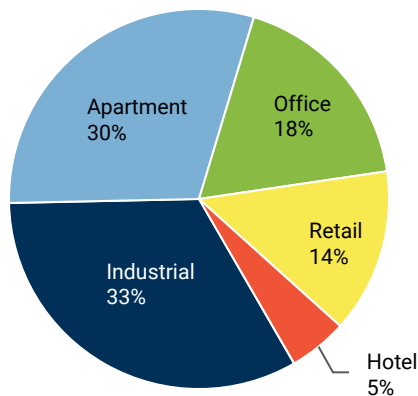
Real Estate

IPERS' real estate portfolio had a fair value of \$2.967 billion at June 30, 2022. In order to mitigate risk, the real estate portfolio is diversified by both geographic location and property type, as shown in the following charts.

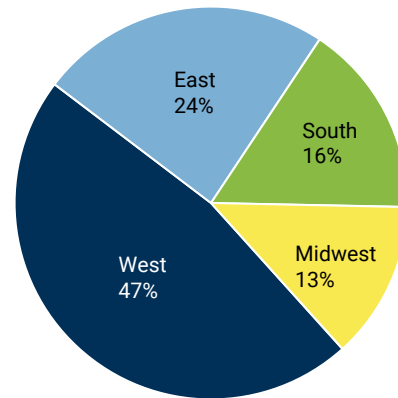
Real Estate Portfolio

June 30, 2022

By Property Type



By Property Location



The IPERS real estate portfolio benchmark is the NCREIF Open-End Diversified Core Index. For the fiscal year, IPERS' real estate portfolio posted a return of 33.56 percent versus the benchmark return of 28.31 percent. As with the private equity/debt portfolio, the real estate program invests in assets with long holding periods and should be evaluated over a longer time horizon. For the 10 years ended June 30, 2022, the real estate portfolio returned 12.23 percent, net of fees, versus the portfolio's benchmark of 10.13 percent.

Other Real Assets

The other real assets portfolio had a fair value of \$588.1 million at June 30, 2022. The portfolio is diversified by asset class (infrastructure, timberland and farmland), as well as by geography and markets within each asset class.

The objective for IPERS' other real assets portfolio is to achieve a 5 percent real return after inflation and management fees over rolling 10-year periods. The composite was established at the same time as the total private real assets composite and does not have 10 years of performance history. For FY2022, the portfolio returned 10.33 percent, net of fees, versus the portfolio's benchmark of 14.51 percent.

Private Credit

IPERS' private credit portfolio consists of investments in opportunistic credit funds, real estate debt funds and direct lending funds. The funds are structured as partnerships and are illiquid.

At June 30, 2022, the fair value of the private credit portfolio was \$1.668 billion, or 4.16 percent of IPERS' total portfolio at fair value. There were outstanding commitments of \$1.038 billion at fiscal year end. The portfolio produced a time-weighted return of 7.80 percent for the fiscal year versus the program objective of -1.80 percent.

The long-term return objective for IPERS' private credit portfolio is to exceed the S&P/LSTA Leveraged Loan Index plus 1 percentage point, net of investment management fees, calculated on an internal rate of return basis over rolling 5-year periods. The private credit portfolio returned 7.47 percent (net IRR) versus its benchmark return of 4.58 percent for the 5-year period ended June 30, 2022.

Cash

IPERS' cash allocation is invested in a liquidity account and a cash overlay account.

Liquidity Account

The liquidity account invests in the custodian bank's short-term investment fund (similar to a money market fund) and provides the cash needed to make benefit payments, fund investment purchases and pay investment and administrative expenses. The liquidity account also receives deposits of employee and employer contributions, investment income distributions and investment sales proceeds. The IPERS investment staff use cash flow forecasting and periodic withdrawals from other asset classes to raise cash as needed to pay bills when they come due.

At June 30, 2022, the fair value of the combined liquidity account and the cash overlay account was \$324.1 million and earned a net-of-fees investment return of 10.59 percent.

Cash Overlay Account

In FY2017, IPERS implemented a cash overlay investment program with the objectives of adding incremental return to the Fund and diversifying IPERS' investment strategies. The liquid absolute return strategies (LARS) program is a multi-advisor-managed futures "fund" that allocates and reallocates its capital to different trading advisors implementing various trading programs primarily using futures and options on futures. IPERS created its own managed account platform within a limited liability structure (LARS Liquid Assets, LLC) to control custody risk. IPERS acts as the investment manager for LARS and in

such capacity directs the allocation of assets to the trading advisors. As of June 30, 2022, LARS had allocated capital across six different trading advisors and the fair value of the LARS program was \$226.3 million. The LARS program produced a net-of-fees investment return of 26.29 percent for FY2022, well above the 0.17 percent return of the 90-day Treasury bill and the 0.66 percent return of the 3 month LIBOR.

Beta Management

IPERS implemented a beta management overlay program in FY2017. The program is a systematic approach to rebalancing the public markets investment portfolio back to asset allocation targets using exchange-traded futures. The beta management overlay manager must rebalance the public markets portfolio back to its specified targets whenever a predefined deviation from a target allocation occurs. The gains or losses from this systematic rebalancing activity are recorded in each respective public market asset class, and therefore the investment returns for each asset class reflect any gains or losses from beta management rebalancing activity.

Investments in Iowa

Iowa Code section 97B.7A authorizes IPERS to invest the moneys of the Trust Fund in accordance with the Investment Policy and Goal Statement adopted by the Investment Board and subject to the "prudent person" rule. Section 97B.7A also directs that, where consistent with the aforementioned standards, IPERS will invest "... in a manner that will enhance the economy of the state, and in particular, will result in increased employment of the residents of the state."

At June 30, 2022, the System held investments of \$1.939 billion in companies of Iowa interest.

Holdings in Companies of Iowa Interest

June 30, 2022

| Asset Class | Amount |
|---------------------|------------------------|
| Stocks | \$1,428,918,145 |
| Bonds | 489,610,466 |
| Private equity/debt | 20,712,400 |
| Total | \$1,939,241,011 |

Investment Fees and Brokerage Commissions

Schedule of Investment Fees

Fiscal Year Ended June 30, 2022

| | Amount Paid | Average Quarterly Fair Value |
|--------------------------|---------------------|------------------------------|
| Domestic equity | \$1,002,373 | \$8,881,195,301 |
| International equity | 3,965,918 | 6,875,653,602 |
| Core-plus fixed income | 5,033,960 | 10,028,979,496 |
| Public credit | 2,166,580 | 1,569,173,766 |
| Global smart beta equity | 786,607 | 2,388,894,991 |
| Cash | 16,753,158 | 551,408,538 |
| Private equity | 10,439,602 | 8,405,639,815 |
| Private real assets | 12,802,537 | 2,946,879,294 |
| Private credit | 7,023,297 | 1,445,454,526 |
| Total | \$59,974,032 | \$43,093,279,329 |

Note: See Schedule of Investment-Related Expenses on page 48 for fees by manager.

Schedule of Brokerage Commissions Paid

Fiscal Year Ended June 30, 2022

| PUBLIC EQUITY | Amount Paid | Shares Traded | Average Per Share |
|--|--------------------|-------------------------|-----------------------------|
| Brokerage Firm | | | |
| Goldman Sachs & Co. | \$417,722 | 66,313,578 | \$0.006 |
| Morgan Stanley & Co. | 312,737 | 87,905,325 | 0.004 |
| Services Corp | 186,523 | 30,981,744 | 0.006 |
| J.P. Morgan | 184,305 | 66,236,283 | 0.003 |
| HSBC | 125,119 | 67,066,231 | 0.002 |
| Merrill Lynch | 119,718 | 71,627,533 | 0.002 |
| Citigroup | 118,575 | 111,650,548 | 0.001 |
| UBS Securities | 57,084 | 25,985,990 | 0.002 |
| Credit Suisse | 49,903 | 32,518,590 | 0.002 |
| Macquarie Bank | 48,761 | 74,289,218 | 0.001 |
| Jefferies & Co. Inc | 37,425 | 69,137,088 | 0.001 |
| Barclays Bank | 24,637 | 1,970,013 | 0.013 |
| Credit Lyonnais | 18,694 | 38,263,572 | — |
| Kotak Securities | 16,614 | 290,899 | 0.057 |
| Royal Bank of Canada | 14,366 | 1,110,270 | 0.013 |
| Arqaam Securities LLC | 13,345 | 8,204,916 | 0.002 |
| Instinent Clearing Services | 12,946 | 4,558,225 | 0.003 |
| BNP Paribas | 12,789 | 31,425,541 | — |
| Pershing | 7,250 | 1,212,860 | 0.006 |
| Liquidnet Inc | 6,900 | 1,475,265 | 0.005 |
| Banco BTG Pactual SA | 6,730 | 818,900 | 0.008 |
| Bank of America | 6,186 | 2,857,500 | 0.002 |
| Wells Fargo Securities LLC | 5,955 | 179,003 | 0.033 |
| Renaissance Capital | 5,692 | 509,707 | 0.011 |
| Sanford C Bernstein & Co. | 5,291 | 2,094,701 | 0.003 |
| All Others (includes 51 brokerage firms) | 77,434 | 46,113,103 | 0.002 |
| Total Public Equity | \$1,892,701 | 844,796,603 | \$0.002 |
| FIXED INCOME | Amount Paid | Par Units Traded | Average Per Unit |
| Brokerage Firm | | | |
| Britannia Industries | \$2 | 140,853 | — |
| Total Fixed Income | \$2 | 140,853 | — |
| FUTURES AND OPTIONS | Amount Paid | Contracts Traded | Average Per Contract |
| Brokerage Firm | | | |
| Morgan Stanley & Co. Inc. | \$2,343,197 | 1,240,816 | \$1.89 |
| Newedge Group | 366,822 | 200,091 | 1.83 |
| Societe Generale | 363,142 | 194,713 | 1.87 |
| J.P. Morgan | 11,869 | 7,936 | 1.50 |
| Total Futures and Options | \$3,085,030 | 1,643,556 | \$1.88 |
| Total Commissions | \$4,977,733 | | |

Note: Brokerage commissions do not include commissions paid by external managers utilizing commingled fund structures.



ACTUARIAL

ACTUARIAL

Actuary's Certification Letter

Principal Valuation Results

Actuarial Balance Sheet

Solvency Test

Retirees and Beneficiaries – Changes in Rolls

Schedule of Active Member Valuation Data

Schedule of Funding Progress

Actuarial Assumptions and Methods

Contribution Rate Funding Policy

Iowa Code Section 97D.5 Certification





Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

November 15, 2022

This report presents the results of the June 30, 2022 actuarial valuation of the Iowa Public Employees' Retirement System (IPERS), a cost-sharing multiple employer defined benefit plan. The primary purposes of performing the annual valuation are as follows:

- to determine the Actuarial Contribution Rate (ACR) and the Required Contribution Rate (RCR) for the Regular membership, Sheriffs and Deputies, and the Protection Occupation group (all public safety members other than Sheriffs and Deputies) in accordance with IPERS' Contribution Rate Funding Policy,
- to evaluate the funded status of the System and disclose various asset and liability measures as of June 30, 2022,
- to determine the actuarial experience of the System since the last valuation,
- to assess and disclose the key risks associated with funding the System, and
- to analyze and report on trends in System contributions, assets, and liabilities over the past several years.

Given the importance of actuarial assumptions in the valuation process, IPERS performs a comprehensive experience study every four years, a statutory requirement. The purpose of the experience study is to review the current assumptions, in light of the actual experience, and determine whether changes are needed to more appropriately model future experience. The regularly scheduled experience study, which covered the four-year period ending June 30, 2021, was completed in June 2022. Based on the findings in the study, the System's actuary recommended some changes to the set of actuarial assumptions which were then adopted by the Investment Board. They include:

- Mortality assumption was changed to the Pub-2010 General Employees Mortality Tables, projected generationally using Scale MP-2021. Rates were modified for each membership group to better reflect observed experience.
- Retirement rates were adjusted to partially reflect observed experience for Regular members only.
- Disability rates were lowered for Regular members only.
- Termination rates were adjusted to partially reflect observed experience for all groups.

The new set of actuarial assumptions is intended to better model future experience and, therefore, produce a better estimate of the System's liabilities. The impact of these changes on the June 30, 2022, valuation results is summarized in the following tables (dollars in millions):



| Regular Members | Old Assumptions | New Assumptions | Difference |
|---------------------------------|-----------------|-----------------|--------------|
| Actuarial Liability (AL) | \$41,091 | \$41,091 | \$0 |
| Actuarial Value of Assets (AVA) | <u>36,346</u> | <u>36,346</u> | <u>0</u> |
| Unfunded AL (UAL) | \$ 4,745 | \$ 4,745 | \$0 |
| Funded Ratio | 88.45% | 88.45% | 0.00% |
| Normal Cost Rate | 10.49% | 10.60% | 0.11% |
| UAL Rate | <u>3.35%</u> | <u>3.36%</u> | <u>0.01%</u> |
| Actuarial Contribution Rate | 13.84% | 13.96% | 0.12% |
| Required Contribution Rate | 15.73% | 15.73% | 0.00% |

Note: Numbers may not add due to rounding

| Sheriffs & Deputies | Old Assumptions | New Assumptions | Difference |
|---------------------------------|-----------------|-----------------|----------------|
| Actuarial Liability (AL) | \$859.7 | \$849.7 | (\$10.1) |
| Actuarial Value of Assets (AVA) | <u>889.6</u> | <u>889.6</u> | <u>0.0</u> |
| Unfunded AL (UAL) | \$ (29.9) | \$ (40.0) | (\$10.1) |
| Funded Ratio | 103.48% | 104.70% | 1.22% |
| Normal Cost Rate | 16.93% | 16.78% | (0.15%) |
| UAL Rate | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> |
| Actuarial Contribution Rate | <u>16.93%</u> | <u>16.78%</u> | <u>(0.15%)</u> |
| Required Contribution Rate | 17.02% | 17.02% | 0.00% |

Note: Numbers may not add due to rounding

| Protection Occupation | Old Assumptions | New Assumptions | Difference |
|---------------------------------|-----------------|-----------------|----------------|
| Actuarial Liability (AL) | \$2,062 | \$2,029 | (\$32) |
| Actuarial Value of Assets (AVA) | <u>2,119</u> | <u>2,119</u> | <u>0</u> |
| Unfunded AL (UAL) | \$ (57) | \$ (89) | (\$32) |
| Funded Ratio | 102.77% | 104.41% | 1.64% |
| Normal Cost Rate | 15.32% | 15.31% | (0.01%) |
| UAL Rate | <u>0.00%</u> | <u>0.00%</u> | <u>0.00%</u> |
| Actuarial Contribution Rate | <u>15.32%</u> | <u>15.31%</u> | <u>(0.01%)</u> |
| Required Contribution Rate | 15.52% | 15.52% | 0.00% |

Note: Numbers may not add due to rounding



The actuarial valuation results provide a “snapshot” view of the System’s financial condition on June 30, 2022. There have been no changes to the plan provisions or actuarial methods since last year’s valuation. The valuation results reflect net favorable experience for the past plan year as demonstrated by an unfunded actuarial liability (UAL) that was lower than expected. The total UAL on June 30, 2022, for all three membership groups covered by IPERS, is \$4.615 billion while the expected UAL, before the assumption change, was \$4.751 billion. The favorable experience was the net result of an experience gain of \$277 million on the actuarial value of assets and an experience loss of \$142 million on System liabilities.

