

# FY2017

## Comprehensive Annual Financial Report



**IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM**  
A PENSION TRUST FUND OF THE STATE OF IOWA  
FOR THE FISCAL YEAR ENDED JUNE 30, 2017







IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

# FY2017 Comprehensive Annual Financial Report

A PENSION TRUST FUND OF THE STATE OF IOWA FOR THE FISCAL YEAR ENDED JUNE 30, 2017

Prepared by Iowa Public Employees' Retirement System

Donna M. Mueller, Chief Executive Officer

## FISCAL YEAR 2017 HIGHLIGHTS

### Membership

Active Members	169,910
Inactive Members	67,962
Retired Members*	117,759
Total	355,631

### Contributions

Employee	\$473,354,932
Employer	\$704,766,114
Service Purchases	\$4,271,054

### Distributions

Benefits Paid	\$1,943,103,208
Refunds Paid	\$50,450,949

### Investments

Net Investment and Securities Lending Income	\$3,279,743,723
Investment Rate of Return	11.70%

### Financial

Total Pension Liability	\$37,440,382,029
Fiduciary Net Position	\$30,779,116,326
Net Pension Liability	\$6,661,265,703
Ratio of Fiduciary Net Position to Total Pension Liability	82.21%

### Funding

Ratio of Actuarial Assets to Actuarial Liabilities	81.39%
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\*Unless specifically noted, references to retirees throughout this report include beneficiaries.



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# Introduction

# Introduction

LETTER OF TRANSMITTAL

PROFESSIONAL AWARDS

ADMINISTRATION

INVESTMENT BOARD

BENEFITS ADVISORY COMMITTEE

PROFESSIONAL AND CONSULTING SERVICES

**Kim Reynolds**  
GOVERNOR

**Adam Gregg**  
LT. GOVERNOR



December 15, 2017

To the Governor and the General Assembly of the State of Iowa:

We are pleased to submit the Comprehensive Annual Financial Report (CAFR) of the Iowa Public Employees' Retirement System (IPERS, System, or plan) for the fiscal year ended June 30, 2017 (FY2017). 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 that 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*. 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 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 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. The most recent IRS determination letter of qualification is dated July 29, 2014. IPERS benefits are designed to provide an adequate retirement income when combined with Social Security benefits and individual savings.

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## IOWA PUBLIC EMPLOYEES' RETIREMENT SYSTEM

7401 Register Drive P.O. Box 9117 Des Moines, IA 50306-9117 1-800-622-3849 [www.ipers.org](http://www.ipers.org)

PHONE 515-281-0020 BENEFITS FAX 515-281-0053 LEGAL & INVESTMENTS FAX 515-281-0045 E-MAIL [info@ipers.org](mailto: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 355,631 members, IPERS is the largest public pension system in Iowa. The IPERS Trust Fund paid \$1.716 billion in benefits to Iowans in FY2017. One in ten Iowans is an IPERS member.

## Major Initiatives

Anticipating that slow economic growth may continue for some time, the Investment Board had the actuary conduct an economic assumptions study. As a result, changes in economic assumptions were adopted by the Investment Board to be applied to the 2017 valuation. The impact of these changes is discussed throughout this report.

## 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 page and Twitter account.

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' 1,956 employers receive training and technical assistance to encourage voluntary compliance with IPERS' requirements. Employers also receive newsletters and a handbook of procedures and reporting requirements. IPERS' team of compliance officers conducts frequent employer audits.

## Fiscal Year 2017

Preretirement counseling sessions	11,322
Phone inquiries	84,380
E-mail replies	8,159
Benefit estimates prepared	34,115
Service purchase cost quotes prepared	2,277
Service purchases made	114

## 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) or Certified Public Accountant (CPA) 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.

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 47 of the Financial section for information on expenses related to these investment management firms and page 63 of the Investments section for a Schedule of Brokerage Commissions Paid.

## Financial Highlights

### Total Net Position

Total net position restricted for pensions increased from \$28.326 billion on June 30, 2016, to \$30.779 billion on June 30, 2017. These assets consist of capital assets owned by IPERS and investment portfolio assets. An overview and analysis of IPERS' financial activities for FY2017 is in Management's Discussion and Analysis, which begins on page 18 in the Financial section of this report.

In FY2017, employee and employer contributions, including service purchases, totaled \$1.182 billion, while total member benefits equaled \$1.994 billion (monthly benefits, lump-sum retirement benefits, death benefits, refunds, and dividend payments). The resulting \$812 million 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 (GASB 67), *Financial Reporting for Pension Plans*, which reports the investments at fair value as shown in the Financial section of this report. In fiscal year 2017, IPERS' investment expenses were 0.23 percent of the portfolio's total quarterly average fair value.

At the close of FY2017, IPERS' net investment portfolio assets had a fair value of \$30.721 billion. The change in fair value represents an increase of \$2.453 billion from the \$28.268 billion net investment asset fair value as of June 30, 2016. The increase was mainly attributable to the investment portfolio return of 11.70 percent in fiscal year 2017, which was due to a combination of strong capital market returns and value added from active management.

IPERS' 11.70 percent investment return for the fiscal year exceeded the actuarial assumed investment return of 7.00 percent and exceeded the policy benchmark return of 11.17 percent. IPERS' return also far exceeded the year's Consumer Price Index (CPI) increase of 1.63 percent and the estimated -10.82 percent return on IPERS' liabilities in fiscal year 2017. Return on liabilities is estimated using a market-valued liability proxy developed by IPERS and its investment consultant.

## **Funding**

The ultimate test of any pension system's financial soundness is whether it is funding all of 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. However, since a funding plan utilizes assumptions of future performance and experience, the plan must be constantly monitored and adjusted as current experience varies from the assumptions and as the assumptions of future experience are adjusted. As a result, the funded ratio will vary from year to year as experience and assumptions change.

In fiscal year 2017, the IPERS Investment Board proactively reviewed and lowered the economic assumptions. While economic assumptions used in actuarial funding projections are geared toward looking out to 30 or more years, the expectation is for lower inflation, salary growth, and investment returns over the next 10 years. In light of these near-term lowered expectations, the Investment Board decided to take a conservative approach to funding benefits. The changes in the economic assumptions are detailed in the Actuarial section of this report.

Lowered economic assumptions increased the actuarial liability by \$1.433 billion. The primary driver of the increased liability derives from lowering the investment return assumption to 7.00 percent from 7.50 percent. Yet, the System maintained a respectable funded ratio of 81.39 percent on an actuarial basis, down from 83.86 percent in 2016. IPERS remains on its funding schedule to be fully funded in 27 years, with the new liability from the lowered economic assumptions to be paid off in 20 years. Staying on track with the funding schedule was possible because of the FY2017 strong investment performance of 11.70 percent and the fact that for the last several years the contribution rate has been higher than the actuarial rate.

IPERS' Contribution Rate Funding Policy requires contribution rates to be at least the actuarial rate for each membership group. However, a statutory limitation prevents payment of the actuarial rate for the Regular membership if it would require an increase of more than 1 percentage point from the previous year's rate. Lowering the economic assumptions resulted in an increase in contribution rates for FY2019 for all three membership groups. FY2019 contribution rates are equal to the actuarial contribution rates. This is substantial progress compared to the 12 years during which the unfunded actuarial liability was greatly increased due to the underpayment of contributions for Regular members.

## **Independent Performance Evaluations**

To maintain a focus on effectively administering the plan, IPERS completed voluntary reviews of its performance during fiscal year 2017. CEM Benchmarking Inc., an independent company that reviews pension systems worldwide, conducted a benchmarking study on IPERS' benefits administration for the previous year. IPERS was lowest in costs when compared to its peers, while receiving high ratings for its services.

CEM also conducted a benchmarking study of IPERS' investment program that compared the Trust 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, 2016. IPERS' investment program was rated by CEM as a low-cost program but IPERS' net added value was slightly negative at -0.11 percent for the 5-year period.

Wilshire Associates, IPERS' investment consultant, also reviews IPERS' investment performance against a peer group of U.S. public pension funds. IPERS' 1-year investment return for FY2017 ranked in the 71st percentile of funds in the Wilshire Trust Universe Comparison Service (TUCS) Public Funds > \$1 Billion Index, while IPERS' 10-year return ranked in the 20th percentile. IPERS' low 1-year ranking was due mainly to its comparatively conservative investment structure in a year when the markets rewarded risk-taking. 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 the performance of an investment portfolio) ranked in the top 10 percent versus its peers in the TUCS Public Funds > \$1 Billion Index for the 10-year period ended June 30, 2017.

## 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 Comprehensive Annual Financial Report for the fiscal year ended June 30, 2016. A Certificate of Achievement is valid for only one year; this was the 24th 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 CAFR that satisfies both generally accepted accounting principles and applicable legal requirements. We believe our current CAFR 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.

For the ninth consecutive year, IPERS received the Public Pension Standards Award for the fiscal year ended June 30, 2017, 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,



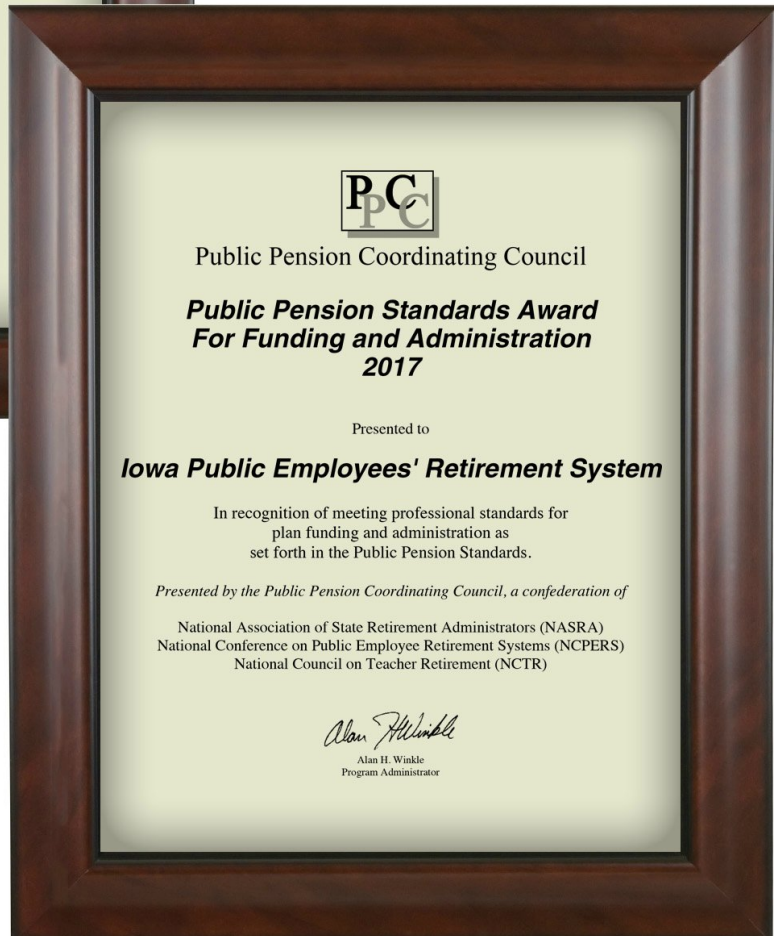
**Donna M. Mueller**  
Chief Executive Officer



**Darla Iverson**  
Chief Financial Officer



**PROFESSIONAL AWARDS**



## 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.

### Iowa Public Employees' Retirement System

**Donna M. Mueller**, Chief Executive Officer

#### Investments Division

**Karl C. Koch**, Chief Investment Officer

#### Benefits Division

**David Martin**, Chief Benefits Officer

#### General Counsel Office

**Gregg A. Schochenmaier**, General Counsel

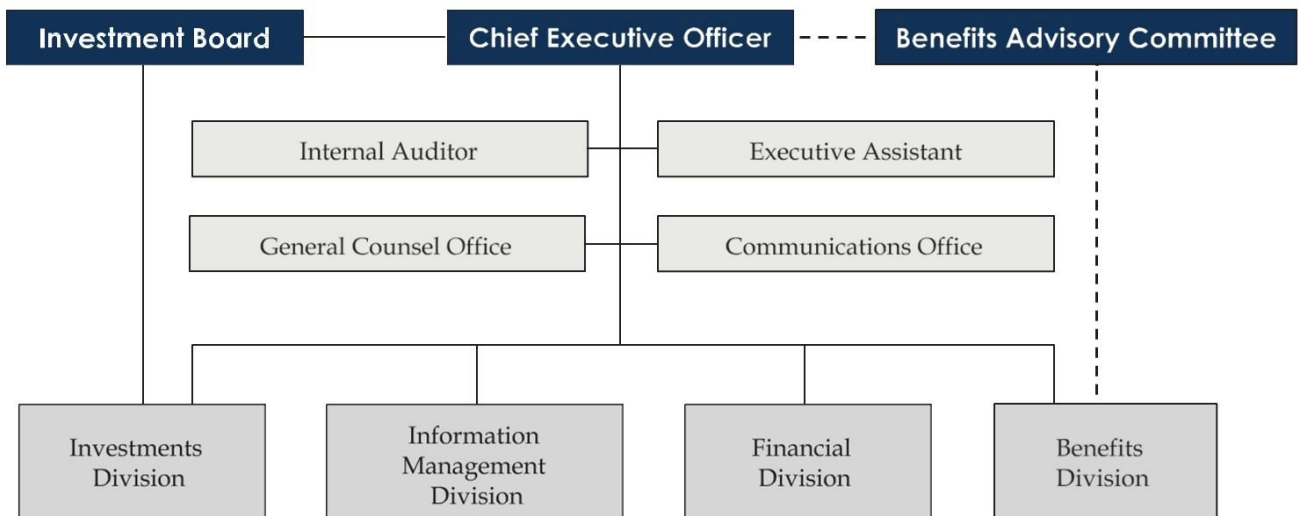
#### Financial Division

**Darla Iverson**, Chief Financial Officer

#### Information Management Division

**Rick Hindman**, Chief Technology 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:**

**Marlene Sprouse**, Chairperson  
IPERS Educational Member  
*Term Ends: April 30, 2023*

**Wayne Walter**, Vice Chairperson  
Active IPERS Member  
*Term Ends: April 30, 2019*

**David Creighton**  
Public Member  
*Term Ends: April 30, 2021*

**Phyllis Peterson**  
Retired IPERS Member  
*Term Ends: April 30, 2022*

**Lisa Stange**  
Public Member  
*Term Ends: April 30, 2023*

**Dennis Young**  
Public Member  
*Term Ends: April 30, 2019*

### **EX OFFICIO MEMBER:**

**Michael Fitzgerald**  
State Treasurer

### **APPOINTED BY THE HOUSE SPEAKER AND MINORITY LEADER:**

**Representative Mary Mascher**  
State Representative  
*Term Ends: January 13, 2019*

**Representative Dawn Pettengill**  
State Representative  
*Term Ends: January 13, 2019*

### **APPOINTED BY THE SENATE MAJORITY AND MINORITY LEADERS:**

**Senator Mark Lofgren**  
State Senator  
*Term Ends: January 13, 2019*

**Senator Matt McCoy**  
State Senator  
*Term Ends: January 13, 2019*

## 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

**Bradley Hudson, Vice Chairperson**

Member Representative  
Iowa State Education Association

**Susanna Brown**

Member Representative  
State Police Officers Council

**Matt Carver**

Member Representative  
School Administrators of Iowa

**Lowell Dauenbaugh**

Public Member

**Andrew Hennesy**

Member Representative  
IPERS Improvement Association

**Steve Hoffman**

Member Representative  
Iowa State Sheriffs and Deputies Association

**Danny Homan**

Member Representative  
American Federation of State, County and Municipal Employees

**A.J. Mumm**

Employer Representative  
Iowa State Association of Counties

**Janet Phipps**

Ex Officio Employer Representative  
Iowa Department of Administrative Services

**Philip Tetzloff**

Member Representative  
Retired School Personnel Association

**Jon Thomas**

Member Representative  
International Brotherhood of Teamsters

**Mark Tomb**

Employer Representative  
Iowa League of Cities

**Sandy Tryon**

Employer Representative  
Iowa Association of Community College Trustees

## PROFESSIONAL AND CONSULTING SERVICES

### Actuary

- Cavanaugh Macdonald Consulting, LLC

### Legal Counsel

- Foster Pepper PLLC
- Ice Miller, LLP

### Securities Litigation Monitoring Counsel

- Barrack, Rodos & Bacine
- Kessler Topaz Meltzer Check
- Lieferr Cabraser Heimann & Bernstein

### Investment Management Consultant

- Wilshire Associates, Inc.

### Master Custodian

- The Bank of New York Mellon

### Securities Lending Agent

- Deutsche Bank

### Overlay Management Services

- Parametric Portfolio Associates LLC

### Liquid Absolute Return Strategies (LARS) Administrator

- Northstar Financial Services Group, LLC

### Information Technology Consultant

- Vitech Systems Group, Inc.

### Benchmarking Consultant

- CEM Benchmarking Inc.

## Investment Managers

### Domestic Equity

- BlackRock Institutional Trust Company, NA
- Columbia Management Investment Advisers, LLC
- Fisher Investments
- Janus Capital Management LLC
- J.P. Morgan Investment Management, Inc.
- Mellon Capital Management Corporation
- PanAgora Asset Management, Inc.
- Wellington Management Company, LLP

### International Equity

- BlackRock Institutional Trust Company, NA
- GAM USA Inc.
- Mellon Capital Management Corporation
- Oeschle International Advisors, LLC
- Quantitative Management Associates LLC
- Wellington Management Company, LLP

### Liquid Absolute Return Strategies

- Berenberg Asset Management LLC
- Fort L.P.
- Graham Capital Management, L.P.
- IPM Informed Portfolio Management AB
- P/E Global LLC
- Wadhvani Asset Management LLP

### Core-Plus Fixed Income

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

### Public Credit

- AEGON USA Investment Management, LLC
- Oaktree Capital Management, L.P.
- PGIM, Inc.

### Public Real Assets

- BlackRock Institutional Trust Company, NA
- BNP Paribas Asset Management USA, Inc.
- CenterSquare Investment Management, Inc.
- Harvest Fund Advisors LLC
- State Street Global Advisors

### Private Credit

- Blackstone Real Estate Debt Strategies Associates II L.P.
- Monroe Capital Private Credit Fund I LP
- Principal Real Estate Debt Fund, LP
- Principal Real Estate Debt Fund II, LP
- TCP Direct Lending Fund VIII-A, LLC

### Private Equity/Debt

- Pathway Capital Management, LP

### Private Real Assets

- Clarion Partners, LLC
- Forest Investment Associates L.P.
- Invesco Real Estate
- RREEF America, LLC
- UBS Farmland Investors LLC
- UBS Realty Investors LLC

### Transition Management Services

- BlackRock Institutional Trust Company, NA
- Russell Implementation Services, Inc.
- State Street Bank and Trust Company



Financial

# Financial

INDEPENDENT AUDITOR'S REPORT

MANAGEMENT'S DISCUSSION AND ANALYSIS

BASIC FINANCIAL STATEMENTS

**Statement of Fiduciary Net Position**

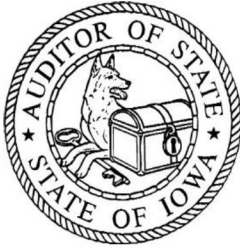
**Statement of Changes in Fiduciary Net Position**

**Notes to Financial Statements**

REQUIRED SUPPLEMENTARY INFORMATION

SUPPLEMENTARY INFORMATION





**OFFICE OF AUDITOR OF STATE  
STATE OF IOWA**

Mary Mosiman, CPA  
Auditor of State

State Capitol Building  
Des Moines, Iowa 50319-0004

Telephone (515) 281-5834 Facsimile (515) 242-6134

Independent Auditor's Report

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

Report on the Financial Statements

We have audited the accompanying Statement of Fiduciary Net Position of the Iowa Public Employees' Retirement System (IPERS) as of June 30, 2017, 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 the Iowa Public Employees' Retirement System's basic financial statements listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles. This includes the design, implementation and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with U.S. generally accepted auditing standards and the standards applicable to financial audits contained in Government Auditing Standards, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

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

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

## Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the fiduciary net position of IPERS at June 30, 2017, and the changes in its fiduciary net position for the year then ended in accordance with U.S. generally accepted accounting principles.