For many years, the contribution rates for Regular members and employers were set in state statute. Effective with the 2011 valuation, authority was given to IPERS to set the Required Contribution Rate for the Regular membership group based on the Actuarial Contribution Rate developed in the annual actuarial valuation, subject to a maximum change of 1.00% per year. Based on the Contribution Rate Funding Policy and the valuation results, the Required Contribution Rate for Regular members remains unchanged at 15.73% of pay. The Required Contribution Rate also remains the same for the Protection Occupation group, while it decreased by 0.50% of pay for the Sheriffs and Deputies group. The contribution rate is split 50%/50% for the Sheriffs and Deputies group so the change will impact both employer and employee contribution rates. **The Required Contribution Rate is above the Actuarial Contribution Rate for all three groups, resulting in a contribution margin, as shown in the following table.**

| Contribution Rate for FY 2024 | | | |
|---|--------------------|-----------------------|-----------------------|
| | Regular Membership | Sheriffs and Deputies | Protection Occupation |
| 1. Normal Cost Rate | 10.60% | 16.78% | 15.31% |
| 2. Amortization of UAL | <u>3.36%</u> | <u>0.00%</u> | <u>0.00%</u> |
| 3. Actuarial Contribution Rate | 13.96% | 16.78% | 15.31% |
| 4. Required Contribution Rate | 15.73% | 17.02% | 15.52% |
| 5. Shortfall/(Margin) (3) – (4) | (1.77%) | (0.24%) | (0.21%) |
| 6. Employee Contribution Rate | 6.29% | 8.51% | 6.21% |
| 7. Employer Contribution Rate (4) - (6) | 9.44% | 8.51% | 9.31% |
| 8. Unfunded Actuarial Liability (\$M) | \$4,745 | (\$40) | (\$89) |
| 9. Funded Ratio | 88.45% | 104.70% | 104.41% |

Actuarial Value of Net Assets

For financial statement purposes, the System’s assets are reported at current fair values. For purposes of this section, fair value equals market value. For actuarial purposes, the assets are valued using a technique which dampens the volatility in the fair value and the resulting value is called the actuarial value of assets. Specifically, the assets are valued at their expected value at the valuation date (based on the assumed rate of investment return) plus 25% of the difference between the fair value and the expected value on the valuation date. The actuarial value of assets must fall within a corridor of 80% to 120% of fair value. Based on this methodology, there was an actuarial gain on assets of \$277 million. Between June 30, 2021 and June 30, 2022, the actuarial value of assets increased by \$1.8 billion. This represented an approximate rate of return of 7.75%, which was higher than the actuarial assumed rate of return of 7.00%.



Liabilities

The actuarial liability is that portion of the present value of future benefits that will not be paid by future normal costs. The difference between this liability and the actuarial value of assets at the same date is called the unfunded actuarial liability. The dollar amount of unfunded actuarial liability is reduced if the contributions to the System exceed the normal cost for the year plus interest on the prior year's UAL.

The unfunded actuarial liability by group is shown as of June 30, 2022 in the following table.

| (\$ Millions) | Regular Membership | Sheriffs & Deputies | Protection Occupation | Total |
|-------------------------------|--------------------|---------------------|-----------------------|---------------|
| Actuarial Liability | \$41,091 | \$850 | \$2,029 | \$43,970 |
| Actuarial Value of Assets | <u>36,346</u> | <u>890</u> | <u>2,119</u> | <u>39,354</u> |
| Unfunded Actuarial Liability* | \$4,745 | (\$40) | (\$89) | \$4,615 |
| Funded Ratio | 88.45% | 104.70% | 104.41% | 89.50% |

* May not add due to rounding.

Changes in the UAL occur for various reasons. The net decrease in the UAL from June 30, 2021 to June 30, 2022 was \$344 million, largely due to favorable investment experience. The components of this net change are shown in the following table (in millions):

| | |
|---|-----------------|
| Unfunded Actuarial Liability, June 30, 2021 | \$ 4,960 |
| • Expected decrease from amortization method | (95) |
| • Expected decrease from contributions above actuarial rate | (20) |
| • Investment experience | (277) |
| • Liability experience* | 142 |
| • Assumption changes | (43) |
| • Other | (52) |
| Unfunded Actuarial Liability, June 30, 2022 | \$ 4,615 |
| • FED transfer for favorable experience | 0 |
| Unfunded Actuarial Liability, June 30, 2022 | \$ 4,615 |

* Liability experience is 0.32% of the expected actuarial liability.

As can be observed above, various factors impacted the amount of the UAL as of June 30, 2022. Actuarial gains (losses), which result from actual experience that is more (less) favorable than anticipated based on the actuarial assumptions, are reflected in the UAL. They are measured as the difference between the expected unfunded actuarial liability and the actual unfunded actuarial liability, after taking into account any changes due to actuarial assumptions and methods or benefit provision changes. Overall, the System experienced a net actuarial gain of \$135 million which may be explained by considering the separate experience of assets and liabilities. As discussed earlier, there was a \$277 million actuarial gain on the actuarial value of assets and a net actuarial loss of \$142 million from demographic experience that was less favorable than anticipated by the actuarial assumptions. While there are various components of demographic experience, the most significant sources of actuarial loss were due to retirement and mortality experience that was less favorable than anticipated, offset by an actuarial gain from salary increases that were lower than expected.

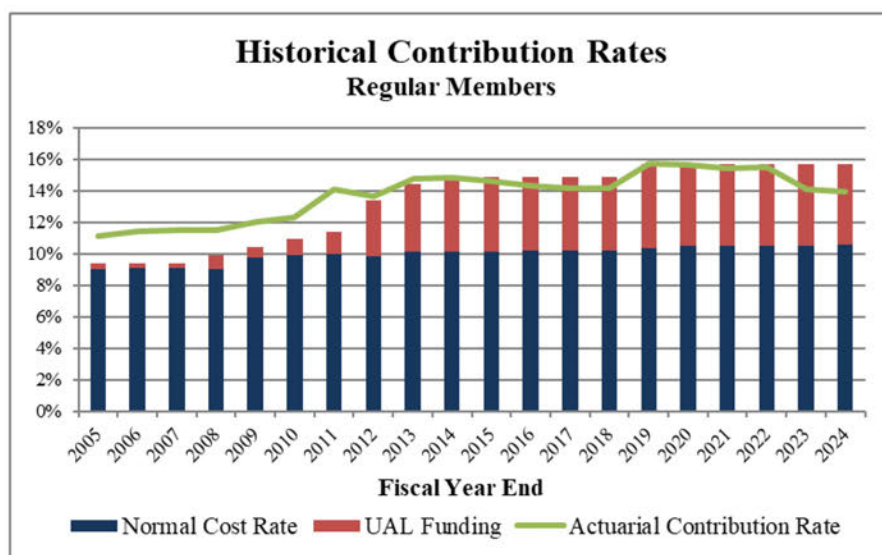


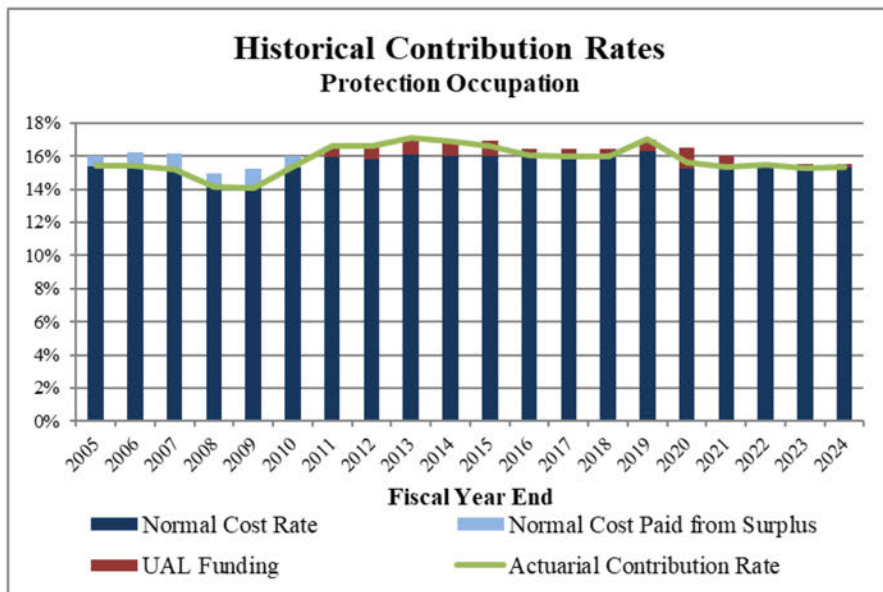
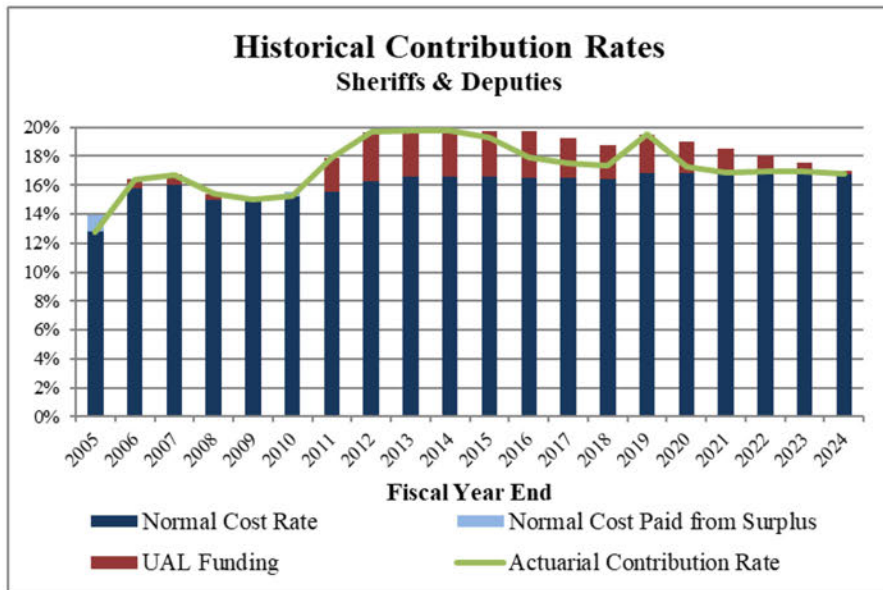
Contribution Rate

As with most public sector retirement systems, one important funding policy objective is to fund the plan in a manner that keeps contribution rates approximately level from generation to generation. A funding method that is specifically designed to maintain annual costs that are level as a percent of covered payroll is the Entry Age Normal (EAN) cost method. It is for this reason that the EAN cost method was selected by the Investment Board to be used in the actuarial valuation. Under the EAN cost method, the actuarial contribution rate consists of two components:

- a "normal cost" for the portion of projected liabilities allocated by the actuarial cost method to the service of members during the year following the valuation date, and
- an "unfunded actuarial liability contribution" for the excess of the portion of projected liabilities allocated to service to date over the actuarial value of assets.

In 2006 and 2010, legislation was passed that increased the statutory contribution rate for Regular members. Beginning with the 2011 valuation (which applied to FY 2013), the Investment Board was given the authority to set the Required Contribution Rate for Regular members subject to certain statutory limitations. The Sheriffs and Deputies group and the Protection Occupation group have historically contributed at the Actuarial Contribution Rate, which was subject to change each year. A historical summary of the actual contribution rate, split between the normal cost rate and the remaining amount available to fund the UAL, and the Actuarial Contribution Rate is shown in the following graphs:







There were several factors that impacted the contribution rates in the 2022 valuation. The contribution rates are summarized in the following table:

| Contribution Rate for FY 2024 | Regular Membership | Sheriffs & Deputies | Protection Occupation |
|---|--------------------|---------------------|-----------------------|
| 1. Actuarial Contribution Rate | 13.96% | 16.78% | 15.31% |
| 2. Required Contribution Rate | 15.73% | 17.02% | 15.52% |
| 3. Employee Contribution Rate | 6.29% | 8.51% | 6.21% |
| 4. Employer Contribution Rate (2) – (3) | 9.44% | 8.51% | 9.31% |
| 5. Shortfall/(Margin) (1) – (2) | (1.77%) | (0.24%) | (0.21%) |

Based on the results of this valuation and the Contribution Rate Funding Policy adopted by the Investment Board, the Required Contribution Rate for the fiscal year ending June 30, 2024 for the Regular members is 15.73%, which is greater than the Actuarial Contribution Rate by 1.77% of pay. The Required Contribution Rate for the Sheriffs and Deputies group will decrease by 0.50% of pay, but will remain unchanged for the Protection Occupation group. We would note that, based on the results of this valuation, the Required Contribution Rate is higher than the Actuarial Contribution Rate for all three groups.

The Actuarial Contribution Rate is determined based on the snapshot of the System taken on the valuation date, June 30, 2022, and applies only for the fiscal year beginning July 1, 2023. The Actuarial Contribution Rate in future years will change each year as the deferred actuarial investment experience is recognized and as other experience (both investment and demographic) impacts the System. The Required Contribution Rate will be set in each future year based on the Actuarial Contribution Rate for that year and the Contribution Rate Funding Policy.

Summary

The investment return on the fair value of assets for FY 2022 was -3.90%, as reported by IPERS. This unfavorable investment experience, combined with significant unrecognized investment gains in last year’s valuation, led to an investment return on the actuarial value of assets of 7.75%. Since that return is above the assumed investment return of 7.00%, there was an experience gain on the actuarial value of assets of \$277 million. This was partially offset by an experience loss on the System’s liabilities of \$142 million. The System’s total experience for FY 2022 was a net experience gain of \$135 million, resulting in a smaller unfunded actuarial liability than was expected.

Based on the Contribution Rate Funding Policy adopted by the Investment Board, the Required Contribution Rate determined in this year’s valuation for Regular members remains unchanged from last year at 15.73% of pay (applicable for the fiscal year ending June 30, 2024). The Required Contribution Rate for the Protection Occupation group also remains unchanged at 15.52% of pay. The Required Contribution Rate for the Sheriffs and Deputies group in this valuation decreased by 0.50% of pay from last year’s rate to 17.02% of pay. However, the Required Contribution Rate remains higher than the Actuarial Contribution Rate for FY 2024 for all three groups.

The Actuarial Contribution Rate is determined based on the snapshot of the System taken on the valuation date, June 30, 2022, and applies only for the fiscal year beginning July 1, 2023. The Actuarial Contribution Rate in future years will change each year as the deferred actuarial investment experience is recognized and as other experience (both investment and demographic) impacts the System. While the Required Contribution Rate can vary each year, the annual change to the rate is limited to 1.00% for Regular members. Therefore, depending on actual experience in future years, the Required Contribution Rate may vary from the Actuarial Contribution Rate.



The long-term financial health of this retirement system is heavily dependent on two key items: (1) future investment returns and (2) systematic contributions to the System at the full actuarially determined rate. Given the System's current funded status, the Actuarial Contribution Rate, and the Required Contribution Rate, the System's funded ratio is expected to improve over the long term, assuming all actuarial assumptions are met. Further, if all assumptions are met, the funding policy will lead to fully funding the System.

In performing the valuation, we have relied upon membership and financial data reported to us by the System. We did not verify the accuracy of the information, but did review it for reasonableness in relation to the data submitted for previous years. We provided the Principal Valuation Results, the Actuarial Balance Sheet, the Schedule of Funding Progress, and the Solvency Test in the Actuarial section. We also provided some information in the Financial Section, including the calculation of the Total Pension Liability, the Schedule of Changes in the Employers' Net Pension Liability, and the sensitivity analysis on the Net Pension Liability. In addition, we provided the contribution rates used to calculate the actuarially required contributions reflected in the Schedule of Employers' Contributions found in the Required Supplementary Information.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this information is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying Opinions, and supporting Recommendations of the American Academy of Actuaries.

We certify that all costs, liabilities, and other factors for the System have been determined on the basis of actuarial assumptions and methods which are individually reasonable (taking into account the experience of the System and reasonable expectations); and which, in combination, offer our best estimate of anticipated experience affecting the System. Nevertheless, the emerging costs will vary from those presented in this report to the extent actual experience differs from that projected by the actuarial assumptions. The Investment Board has the final decision regarding the appropriateness of the assumptions and adopted them as of the dates shown for each assumption.

In order to prepare the results in this report, we have utilized actuarial models that were developed to measure liabilities and develop actuarial costs. These models include tools that we have produced and tested, along with commercially available valuation software that we have reviewed to confirm the appropriateness and accuracy of the output. In utilizing these models, we develop and use input parameters and assumptions about future contingent events along with recognized actuarial approaches to develop the needed results. Actuarial computations presented in the 2022 actuarial valuation report are for purposes of determining the recommended funding amounts for the System. The calculations have been made on a basis consistent with our understanding of the System's funding requirements and goals. Determinations for purposes other than meeting these requirements may be significantly different from the results shown in the June 30, 2022 actuarial funding valuation report.

We have also prepared actuarial computations as of June 30, 2022 for purposes of fulfilling financial accounting requirements for the System under Governmental Accounting Standard No. 67 (GASB 67) based on the results of the June 30, 2022 actuarial valuation. The actuarial assumptions used in the funding valuation were also used for the GASB 67 reporting. The assumptions include an assumed long-term rate of return of 7.00%, net of investment expenses, which is used to determine the actuarial liability in the funding valuation as well as the discount rate used to determine the Total Pension Liability for GASB 67 reporting. In addition, as noted earlier, the Entry Age Normal actuarial cost method, which is required to be used under GASB 67, is also used in the funding valuation.