## Emphasis of a Matter

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, 2017, 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, 2016, and we expressed an unmodified audit opinion on those audited financial statements in our report dated December 9, 2016. In our opinion, the summarized comparative information presented herein as of and for the year ended June 30, 2016 is consistent, in all material respects, with the audited financial statements from which it has been derived.

## Other Matters

### *Required Supplementary Information*

U.S. generally accepted accounting principles require Management's Discussion and Analysis, the Schedule of Changes in the Employers' Net Pension Liability and Related Ratios, the Schedule of Employers' Contributions and the Schedule of Investment Returns on pages 18 through 20 and 42 through 45 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board which 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 U.S. generally accepted auditing standards, 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 an opinion on the financial statements that collectively comprise IPERS' basic financial statements. The supplementary information included in Schedules 1 and 2 on pages 46 and 47 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 U.S. generally accepted auditing standards. 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*

We did not audit the data included in the Introduction, Investments, Actuarial and Statistical sections and, accordingly, we express no opinion on the information presented in those sections.

Other Reporting Required by Government Auditing Standards

Our report on IPERS' internal control over financial reporting and our tests of its compliance with certain provisions of laws, regulations, contracts and other matters required by Government Auditing Standards will be issued under separate cover. The purpose of that report is 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.

  
MARY MOSIMAN, CPA  
Auditor of State

December 8, 2017

## MANAGEMENT'S DISCUSSION AND ANALYSIS

This discussion and analysis of the Iowa Public Employees' Retirement System provides an overview of the retirement system's financial activities for the fiscal year ended June 30, 2017. 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 Comprehensive Annual 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 Trust Fund activities as incurred. The Notes to Financial Statements are an integral part of the financial statements and include additional information not readily evident in the statements themselves. 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 increased by \$2.453 billion during fiscal year 2017. On June 30, 2017, total plan assets (including capital assets of \$18.7 million) were \$32.641 billion, exceeding total liabilities of \$1.862 billion, resulting in a net position restricted for pensions of \$30.779 billion.

- Covered wages, from which both employee and employer contributions are calculated, increased \$306.6 million, or 4.06 percent, over the last fiscal year and totaled \$7.863 billion. In comparison, fiscal year 2016 wages totaled \$7.557 billion, a 3.14 percent increase from the prior fiscal year's wages of \$7.326 billion.
- Additions from employee and employer contributions totaled \$1.178 billion in fiscal year

2017, an increase of 2.94 percent. In comparison, fiscal year 2016 saw a 4.22 percent increase in contributions. Growth in covered payroll increased contributions in both years.

- Contribution rates remained the same for the Regular members and the protection occupation members in FY2017 and decreased for the sheriffs and deputies. In comparison, there was no change in contribution rates for the Regular members and the sheriffs and deputies between FY2016 and FY2015, but rates decreased for the protection occupation members in FY2016.
- Service purchase contributions for FY2017 were \$4.3 million, an 86.71 percent decrease from the prior year. In contrast, service purchase contributions were \$32.1 million for FY2016, an 83.96 percent increase over the FY2015 amount of \$17.5 million. The large fluctuations in service purchases are related to an administrative rule change mandating that, effective January 1, 2016, service purchases can be made only at the time of retirement.
- Net investment and securities lending income, after all investment-related expenses, was \$3.280 billion in FY2017, \$624.9 million in FY2016, and \$1.080 billion in FY2015. These differences are explained by the disparity in IPERS' investment returns – the FY2017 return was 11.70 percent, while the returns for FY2016 and FY2015 were 2.15 percent and 3.96 percent, respectively.
- Investment management expenses were \$68.1 million for FY2017. In comparison, investment management expenses were \$60.6 million for FY2016 and \$78.0 million for FY2015. The increase in investment management expenses in FY2017 was primarily due to higher performance incentive fees paid to investment managers for outperforming their respective benchmarks. The System's ratio of investment management expenses to the portfolio's quarterly average fair value was 0.23 percent for FY2017, compared to ratios of 0.22 percent for FY2016 and 0.28 percent for FY2015.
- Total contributions, investments, and other income resulted in total additions to the Fund of \$4.462 billion in fiscal year 2017. This compares to total



additions of \$1.802 billion in FY2016 and \$2.196 billion in FY2015. The increased additions in fiscal year 2017 resulted from the higher market returns.

- FY2017 benefit payments increased \$102.4 million and refunds increased \$1.2 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 \$1.792 billion in FY2015, to \$1.890 billion in FY2016, to \$1.994 billion in FY2017.
- Administrative expenses totaled \$15.9 million in FY2017, compared to \$14.9 million for FY2016 and \$12.6 million for FY2015. Costs related to improvements in the IPERS building drove much of the increased expense in FY2017. Administrative expenses remained steady, though, at 0.05 percent of the value of net position in FY2017 and FY2016, a slight increase over the 0.04 percent in FY2015.
- In FY2017, capital assets decreased from \$20.8 million to \$18.7 million, mostly as a result of depreciation. Capital assets decreased from \$22.4 million at the end of FY2015 to \$20.8 million at the end of FY2016 for the same reason.

## Analysis of Net Position

The investment rates of return for the current and preceding two fiscal years were 11.70 percent, 2.15 percent, and 3.96 percent, respectively. IPERS' total net position increased 8.66 percent in FY2017, decreased 0.36 percent in FY2016, and increased 1.40 percent in FY2015, primarily as a result of these market returns. The following table contains the fiscal year 2017 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 market value at June 30, 2017. (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, 2017

Asset Class	Return (%)	Benchmark (%)	Allocation (%)
Domestic equity	20.27	18.54	23.07
International equity	21.16	21.00	15.23
Core-plus fixed income	1.70	0.91	27.92
Public credit	11.29	9.84	3.59
Public real assets	NA	NA	7.20
Cash	0.56	0.49	3.87
Private equity	18.16	18.16	11.87
Private real assets	NA	NA	6.46
Private credit	NA	NA	0.79
<b>Total Fund</b>	<b>11.70</b>	<b>11.17</b>	<b>100.00</b>

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, 94 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 6 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 decreased \$1.048 billion from fiscal year 2016 to 2017. In comparison, liabilities increased by \$950.8 million between fiscal years 2015 and 2016. These fluctuations are primarily related to investment payables.

Benefits paid out exceeded contributions received by \$811.2 million, \$713.3 million, and \$676.2 million for fiscal years 2017, 2016, and 2015, 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

	2017	2016	2017/2016 Percentage Change	2015	2016/2015 Percentage Change
Cash and investments at fair value	\$31,960,818	\$29,436,328	8.6	\$29,046,141	1.3
Receivables	661,519	1,778,545	(62.8)	1,319,598	34.8
Capital assets	18,681	20,755	(10.0)	22,440	(7.5)
Other assets	315	704	(55.3)	712	(1.1)
<b>Total assets</b>	<b>32,641,333</b>	<b>31,236,332</b>	<b>4.5</b>	<b>30,388,891</b>	<b>2.8</b>
<b>Total liabilities</b>	<b>1,862,217</b>	<b>2,909,898</b>	<b>(36.0)</b>	<b>1,959,056</b>	<b>48.5</b>
<b>Total net position</b>	<b>\$30,779,116</b>	<b>\$28,326,434</b>	<b>8.7</b>	<b>\$28,429,835</b>	<b>(0.4)</b>

## Changes in Fiduciary Net Position

(Dollar Values Expressed in Thousands)

Fiscal Years Ended June 30

	2017	2016	2017/2016 Percentage Change	2015	2016/2015 Percentage Change
<b>Additions</b>					
Contributions and service purchases	\$1,182,392	\$1,176,667	0.5	\$1,115,600	5.5
Net investment and securities lending income	3,279,743	624,854	424.9	1,080,045	(42.1)
<b>Total additions</b>	<b>4,462,135</b>	<b>1,801,521</b>	<b>147.7</b>	<b>2,195,645</b>	<b>(18.0)</b>
<b>Deductions</b>					
Benefits and refunds	1,993,554	1,889,983	5.5	1,791,768	5.5
Administrative expenses	15,899	14,939	6.4	12,592	18.6
<b>Total deductions</b>	<b>2,009,453</b>	<b>1,904,922</b>	<b>5.5</b>	<b>1,804,360</b>	<b>5.6</b>
<b>Increase/(decrease) in net position</b>	<b>\$2,452,682</b>	<b>(\$103,401)</b>	<b>2,472.0</b>	<b>\$391,285</b>	<b>(126.4)</b>

## Request for Information

This financial report is designed to provide the Governor and Iowa Legislature (plan sponsors), the Investment Board, the Benefits Advisory Committee, the System's membership, 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](mailto:info@ipers.org), by phone at 515-281-0020 or 1-800-622-3849, or by mail at P.O. Box 9117, Des Moines, IA 50306-9117.

## BASIC FINANCIAL STATEMENTS

### Statement of Fiduciary Net Position

June 30, 2017, and 2016

#### ASSETS

##### Cash and cash equivalents

##### Receivables

Contributions

Accrued interest and dividends

Investment sales

Foreign exchange contracts

Miscellaneous

##### Total receivables

##### Investments at fair value

Core-plus fixed income

Public credit

Domestic equity

International equity

Public real assets

Private real assets

Private credit

Private equity

##### Total investments at fair value

##### Securities lending collateral pool

##### Capital assets

Depreciable assets, net of accumulated depreciation

Nondepreciable assets: land

##### Total capital assets

##### Other assets

##### Total assets

#### LIABILITIES

Accounts payable and accrued expenses

Investment purchases payable

Rebates and collateral payable

Foreign exchange contracts payable

##### Total liabilities

##### Net position restricted for pensions

(Note 7, page 41)

	2017	2016*
<b>Cash and cash equivalents</b>	<b>\$1,253,784,986</b>	<b>\$159,901,133</b>
<b>Receivables</b>		
Contributions	75,921,194	82,401,235
Accrued interest and dividends	85,329,550	84,699,481
Investment sales	417,082,235	542,419,711
Foreign exchange contracts	83,167,851	1,068,997,870
Miscellaneous	18,132	26,821
<b>Total receivables</b>	<b>661,518,962</b>	<b>1,778,545,118</b>
<b>Investments at fair value</b>		
Core-plus fixed income	9,004,375,394	8,114,388,628
Public credit	1,085,253,314	1,437,401,147
Domestic equity	7,068,334,533	6,964,440,047
International equity	4,634,947,860	4,428,330,317
Public real assets	2,208,100,648	2,139,877,534
Private real assets	1,983,758,201	1,897,891,716
Private credit	242,274,083	104,876,904
Private equity	3,647,787,106	3,267,902,339
<b>Total investments at fair value</b>	<b>29,874,831,139</b>	<b>28,355,108,632</b>
<b>Securities lending collateral pool</b>	<b>832,202,102</b>	<b>921,318,376</b>
<b>Capital assets</b>		
Depreciable assets, net of accumulated depreciation	18,180,695	20,254,512
Nondepreciable assets: land	500,000	500,000
<b>Total capital assets</b>	<b>18,680,695</b>	<b>20,754,512</b>
<b>Other assets</b>	<b>315,416</b>	<b>704,337</b>
<b>Total assets</b>	<b>32,641,333,300</b>	<b>31,236,332,108</b>
<b>LIABILITIES</b>		
Accounts payable and accrued expenses	32,670,987	25,828,127
Investment purchases payable	912,451,415	902,219,928
Rebates and collateral payable	831,920,192	921,097,660
Foreign exchange contracts payable	85,174,380	1,060,752,737
<b>Total liabilities</b>	<b>1,862,216,974</b>	<b>2,909,898,452</b>
<b>Net position restricted for pensions</b>	<b>\$30,779,116,326</b>	<b>\$28,326,433,656</b>

\*Due to the revised investment structure approved by the Investment Board in FY2017, FY2016 investments have been reclassified to conform to the FY2017 presentation.

See accompanying Notes to Financial Statements beginning on page 23.

## Statement of Changes in Fiduciary Net Position

Years Ended June 30, 2017, and 2016

### ADDITIONS

#### Contributions

Employer contributions	\$704,766,114	\$684,664,998
Employee contributions	473,354,932	459,854,052
Service purchases	4,271,054	32,147,862
<b>Total contributions</b>	<b>1,182,392,100</b>	<b>1,176,666,912</b>

#### Investments

Interest	361,693,549	341,473,663
Dividends	127,100,409	102,061,857
Real assets and private equity	82,890,939	108,461,322
Net appreciation in fair value of investments	2,773,012,316	129,240,118
Recaptured commissions	74,847	223,697
Investment management expenses	(68,061,085)	(60,644,538)
<b>Net investment income</b>	<b>3,276,710,975</b>	<b>620,816,119</b>

#### Securities lending

Securities lending income	3,311,850	1,546,911
Securities lending expenses/rebates	(279,102)	2,490,621
<b>Net securities lending income</b>	<b>3,032,748</b>	<b>4,037,532</b>

#### Total net investment income

**3,279,743,723**      **624,853,651**

#### Total additions

**4,462,135,823**      **1,801,520,563**

### DEDUCTIONS

Benefit payments	1,943,103,208	1,840,734,608
Member refunds	50,450,949	49,248,177
Administrative expenses	15,898,996	14,938,951
<b>Total deductions</b>	<b>2,009,453,153</b>	<b>1,904,921,736</b>

#### Net increase/(decrease)

**2,452,682,670**      **(103,401,173)**

Net position restricted for pensions, beginning of year

28,326,433,656      28,429,834,829

#### Net position restricted for pensions

(Note 7, page 41)

**\$30,779,116,326**      **\$28,326,433,656**

See accompanying Notes to Financial Statements beginning on page 23.



# Notes to Financial Statements

June 30, 2017, and 2016

## (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 Comprehensive Annual Financial Report (CAFR) as well as having its own stand-alone CAFR. The State's CAFR 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 three private credit investments (Blackstone Real Estate Debt Strategies, TCP Direct Lending Fund, and Monroe Capital Private Credit Fund) 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 grants the IPERS Investment Board authority 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, 2017, is located on pages 64–76.

The Investment Board adopted the following significant changes to IPERS' investment policy during the fiscal year.

- Most revisions were made to differentiate between public markets and private markets:
  - Private credit: created a private market asset class that includes existing mezzanine real estate debt funds and direct lending funds, and could invest in other types of private credit strategies.
  - Private real assets: created a private market asset class that includes existing allocations to

private real estate, timberland, and farmland investments, and could include infrastructure investments.

- Public real assets: created a public market asset class that includes IPERS' existing allocation to U.S. TIPS, master limited partnerships, and real estate investment trusts (REITs).
- Public credit: created a public market asset class that includes high-yield corporate securities and sovereign bonds (formerly credit opportunities).
- Policy benchmark return calculation methodology was revised to recognize that investment staff cannot rebalance illiquid private market asset classes. The benchmark weight for each private market asset class will be the actual percentage (not the long-term target allocation), and the benchmark index return will be the actual return of the private market asset class itself.
- Rebalancing targets for public market asset classes will be calculated such that any excess or shortage in private markets should be reallocated proportionately across the entire public markets portfolio.
- The chief investment officer must authorize and formally document any tactical allocation decisions made by staff.
- The real estate investment policy and the private equity/debt investment policy were deleted and replaced with a single private markets investment policy as Appendix A. This new policy combines real estate, private equity, and private real assets under one private markets policy.
- The risk management controls contained in the previous private equity and real estate policies were incorporated into the new private markets investment policy, with the following exceptions or modifications:
  - Increased maximum investment in private equity co-investments to 15 from 10 percent.
  - Removed public real estate securities from the real estate portfolio, therefore eliminating the 25 percent target for REITs.
  - Eliminated investment targets for region and property type in private real estate investments; limits now set to be within +/- 5 percent of the NCREIF ODCE Index weights.
  - Increased the maximum amount any one investment manager can manage of the private real estate program from 30 to 35 percent.
  - Created a private credit category to include existing real estate mezzanine lending and middle market direct lending strategies, and added an opportunistic credit category to allow for possible future investment in opportunistic credit funds.

- Created a private real assets category to include existing private real estate, timberland, and farmland investment strategies, and added an infrastructure category to allow for possible future investment in infrastructure funds.
- The securities monitoring and litigation policy was revised to set higher financial loss thresholds in the list of criteria IPERS uses when considering serving as lead plaintiff in a class action.
- The ethics policy was revised to narrow the list of key employees to those required to file under Iowa Code chapter 68B.35 and reference Iowa Code in the definition of lobbyist.
- Clarified the objectives for active management by adding that excess returns (alpha) should also assist IPERS in funding its liabilities by being positively correlated to liability returns.
- Added requirements for the use of a managed account platform and the use of external experts as needed to perform due diligence for portable alpha strategies.

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. Of primary consideration is the maintenance of funding adequate to provide for the payment of the plan's benefits over time. The following are the Investment Board's adopted asset allocation targets as of June 30, 2017.

## Target Allocations

As of June 30, 2017

Asset Class	Target Allocation
Domestic equity	24.0%
International equity	16.0%
Core-plus fixed income	27.0%
Public credit	3.5%
Public real assets	7.0%
Cash	1.0%
Private equity	11.0%
Private real assets	7.5%
Private credit	3.0%

For the fiscal year ended June 30, 2017, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expenses, was 11.77 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, the investment securities are held by the System’s custodian and registered in the System’s name. 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 derivatives, investment securities on loan with brokers for cash collateral, investments in mutual and commingled funds, real estate properties, and limited partnerships, which, by nature, are not required to be categorized. 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. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements).

## 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.

In instances 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 26 shows the fair value leveling 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 securities classified in Level 1 are valued using prices quoted in active markets for those securities. Derivative 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 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, 2017

Investment Type	Total Fair Value	Fair Value Measurements Using		
		Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
<b>Collateral at broker</b>	<b>\$3,058</b>	—	<b>\$3,058</b>	—
<b>Cash equivalents</b>	<b>463</b>	—	<b>463</b>	—
<b>Certificates of deposit</b>	<b>96,353</b>	—	<b>96,353</b>	—
<b>Equity investments</b>				
Common stocks	5,710,738	\$5,710,738	—	—
Real estate investment trusts	425,570	425,570	—	—
Master limited partnerships	229,631	229,631	—	—
Preferred stock	72,845	2,151	70,694	—
Other equities	12,368	12,368	—	—
<b>Total equity investments</b>	<b>6,451,152</b>	<b>6,380,458</b>	<b>70,694</b>	—
<b>Fixed-income investments</b>				
U.S. Treasuries	2,270,337	—	2,270,337	—
Agencies	1,465,206	—	1,465,206	—
Collateralized mortgage-backed securities	233,430	—	233,430	—
Collateralized mortgage obligations	34,890	—	34,890	—
Other government mortgage-backed securities	13,718	—	13,718	—
Other government fixed income	443,723	2,944	440,779	—
Corporate bonds	3,004,667	—	2,925,662	\$79,005
Corporate asset-backed securities	225,873	—	225,873	—
Private placements	1,551,688	—	1,551,688	—
State and local obligations	36,263	—	36,263	—
Convertible bond	2,205	—	2,205	—
<b>Total fixed-income investments</b>	<b>9,282,000</b>	<b>2,944</b>	<b>9,200,051</b>	<b>79,005</b>
Other investments				
Private real estate separate accounts	1,791,287	—	—	1,791,287
Other real assets	192,471	—	—	192,471
<b>Total other investments</b>	<b>1,983,758</b>	—	—	<b>1,983,758</b>
<b>Total investments by fair value level</b>	<b>\$17,816,784</b>	<b>\$6,383,402</b>	<b>\$9,370,619</b>	<b>\$2,062,763</b>
<b>Investments measured at the net asset value</b>				
Equity commingled funds				
Developed markets	\$5,266,295			
Emerging markets	448,187			
Invested securities lending collateral				
Overnight repurchase agreements	317,239			
Money market funds	49,040			
REIT commingled funds	198,214			
Fixed-income commingled funds	1,750,079			
Pooled funds and mutual funds	1,657,842			
Private equity funds	3,633,870			
Private real estate debt funds	242,274			
<b>Total investments measured at the NAV</b>	<b>\$13,563,040</b>			
<b>Total investments measured at fair value</b>	<b>\$31,379,824</b>			
Investment derivative instruments				
Futures	\$1,022	\$1,022	—	—
Options	1,585	1,487	\$98	—
Swaps				
Credit default	(1,140)	—	(1,140)	—
Interest rate	3,107	—	3,107	—
<b>Total investment derivative instruments</b>	<b>\$4,574</b>	<b>\$2,509</b>	<b>\$2,065</b>	—