An experience study is performed for IPERS every four years, as required by statute. In June 2022, the results of the experience analysis of the System's actuarial assumptions were presented to the Investment Board. Based on this information, the Investment Board adopted certain changes to the set of actuarial assumptions which were first reflected in the current June 30, 2022 actuarial valuation. The actuarial assumptions and methods meet the parameters set by Actuarial Standards of Practice, as issued by the Actuarial Standards Board, and generally accepted accounting principles (GAAP) applicable in the United States of America as promulgated by the Governmental Accounting Standards Board.



In conclusion, on the following page we present comparative statistics and actuarial information on both the June 30, 2022 and June 30, 2021 valuations. All figures shown include the Regular members, Sheriffs and Deputies and the Protection Occupation groups. The membership counts reflect the data as of June 30, appropriate for valuation purposes, and may differ from other reporting numbers.

I, Patrice A. Beckham, F.S.A., am a member of the American Academy of Actuaries and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

I, Brent A. Banister, F.S.A., am a member of the American Academy of Actuaries and a Fellow of the Society of Actuaries, and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

Respectfully Submitted,

CAVANAUGH MACDONALD CONSULTING, LLC

A handwritten signature in cursive script that reads 'Patrice Beckham'.

Patrice A. Beckham, FSA, EA, FCA, MAAA
Principal and Consulting Actuary

A handwritten signature in cursive script that reads 'Brent A. Banister'.

Brent A. Banister, PhD, FSA, EA, FCA, MAAA
Chief Actuary



PRINCIPAL VALUATION RESULTS

| | June 30, 2022 | June 30, 2021 | % Chg |
|--|----------------|----------------|-------|
| SYSTEM MEMBERSHIP | | | |
| 1. Active Membership | | | |
| - Number of Members (excluding Retired/Reemployed) | | | |
| i) Regular | 167,004 | 164,267 | 1.7 |
| ii) Sheriffs & Deputies | 1,724 | 1,675 | 2.9 |
| iii) Protection Occupation | <u>7,419</u> | <u>7,362</u> | 0.8 |
| iv) Total | 176,147 | 173,304 | 1.6 |
| - Projected Payroll for Upcoming Fiscal Year | \$9,279M | \$8,925M | 4.0 |
| - Average Projected Salary | \$52,680 | \$51,497 | 2.3 |
| 2. Inactive Membership | | | |
| - Number Not in Pay Status | 83,557 | 78,515 | 6.4 |
| - Number of Retirees/Beneficiaries | 131,420 | 128,589 | 2.2 |
| - Average Annual Benefit | \$18,713 | \$18,252 | 2.5 |
| ASSETS AND LIABILITIES | | | |
| 1. Net Assets (excluding FED reserve) | | | |
| - Market Value | \$40,186M | \$42,890M | (6.3) |
| - Actuarial Value | 39,354M | 37,585M | 4.7 |
| 2. Present Value of Future Benefits | | | |
| - Retired Members | \$24,154M | \$23,244M | 3.9 |
| - Inactive Members | 1,317M | 1,208M | 9.0 |
| - Active Members | <u>27,589M</u> | <u>26,649M</u> | 3.5 |
| - Total Present Value of Future Benefits* | \$53,060M | \$51,100M | 3.8 |
| 3. Actuarial Liability* | \$43,970M | \$42,545M | 3.3 |
| 4. Unfunded Actuarial Liability | \$4,615M | \$4,960M | (7.0) |
| 5. Funded Ratio | | | |
| a. Actuarial Value Assets/Actuarial Liability | 89.50% | 88.34% | 1.3 |
| b. Market Value Assets/Actuarial Liability | 91.40% | 100.81% | (9.3) |
| SYSTEM CONTRIBUTIONS | | | |
| Required Contribution Rate, Regular Members** | 15.73% | 15.73% | 0.0 |
| Employer Contribution Rate | 9.44% | 9.44% | 0.0 |
| Employee Contribution Rate | 6.29% | 6.29% | 0.0 |
| Total Actuarial Contribution Rate | 13.96% | 14.14% | (1.3) |
| Shortfall/(Margin) | (1.77%) | (1.59%) | 11.3 |

Note: Totals may not add due to rounding

M = (\$)Millions

* Difference between measures is the Present Value of Future Normal Costs

** Contribution rates for Sheriffs and Deputies are 8.51% for employers, 8.51% for employees

Contribution rates for Protection Occupation are 9.31% for employers, 6.21% for employees

Note: For valuation purposes, the data provided by IPERS was reclassified by CMC into the membership category that would most accurately reflect the actuarial liability of the individual member on the valuation date. As a result, the counts shown in this exhibit may vary from those shown in other sections of this report.



ACTUARIAL BALANCE SHEET
as of June 30, 2022

| | Regular Membership | Sheriffs & Deputies | Protection Occupation | Total |
|---|-------------------------------|------------------------------------|----------------------------------|-------------------------|
| <u>ASSETS</u> | | | | |
| Actuarial value of assets | \$36,345,895,362 | \$889,635,045 | \$2,118,701,972 | \$39,354,232,379 |
| Present value of future normal costs | 8,226,238,038 | 248,502,437 | 615,762,214 | 9,090,502,689 |
| Present value of future contributions to amortize unfunded actuarial liability | 4,744,859,930 | (39,957,300) | (89,420,403) | 4,615,482,227 |
| Total Net Assets | \$49,316,993,330 | \$1,098,180,182 | \$2,645,043,783 | \$53,060,217,295 |
| <u>LIABILITIES</u> | | | | |
| Present Value of Future Benefits: | | | | |
| Retired Members and Beneficiaries | \$22,646,842,963 | \$453,337,835 | \$1,054,117,486 | \$24,154,298,284 |
| Active Members | 25,458,269,772 | 629,442,668 | 1,501,689,767 | 27,589,402,207 |
| Inactive Members | 1,211,880,595 | 15,399,679 | 89,236,530 | 1,316,516,804 |
| Total Liabilities | \$49,316,993,330 | \$1,098,180,182 | \$2,645,043,783 | \$53,060,217,295 |



SOLVENCY TEST

A short-term solvency test, which is one means of determining a system's progress under its funding program, compares the plan's present assets with: 1) the liability for active member contributions on deposit; 2) the liability for future benefits to present retirees; and (3) the liability for service already rendered by active members. In a system that has been following the level percent of payroll financing discipline, the obligation for active member contributions on deposit (Item 1) and the liabilities for future benefits to present retired lives (Item 2) will be fully covered by present assets with the exception of rare circumstances. The obligation for service already rendered by active members (Item 3) will be partially covered by the remainder of present assets. Absent any significant benefit changes, if the system has been using level cost financing, the funded portion of Item 3 usually will increase over a period of time.

| Actuarial Valuation | Active Member Contributions | Retirees and Beneficiaries | Active Members Employer Financed Portion | Actuarial Value of Assets | Portions of Liabilities Covered by Assets | | |
|---------------------|-----------------------------|----------------------------|--|---------------------------|---|------|-----|
| | (1) | | (3) | | (1) | (2) | (3) |
| 2022 | \$5,364,065,009 | \$24,154,298,284 | \$14,451,351,313 | \$39,354,232,379 | 100% | 100% | 68% |
| 2021 | 5,247,068,871 | 23,243,536,718 | 14,054,043,161 | 37,584,987,296 | 100% | 100% | 65% |
| 2020 | 5,058,909,592 | 22,406,283,053 | 13,607,234,895 | 34,485,656,745 | 100% | 100% | 52% |
| 2019 | 4,883,842,179 | 21,505,868,873 | 13,411,627,745 | 33,324,327,606 | 100% | 100% | 52% |
| 2018 | 4,667,977,892 | 20,659,565,531 | 13,315,290,230 | 31,827,755,864 | 100% | 100% | 49% |
| 2017 | 4,508,869,822 | 19,334,772,904 | 13,596,739,303 | 30,472,423,914 | 100% | 100% | 49% |
| 2016 | 4,344,382,843 | 17,657,404,813 | 12,617,961,491 | 29,033,696,587 | 100% | 100% | 56% |
| 2015 | 4,150,432,107 | 16,843,177,973 | 12,376,708,651 | 27,915,379,103 | 100% | 100% | 56% |
| 2014 | 3,974,396,951 | 15,974,726,784 | 12,055,332,353 | 26,460,428,085 | 100% | 100% | 54% |
| 2013 | 3,789,330,469 | 15,000,576,427 | 11,708,435,424 | 24,711,096,187 | 100% | 100% | 51% |

Note: The combined accrued liabilities in columns 1, 2, and 3 are based on the entry age normal cost method.

RETIREES AND BENEFICIARIES – CHANGES IN ROLLS

Schedule of Retirees Added to and Removed From Rolls

| Fiscal Year | Added to Rolls | | Removed From Rolls | | Rolls at Year-End | | Percentage Change in Annual Allowances | Average Annual Allowances |
|-------------|----------------|-------------------|--------------------|-------------------|-------------------|-------------------|--|---------------------------|
| | Number* | Annual Allowances | Number | Annual Allowances | Number | Annual Allowances | | |
| 2022 | 6,206 | \$145,727,288 | 3,885 | \$25,365,942 | 123,992 | \$2,430,620,263 | 5.21 | \$19,603 |
| 2021 | 6,084 | 135,015,654 | 4,088 | 26,673,788 | 121,671 | 2,310,258,917 | 4.92 | 18,988 |
| 2020 | 6,081 | 131,126,907 | 3,513 | 20,684,399 | 119,675 | 2,201,917,051 | 5.28 | 18,399 |
| 2019 | 5,891 | 133,719,897 | 3,363 | 18,728,888 | 117,107 | 2,091,474,543 | 5.82 | 17,860 |
| 2018 | 6,252 | 125,728,823 | 3,327 | 18,301,104 | 114,579 | 1,976,483,534 | 5.75 | 17,250 |
| 2017 | 6,307 | 127,297,430 | 3,325 | 17,353,866 | 111,654 | 1,869,055,815 | 6.25 | 16,740 |
| 2016 | 5,958 | 120,723,975 | 3,123 | 15,826,861 | 108,672 | 1,759,112,251 | 6.34 | 16,187 |
| 2015 | 5,926 | 8,930,554 | 3,104 | 18,262,385 | 105,837 | 1,654,215,137 | (0.56) | 15,630 |
| 2014 | 6,008 | 124,411,510 | 3,008 | 30,068,643 | 103,015 | 1,663,546,968 | 6.01 | 16,149 |
| 2013 | 5,759 | 133,822,874 | 3,004 | 27,729,949 | 100,015 | 1,569,204,101 | 7.25 | 15,690 |

Schedule of Beneficiaries Added to and Removed From Rolls

| Fiscal Year | Added to Rolls | | Removed From Rolls | | Rolls at Year-End | | Percentage Change in Annual Allowances | Average Annual Allowances |
|-------------|----------------|-------------------|--------------------|-------------------|-------------------|-------------------|--|---------------------------|
| | Number* | Annual Allowances | Number | Annual Allowances | Number | Annual Allowances | | |
| 2022 | 774 | \$11,276,390 | 397 | \$1,756,086 | 7,732 | \$106,679,785 | 9.80 | \$13,797 |
| 2021 | 832 | 10,472,129 | 402 | 2,055,686 | 7,355 | 97,159,481 | 9.48 | 13,210 |
| 2020 | 626 | 8,817,344 | 374 | 1,646,795 | 6,925 | 88,743,038 | 8.79 | 12,815 |
| 2019 | 643 | 8,671,702 | 378 | 1,738,104 | 6,673 | 81,572,489 | 9.29 | 12,224 |
| 2018 | 626 | 8,257,415 | 323 | 1,530,533 | 6,408 | 74,638,891 | 9.91 | 11,648 |
| 2017 | 591 | 7,319,937 | 305 | 1,208,986 | 6,105 | 67,912,009 | 9.89 | 11,124 |
| 2016 | 543 | 6,736,612 | 255 | 1,277,504 | 5,819 | 61,801,058 | 9.69 | 10,621 |
| 2015 | 580 | 2,130,837 | 267 | 1,321,475 | 5,531 | 56,341,950 | 1.46 | 10,187 |
| 2014 | 555 | 7,013,711 | 255 | 2,175,827 | 5,218 | 55,532,588 | 9.54 | 10,643 |
| 2013 | 496 | 6,073,050 | 266 | 2,129,400 | 4,918 | 50,694,704 | 8.44 | 10,308 |

*The number of retirees and beneficiaries added to rolls in these tables does not equal the number of new retirees reported elsewhere in the ACFR. This is because all retirees who died during the fiscal year have been removed from the retiree table and their beneficiaries have been added to the beneficiary table.

Note: Tables on pages 85 – 86 are provided by IPERS.

SCHEDULE OF ACTIVE MEMBER VALUATION DATA

| Fiscal Years Ended June 30 | Participating Employers* | Active Members | Annual Covered Payroll | Annual Average Pay | Percentage Change in Average Pay |
|----------------------------|--------------------------|----------------|------------------------|--------------------|----------------------------------|
| 2022 | 1,943 | 176,186 | \$9,018,019,950 | \$51,185 | 2.50 |
| 2021 | 1,943 | 173,186 | 8,648,783,536 | 49,939 | 1.39 |
| 2020 | 1,944 | 170,380 | 8,391,856,350 | 49,254 | 4.12 |
| 2019 | 1,948 | 172,304 | 8,151,043,468 | 47,306 | 0.96 |
| 2018 | 1,956 | 170,378 | 7,983,219,527 | 46,856 | 1.25 |
| 2017 | 1,956 | 169,910 | 7,863,160,443 | 46,278 | 3.11 |
| 2016 | 1,960 | 168,372 | 7,556,515,720 | 44,880 | 2.53 |
| 2015 | 1,968 | 167,367 | 7,326,348,141 | 43,774 | 2.30 |
| 2014 | 1,973 | 165,913 | 7,099,277,280 | 42,789 | 2.68 |
| 2013 | 2,147 | 165,095 | 6,880,131,134 | 41,674 | 0.83 |

*GASB 67 requires employers within the same financial reporting entity to be counted as a single employer, even if the employers are legally separate. This standard applies to employer counts for FY2014 and later.

SCHEDULE OF FUNDING PROGRESS

| Fiscal Years Ended June 30 | Actuarial Value of Assets | Actuarial Liability | Percentage Funded | Unfunded Actuarial Liability (UAL) | Annual Covered Payroll* | UAL as a Percentage of Covered Payroll |
|----------------------------|---------------------------|---------------------|-------------------|------------------------------------|-------------------------|--|
| 2022 | \$39,354,232,379 | \$43,969,714,606 | 89.50 | \$4,615,482,227 | \$9,018,019,950 | 51.18 |
| 2021 | 37,584,987,296 | 42,544,648,750 | 88.34 | 4,959,661,454 | 8,648,783,536 | 57.35 |
| 2020 | 34,485,656,745 | 41,072,427,540 | 83.96 | 6,586,770,795 | 8,391,856,350 | 78.49 |
| 2019 | 33,324,327,606 | 39,801,338,797 | 83.73 | 6,477,011,191 | 8,151,043,468 | 79.46 |
| 2018 | 31,827,755,864 | 38,642,833,653 | 82.36 | 6,815,077,789 | 7,983,219,527 | 85.37 |
| 2017 | 30,472,423,914 | 37,440,382,029 | 81.39 | 6,967,958,115 | 7,863,160,443 | 88.62 |
| 2016 | 29,033,696,587 | 34,619,749,147 | 83.86 | 5,586,052,560 | 7,556,515,720 | 73.92 |
| 2015 | 27,915,379,103 | 33,370,318,731 | 83.65 | 5,454,939,628 | 7,326,348,141 | 74.46 |
| 2014 | 26,460,428,085 | 32,004,456,088 | 82.68 | 5,544,028,003 | 7,099,277,280 | 78.09 |
| 2013 | 24,711,096,187 | 30,498,342,320 | 81.02 | 5,787,246,133 | 6,880,131,134 | 84.12 |

*Annual covered payroll is the amount of wages subject to contributions to IPERS, not to exceed the federal covered wage limit in effect at the time the wages are paid.

Note: See the 10-year Schedule of Employers' Contributions in the Required Supplementary Information on page 44 for information on actuarial contributions and required contributions paid.



ACTUARIAL ASSUMPTIONS AND METHODS

ECONOMIC ASSUMPTIONS:

Rate of Inflation (effective June 30, 2017)

2.60% per annum

Rate of Crediting Interest on Contribution Balances (effective June 30, 2017)

3.50% per annum, compounded annually

Rate of Investment Return (effective June 30, 2017)

7.00% per annum, compounded annually, net of expenses.

Wage Growth Assumption (effective June 30, 2017)

3.25% per annum based on 2.60% inflation assumption and 0.65% real wage inflation.

Payroll Increase Assumption (effective June 30, 2017)

3.25% per year

Cost of Living Adjustments Assumption (effective June 30, 2017)

2.60% for members who retired before July 1, 1990. No cost-of-living adjustments are assumed to be granted to future retirees

DEMOGRAPHIC ASSUMPTIONS:

Rates of Mortality

Pre-Retirement (effective June 30, 2022)

| | | |
|--|--------|--|
| State | Male | PubG-2010 Employee Table, Generational using MP-2021, 2 Year age setback |
| | Female | PubG-2010 Employee Table, Generational using MP-2021, 2 Year age setback |
| School | Male | PubG-2010 Employee Table, Generational using MP-2021, 4 Year age setback |
| | Female | PubG-2010 Employee Table, Generational using MP-2021, 8 Year age setback |
| Other | Male | PubG-2010 Employee Table, Generational using MP-2021, 4 Year age setback |
| | Female | PubG-2010 Employee Table, Generational using MP-2021, 8 Year age setback |
| Sheriffs/Deputies and Protection Occupation | Male | PubG-2010 Employee Table, Generational using MP-2021, 4 Year age setback |
| | Female | PubG-2010 Employee Table, Generational using MP-2021, 2 Year age setback |

5% of active deaths are assumed to be service related for non-regular members.



Post-Retirement (effective June 30, 2022)

| | |
|--|--|
| State | PubG-2010 Healthy Annuitant, Generational using MP-2021 |
| Male | 2 Year age set forward, 8% increase below age 75, 5% decrease above age 75 |
| Female | 2 Year age set forward, 20% increase below age 75, 10% decrease above age 75 |
| School | PubG-2010 Healthy Annuitant, Generational using MP-2021 |
| Male | No age adjustment, 20% decrease in rates below age 75 |
| Female | 1 Year age setback, 10% increase below age 75, 6% increase above age 75 |
| Other | PubG-2010 Healthy Annuitant, Generational using MP-2021 |
| Male | 2 Year age set forward, 3% decrease at all ages |
| Female | No age adjustment, 4% decrease at all ages |
| Sheriffs/Deputies and Protection Occupation | PubS-2010 Healthy Annuitant, Generational using MP-2021 |
| Male | 3 Year age set forward |
| Female | 2 Year age set forward, 4% decrease at all ages |
| Beneficiaries: | Same as members |
| Disabled Members | |
| Regular | PubG-2010 Disabled Mortality, Generational using MP-2021 |
| Male | 7 Year age set forward |
| Female | 5 Year age set forward |
| Sheriffs/Deputies and Protection Occupation | PubG-2010 Disabled Mortality, Generational using MP-2021 |
| Male | 3 Year age set forward |
| Female | 3 Year age set forward |

Retirement Rates (effective June 30, 2022)

Upon meeting the requirements for early retirement, the following rates apply to Regular Members:

| <u>Age</u> | <u>Assumed Retirement Rates – Early</u> | | |
|------------|---|---------------|--------------|
| | <u>State</u> | <u>School</u> | <u>Other</u> |
| 55 | 4.0% | 5.0% | 4.0% |
| 56 | 4.0% | 5.0% | 4.0% |
| 57 | 4.0% | 5.0% | 4.0% |
| 58 | 4.0% | 5.0% | 4.0% |
| 59 | 4.0% | 7.0% | 4.0% |
| 60 | 5.0% | 10.0% | 5.0% |
| 61 | 15.0% | 10.0% | 8.0% |
| 62 | 15.0% | 13.0% | 11.0% |
| 63 | 15.0% | 13.0% | 11.0% |
| 64 | 15.0% | 15.0% | 11.0% |



Upon reaching the requirements for normal retirement (unreduced benefits), the following rates apply:

| Assumed Retirement Rates – Select Unreduced | | | |
|--|--------------|---------------|--------------|
| <u>Age</u> | <u>State</u> | <u>School</u> | <u>Other</u> |
| 55 | 25.0% | 26.0% | 19.0% |
| 56 | 20.0% | 26.0% | 19.0% |
| 57 | 20.0% | 26.0% | 19.0% |
| 58 | 20.0% | 26.0% | 19.0% |
| 59 | 20.0% | 26.0% | 19.0% |
| 60 | 20.0% | 26.0% | 19.0% |
| 61 | 20.0% | 33.0% | 19.0% |
| 62 | 30.0% | 35.0% | 27.0% |
| 63 | 35.0% | 30.0% | 20.0% |
| 64 | 30.0% | 30.0% | 25.0% |
| 65 | 30.0% | 30.0% | 40.0% |

| Assumed Retirement Rates – Ultimate Unreduced | | | |
|--|--------------|---------------|--------------|
| <u>Age</u> | <u>State</u> | <u>School</u> | <u>Other</u> |
| 56 | 15.0% | 20.0% | 12.0% |
| 57 | 15.0% | 20.0% | 12.0% |
| 58 | 15.0% | 20.0% | 12.0% |
| 59 | 15.0% | 21.0% | 12.0% |
| 60 | 15.0% | 23.0% | 15.0% |
| 61 | 20.0% | 28.0% | 20.0% |
| 62 | 35.0% | 35.0% | 27.0% |
| 63 | 30.0% | 30.0% | 20.0% |
| 64 | 30.0% | 30.0% | 25.0% |
| 65 | 30.0% | 45.0% | 40.0% |
| 66 | 30.0% | 35.0% | 30.0% |
| 67 | 20.0% | 25.0% | 20.0% |
| 68 | 20.0% | 25.0% | 20.0% |
| 69 | 35.0% | 40.0% | 40.0% |
| 70 | 100.0% | 100.0% | 100.0% |



Assumed Retirement Rates

| <u>Age</u> | <u>Sheriffs and Deputies</u> | <u>Protection Occupation</u> |
|------------|------------------------------|------------------------------|
| 50 | 17.0% | |
| 51 | 15.0% | |
| 52 | 15.0% | |
| 53 | 15.0% | |
| 54 | 15.0% | |
| 55 | 15.0% | 25.0% |
| 56 | 15.0% | 10.0% |
| 57 | 15.0% | 10.0% |
| 58 | 15.0% | 10.0% |
| 59 | 15.0% | 10.0% |
| 60 | 15.0% | 10.0% |
| 61 | 15.0% | 15.0% |
| 62 | 30.0% | 30.0% |
| 63 | 30.0% | 25.0% |
| 64 | 30.0% | 25.0% |
| 65 | 100.0% | 100.0% |

Terminated vested members are assumed to retire at age 62 (55 for Sheriffs/Deputies and Protection Occupation groups).

For Regular membership, retired reemployed members are assumed to retire at a rate of 25% per year until age 80 when all are assumed to retire.

All retirees are assumed to elect a modified cash refund annuity (Option 2).

Rates of Disablement (effective June 30, 2022)

| <u>Age</u> | <u>Assumed Rates</u> | | | | | |
|------------|----------------------|---------------|--------------|----------------|---------------|--------------|
| | <u>Males</u> | | | <u>Females</u> | | |
| | <u>State</u> | <u>School</u> | <u>Other</u> | <u>State</u> | <u>School</u> | <u>Other</u> |
| 27 | 0.017% | 0.018% | 0.016% | 0.016% | 0.018% | 0.016% |
| 32 | 0.017% | 0.018% | 0.016% | 0.016% | 0.018% | 0.016% |
| 37 | 0.026% | 0.031% | 0.024% | 0.024% | 0.027% | 0.024% |
| 42 | 0.043% | 0.050% | 0.040% | 0.032% | 0.036% | 0.032% |
| 47 | 0.085% | 0.088% | 0.088% | 0.056% | 0.063% | 0.058% |
| 52 | 0.153% | 0.128% | 0.208% | 0.144% | 0.117% | 0.126% |
| 57 | 0.221% | 0.207% | 0.400% | 0.248% | 0.171% | 0.224% |
| 62 | 0.289% | 0.286% | 0.576% | 0.400% | 0.234% | 0.320% |

Assumed Rates
Sheriffs/Deputies
Protection Occupation*

| <u>Age</u> | <u>Rate</u> |
|------------|-------------|
| 27 | 0.130% |
| 32 | 0.130% |
| 37 | 0.130% |
| 42 | 0.150% |
| 47 | 0.200% |
| 52 | 0.240% |
| 57 | 0.320% |
| 62 | 0.430% |

* 66.67% of disabilities are assumed to be in-service disabilities.



Rates of Termination of Employment (effective June 30, 2022)

Regular Membership

| <u>Years of Service</u> | <u>Male</u> | | | <u>Female</u> | | |
|-------------------------|--------------|---------------|--------------|---------------|---------------|--------------|
| | <u>State</u> | <u>School</u> | <u>Other</u> | <u>State</u> | <u>School</u> | <u>Other</u> |
| 1 | 14.00% | 14.20% | 17.50% | 14.20% | 14.20% | 19.99% |
| 5 | 5.25% | 6.60% | 7.00% | 6.60% | 6.60% | 8.35% |
| 10 | 2.40% | 2.70% | 3.75% | 3.25% | 2.70% | 4.93% |
| 15 | 1.60% | 1.70% | 2.55% | 2.00% | 1.70% | 3.36% |
| 20 | 1.10% | 1.20% | 1.90% | 1.30% | 1.20% | 2.66% |
| 25 | 1.00% | 1.00% | 1.40% | 1.00% | 1.00% | 1.98% |
| 30 | 1.00% | 1.00% | 1.00% | 1.00% | 1.00% | 1.30% |

Sheriffs/Deputies and Protection Occupation

| <u>Years of Service</u> | <u>Sheriffs/Deputies</u> | <u>Protection Occupation</u> |
|-------------------------|--------------------------|------------------------------|
| 1 | 6.00% | 11.50% |
| 5 | 2.50% | 6.50% |
| 10 | 1.15% | 3.75% |
| 15 | 1.00% | 2.35% |
| 20 | 1.00% | 1.60% |
| 25 | 1.00% | 1.25% |
| 30 | 1.00% | 1.25% |

Probability of Electing a Deferred Vested Benefit (effective June 30, 2018)

Regular Membership

| <u>Years of Service</u> | <u>Male</u> | | | <u>Female</u> | | |
|-------------------------|--------------|---------------|--------------|---------------|---------------|--------------|
| | <u>State</u> | <u>School</u> | <u>Other</u> | <u>State</u> | <u>School</u> | <u>Other</u> |
| 5 | 62.0% | 74.0% | 62.0% | 56.0% | 80.0% | 70.0% |
| 10 | 71.0% | 79.0% | 71.0% | 62.0% | 80.0% | 73.0% |
| 15 | 76.0% | 84.0% | 76.0% | 72.0% | 85.0% | 80.0% |
| 20 | 81.0% | 89.0% | 81.0% | 82.0% | 90.0% | 85.0% |
| 25 | 86.0% | 94.0% | 86.0% | 92.0% | 95.0% | 90.0% |
| 30 | 90.0% | 95.0% | 90.0% | 100.0% | 100.0% | 90.0% |

Sheriffs/Deputies and Protection Occupation

| <u>Years of Service</u> | <u>Rate</u> |
|-------------------------|-------------|
| 5 | 53.0% |
| 10 | 65.0% |
| 15 | 85.0% |
| 20 | 95.0% |
| 25 | 100.0% |
| 30 | 100.0% |



Rates of Salary Increase* (effective June 30, 2018)

| <u>Years of Service</u> | <u>Annual Increase</u> | | | <u>Sheriffs/Deputies and Protection Occupation</u> |
|-------------------------|------------------------|---------------|--------------|--|
| | <u>State</u> | <u>School</u> | <u>Other</u> | |
| 1 | 14.25% | 16.25% | 14.25% | 16.25% |
| 5 | 7.75% | 5.75% | 5.35% | 5.75% |
| 10 | 5.50% | 4.55% | 4.55% | 4.55% |
| 15 | 4.45% | 3.75% | 4.05% | 4.05% |
| 20 | 3.85% | 3.40% | 3.75% | 3.75% |
| 25 | 3.60% | 3.25% | 3.65% | 3.75% |
| 30 | 3.35% | 3.25% | 3.65% | 3.25% |
| 35+ | 3.25% | 3.25% | 3.25% | 3.25% |

* Includes 3.25% wage growth

Marriage Assumption

100% of members are assumed to be married, with males 3 years older than females.



ACTUARIAL COST METHOD (adopted 1996)

The actuarial cost method is a procedure for allocating the actuarial present value of pension plan benefits and expenses to time periods. The method used for the valuation is known as the entry age normal actuarial cost method. Under this method, a total contribution rate is determined which consists of two parts: (i) the normal cost rate and (ii) the unfunded actuarial liability (UAL) rate. The entry age normal cost method has the following characteristics:

- (i) The annual normal costs for each individual active member are sufficient to accumulate the value of the member's pension at time of retirement.
- (ii) Each annual normal cost is a constant percentage of the member's year by year projected compensation rates.

The entry age normal actuarial cost method allocates the actuarial present value of each member's projected benefits on a level basis over the member's compensation rates between the entry age of the member and the assumed exit ages.

ACTUARIAL AMORTIZATION METHOD (adopted 2013)

The portion of the actuarial present value of benefits allocated to the valuation year is called the normal cost. The portion of the actuarial present value of benefits not provided for by the actuarial present value of future normal costs is called the actuarial liability. Deducting the actuarial value of assets from the actuarial liability determines the unfunded actuarial liability (UAL). The one-year lag between the valuation date and the date the contribution rate is effective is reflected in calculating the corresponding amortization payment. The UAL is amortized according to the Actuarial Amortization Method adopted by the Investment Board and summarized below:

1. Amortization payments will be calculated as a level percentage of payroll.
2. For the actuarial valuation prepared as of June 30, 2013, the amortization period of the UAL shall be 30-year open for all membership groups.
3. For the actuarial valuation prepared as of June 30, 2014:
4. The UAL for each membership group shall be amortized over a 30-year closed period.
5. This will be designated as the initial UAL base for subsequent valuations and it will be amortized over the remaining years of the 30-year closed period set on June 30, 2014.
6. For each valuation subsequent to June 30, 2014, annual net experience gains/losses for each membership group will be amortized over a new, closed 20-year period.
7. Subsequent plan amendments or changes in actuarial assumptions or methods that create a change in the UAL will be amortized over a demographically appropriate period selected by the Investment Board at the time that the change is incurred.
8. The dollar amount of the UAL payment for purposes of computing the UAL component of the actuarial and required contribution rate will be the sum of the amortization payments for each amortization schedule divided by the total projected payroll. Unless the plan has been 110 percent funded for the current and prior two years, a negative amortization payment shall be ignored.
9. If the valuation shows that the group has surplus, the prior amortization bases will be eliminated and one base equal to the amount of surplus shall be established. The amortization period of a surplus shall be a 30-year open period for all groups.



ACTUARIAL VALUE OF ASSETS SMOOTHING METHOD (adopted 2007)

The market value of assets, representing a fair value of System assets, may not necessarily be the best measure of the System's ongoing ability to meet its obligations.

To arrive at a suitable value for the actuarial valuation, a technique for determining the actuarial value of assets is used which dampens volatility in the market value while still indirectly recognizing market value. The specific technique follows:

- Step 1:** Determine the expected value of plan assets at the current valuation date using the actuarial assumption for investment return applied to the prior actuarial value and the actual receipts and disbursements of the fund for the previous 12 months.
- Step 2:** Subtract the expected value determined in Step 1 from the total market value of the Fund at the current valuation date.
- Step 3:** Multiply the difference between market and expected values determined in Step 2 by 25%.
- Step 4:** Add the expected value of Step 1 and the product of Step 3 to determine the actuarial value of assets.
- Step 5:** Verify the preliminary actuarial value of assets in Step 4 is not more than 120% of the market value of assets nor less than 80% of the market value. If it is, adjust the actuarial value of assets so it falls within the 80% - 120% corridor.



CONTRIBUTION RATE FUNDING POLICY

Background:

IPERS is charged with setting a “Required Contribution Rate” for each membership category within IPERS that will discharge its liabilities. Iowa Code §97B.11(3)(d) provides the basic framework for implementing this charge by stating:

The Required Contribution Rate that is set by the system for a membership category shall be the contribution rate the system actuarially determines, based upon the most recent actuarial valuation of the system and using the actuarial methods, assumptions, and funding policy approved by the Investment Board, is the rate required by the system to discharge its liabilities as a percentage of the covered wages of members in that membership category. However, the Required Contribution Rate set by the system for members in regular service for a fiscal year shall not vary by more than one percentage point from the Required Contribution Rate for the prior fiscal year.