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, 2017

Investment Type	Fair Value	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
Equity commingled funds				
Developed markets <sup>1</sup>	\$5,266,295		Daily	2 days
Emerging markets <sup>1</sup>	448,187		Weekly	2 days
Invested securities lending collateral				
Overnight repurchase agreements	317,239		NA	NA
Money market funds	49,040		Daily	NA
REIT commingled funds <sup>1</sup>	198,214		Daily	15 days
Fixed-income commingled funds <sup>1</sup>	1,750,079		Daily	2 days
Pooled funds and mutual funds	1,657,842		Daily	NA
Private equity funds <sup>2</sup>	3,633,870	\$2,177,500		
Private real estate debt funds <sup>3</sup>	242,274	411,561		
<b>Total investments measured at the NAV</b>	<b>\$13,563,040</b>	<b>\$2,589,061</b>		

<sup>1</sup>Consists of two bond funds, four domestic equity funds, five international equity funds, and one real estate investment fund that are considered to be commingled in nature. 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.

<sup>2</sup>IPERS' private equity portfolio consists of 189 active partnerships within the legacy program and a fund-of-one investment, which invests primarily in buyout funds, with some exposure to venture capital, special situations, and distressed debt funds. The fair values of these funds and the fund-of-one has been determined using net assets valued one quarter in arrears plus current quarter cash flows. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of 5 to 10 years.

<sup>3</sup>IPERS' private credit portfolio consists of five active partnerships. Three of the partnerships invest primarily in high-yield real estate debt while the other two partnerships invest primarily in middle market corporate debt. Three of the funds – Blackstone Real Estate Debt, Monroe Capital Private Credit Fund I, and TCP Direct Lending Fund VII-A – determine fair value by utilizing net asset values from one quarter in arrears plus current quarter cash flows. The other two funds – Principal Real Estate Debt I and Principal Real Estate Debt II – determine fair value by utilizing net asset values from the current quarter. These funds are not eligible for redemption. Distributions are received as underlying investments are liquidated, which on average can occur over the span of 3 to 7 years.

GASB Statement No. 40, *Deposit and Investment Risk Disclosures*, is an amendment to GASB Statement No. 3, *Deposits With Financial Institutions, Investments (Including Repurchase Agreements), and Reverse Repurchase Agreements*. GASB 40 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.



## Invested Assets

(Dollar Values Expressed in Thousands)  
June 30, 2017

Investment Type	Total Fair Value	Fair Value on Loan
<b>Cash</b>	<b>\$52,597</b>	—
<b>Cash collateral at broker</b>	<b>67,628</b>	—
Pooled funds and mutual funds	1,657,842	—
Certificates of deposit	96,353	—
Treasuries	74,483	\$49,954
<b>Short-term investments</b>	<b>1,828,678</b>	<b>49,954</b>
Common stocks	5,710,738	485,440
Real estate investment trusts	425,570	25,588
Master limited partnerships	229,631	10,584
Preferred stock	72,845	135
Other equities	12,368	—
<b>Equity investments</b>	<b>6,451,152</b>	<b>521,747</b>
U.S. TIPS	765,854	—
U.S. Treasury notes	1,430,000	117,030
Ginnie Mae	243,805	—
Freddie Mac	364,651	—
Fannie Mae	850,137	—
Other government agencies	6,613	—
Collateralized mortgage-backed securities	233,430	—
Collateralized mortgage obligations	34,890	—
Other government mortgage-backed securities	13,718	—
Other government fixed income	443,723	14,000
Corporate bonds	3,004,667	65,476
Corporate asset-backed securities	225,873	37
Private placements	1,551,688	43,572
State and local obligations	36,263	—
Convertible bond	2,205	—
<b>Fixed-income investments</b>	<b>9,207,517</b>	<b>240,115</b>
<b>Derivatives</b>	<b>4,574</b>	—
Equity commingled funds	5,714,482	—
Fixed-income commingled funds	1,750,079	—
REIT commingled funds	198,214	—
<b>Commingled funds</b>	<b>7,662,775</b>	—
Special equity	2,802,704	—
Venture capital	831,166	—
<b>Private equity</b>	<b>3,633,870</b>	—
<b>Private real assets</b>	<b>1,983,758</b>	—
<b>Private credit</b>	<b>242,274</b>	—
<b>Total</b>	<b>\$31,134,823</b>	<b>\$811,816</b>
<b>Total from above</b>	<b>\$31,134,823</b>	
Cash in managers' accounts	(1,259,992)	
<b>Investments on Statement of Fiduciary Net Position</b>	<b>\$29,874,831</b>	

## 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, has been included in this report.

The tables summarize IPERS' fixed-income portfolio exposure levels and credit quality ratings. The following table includes \$2.628 billion of U.S. Treasury obligations and \$162.3 million of Ginnie Mae obligations. These securities are explicitly guaranteed by the U.S. government and represent 21.8 percent of the total Fund's fixed-income exposure. Therefore, as of June 30, 2017, IPERS' fixed-income assets that are not explicitly government-guaranteed represented 78.2 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 as to permissible credit quality ranges and the average credit quality of the overall portfolios. In circumstances where downgrades occurred subsequent to 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 derivatives is found under the derivatives disclosures on pages 31–33 of these notes. Policies related to credit risk pertaining to IPERS' securities lending program are found under the securities lending disclosures on page 33 of these notes.

## Credit Risk: S&P Quality Ratings

(Dollar Values Expressed in Thousands)

June 30, 2017

Investment Type	Total	TSY	AGY	AAA	AA	A	BBB	BB	B	CCC & Below	NR
Pooled funds and mutual funds	\$1,657,842	—	—	—	—	—	—	—	—	—	\$1,657,842
Certificates of deposit	96,353	—	—	—	—	\$27,439	—	—	—	—	68,914
Treasuries	74,483	\$74,483	—	—	—	—	—	—	—	—	—
<b>Short-term investments</b>	<b>1,828,678</b>	<b>74,483</b>	—	—	—	<b>27,439</b>	—	—	—	—	<b>1,726,756</b>
U.S. TIPS	765,854	765,854	—	—	—	—	—	—	—	—	—
U.S. Treasury notes	1,430,000	1,430,000	—	—	—	—	—	—	—	—	—
Ginnie Mae	243,805	—	\$162,335	—	—	—	—	—	—	—	81,470
Freddie Mac*	364,651	—	—	—	\$350,997	—	—	—	—	—	13,654
Fannie Mae*	850,137	—	—	—	634,786	—	—	—	—	—	215,351
Other government agencies	6,613	—	—	—	6,393	—	—	—	—	—	220
Collateralized mortgage-backed securities	233,430	—	—	\$1,917	4,011	2,732	—	—	\$1,017	\$208	223,545
Collateralized mortgage obligations	34,890	—	—	742	13,192	4,944	\$11,052	\$895	—	—	4,065
Other government mortgage-backed securities	13,718	—	—	2,274	—	—	—	—	—	—	11,444
Other government fixed income	443,723	—	—	1,437	16,940	56,023	124,862	74,958	82,860	9,700	76,943
Corporate bonds	3,004,667	—	—	90,946	157,069	591,736	1,246,509	464,184	256,875	42,845	154,503
Corporate asset-backed securities	225,873	—	—	39,487	57,335	55,169	13,794	13,613	542	4,271	41,662
Private placements	1,551,688	—	—	90,364	84,216	143,118	307,595	315,975	301,866	42,391	266,163
State and local obligations	36,263	—	—	5,751	27,662	1,618	1,232	—	—	—	—
Convertible bond	2,205	—	—	—	—	—	—	—	—	—	2,205
<b>Fixed-income investments</b>	<b>9,207,517</b>	<b>2,195,854</b>	<b>162,335</b>	<b>232,918</b>	<b>1,352,601</b>	<b>855,340</b>	<b>1,705,044</b>	<b>869,625</b>	<b>643,160</b>	<b>99,415</b>	<b>1,091,225</b>
<b>Commingled bond funds</b>	<b>1,750,079</b>	<b>358,002</b>	<b>18,291</b>	<b>424,253</b>	<b>806,558</b>	—	<b>62,585</b>	<b>80,390</b>	—	—	—
<b>Total</b>	<b>\$12,786,274</b>	<b>\$2,628,339</b>	<b>\$180,626</b>	<b>\$657,171</b>	<b>\$2,159,159</b>	<b>\$882,779</b>	<b>\$1,767,629</b>	<b>\$950,015</b>	<b>\$643,160</b>	<b>\$99,415</b>	<b>\$2,817,981</b>

\*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 were 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 but not in the System's name.