Goal:

To establish policy and procedures in setting contribution rates that combined with investment income will fund the benefits specified in Chapter 97B of the Iowa Code.

To move towards fully funding the benefits (100 percent or greater funded ratio) in as expeditious manner as is reasonable within the guidelines acknowledged herein.

Procedure:

The Investment Board shall retain a consulting actuary to conduct an annual actuarial valuation of assets and liabilities. The consulting actuary shall use the entry age normal cost method and all other actuarial assumptions and methods approved by the Investment Board.

In the annual valuation process, the consulting actuary shall calculate an Actuarial Contribution Rate and a Required Contribution Rate pursuant to this policy. Each shall be calculated as a level percent of pay.

There is a one-year lag between the completion of an annual actuarial valuation report and the fiscal year to which the contribution rates calculated therein are applied. Therefore, the Actuarial Contribution Rate and the Required Contribution Rate declared in the annual valuation process are applicable to the fiscal year immediately following the completion of the valuation report (for example the rates declared in the report presented to the Investment Board in December 2013 are applicable to the rates for the fiscal year beginning July 1, 2014).

Actuarial Contribution Rate (ACR):

1. ACR is the combined employer and employee contribution rate that is the minimum rate necessary to fund the benefits using the actuarial assumptions and methods approved by the Investment Board.
2. A separate ACR shall be determined for each membership group within IPERS according to this policy.
3. The ACR shall consist of:
 - a. Normal cost and an amortization payment (not less than zero) of any unfunded actuarial liability.
 - b. Normal cost may only be offset by a negative amortization payment after a membership group has attained a funded ratio of 110 percent or greater for 3 consecutive years.



Required Contribution Rate:

1. The Required Contribution Rate is the combined employer and employee rate payable pursuant to this policy and Iowa Code §97B.11(3)(d).
2. The Required Contribution Rate shall be determined by comparing the ACR determined in the annual valuation process to the Required Contribution Rate of the previous year.
 - a. If the ACR is less than the previous Required Contribution Rate by fewer than 50 basis points, then the Required Contribution Rate shall remain unchanged from the previous year.
 - b. If the ACR is less than the previous Required Contribution Rate by 50 basis points or more, then the Required Contribution Rate shall be lowered by 50 basis points provided the funded ratio of the membership group is 95 percent or higher.
 - c. If the ACR is greater than the Required Contribution Rate of the previous year, then the Required Contribution Rate shall be:
 - i. Increased to be equal to ACR for Sheriffs and Deputies.
 - ii. Increased to be equal to ACR for Protection Occupation Members.
 - iii. Increased to be equal to ACR for Regular Members, or one percentage point greater than the prior year's Required Contribution Rate, whichever is smaller.

Policy Guidelines:

In adopting actuarial assumptions and methods to be used in setting contribution rates, the Investment Board shall strive to provide a balance among the following:

1. Stability in contribution rates (such as use of smoothing and amortization schedules that do not produce dramatic swings in the required contributions from year to year).
2. Disciplined funding approach (such as requiring full payment of normal cost and an amortization payment towards the unfunded actuarial liability and deferring decreases in contribution rates until strong funded ratios are attained).
3. Interperiod equity (such as shortening the amortization schedule when reasonable and amortization of retroactive benefit enhancements over a reasonable time period such as the average working lifetime for active members and the average life expectancy of retired members).
4. Support an affordable, sustainable plan (in consultation with the Benefits Advisory Committee review affordability of required contribution rates and/or the benefit provisions).
5. At a minimum, this policy will be reviewed in conjunction with the quadrennial experience study.



IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM CERTIFICATION

This Addendum is being prepared solely for the purpose of providing the information required under Chapter 97 D.5 of the Iowa code. Calculations are based on the following prescribed methods:

Actuarial cost method: Entry Age Normal
Amortization method: Level percent of payroll
Amortization period: 30 years, open period

All other assumptions, methodologies, and System provisions used are consistent with those used in the June 30, 2022 valuation for the Iowa Public Employees' Retirement System.

The results shown in this Addendum may not be consistent with those in the June 30, 2022 valuation. The June 30, 2022 valuation results were determined in accordance with generally accepted actuarial principles and practices that are consistent with the Actuarial Standards of Practice promulgated by the Actuarial Standards Board and the applicable Guides to Professional Conduct, amplifying opinion and supporting recommendations of the American Academy of Actuaries. The results shown in this Addendum are not necessarily based on the methodologies adopted by the System.

We are available to answer any questions on the material contained in this report, or to provide explanations or further details as may be appropriate.

The undersigned credentialed actuaries meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained in this report.

Patrice Beckham

Patrice A. Beckham, FSA, EA, FCA, MAAA

November 15, 2022

Date

Brent A. Banister

Brent A. Banister, PhD, FSA, EA, FCA, MAAA

November 15, 2022

Date



**IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM
SUMMARY OF VALUATION RESULTS UNDER PRESCRIBED METHODOLOGY
PER IOWA CODE §97D.5**

This addendum report has been prepared to present the results of a valuation of the Iowa Public Employees' Retirement System as of June 30, 2022, based on the prescribed methodology under Chapter D.5.

The unfunded actuarial accrued liability has been amortized as a level percent of payroll over 30 years. The payroll growth assumption used was 3.25%.

A summary of results from the current and the prior valuation follows.

| | Regular Membership Actuarial Valuation as of | |
|-------------------------------------|---|----------------------|
| | <u>June 30, 2022</u> | <u>June 30, 2021</u> |
| Summary of Costs | | |
| Normal cost | 10.60% | 10.49% |
| UAL amortization | <u>2.79%</u> | <u>3.11%</u> |
| Total | 13.39% | 13.60% |
| Less Employee Contribution Rate | <u>(6.29%)</u> | <u>(6.29%)</u> |
| Employer Required Contribution Rate | 7.10% | 7.31% |
| Funded Status | | |
| Actuarial liability | \$41,090,755,292 | \$39,777,935,943 |
| Actuarial value of assets | 36,345,895,362 | 34,734,902,134 |
| Unfunded actuarial liability | \$4,744,859,930 | \$5,043,033,809 |
| Funded Ratio | 88.5% | 87.3% |
| Asset Values | | |
| Market value of assets (MVA) | \$37,115,609,381 | \$39,637,744,850 |
| Actuarial Value of Assets (AVA) | 36,345,895,362 | 34,734,902,134 |
| MVA/AVA | 102% | 114% |



**Sheriffs and Deputies
Actuarial Valuation as of**

| | <u>June 30, 2022</u> | <u>June 30, 2021</u> |
|-------------------------------------|----------------------|----------------------|
| Summary of Costs | | |
| Normal cost | 16.78% | 16.93% |
| UAL amortization | <u>(1.66%)</u> | <u>(1.03%)</u> |
| Total | 15.12% | 15.90% |
| Less Employee Contribution Rate | <u>(8.51%)</u> | <u>(8.76%)</u> |
| Employer Required Contribution Rate | 6.61% | 7.14% |
| Funded Status | | |
| Actuarial liability | \$849,677,745 | \$816,703,678 |
| Actuarial value of assets | 889,635,045 | 839,015,517 |
| Unfunded actuarial liability | (\$39,957,300) | (\$22,311,839) |
| Funded Ratio | 104.7% | 102.7% |
| Asset Values | | |
| Market value of assets (MVA) | \$908,454,027 | \$957,673,108 |
| Actuarial Value of Assets (AVA) | 889,635,045 | 839,015,517 |
| MVA/AVA | 102% | 114% |



Protection Occupation Group*
Actuarial Valuation as of

| | <u>June 30, 2022</u> | <u>June 30, 2021</u> |
|-------------------------------------|----------------------|----------------------|
| Summary of Costs | | |
| Normal cost | 15.31% | 15.30% |
| UAL amortization | <u>(1.18%)</u> | <u>(0.84%)</u> |
| Total | 14.13% | 14.46% |
| Less Employee Contribution Rate | <u>(6.21%)</u> | <u>(6.21%)</u> |
| Employer Required Contribution Rate | 7.92% | 8.25% |
| Funded Status | | |
| Actuarial liability | \$2,029,281,569 | \$1,950,009,129 |
| Actuarial value of assets | 2,118,701,972 | 2,011,069,645 |
| Unfunded actuarial liability | (\$89,420,403) | (\$61,060,516) |
| Funded Ratio | 104.4% | 103.1% |
| Asset Values | | |
| Market value of assets (MVA) | \$2,162,328,881 | \$2,294,457,724 |
| Actuarial Value of Assets (AVA) | 2,118,701,972 | 2,011,069,645 |
| MVA/AVA | 102% | 114% |

* Includes all public safety members other than Sheriffs and Deputies.



STATISTICAL

STATISTICAL

Statistical Overview

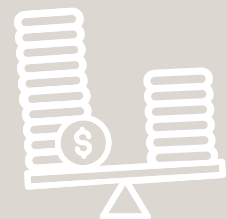
Membership and Trust Fund Summary

Active Membership Summary

Retiree and Benefit Payment Statistics

Summary of Principal Employers

Investment Statistics



Statistical Overview

Objectives

The objective of the Statistical section is to provide the detail and historical context needed for a thorough assessment and understanding of IPERS' financial condition. Data in this section are presented in multiple-year format to show previous and emerging trends.

Contents

The Statistical section provides financial, demographic, operating and investment trend information. The financial trend information presented on pages 104 – 105 is intended to help explain how the System's financial position has changed over time.

The demographic and operating information presented on pages 106 – 115 provides data on IPERS' membership, including:

- Members by group and type.
- Active membership data.
- Retiree information such as years of service, employer type and benefit amount.
- Benefits paid by option, employer type, benefit type and location.
- Principal participating employers.

The investment information presented on page 116 shows the growth of net investment portfolio assets and investment returns since 1993.

Tables related to types of refunds are not included in the Statistical section because IPERS pays only one type of refund – termination refunds.

Data Sources

Data for the Statistical section are derived from financial statements, an actuary member file and an actuary retirement file, all prepared by IPERS. The data in the actuary files are also used by IPERS' actuaries to prepare the annual actuarial valuation. The investment data in the Statistical section are provided by Wilshire.

Methods

IPERS uses several data extraction and statistical tools to produce the information for the Statistical section. In some cases, data are imported into Microsoft Excel for further analysis and calculations. Please note the membership totals in this section will not equal totals in the Actuarial section due to variables in the timing of the removal of deceased members and whether payments are received in the month of June.

Assumptions

Active members are defined as those with wages reported for the last quarter of the fiscal year. Retired members and beneficiaries are those who were paid benefits in the last month of the fiscal year.

Membership and Trust Fund Summary

Changes in Fiduciary Net Position

(Dollar Values Expressed in Thousands)

Fiscal Years Ended June 30

| | 2022 | 2021 | 2020 | 2019 | 2018 |
|---------------------------------------|----------------------|--------------------|------------------|--------------------|--------------------|
| Additions | | | | | |
| Employee contributions | \$573,027 | \$549,091 | \$531,935 | \$518,344 | \$481,406 |
| Employer contributions | 853,202 | 817,561 | 792,017 | 771,782 | 716,753 |
| QBA Fund contributions | — | — | — | — | — |
| Service purchases | 4,610 | 5,220 | 3,913 | 4,312 | 4,629 |
| Net investment income | (1,583,546) | 9,895,375 | 1,041,873 | 2,640,007 | 2,458,969 |
| Total additions | (152,707) | 11,267,247 | 2,369,738 | 3,934,445 | 3,661,757 |
| Deductions | | | | | |
| Trust Fund benefits ¹ | 2,467,523 | 2,365,175 | 2,261,155 | 2,160,487 | 2,052,428 |
| QBA Fund benefits | — | — | — | — | — |
| Refunds | 64,517 | 53,636 | 57,988 | 62,169 | 58,924 |
| Trust Fund administrative expenses | 13,563 | 13,852 | 13,584 | 15,697 | 14,754 |
| Total deductions | 2,545,603 | 2,432,663 | 2,332,727 | 2,238,353 | 2,126,106 |
| Extraordinary item² | — | 7,600 | — | — | — |
| Change in net position | (\$2,698,309) | \$8,842,184 | \$37,011 | \$1,696,092 | \$1,535,651 |

Continued on page 105

¹A Schedule of Benefit Payments by Type of Benefit is found on page 110.

²IPERS received the final settlement payment from the Westridge Capital fraud case, CFTC v. Walsh / SEC v. WG in FY2021. This payment resulted in an extraordinary item during that fiscal year.

Note: The purpose of the Qualified Benefits Arrangement (QBA) is to permit IPERS retirees to receive the amount of their calculated monthly benefit that exceeds the IRS limits under IRC section 415(b). IPERS began collecting QBA contributions and paying QBA benefits in FY2006. No members have qualified for the QBA since FY2015.

Changes in Fiduciary Net Position

(Dollar Values Expressed in Thousands)

Fiscal Years Ended June 30

Continued from page 104

| | 2017 | 2016 | 2015 | 2014 | 2013 |
|---------------------------------------|--------------------|--------------------|------------------|--------------------|--------------------|
| Additions | | | | | |
| Employee contributions | \$473,355 | \$459,854 | \$441,213 | \$429,196 | \$404,654 |
| Employer contributions | 704,766 | 684,665 | 656,908 | 638,996 | 601,945 |
| QBA Fund contributions | — | — | 3 | 5 | 7 |
| Service purchases | 4,271 | 32,148 | 17,476 | 14,324 | 12,011 |
| Net investment income | 3,279,743 | 624,854 | 1,080,045 | 3,904,374 | 2,338,201 |
| Total additions | 4,462,135 | 1,801,521 | 2,195,645 | 4,986,895 | 3,356,818 |
| Deductions | | | | | |
| Trust Fund benefits ¹ | 1,943,103 | 1,840,735 | 1,744,598 | 1,764,059 | 1,667,462 |
| QBA Fund benefits | — | — | 3 | 5 | 7 |
| Refunds | 50,451 | 49,248 | 47,167 | 48,121 | 42,597 |
| Trust Fund administrative expenses | 15,899 | 14,939 | 12,592 | 14,866 | 11,587 |
| Total deductions | 2,009,453 | 1,904,922 | 1,804,360 | 1,827,051 | 1,721,653 |
| Extraordinary item² | — | — | — | — | — |
| Change in net position | \$2,452,682 | (\$103,401) | \$391,285 | \$3,159,844 | \$1,635,165 |

¹A Schedule of Benefit Payments by Type of Benefit is found on page 110.

²IPERS received the final settlement payment from the Westridge Capital fraud case, CFTC v. Walsh / SEC v. WG in FY2021. This payment resulted in an extraordinary item during that fiscal year.

Note: The purpose of the Qualified Benefits Arrangement (QBA) is to permit IPERS retirees to receive the amount of their calculated monthly benefit that exceeds the IRS limits under IRC section 415(b). IPERS began collecting QBA contributions and paying QBA benefits in FY2006. No members have qualified for the QBA since FY2015.

Changes to Membership and Net Position

Fiscal Years Ended June 30

| Fiscal Year | Retired Members | Active Members | Total Additions | Total Deductions | Total Investments | Total Net Position* |
|-------------|-----------------|----------------|-----------------|------------------|-------------------|---------------------|
| 2022 | 131,704 | 176,186 | (\$152,706,815) | \$2,545,602,608 | \$40,898,541,814 | \$40,191,566,259 |
| 2021 | 129,026 | 173,186 | 11,267,246,693 | 2,432,662,727 | 43,151,464,813 | 42,889,875,682 |
| 2020 | 126,600 | 170,380 | 2,369,737,986 | 2,332,726,605 | 34,847,055,326 | 34,047,692,112 |
| 2019 | 123,781 | 172,304 | 3,934,445,544 | 2,238,353,408 | 34,766,936,003 | 34,010,680,731 |
| 2018 | 120,987 | 170,378 | 3,661,757,083 | 2,126,106,199 | 32,916,559,493 | 32,314,588,595 |
| 2017 | 117,759 | 169,910 | 4,462,135,823 | 2,009,453,153 | 30,707,033,241 | 30,779,116,326 |
| 2016 | 114,491 | 168,372 | 1,801,520,563 | 1,904,921,736 | 29,276,427,008 | 28,326,433,656 |
| 2015 | 111,368 | 167,367 | 2,195,645,133 | 1,804,360,197 | 28,806,868,252 | 28,429,834,829 |
| 2014 | 108,233 | 165,913 | 4,986,894,852 | 1,827,050,988 | 28,186,974,092 | 28,038,549,893 |
| 2013 | 104,933 | 165,095 | 3,356,818,792 | 1,721,653,271 | 25,136,870,851 | 24,878,706,029 |

*FY2021 Total Net Position includes an extraordinary item of \$7,599,604 from the Westridge Capital fraud case settlement.

Note: Total investments in this table include the securities lending collateral pool.

Membership by Group

Fiscal Years Ended June 30

| Fiscal Year | | Regular Members | Sheriffs and Deputies | Protection Occupation Members | Total |
|-------------|------------------|-----------------|-----------------------|-------------------------------|----------------|
| 2022 | Active members | 167,041 | 1,725 | 7,420 | 176,186 |
| | Inactive members | 81,900 | 207 | 2,728 | 84,835 |
| | Retired members | 126,703 | 1,215 | 3,786 | 131,704 |
| | Total | 375,644 | 3,147 | 13,934 | 392,725 |
| 2021 | Active members | 164,150 | 1,674 | 7,362 | 173,186 |
| | Inactive members | 77,135 | 191 | 2,384 | 79,710 |
| | Retired members | 124,279 | 1,178 | 3,569 | 129,026 |
| | Total | 365,564 | 3,043 | 13,315 | 381,922 |
| 2020 | Active members | 161,391 | 1,685 | 7,304 | 170,380 |
| | Inactive members | 75,980 | 168 | 2,212 | 78,360 |
| | Retired members | 122,137 | 1,084 | 3,379 | 126,600 |
| | Total | 359,508 | 2,937 | 12,895 | 375,340 |
| 2019 | Active members | 163,348 | 1,664 | 7,292 | 172,304 |
| | Inactive members | 70,025 | 163 | 2,019 | 72,207 |
| | Retired members | 119,562 | 1,039 | 3,180 | 123,781 |
| | Total | 352,935 | 2,866 | 12,491 | 368,292 |
| 2018 | Active members | 161,707 | 1,638 | 7,033 | 170,378 |
| | Inactive members | 67,992 | 152 | 1,903 | 70,047 |
| | Retired members | 117,010 | 988 | 2,989 | 120,987 |
| | Total | 346,709 | 2,778 | 11,925 | 361,412 |
| 2017 | Active members | 161,316 | 1,594 | 7,000 | 169,910 |
| | Inactive members | 65,989 | 135 | 1,838 | 67,962 |
| | Retired members | 114,076 | 959 | 2,724 | 117,759 |
| | Total | 341,381 | 2,688 | 11,562 | 355,631 |
| 2016 | Active members | 159,782 | 1,598 | 6,992 | 168,372 |
| | Inactive members | 65,002 | 126 | 1,719 | 66,847 |
| | Retired members | 111,103 | 889 | 2,499 | 114,491 |
| | Total | 335,887 | 2,613 | 11,210 | 349,710 |
| 2015 | Active members | 158,808 | 1,552 | 7,007 | 167,367 |
| | Inactive members | 65,625 | 125 | 1,624 | 67,374 |
| | Retired members | 108,220 | 849 | 2,299 | 111,368 |
| | Total | 332,653 | 2,526 | 10,930 | 346,109 |
| 2014 | Active members | 157,349 | 1,538 | 7,026 | 165,913 |
| | Inactive members | 70,557 | 122 | 1,588 | 72,267 |
| | Retired members | 105,298 | 795 | 2,140 | 108,233 |
| | Total | 333,204 | 2,455 | 10,754 | 346,413 |
| 2013 | Active members | 156,679 | 1,527 | 6,889 | 165,095 |
| | Inactive members | 71,071 | 121 | 1,432 | 72,624 |
| | Retired members | 102,235 | 754 | 1,944 | 104,933 |
| | Total | 329,985 | 2,402 | 10,265 | 342,652 |

Active Membership Summary

Active Membership Statistics

Fiscal Years Ended June 30

| Fiscal Year | Active Members | Percentage Change | Annual Average Pay | Average Age (Years) | Average Service Credit (Years) |
|-------------|----------------|-------------------|--------------------|---------------------|--------------------------------|
| 2022 | 176,186 | 1.7 | \$51,185 | 44.5 | 10.7 |
| 2021 | 173,186 | 1.6 | 49,939 | 44.7 | 11.0 |
| 2020 | 170,380 | (1.1) | 49,254 | 44.9 | 11.1 |
| 2019 | 172,304 | 1.1 | 47,306 | 45.1 | 11.1 |
| 2018 | 170,378 | 0.3 | 46,856 | 45.2 | 11.2 |
| 2017 | 169,910 | 0.9 | 46,278 | 45.4 | 11.3 |
| 2016 | 168,372 | 0.6 | 44,880 | 45.5 | 11.4 |
| 2015 | 167,367 | 0.9 | 43,774 | 45.6 | 11.5 |
| 2014 | 165,913 | 0.5 | 42,789 | 45.6 | 11.5 |
| 2013 | 165,095 | 0.5 | 41,674 | 45.7 | 11.6 |

Analysis of Change in Active Membership

Fiscal Years Ended June 30

| Fiscal Year | Beginning Members | Additions | Retired | Died | Other Terminations | Ending Members |
|-------------|-------------------|-----------|---------|------|--------------------|----------------|
| 2022 | 173,186 | 24,856 | 5,048 | 251 | 16,557 | 176,186 |
| 2021 | 170,380 | 21,514 | 4,952 | 270 | 13,486 | 173,186 |
| 2020 | 172,304 | 19,598 | 4,837 | 226 | 16,459 | 170,380 |
| 2019 | 170,378 | 20,733 | 4,660 | 194 | 13,953 | 172,304 |
| 2018 | 169,910 | 19,569 | 5,004 | 206 | 13,891 | 170,378 |
| 2017 | 168,372 | 19,714 | 5,067 | 222 | 12,887 | 169,910 |
| 2016 | 167,367 | 19,130 | 4,784 | 210 | 13,131 | 168,372 |
| 2015 | 165,913 | 19,236 | 4,840 | 219 | 12,723 | 167,367 |
| 2014 | 165,095 | 18,616 | 4,787 | 205 | 12,806 | 165,913 |
| 2013 | 164,200 | 17,862 | 4,719 | 219 | 12,029 | 165,095 |

Retiree and Benefit Payment Statistics

New Retirees by Employer Type

Fiscal Years Ended June 30

| Fiscal Year | | City | County | Education | State | Utility | Health | Other | Total |
|-------------|--------------------------|---------|---------|-----------|---------|---------|---------|---------|---------|
| 2022 | Number of retirees | 857 | 1,008 | 3,212 | 962 | 76 | — | 147 | 6,262 |
| | Average monthly benefit | \$1,891 | \$1,922 | \$1,889 | \$2,931 | \$2,469 | — | \$990 | \$2,041 |
| | Average years of service | 21.62 | 21.18 | 22.07 | 25.47 | 22.01 | — | 15.23 | 22.23 |
| 2021 | Number of retirees | 848 | 1,134 | 3,069 | 849 | 80 | — | 147 | 6,127 |
| | Average monthly benefit | \$1,892 | \$2,191 | \$1,663 | \$2,806 | \$1,749 | — | \$1,459 | \$1,947 |
| | Average years of service | 21.98 | 22.43 | 20.34 | 24.32 | 19.24 | — | 16.20 | 21.39 |
| 2020 | Number of retirees | 845 | 958 | 3,264 | 883 | 57 | — | 137 | 6,144 |
| | Average monthly benefit | \$1,786 | \$1,811 | \$1,764 | \$2,646 | \$1,821 | — | \$1,084 | \$1,887 |
| | Average years of service | 21.26 | 21.28 | 21.72 | 24.53 | 22.32 | — | 15.97 | 21.87 |
| 2019 | Number of retirees | 844 | 1,047 | 2,936 | 920 | 65 | — | 144 | 5,956 |
| | Average monthly benefit | \$1,812 | \$1,692 | \$1,670 | \$2,890 | \$2,124 | — | \$916 | \$1,869 |
| | Average years of service | 21.36 | 20.78 | 20.99 | 25.05 | 23.05 | — | 13.59 | 21.48 |
| 2018 | Number of retirees | 943 | 1,015 | 2,942 | 1,195 | 64 | — | 157 | 6,316 |
| | Average monthly benefit | \$1,622 | \$1,657 | \$1,716 | \$2,651 | \$2,004 | — | \$1,090 | \$1,857 |
| | Average years of service | 20.23 | 20.35 | 21.84 | 25.06 | 20.34 | — | 16.11 | 21.81 |
| 2017 | Number of retirees | 872 | 987 | 3,288 | 1,023 | 74 | — | 116 | 6,360 |
| | Average monthly benefit | \$1,650 | \$1,685 | \$1,696 | \$2,786 | \$2,391 | — | \$1,240 | \$1,863 |
| | Average years of service | 21.08 | 20.87 | 21.79 | 24.98 | 23.8 | — | 15.67 | 21.98 |
| 2016 | Number of retirees | 872 | 986 | 3,049 | 908 | 66 | — | 130 | 6,011 |
| | Average monthly benefit | \$1,636 | \$1,642 | \$1,677 | \$2,380 | \$1,888 | — | \$789 | \$1,755 |
| | Average years of service | 21.24 | 21.42 | 21.62 | 23.02 | 20.36 | — | 13.95 | 21.56 |
| 2015 | Number of retirees | 657 | 637 | 3,102 | 899 | 52 | 528 | 95 | 5,970 |
| | Average monthly benefit | \$1,750 | \$1,737 | \$1,580 | \$2,422 | \$1,833 | \$1,369 | \$893 | \$1,715 |
| | Average years of service | 21.9 | 22.21 | 21.48 | 23.72 | 19.71 | 18.28 | 14.17 | 21.53 |
| 2014 | Number of retirees | 810 | 608 | 3,064 | 986 | 62 | 426 | 120 | 6,076 |
| | Average monthly benefit | \$1,550 | \$1,566 | \$1,642 | \$2,170 | \$1,739 | \$1,232 | \$760 | \$1,663 |
| | Average years of service | 20.61 | 21.30 | 21.7 | 22.24 | 19.78 | 17.46 | 12.73 | 21.11 |
| 2013 | Number of retirees | 665 | 673 | 3,011 | 809 | 50 | 473 | 133 | 5,814 |
| | Average monthly benefit | \$1,655 | \$1,593 | \$1,685 | \$2,327 | \$1,833 | \$1,271 | \$849 | \$1,709 |
| | Average years of service | 21.78 | 21.66 | 22.11 | 23.46 | 21.66 | 17.47 | 14.10 | 21.64 |

Note: With the implementation of I-Que, revised employer classifications are being used for FY2012 and forward. Health was previously reported separately to assist in tracking licensed health care professionals due to a unique bona fide retirement provision that is no longer in effect.

Average Benefit Payments for Retirees

Fiscal Years Ended June 30

| Fiscal Year | | Years of Service | | | | | | | Total |
|-------------|-----------------------------|------------------|---------|---------|---------|---------|---------|---------|---------|
| | | 0 - 5 | 6 - 10 | 11 - 15 | 16 - 20 | 21 - 25 | 26 - 30 | >30 | |
| 2022 | Number of retirees | 6,429 | 16,465 | 17,165 | 17,244 | 17,610 | 16,517 | 40,274 | 131,704 |
| | Average monthly benefit | \$153 | \$319 | \$583 | \$979 | \$1,466 | \$2,086 | \$2,792 | \$1,563 |
| | Average high average salary | \$1,349 | \$2,052 | \$2,454 | \$2,940 | \$3,434 | \$3,994 | \$4,731 | \$3,434 |
| | Average years of service | 4.45 | 8.46 | 13.32 | 18.47 | 23.31 | 28.21 | 34.85 | 22.74 |
| 2021 | Number of retirees | 6,387 | 16,189 | 16,869 | 17,011 | 17,182 | 16,068 | 39,320 | 129,026 |
| | Average monthly benefit | \$156 | \$312 | \$568 | \$955 | \$1,423 | \$2,037 | \$2,737 | \$1,524 |
| | Average high average salary | \$1,351 | \$1,991 | \$2,383 | \$2,862 | \$3,343 | \$3,914 | \$4,647 | \$3,354 |
| | Average years of service | 4.45 | 8.46 | 13.32 | 18.46 | 23.31 | 28.21 | 34.82 | 22.68 |
| 2020 | Number of retirees | 6,298 | 15,949 | 16,568 | 16,722 | 16,779 | 15,778 | 38,506 | 126,600 |
| | Average monthly benefit | \$151 | \$302 | \$550 | \$925 | \$1,391 | \$1,993 | \$2,686 | \$1,489 |
| | Average high average salary | \$1,347 | \$1,924 | \$2,307 | \$2,779 | \$3,258 | \$3,831 | \$4,573 | \$3,278 |
| | Average years of service | 4.45 | 8.46 | 13.31 | 18.46 | 23.31 | 28.21 | 34.77 | 22.65 |
| 2019 | Number of retirees | 6,175 | 15,692 | 16,217 | 16,417 | 16,390 | 15,376 | 37,514 | 123,781 |
| | Average monthly benefit | \$152 | \$294 | \$537 | \$902 | \$1,361 | \$1,952 | \$2,638 | \$1,457 |
| | Average high average salary | \$1,339 | \$1,873 | \$2,241 | \$2,710 | \$3,182 | \$3,763 | \$4,497 | \$3,209 |
| | Average years of service | 4.45 | 8.46 | 13.32 | 18.45 | 23.31 | 28.22 | 34.74 | 22.61 |
| 2018 | Number of retirees | 6,016 | 15,393 | 15,875 | 16,020 | 16,070 | 15,028 | 36,585 | 120,987 |
| | Average monthly benefit | \$142 | \$286 | \$524 | \$872 | \$1,324 | \$1,908 | \$2,589 | \$1,423 |
| | Average high average salary | \$1,329 | \$1,817 | \$2,171 | \$2,624 | \$3,107 | \$3,677 | \$4,427 | \$3,138 |
| | Average years of service | 4.46 | 8.46 | 13.33 | 18.45 | 23.31 | 28.21 | 34.7 | 22.58 |
| 2017 | Number of retirees | 5,899 | 15,022 | 15,503 | 15,592 | 15,683 | 14,600 | 35,460 | 117,759 |
| | Average monthly benefit | \$142 | \$276 | \$514 | \$846 | \$1,290 | \$1,866 | \$2,537 | \$1,389 |
| | Average high average salary | \$1,310 | \$1,753 | \$2,108 | \$2,535 | \$3,025 | \$3,593 | \$4,350 | \$3,061 |
| | Average years of service | 4.46 | 8.45 | 13.33 | 18.45 | 23.31 | 28.21 | 34.65 | 22.53 |
| 2016 | Number of retirees | 5,808 | 14,724 | 15,192 | 15,293 | 15,244 | 13,958 | 34,272 | 114,491 |
| | Average monthly benefit | \$142 | \$270 | \$499 | \$822 | \$1,253 | \$1,814 | \$2,483 | \$1,349 |
| | Average high average salary | \$1,318 | \$1,698 | \$2,035 | \$2,462 | \$2,950 | \$3,509 | \$4,273 | \$2,984 |
| | Average years of service | 4.46 | 8.44 | 13.33 | 18.45 | 23.30 | 28.21 | 34.61 | 22.45 |
| 2015 | Number of retirees | 5,674 | 14,365 | 14,804 | 14,863 | 14,867 | 13,529 | 33,266 | 111,368 |
| | Average monthly benefit | \$138 | \$261 | \$483 | \$798 | \$1,221 | \$1,765 | \$2,431 | \$1,315 |
| | Average high average salary | \$1,305 | \$1,637 | \$1,961 | \$2,383 | \$2,873 | \$3,431 | \$4,200 | \$2,911 |
| | Average years of service | 4.47 | 8.45 | 13.33 | 18.45 | 23.30 | 28.22 | 34.56 | 22.41 |
| 2014 | Number of retirees | 5,527 | 13,966 | 14,425 | 14,513 | 14,448 | 13,160 | 32,194 | 108,233 |
| | Average monthly benefit | \$144 | \$270 | \$507 | \$824 | \$1,265 | \$1,850 | \$2,552 | \$1,373 |
| | Average high average salary | \$1,294 | \$1,581 | \$1,899 | \$2,321 | \$2,820 | \$3,393 | \$4,178 | \$2,866 |
| | Average years of service | 4.47 | 8.45 | 13.33 | 18.45 | 23.30 | 28.22 | 34.52 | 22.38 |
| 2013 | Number of retirees | 5,332 | 13,532 | 13,945 | 14,153 | 14,080 | 12,802 | 31,089 | 104,933 |
| | Average monthly benefit | \$140 | \$261 | \$485 | \$800 | \$1,228 | \$1,799 | \$2,490 | \$1,335 |
| | Average high average salary | \$1,263 | \$1,506 | \$1,821 | \$2,257 | \$2,796 | \$3,411 | \$4,173 | \$2,832 |
| | Average years of service | 4.47 | 8.46 | 13.32 | 18.45 | 23.30 | 28.22 | 34.47 | 22.36 |

Note: The data reported for average high average salary takes into account the statutory rules that govern how the wage component of the benefit formula is determined. These rules have changed over time. Until June 30, 2012, the highest 3-year average salary was used, and a spiking control was incorporated. The wage component of the formula for Regular members was frozen as of June 30, 2012, until those members' highest 5-year average surpasses their 3-year average as of that date. A spiking control is incorporated into the highest 5-year average salary calculation as well.