## 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 75 and 125 percent of the effective duration measure of a specific fixed-income index. However, two of IPERS' core-plus managers have authority under their contracts to reduce the interest rate sensitivity of their core-plus portfolios to less than 75 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 derivatives disclosures. 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, 2017

Investment Type	Fair Value	Effective Duration in Years
Pooled funds and mutual funds	\$1,657,842	0.01
Certificates of deposit	96,353	1.44
Treasuries	74,483	0.11
<b>Short-term investments</b>	<b>1,828,678</b>	<b>0.09</b>
U.S. TIPS	765,854	5.58
U.S. Treasury notes	1,430,000	8.36
Ginnie Mae	243,805	3.76
Freddie Mac	364,651	3.25
Fannie Mae	850,137	3.30
Other government agencies	6,613	3.00
Collateralized mortgage-backed securities	233,430	5.32
Collateralized mortgage obligations	34,890	0.33
Other government mortgage-backed securities	13,718	1.89
Other government fixed income	443,723	7.43
Corporate bonds	3,004,667	5.70
Corporate asset-backed securities	225,873	1.47
Private placements	1,551,688	4.06
State and local obligations	36,263	9.53
Convertible bond	2,205	0.00
<b>Fixed-income investments</b>	<b>9,207,517</b>	<b>5.41</b>
<b>Commingled bond funds</b>	<b>1,750,079</b>	<b>6.80</b>
<b>Total</b>	<b>\$12,786,274</b>	<b>4.84</b>

## Foreign Currency Risk

Foreign currency risk is the risk that changes in exchange rates will adversely impact the fair value of an investment. IPERS' currency policy is to allow its investment managers the discretion to hedge their foreign currency exposures. IPERS generally does not allow its investment managers to enter into currency positions greater than 100 percent or less than 0 percent of the underlying asset exposure in their respective portfolios. The only exceptions are (1) as it relates to specific cross-hedging activity, which may be permitted in certain investment manager contracts, and (2) in global macro investment strategies where the manager is permitted to tactically allocate across several asset classes and strategies, including currency. The net foreign currency exposure of the global macro managers was less than 1 percent of the System's total foreign currency exposure on June 30, 2017.



## Foreign Currency Risk by Investment Type

(Dollar Values Expressed in Thousands)

June 30, 2017

Currency	Total	Cash & Cash Equivalents	Derivatives	Equity	Fixed Income
Australian Dollar	\$195,588	\$6,277	—	\$189,311	—
Brazilian Real	32,648	5,361	—	24,082	\$3,205
British Pound	134,895	(11,540)	—	139,358	7,077
Canadian Dollar	(168)	70	(\$238)	—	—
Chilean Peso	2,248	—	—	2,248	—
Czech Koruna	6,812	—	—	6,812	—
Danish Krone	17,308	290	—	17,018	—
Euro	626,429	(36,828)	2,593	629,543	31,121
Hong Kong Dollar	242,077	1,371	—	240,706	—
Indian Rupee	53,926	2,615	—	51,311	—
Indonesian Rupiah	17,931	(1,014)	—	17,778	1,167
Japanese Yen	664,053	10,383	557	653,113	—
Kenyan Shilling	4,129	611	—	3,518	—
Mexican Peso	43,460	216	—	12,651	30,593
New Zealand Dollar	3,268	88	—	3,180	—
Norwegian Krone	23,915	117	—	23,798	—
Philippine Peso	2,336	—	—	2,336	—
Russian Ruble	(425)	(425)	—	—	—
Singapore Dollar	38,791	(219)	—	39,010	—
South African Rand	32,789	(455)	—	33,244	—
South Korean Won	84,515	586	—	83,929	—
Swedish Krona	10,846	—	—	10,846	—
Swiss Franc	78,841	872	—	77,969	—
Taiwanese Dollar	42,621	395	—	42,226	—
Thai Baht	3,649	—	—	3,649	—
Turkish Lira	7,598	—	—	7,598	—
<b>Total</b>	<b>\$2,370,080</b>	<b>(\$21,229)</b>	<b>\$2,912</b>	<b>\$2,315,234</b>	<b>\$73,163</b>

### Derivatives

GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*, requires the fair value of financial arrangements called “derivatives” or “derivative instruments” to be reported in the financial statements of state and local governments. The statement further requires derivatives to be categorized as either a hedging derivative or an investment derivative. All of the System’s derivative exposures at June 30, 2017, are categorized as investment derivatives and therefore the hedge accounting provisions of GASB 53 are not applicable.

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 policy contained in its Investment Policy and Goal Statement. Derivatives are contracts or securities whose returns are derived from the returns of other

securities, indexes, or derivatives. While this definition includes the most common type of derivative, collateralized mortgage obligations (which typically make up a portion of the System’s fixed-income portfolio), it is also intended to include (but not be limited to) futures, forwards, options, options on futures, swaps, and swaptions. The System’s managers are not permitted to utilize derivatives 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 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 derivatives 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 utilize derivatives from time to time for hedging purposes; however, any derivatives held by these types of investment vehicles are not included in this Note. IPERS could be exposed to risk if the counterparties to derivatives contracts are unable to meet the terms of the contracts. 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 derivatives for hedging purposes.

### Futures and Options Contracts

IPERS had investments in various futures and options in FY2017. The Statement of Fiduciary Net Position reports these contracts at fair value.

A summary of contracts by sector that were outstanding at June 30, 2017, 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, 2017

	Number of Contracts	Notional Value	Fair Value	% of Total Fund NAV
<b>Long Futures</b>				
Agriculture	45	\$1,754	\$16	0.00005
Currency	1,679	150,215	1,159	0.00377
Index	11,341	1,072,260	(1,046)	(0.00341)
Interest	15,171	4,172,499	(3,982)	(0.01296)
Metal	440	29,378	486	0.00158
<b>Total</b>	<b>28,676</b>	<b>\$5,426,106</b>	<b>(\$3,367)</b>	<b>(0.01097)</b>
<b>Short Futures</b>				
Agriculture	(276)	(\$9,534)	(\$143)	(0.00047)
Currency	(2,274)	(181,117)	1,851	0.00602
Energy	(300)	(14,232)	(170)	(0.00055)
Index	(309)	(14,866)	54	0.00017
Interest	(7,138)	(1,361,950)	3,550	0.01156
Metal	(353)	(21,663)	(753)	(0.00245)
<b>Total</b>	<b>(10,650)</b>	<b>(\$1,603,362)</b>	<b>\$4,389</b>	<b>0.01428</b>

### Options Exposure Summary

(Dollar Values Expressed in Thousands)  
June 30, 2017

	Fair Value	% of Total Fund NAV
<b>Options purchased</b>		
Index	\$447	0.00145
Interest	2,053	0.00668
<b>Total</b>	<b>\$2,500</b>	<b>0.00813</b>
<b>Options written</b>		
Index	(\$401)	(0.00131)
Interest	(514)	(0.00167)
<b>Total</b>	<b>(\$915)</b>	<b>(0.00298)</b>

### Credit Default Swaps

The System had investments in credit default swaps during the year. The credit default swaps held by the System are derivative instruments that are 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, 2017, the net notional value of the credit default swaps held in the System's fixed-income portfolio was -\$11.3 million. The credit default swaps are reported at a fair value of -\$1.2 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 swapping floating-rate obligations for fixed-rate obligations. 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, 2017, the net notional value of the interest rate swaps held in the System's fixed-income portfolio was -\$155.5 million. All interest rate swaps held by the System are reported at a fair value of \$2.8 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 30.

## Securities Lending

IPERS participates in the securities lending program administered by the Treasurer of State. Deutsche Bank, a bank rated A- by Fitch Ratings, 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 had no risk exposure to borrowers because the amounts they owed IPERS did not exceed the amount IPERS owed them. 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, 2017, IPERS had securities on loan, including accrued interest income, with a fair value (carrying value) of \$811.8 million against cash and non-cash collateral, including borrower rebate, with total fair values (carrying values) of \$366.3 million and \$465.6 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, 2017, was 0.00. Credit quality and years-to-maturity statistics for the cash collateral account at June 30, 2017, are shown in the table below.

## Securities Lending Cash Collateral Account

(Dollar Values Expressed in Thousands)

June 30, 2017

Investment Type	Fair Value	Credit Risk: S&P Quality Rating				Investment Maturity (Years)
		AAA	A-1	BBB	Not Rated	
Overnight repurchase agreements	\$317,239	—	\$105,000	\$137,500	\$74,739	Less than 1
Money market funds	49,040	\$2,964	—	—	46,076	Less than 1
<b>Total</b>	<b>\$366,279</b>	<b>\$2,964</b>	<b>\$105,000</b>	<b>\$137,500</b>	<b>\$120,815</b>	

## 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. The building is being depreciated using the straight-line method and a useful life of 39 years. Land, a nonexhaustible asset, is not depreciated. Other capital assets consist primarily of office equipment, data processing equipment, and software. All purchased equipment

is recorded at cost. 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 years.

Total depreciation expense for the year ended June 30, 2017, was \$2.4 million. Of that amount, \$22,441 was reclassified as an investment-related expense on the Schedule of Investment-Related Expenses on page 47. In FY2017, capital asset additions of \$365,371 were capitalized.

## Summary of Capital Assets

As of June 30, 2017, and 2016

Capital Assets	Land	Building and Improvements	Land Improvements	Furniture, Equipment, and Software	Total Capital Assets
Balances as of June 30, 2016	\$500,000	\$7,040,926	\$413,226	\$25,774,874	\$33,729,026
Additions	—	26,722	—	338,649	365,371
Deletions	—	—	—	(8,817)	(8,817)
Balances as of June 30, 2017	500,000	7,067,648	413,226	26,104,706	34,085,580
<b>Accumulated Depreciation</b>					
Balances as of June 30, 2016	—	2,299,634	48,210	10,626,670	12,974,514
Depreciation expense	—	212,150	13,774	2,213,264	2,439,188
Deletions	—	—	—	(8,817)	(8,817)
Balances as of June 30, 2017	—	2,511,784	61,984	12,831,117	15,404,885
<b>Net capital assets as of June 30, 2017</b>	<b>\$500,000</b>	<b>\$4,555,864</b>	<b>\$351,242</b>	<b>\$13,273,589</b>	<b>\$18,680,695</b>

## F. Compensated Absences and Other Postemployment Benefits

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 \$786,091 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.