Where data were available, the average monthly wages used to calculate members' retirement benefits were calculated by dividing the high average salary by the applicable number of months (36 for the highest 3-year average salary, or 60 for the highest 5-year average salary). This table does not include retirees under the Iowa Old-Age and Survivors' Insurance System.

Schedule of Benefit Payments by Type of Benefit

Fiscal Years Ended June 30

| Fiscal Year | Number of Retirees | Normal Retirement Benefit | Early Retirement Benefit | Death Benefit (Normal, Early or Disability Retirement) | Preretirement Death Benefit | Disability Benefit | Special Service In-Service Disability Benefit | Special Service Ordinary Disability Benefit | Total |
|-------------|--------------------|---------------------------|--------------------------|--|-----------------------------|--------------------|---|---|-----------------|
| 2022 | 131,704 | \$1,871,096,121 | \$380,768,441 | \$87,883,631 | \$8,054,935 | \$46,574,416 | \$2,351,485 | \$604,424 | \$2,397,333,453 |
| 2021 | 129,026 | 1,779,148,064 | 374,794,591 | 80,505,611 | 7,672,458 | 46,181,544 | 2,117,595 | 607,073 | 2,291,026,936 |
| 2020 | 126,600 | 1,700,010,453 | 367,981,549 | 74,081,682 | 7,122,717 | 46,886,343 | 2,001,478 | 599,991 | 2,198,684,213 |
| 2019 | 123,781 | 1,617,364,436 | 360,734,274 | 69,230,557 | 6,540,301 | 45,818,753 | 1,795,634 | 503,977 | 2,101,987,932 |
| 2018 | 120,987 | 1,530,480,793 | 351,227,851 | 64,331,097 | 6,089,032 | 44,946,581 | 1,551,385 | 469,750 | 1,999,096,489 |
| 2017 | 117,759 | 1,440,073,713 | 341,016,819 | 59,235,879 | 5,628,874 | 44,145,318 | 1,321,552 | 428,570 | 1,891,850,725 |
| 2016 | 114,491 | 1,358,625,886 | 330,328,320 | 54,759,110 | 5,157,531 | 42,716,696 | 1,305,876 | 402,828 | 1,793,296,247 |
| 2015 | 111,368 | 1,280,932,627 | 318,701,798 | 50,655,108 | 4,815,714 | 41,345,123 | 1,206,633 | 415,647 | 1,698,072,650 |
| 2014 | 108,233 | 1,291,948,738 | 328,584,720 | 50,993,939 | 4,569,515 | 43,468,128 | 1,080,553 | 409,438 | 1,721,055,031 |
| 2013 | 104,933 | 1,215,721,455 | 312,460,044 | 46,566,814 | 4,155,084 | 41,507,779 | 902,784 | 372,139 | 1,621,686,099 |

Note: This table does not include lump-sum payments.

Schedule of Retired Members by Type of Benefit

As of June 30, 2022

| Amount of Monthly Benefit | Number of Retirees | Normal Retirement Benefit | Early Retirement Benefit | Death Benefit (Normal, Early, or Disability Retirement) | Preretirement Death Benefit | Disability Benefit | Special Service In-Service Disability Benefit | Special Service Ordinary Disability Benefit |
|---------------------------|--------------------|---------------------------|--------------------------|---|-----------------------------|--------------------|---|---|
| \$ <250 | 20,274 | 8,471 | 10,001 | 974 | 133 | 695 | — | — |
| 250 – 499 | 16,514 | 6,132 | 8,397 | 1,070 | 139 | 774 | — | 2 |
| 500 – 749 | 12,216 | 5,042 | 5,523 | 1,012 | 100 | 539 | — | — |
| 750 – 999 | 9,205 | 4,243 | 3,682 | 763 | 62 | 455 | — | — |
| 1,000 – 1,249 | 8,372 | 4,168 | 3,007 | 779 | 54 | 363 | 1 | — |
| 1,250 – 1,499 | 7,158 | 3,949 | 2,282 | 583 | 52 | 286 | 2 | 4 |
| 1,500 – 1,749 | 6,672 | 4,186 | 1,752 | 464 | 38 | 223 | 3 | 6 |
| 1,750 – 1,999 | 6,781 | 4,837 | 1,330 | 374 | 45 | 182 | 11 | 2 |
| 2,000 – 2,249 | 6,850 | 5,312 | 1,095 | 297 | 25 | 110 | 6 | 5 |
| 2,250 – 2,499 | 6,524 | 5,426 | 762 | 222 | 18 | 83 | 9 | 4 |
| 2,500 – 2,749 | 5,954 | 5,199 | 523 | 142 | 13 | 69 | 5 | 3 |
| 2,750 – 2,999 | 5,275 | 4,704 | 404 | 90 | 7 | 61 | 8 | 1 |
| 3,000 – 3,249 | 4,680 | 4,327 | 220 | 78 | 5 | 44 | 6 | — |
| 3,250 – 3,499 | 3,712 | 3,473 | 146 | 62 | 3 | 24 | 4 | — |
| 3,500 – 3,749 | 2,919 | 2,744 | 113 | 33 | 2 | 17 | 10 | — |
| 3,750 – 3,999 | 2,204 | 2,090 | 66 | 30 | 4 | 13 | 1 | — |
| 4,000+ | 6,394 | 6,069 | 179 | 70 | 7 | 62 | 7 | — |
| Total | 131,704 | 80,372 | 39,482 | 7,043 | 707 | 4,000 | 73 | 27 |

Note: The above tables do not include types of refunds because IPERS pays only one type of refund (termination refunds).

Retired Members by Benefit Option

As of June 30, 2022

| Amount of Monthly Benefit | Number of Retirees | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 | Misc. |
|---------------------------|--------------------|---------------|---------------|---------------|---------------|---------------|---------------|----------|
| \$ <250 | 20,274 | 5,261 | 5,332 | 3,853 | 1,924 | 2,066 | 1,833 | 5 |
| 250 – 499 | 16,514 | 4,297 | 4,348 | 2,259 | 1,972 | 1,579 | 2,055 | 4 |
| 500 – 749 | 12,216 | 3,004 | 3,124 | 1,380 | 1,642 | 1,159 | 1,907 | – |
| 750 – 999 | 9,205 | 1,996 | 2,323 | 1,026 | 1,310 | 822 | 1,728 | – |
| 1,000 – 1,249 | 8,372 | 1,717 | 2,040 | 792 | 1,380 | 640 | 1,803 | – |
| 1,250 – 1,499 | 7,158 | 1,458 | 1,659 | 649 | 1,195 | 589 | 1,608 | – |
| 1,500 – 1,749 | 6,672 | 1,380 | 1,405 | 570 | 1,066 | 576 | 1,675 | – |
| 1,750 – 1,999 | 6,781 | 1,159 | 1,475 | 614 | 1,090 | 594 | 1,849 | – |
| 2,000 – 2,249 | 6,850 | 1,250 | 1,375 | 649 | 915 | 618 | 2,043 | – |
| 2,250 – 2,499 | 6,524 | 1,035 | 1,342 | 603 | 830 | 550 | 2,164 | – |
| 2,500 – 2,749 | 5,954 | 980 | 1,244 | 584 | 631 | 491 | 2,024 | – |
| 2,750 – 2,999 | 5,275 | 819 | 1,148 | 518 | 462 | 459 | 1,869 | – |
| 3,000 – 3,249 | 4,680 | 696 | 989 | 461 | 450 | 351 | 1,733 | – |
| 3,250 – 3,499 | 3,712 | 540 | 799 | 310 | 387 | 269 | 1,407 | – |
| 3,500 – 3,749 | 2,919 | 390 | 649 | 271 | 273 | 210 | 1,126 | – |
| 3,750 – 3,999 | 2,204 | 315 | 494 | 194 | 184 | 149 | 868 | – |
| 4,000+ | 6,394 | 775 | 1,266 | 600 | 783 | 510 | 2,460 | – |
| Total | 131,704 | 27,072 | 31,012 | 15,333 | 16,494 | 11,632 | 30,152 | 9 |

See definitions of benefit options on page 37.

Note: Miscellaneous column consists of survivor death benefits based upon law provisions no longer available.

Benefit Payment Summary

Fiscal Years Ended June 30

| Fiscal Year | To Iowa | To Other States | To Foreign Countries |
|-------------|-----------------|-----------------|----------------------|
| 2022 | \$2,174,863,675 | \$292,090,640 | \$568,512 |
| 2021 | 2,082,541,465 | 282,100,294 | 533,314 |
| 2020 | 1,990,517,110 | 270,119,230 | 518,048 |
| 2019 | 1,904,028,981 | 256,016,365 | 442,097 |
| 2018 | 1,810,076,771 | 241,972,129 | 378,845 |
| 2017 | 1,716,489,981 | 226,225,319 | 387,908 |
| 2016 | 1,625,956,965 | 214,384,328 | 393,315 |
| 2015 | 1,541,982,482 | 202,258,326 | 360,202 |
| 2014 | 1,556,861,335 | 206,805,339 | 397,590 |
| 2013 | 1,476,219,393 | 190,938,237 | 311,229 |
| 2012 | 1,376,422,791 | 172,458,343 | 295,502 |

Benefit Payments by Iowa County

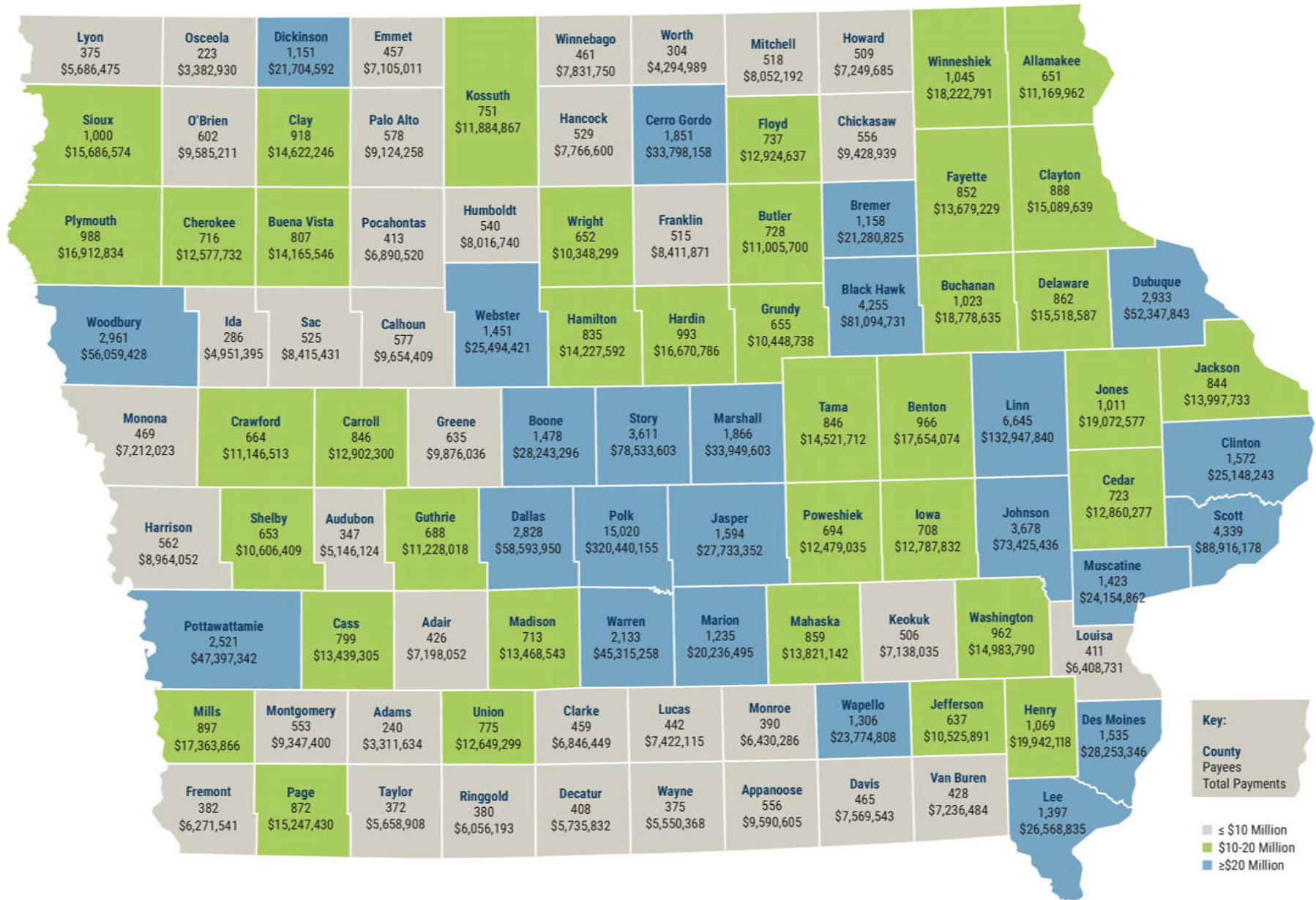
Fiscal Year 2022

| County | Amount | Annual Average | Payees | County | Amount | Annual Average | Payees |
|-------------|-------------|----------------|--------|-------------------------------------|------------------------|----------------|--------|
| Adair | \$7,198,052 | \$16,897 | 426 | Johnson | \$73,425,436 | \$19,963 | 3,678 |
| Adams | 3,311,634 | 13,798 | 240 | Jones | 19,072,577 | 18,865 | 1,011 |
| Allamakee | 11,169,962 | 17,158 | 651 | Keokuk | 7,138,035 | 14,107 | 506 |
| Appanoose | 9,590,605 | 17,249 | 556 | Kossuth | 11,884,867 | 15,825 | 751 |
| Audubon | 5,146,124 | 14,830 | 347 | Lee | 26,568,835 | 19,018 | 1,397 |
| Benton | 17,654,074 | 18,275 | 966 | Linn | 132,947,840 | 20,007 | 6,645 |
| Black Hawk | 81,094,731 | 19,059 | 4,255 | Louisa | 6,408,731 | 15,593 | 411 |
| Boone | 28,243,296 | 19,109 | 1,478 | Lucas | 7,422,115 | 16,792 | 442 |
| Bremer | 21,280,825 | 18,377 | 1,158 | Lyon | 5,686,475 | 15,164 | 375 |
| Buchanan | 18,778,635 | 18,356 | 1,023 | Madison | 13,468,543 | 18,890 | 713 |
| Buena Vista | 14,165,546 | 17,553 | 807 | Mahaska | 13,821,142 | 16,090 | 859 |
| Butler | 11,005,700 | 15,118 | 728 | Marion | 20,236,495 | 16,386 | 1,235 |
| Calhoun | 9,654,409 | 16,732 | 577 | Marshall | 33,949,603 | 18,194 | 1,866 |
| Carroll | 12,902,300 | 15,251 | 846 | Mills | 17,363,866 | 19,358 | 897 |
| Cass | 13,439,305 | 16,820 | 799 | Mitchell | 8,052,192 | 15,545 | 518 |
| Cedar | 12,860,277 | 17,787 | 723 | Monona | 7,212,023 | 15,377 | 469 |
| Cerro Gordo | 33,798,158 | 18,259 | 1,851 | Monroe | 6,430,286 | 16,488 | 390 |
| Cherokee | 12,577,732 | 17,567 | 716 | Montgomery | 9,347,400 | 16,903 | 553 |
| Chickasaw | 9,428,939 | 16,959 | 556 | Muscatine | 24,154,862 | 16,975 | 1,423 |
| Clarke | 6,846,449 | 14,916 | 459 | O'Brien | 9,585,211 | 15,922 | 602 |
| Clay | 14,622,246 | 15,928 | 918 | Osceola | 3,382,930 | 15,170 | 223 |
| Clayton | 15,089,639 | 16,993 | 888 | Page | 15,247,430 | 17,486 | 872 |
| Clinton | 25,148,243 | 15,998 | 1,572 | Palo Alto | 9,124,258 | 15,786 | 578 |
| Crawford | 11,146,513 | 16,787 | 664 | Plymouth | 16,912,834 | 17,118 | 988 |
| Dallas | 58,593,950 | 20,719 | 2,828 | Pocahontas | 6,890,520 | 16,684 | 413 |
| Davis | 7,569,543 | 16,279 | 465 | Polk | 320,440,155 | 21,334 | 15,020 |
| Decatur | 5,735,832 | 14,058 | 408 | Pottawattamie | 47,397,342 | 18,801 | 2,521 |
| Delaware | 15,518,587 | 18,003 | 862 | Poweshiek | 12,479,035 | 17,981 | 694 |
| Des Moines | 28,253,346 | 18,406 | 1,535 | Ringgold | 6,056,193 | 15,937 | 380 |
| Dickinson | 21,704,592 | 18,857 | 1,151 | Sac | 8,415,431 | 16,029 | 525 |
| Dubuque | 52,347,843 | 17,848 | 2,933 | Scott | 88,916,178 | 20,492 | 4,339 |
| Emmet | 7,105,011 | 15,547 | 457 | Shelby | 10,606,409 | 16,243 | 653 |
| Fayette | 13,679,229 | 16,055 | 852 | Sioux | 15,686,574 | 15,687 | 1,000 |
| Floyd | 12,924,637 | 17,537 | 737 | Story | 78,533,603 | 21,748 | 3,611 |
| Franklin | 8,411,871 | 16,334 | 515 | Tama | 14,521,712 | 17,165 | 846 |
| Fremont | 6,271,541 | 16,418 | 382 | Taylor | 5,658,908 | 15,212 | 372 |
| Greene | 9,876,036 | 15,553 | 635 | Union | 12,649,299 | 16,322 | 775 |
| Grundy | 10,448,738 | 15,952 | 655 | Van Buren | 7,236,484 | 16,908 | 428 |
| Guthrie | 11,228,018 | 16,320 | 688 | Wapello | 23,774,808 | 18,204 | 1,306 |
| Hamilton | 14,227,592 | 17,039 | 835 | Warren | 45,315,258 | 21,245 | 2,133 |
| Hancock | 7,766,600 | 14,682 | 529 | Washington | 14,983,790 | 15,576 | 962 |
| Hardin | 16,670,786 | 16,788 | 993 | Wayne | 5,550,368 | 14,801 | 375 |
| Harrison | 8,964,052 | 15,950 | 562 | Webster | 25,494,421 | 17,570 | 1,451 |
| Henry | 19,942,118 | 18,655 | 1,069 | Winnebago | 7,831,750 | 16,989 | 461 |
| Howard | 7,249,685 | 14,243 | 509 | Winneshiek | 18,222,791 | 17,438 | 1,045 |
| Humboldt | 8,016,740 | 14,846 | 540 | Woodbury | 56,059,428 | 18,933 | 2,961 |
| Ida | 4,951,395 | 17,313 | 286 | Worth | 4,294,989 | 14,128 | 304 |
| Iowa | 12,787,832 | 18,062 | 708 | Wright | 10,348,299 | 15,872 | 652 |
| Jackson | 13,997,733 | 16,585 | 844 | | | | |
| Jasper | 27,733,352 | 17,399 | 1,594 | | | | |
| Jefferson | 10,525,891 | 16,524 | 637 | | | | |
| | | | | Total Iowa Benefit Payments: | \$2,174,863,675 | | |

Note: Payments determined by zip code.

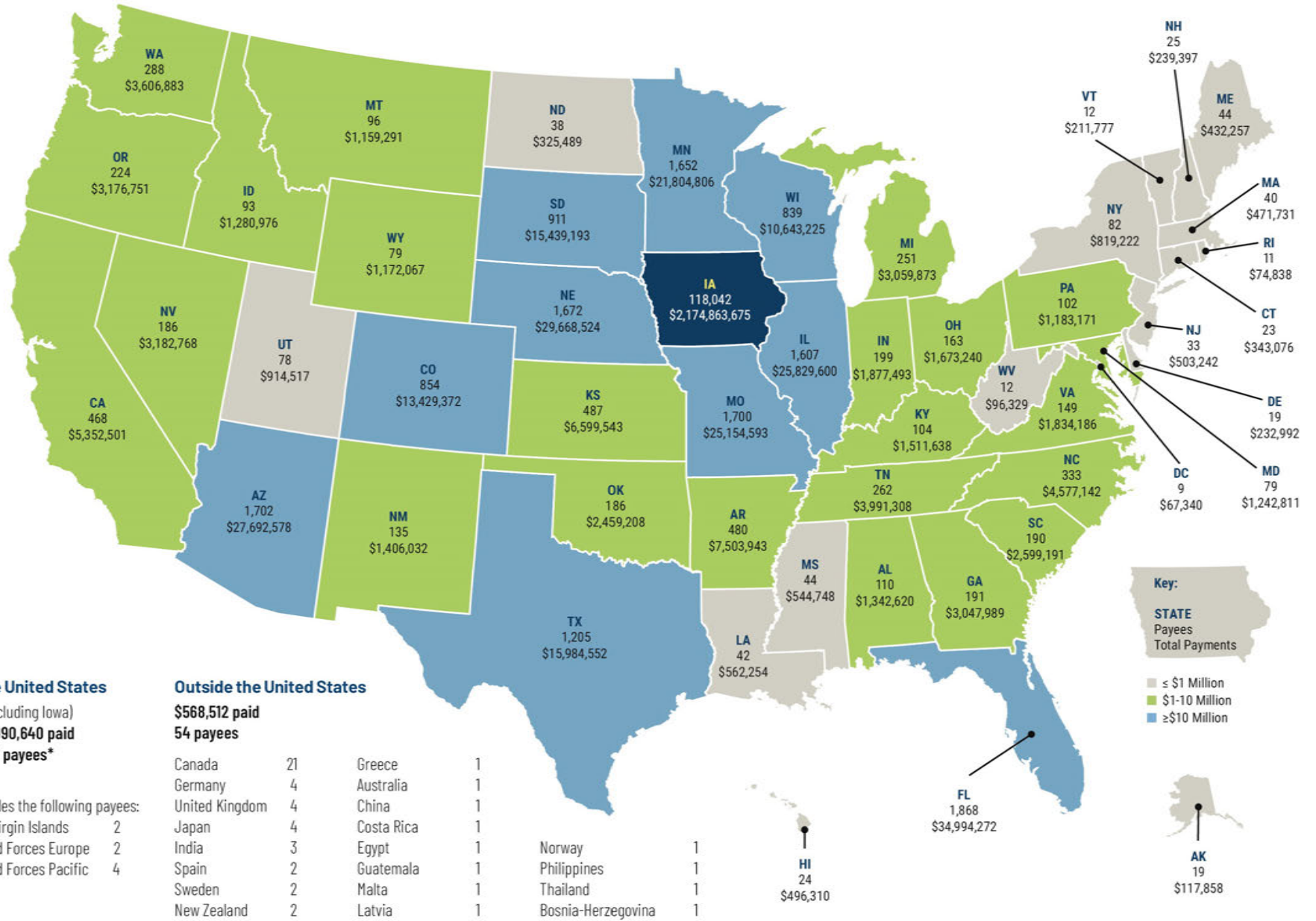
BENEFIT PAYMENTS BY IOWA COUNTY

Fiscal Year 2022



BENEFIT PAYMENTS BY STATE

Fiscal Year 2022



In the United States
(not including Iowa)
\$292,090,640 paid
19,428 payees*

*Includes the following payees:
U.S. Virgin Islands 2
Armed Forces Europe 2
Armed Forces Pacific 4

Outside the United States
\$568,512 paid
54 payees

Summary of Principal Employers

Principal Participating Employers

Fiscal Years Ended June 30

| Participating Employer | 2022 | | |
|--|-------------------|------|---------------------------------------|
| | Covered Employees | Rank | Percentage of Total Covered Employees |
| State of Iowa Centralized Payroll | 26,419 | 1 | 14.99 |
| Des Moines Community School District (CSD) | 4,846 | 2 | 2.75 |
| Cedar Rapids CSD | 2,748 | 3 | 1.56 |
| Iowa City CSD | 2,637 | 4 | 1.50 |
| Davenport CSD | 2,291 | 5 | 1.30 |
| Sioux City CSD | 2,056 | 6 | 1.17 |
| Dubuque CSD | 1,989 | 7 | 1.13 |
| Waukee CSD | 1,790 | 8 | 1.02 |
| Ankeny CSD | 1,786 | 9 | 1.01 |
| Waterloo CSD | 1,736 | 10 | 0.99 |
| All other employers* | 127,888 | | 72.59 |
| Total (1,943 employers) | 176,186 | | 100 |

| Participating Employer | 2013 | | |
|--|-------------------|------|---------------------------------------|
| | Covered Employees | Rank | Percentage of Total Covered Employees |
| State of Iowa Centralized Payroll | 17,260 | 1 | 10.45 |
| Des Moines Community School District (CSD) | 4,588 | 2 | 2.78 |
| Cedar Rapids CSD | 2,979 | 3 | 1.80 |
| Iowa Department of Transportation | 2,643 | 4 | 1.60 |
| Davenport CSD | 2,353 | 5 | 1.43 |
| University of Iowa | 2,209 | 6 | 1.34 |
| Iowa City CSD | 1,940 | 7 | 1.17 |
| Sioux City CSD | 1,924 | 8 | 1.17 |
| Dubuque CSD | 1,887 | 9 | 1.14 |
| Waterloo CSD | 1,694 | 10 | 1.03 |
| All other employers | 125,618 | | 76.09 |
| Total (2,147 employers) | 165,095 | | 100 |

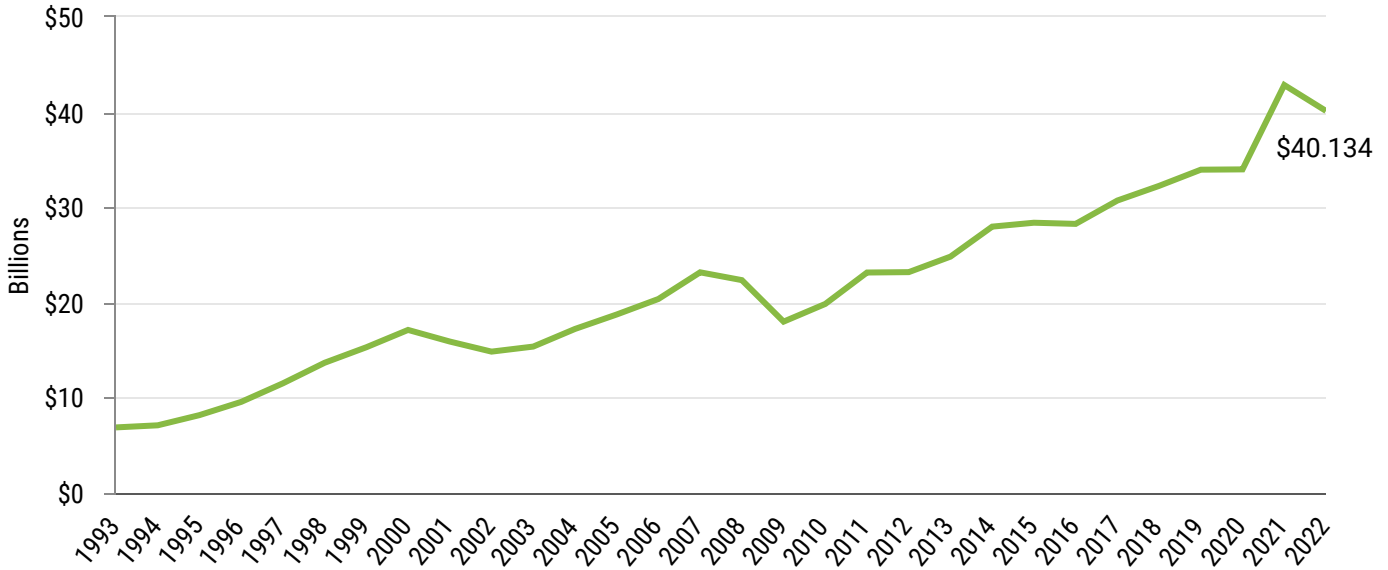
*All other employers for FY2022

| Type | Number | Employees |
|--------------|--------------|----------------|
| City | 959 | 24,325 |
| Education | 342 | 69,840 |
| County | 350 | 27,916 |
| Other | 154 | 3,869 |
| Utilities | 128 | 1,938 |
| Total | 1,933 | 127,888 |

Investment Statistics

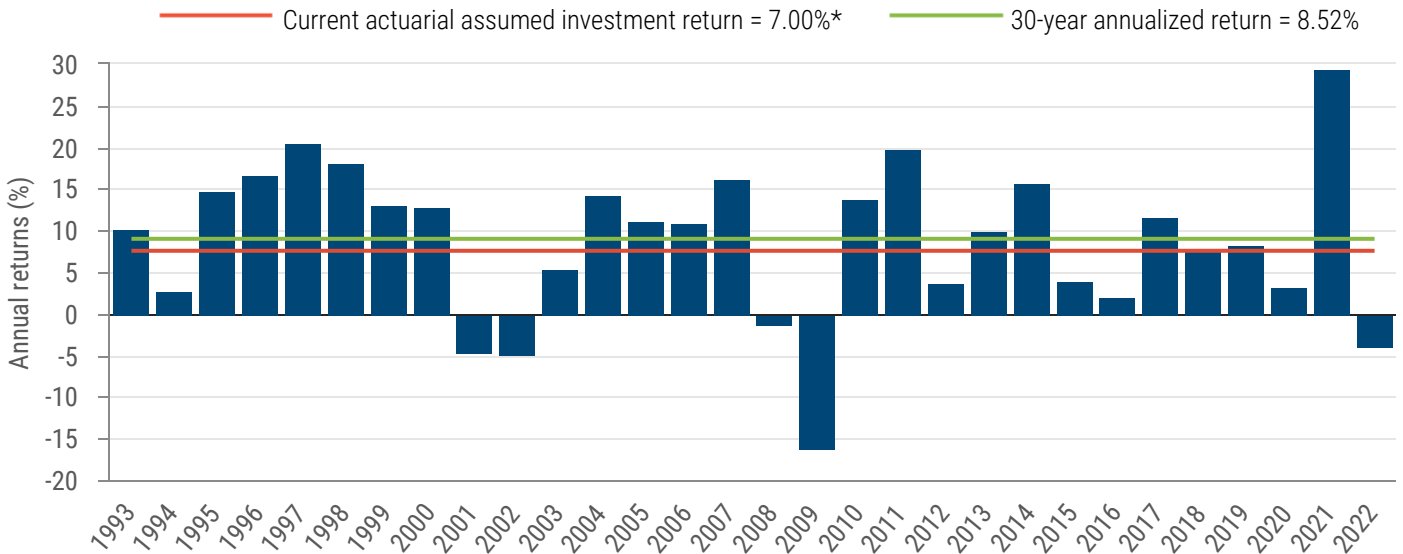
Growth of Net Investment Portfolio Assets

Fiscal Years Ended June 30



Investment Returns

For Fiscal Years Ended June 30



*Actuarial assumed investment return

| | | | |
|--------------|-------|--------------|-------|
| 1977 – 1993: | 6.50% | 1996 – 2016: | 7.50% |
| 1994 – 1995: | 6.75% | 2017 – 2022: | 7.00% |

Annualized returns for periods ended June 30, 2022

| | | | |
|----------------|--------|-----------------|-------|
| 1-year return: | -3.90% | 10-year return: | 8.60% |
| 3-year return: | 8.80% | 20-year return: | 7.96% |
| 5-year return: | 8.55% | 30-year return: | 8.52% |



CONTACT INFORMATION

515-281-0020

800-622-3849

Monday – Friday

7:30 a.m. – 5 p.m. Central Time

Fax: 515-281-0053

info@ipers.org

MAILING ADDRESS

Iowa Public Employees'

Retirement System

P.O. Box 9117

Des Moines, IA 50306-9117

OFFICE HOURS

Monday – Friday

8 a.m. – 4:30 p.m. Central Time

7401 Register Drive

Des Moines, IA 50321



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