IPERS has also recorded liabilities for other postemployment benefits. These benefits consist of an implicit rate subsidy, which is the difference between the blended premiums paid by all participants in the State's health care plans and the expected claims for the retiree group. This liability, as determined by the State GAAP Team, was \$6,815 for each full-time employee of IPERS, for a total liability of \$538,385.

These accrued liabilities are included in accounts payable and accrued expenses in the Statement of Fiduciary Net Position on page 21. Details are provided on a statewide basis in the State of Iowa's Comprehensive Annual Financial Report.

## (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 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 other than Social Security, supported at least partially by public contributions. Membership is optional for the members of the Iowa General Assembly and certain other individuals.

At June 30, 2017, IPERS had 169,910 contributing (active) members, employed by 1,956 public employers. The number of active members increased by 0.91 percent in FY2017. The Plan Membership tables and pie charts provide further information.

### Plan Membership

Fiscal Years Ended June 30

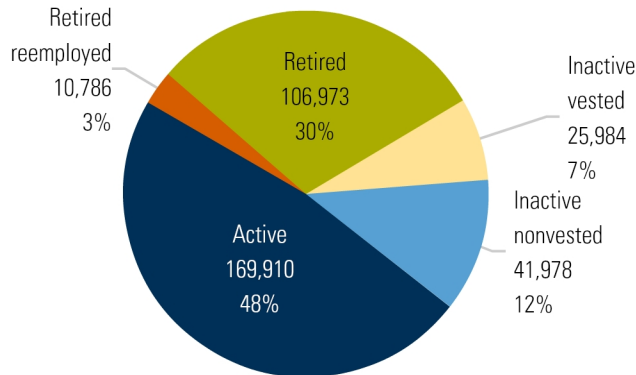
Members	2017	2016
Retirees and beneficiaries	117,759	114,491
Active vested	103,324	104,741
Inactive vested	25,984	26,960
Active nonvested	66,586	63,631
Inactive nonvested	41,978	39,887
<b>Total</b>	<b>355,631</b>	<b>349,710</b>

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.

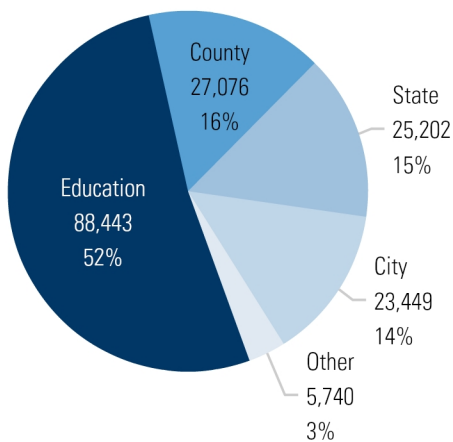
Employer Type	2017		2016	
	Number of Entities	Covered Wages	Number of Entities	Covered Wages
City	959	\$988,810,806	960	\$947,519,172
Education	357	3,840,238,120	359	3,704,823,676
County	348	1,324,214,773	349	1,249,697,569
Other	160	133,057,523	159	126,502,223
Utilities	131	105,857,823	132	101,365,129
State	1	1,470,981,398	1	1,426,607,951
<b>Total</b>	<b>1,956</b>	<b>\$7,863,160,443</b>	<b>1,960</b>	<b>\$7,556,515,720</b>



## Membership Status



## 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 retire at normal retirement age and receive monthly benefits without an early-retirement reduction. Normal retirement age is age 65, anytime after reaching age 62 with 20 or more years of covered employment, or when the member's years of service plus the member's age at the last birthday equals or exceeds 88, whichever comes first. (These qualifications must be met on the member's first month of entitlement to benefits.) Members cannot begin receiving retirement benefits before age 55.

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

Special service members are eligible for retirement benefits if they are vested, no longer working for an IPERS-covered employer, and reach age 55. Sheriffs and deputies are eligible for retirement benefits at age 50 if they have 22 years of qualified service.

### 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 benefit is first 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 will be limited if the contingent annuitant is not the member's spouse and is more than ten years younger than the member.

### *Option 5*

A member receives a lifetime benefit with a ten-year guarantee. If the member dies before ten full years have passed (120 monthly payments are made), the member's designated beneficiary will receive a monthly benefit for the remainder of the ten years. If the beneficiary dies before the ten 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 have attained 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 lifetime.

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, set out 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 Trust Fund is 100 percent 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 that 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 were 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, the contribution rate for Regular members equaled the actuarial rate and in FY2015, FY2016, and FY2017, 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. In FY2015, FY2016, and FY2017, the rates for the Special service members exceeded the actuarial rates.

## Contribution Rates

Fiscal Year 2017

	Employee	Employer	Total
Regular members	5.95%	8.93%	14.88%
Sheriffs and deputies	9.63%	9.63%	19.26%
Protection occupation members	6.56%	9.84%	16.40%

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 \$265,000 for calendar year 2016 and \$270,000 for



calendar year 2017. A detailed Schedule of Employers' Contributions encompassing ten years can be found on page 43 of the Required Supplementary Information following these notes.

#### (4) NET PENSION LIABILITY

The components of the net pension liability (NPL) at June 30, 2017, were as follows:

Total pension liability	\$37,440,382,029
Plan fiduciary net position	\$30,779,116,326
Employers' net pension liability	\$6,661,265,703
Plan fiduciary net position as a percentage of the total pension liability	82.21%

The total pension liability (TPL) was determined by an actuarial valuation as of June 30, 2017. 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.

Experience studies assist IPERS in evaluating the accuracy with which the assumptions predict actual experience. The Board requested an economic assumption study to be conducted in March 2017, approximately a year before the next regularly scheduled quadrennial experience study. This study included information used to assess salary increase trends, inflation rates, and the long-term investment return, and excluded information related to demographic assumptions such as retirement, disability, and mortality rates.

As a result of the actuary's analysis and recommendations, the Investment Board adopted a new set of economic assumptions that included reducing the actuarial assumed investment return from 7.5 percent to 7.0 percent. The long-term actuarial assumed investment return reflects the anticipated returns on current and future plan assets. It provides a discount rate to determine the present value of future benefit payments.

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 capital market assumptions developed by the

investment consultant are intended for use over a 10-year horizon and may not be useful in setting the actuarial assumed investment return for funding pension plans, which covers a longer timeframe. The assumption is intended to be a long-term assumption (30 to 50 years) and is not expected to change absent a significant change in the asset allocation, a change in the inflation assumption, or a fundamental change in the market that alters expected returns in future years.

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% depending upon years of service
Mortality tables	RP-2000 Employee and Healthy Annuitant Tables with generational scaling and age adjustments
Inflation rate	2.6%
Payroll increase assumption	3.25%

Best estimates of arithmetic real rates of return for each major asset class included in IPERS' target asset allocation as of June 30, 2017, are shown in the following table.

#### Target Allocations and Long-Term Expected Real Rates of Return

As of June 30, 2017

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	24.0%	6.25%
International equity	16.0%	6.71%
Core-plus fixed income	27.0%	2.25%
Public credit	3.5%	3.46%
Public real assets	7.0%	3.27%
Cash	1.0%	-0.31%
Private equity	11.0%	11.15%
Private real assets	7.5%	4.18%
Private credit	3.0%	4.25%

## 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 was 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%
\$11,228,454,555	\$6,661,265,703	\$2,824,535,897

## C. Proportioning the Net Pension Liability

Many of IPERS' 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 new 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' net pension liability, 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 needed by the employers to comply with GASB 68. Employers with a June 30 fiscal year-end employ a one-year lag by using IPERS' June 30, 2016, information for their June 30, 2017, reporting, as allowed by the GASB. The FY2017 NPL of \$6.661 billion will be apportioned to employers for their FY2018 financial reporting. The NPL is apportioned based on the amount of

contributions paid by each employer in FY2017, 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 FY2017, IPERS made several recoveries benefiting the Trust Fund in the amount of \$4.3 million. The recoveries are reflected in the financial statements for the year ended June 30, 2017.

IPERS remains a defendant, along with approximately 500 other investors, in an action before the United States Bankruptcy Court for the Southern District of New York known as *Motors Liquidation Company Avoidance Action Trust v. JP Morgan Chase Bank, N.A. et. al.*, Proceeding Nos. 09-50026 and 09-00504. The first phase of the trial has been completed but no verdict has been announced. The second phase of the trial is expected during the upcoming fiscal year. IPERS cannot estimate its potential losses at this time.

IPERS successfully defended several appeals filed under the Iowa Administrative Procedures Act. No administrative appeal resulted in a loss to the Trust Fund.

## (6) COMMITMENTS

At June 30, 2017, IPERS had commitments to fund an additional \$2.178 billion to various private equity/debt partnerships, \$98.1 million to real estate debt partnerships, and \$313.5 million to direct lending 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, 2017

	<b>Regular Members</b>	<b>Sheriffs and Deputies</b>	<b>Protection Occupation Members</b>	<b>Total</b>
<b>Net position as of June 30, 2016</b>	<b>\$26,341,407,289</b>	<b>\$588,117,030</b>	<b>\$1,396,909,337</b>	<b>\$28,326,433,656</b>
<b>Additions</b>				
Contributions	1,099,788,223	20,928,306	57,404,517	1,178,121,046
Service purchases	3,919,204	90,115	261,735	4,271,054
Investment and miscellaneous income	3,111,062,808	70,006,760	166,735,240	3,347,804,808
<b>Total additions</b>	<b>4,214,770,235</b>	<b>91,025,181</b>	<b>224,401,492</b>	<b>4,530,196,908</b>
<b>Deductions</b>				
Benefit payments	1,849,131,607	28,982,145	64,989,456	1,943,103,208
Member refunds	44,077,167	763,170	5,610,612	50,450,949
Administrative expenses	15,261,929	120,171	516,896	15,898,996
Investment expenses	63,248,105	1,423,242	3,389,738	68,061,085
<b>Total deductions</b>	<b>1,971,718,808</b>	<b>31,288,728</b>	<b>74,506,702</b>	<b>2,077,514,238</b>
<b>Preliminary net position</b>	<b>28,584,458,716</b>	<b>647,853,483</b>	<b>1,546,804,127</b>	<b>30,779,116,326</b>
<b>Transfers between groups</b>	<b>(9,201,109)</b>	<b>1,815,378</b>	<b>7,385,731</b>	<b>—</b>
<b>Adjusted net position as of June 30, 2017</b>	<b>\$28,575,257,607</b>	<b>\$649,668,861</b>	<b>\$1,554,189,858</b>	<b>\$30,779,116,326</b>

## REQUIRED SUPPLEMENTARY INFORMATION

### Schedule 1: Schedule of Changes in the Employers' Net Pension Liability and Related Ratios

Last 4 Fiscal Years

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

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

## Schedule 2: Schedule of Employers' Contributions

Last 10 Fiscal Years

Fiscal Year	Actuarial Contributions	Contributions Paid*	Contribution Deficiency (Excess)	Covered Payroll	Contributions Paid as Percentage of Covered-Employee Payroll
<b>2017</b>					
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%
<b>2017 Total</b>	<b>\$671,518,635</b>	<b>\$704,766,114</b>	<b>(\$33,247,479)</b>	<b>\$7,863,160,443</b>	<b>8.96%</b>
<b>2016</b>					
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%
<b>2016 Total</b>	<b>\$660,091,455</b>	<b>\$684,664,998</b>	<b>(\$24,573,543)</b>	<b>\$7,556,515,720</b>	<b>9.06%</b>
<b>2015</b>					
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%
<b>2015 Total</b>	<b>\$644,561,012</b>	<b>\$656,911,160</b>	<b>(\$12,350,148)</b>	<b>\$7,326,348,141</b>	<b>8.97%</b>
<b>2014</b>					
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%
<b>2014 Total</b>	<b>\$639,001,548</b>	<b>\$639,001,548</b>	<b>—</b>	<b>\$7,099,277,280</b>	<b>9.00%</b>
<b>2013</b>					
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%
<b>2013 Total</b>	<b>\$614,846,608</b>	<b>\$601,952,882</b>	<b>\$12,893,726</b>	<b>\$6,880,131,134</b>	<b>8.75%</b>
<b>2012</b>					
Regular members	\$528,525,785	\$518,075,221	\$10,450,564	\$6,384,444,604	8.11%
Sheriffs and deputies	8,999,273	8,999,273	—	92,082,564	9.77%
Protection occupation members	30,864,449	30,864,449	—	309,631,552	9.97%
<b>2012 Total</b>	<b>\$568,389,507</b>	<b>\$557,938,943</b>	<b>\$10,450,564</b>	<b>\$6,786,158,720</b>	<b>8.22%</b>
<b>2011</b>					
Regular members	\$530,692,453	\$429,936,439	\$100,756,014	\$6,187,127,465	6.95%
Sheriffs and deputies	7,994,058	7,994,058	—	89,378,089	8.94%
Protection occupation members	29,711,050	29,711,050	—	298,367,165	9.96%
<b>2011 Total</b>	<b>\$568,397,561</b>	<b>\$467,641,547</b>	<b>\$100,756,014</b>	<b>\$6,574,872,719</b>	<b>7.11%</b>
<b>2010</b>					
Regular members	\$467,839,274	\$414,715,905	\$53,123,369	\$6,189,106,241	6.70%
Sheriffs and deputies	6,725,778	6,725,778	—	87,535,984	7.68%
Protection occupation members	27,328,184	27,328,184	—	294,539,780	9.28%
<b>2010 Total</b>	<b>\$501,893,236</b>	<b>\$448,769,867</b>	<b>\$53,123,369</b>	<b>\$6,571,182,005</b>	<b>6.83%</b>
<b>2009</b>					
Regular members	\$441,951,764	\$383,886,018	\$58,065,746	\$6,060,164,555	6.33%
Sheriffs and deputies	6,365,911	6,365,911	—	84,855,625	7.50%
Protection occupation members	24,736,688	24,736,688	—	293,622,944	8.42%
<b>2009 Total</b>	<b>\$473,054,363</b>	<b>\$414,988,617</b>	<b>\$58,065,746</b>	<b>\$6,438,643,124</b>	<b>6.45%</b>
<b>2008</b>					
Regular members	\$408,882,080	\$353,154,089	\$55,727,991	\$5,823,789,378	6.06%
Sheriffs and deputies	6,301,171	6,301,171	—	81,786,933	7.70%
Protection occupation members	17,644,966	17,644,966	—	225,869,056	7.81%
<b>2008 Total</b>	<b>\$432,828,217</b>	<b>\$377,100,226</b>	<b>\$55,727,991</b>	<b>\$6,131,445,367</b>	<b>6.15%</b>

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

Note: Methodology was revised in fiscal year 2009 to more appropriately reflect contribution amounts for the Special service groups. Prior years have been restated to reflect this change.



## Schedule 3: Schedule of Investment Returns

Last 4 Fiscal Years

	2017	2016	2015	2014
Annual money-weighted rate of return, net of investment expense	11.77%	2.23%	3.91%	15.96%

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 ten 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

Legislation passed in 2010 modified benefit terms for current Regular members. The definition of final average salary changed from the highest three to the highest five years of covered wages. The vesting requirement changed from four years of service to seven years. The early-retirement reduction increased from 3 percent for each year of retirement before a member's normal retirement age, to 6 percent for each year of retirement before age 65.

In 2008, legislation transferred four groups—emergency medical service providers, county jailers, county attorney investigators, and National Guard installation security officers—from Regular membership to the protection occupation group for future service only.

### (2) CHANGES IN ACTUARIAL ASSUMPTIONS AND METHODS

The 2017 valuation, which is used to determine the contribution rates effective July 1, 2018, 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.

The 2010 valuation incorporated the following refinements after a quadrennial experience study:

- Adjusted retiree mortality assumptions.
- Modified retirement rates to reflect fewer retirements.
- Lowered disability rates at most ages.
- Lowered employment termination rates.
- Increased the probability that terminating members would eventually receive a retirement benefit.
- Modified salary increase assumptions based on various service durations.

### (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, the contribution rate for Regular members equaled the actuarial contribution

rate, and in FY2015, FY2016, and FY2017, 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, 2015, actuarial valuation, which established the actuarially determined employer contributions for FY2017.

## FY2015 Actuarial Methods and Assumptions

Actuarial cost method	Entry age normal
Amortization method	Level percentage of payroll, closed
Amortization period	2014 initial UAL: 29 years 2015 experience: 20 years
Asset valuation method	Expected value plus 25% of difference between market value and expected value
Inflation rate	3%
Payroll increase assumption	4%
Projected salary increases	4%–17%, including inflation, depending on years of service
Assumed investment return	7.5% compounded annually, net of investment expense and including inflation
Mortality tables	RP-2000 Generational Mortality Tables, 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.

## SUPPLEMENTARY INFORMATION

### Schedule 1: Schedule of Administrative Expenses

Fiscal Years Ended June 30, 2017, and 2016

	2017	2016
<b>Personnel</b>		
Salaries and wages	\$7,114,282	\$6,725,843
Travel	149,231	130,591
<b>Professional and technical services</b>		
Professional	1,575,799	694,556
Actuary	187,250	219,060
Computer support services	3,092,815	3,690,454
Auditing	148,360	144,767
<b>Communications</b>		
Telephone	150,048	144,383
Printing	124,333	152,555
<b>Other expenses</b>		
Supplies	801,843	532,152
Utilities	46,224	54,917
Depreciation	2,416,747	2,368,036
Miscellaneous	92,064	81,637
<b>Total administrative expenses</b>	<b>\$15,898,996</b>	<b>\$14,938,951</b>

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 2: Schedule of Investment-Related Expenses

Fiscal Years Ended June 30, 2017, and 2016

	2017	2016
AEgon USA Investment Management, LLC — Public credit	\$1,829,816	\$1,537,941
BlackRock Financial Management, Inc. — Core-plus fixed income	739,640	693,147
BlackRock Institutional Trust Company, NA — Domestic equity	624,614	678,142
BlackRock Institutional Trust Company, NA — International equity	5,948,330	5,754,345
BlackRock Institutional Trust Company, NA — Public real assets	107,227	101,242
Blackstone Real Estate Debt Strategies Associates II L.P. — Private credit	1,371,937	1,698,244
BNP Paribas Asset Management USA, Inc. — Public real assets	474,537	432,694
CenterSquare Investment Management, Inc. — Public real assets	702,670	1,960,406
Clarion Partners, LLC — Private real assets	3,198,452	3,008,587
Columbia Management Investment Advisors, LLC — Domestic equity	364,083	574,121
Fisher Investments — Domestic equity	4,334,797	584,504
Forest Investment Associates L.P. — Private real assets	1,041,411	975,614
GAM USA Inc. — International equity	351,436	347,711
Harvest Fund Advisors LLC — Public real assets	2,247,412	2,730,986
Invesco Real Estate — Private real assets	1,950,976	2,083,673
Janus Capital Management LLC — Domestic equity	3,418,643	1,517,332
J.P. Morgan Investment Management, Inc. — Domestic equity	475,210	344,277
LARS Investments — Liquid absolute return strategies	1,036,366	—
MacKay Shields LLC — Core-plus fixed income	1,233,041	1,430,917
Mellon Capital Management Corporation — Core-plus fixed income	(112,228)	(72,076)
Mellon Capital Management Corporation — Domestic equity	(302,384)	423,194
Mellon Capital Management Corporation — International equity	(128,014)	(134,732)
Monroe Capital Private Credit Fund I LP — Private credit	202,656	—
Oaktree Capital Management, L.P. — Public credit	985,724	1,189,210
Oechsle International Advisors, LLC — International equity	952,764	1,049,549
Pacific Investment Management Company LLC — Core-plus fixed income	—	81
PanAgora Asset Management, Inc. — Domestic equity	641,228	487,457
Parametric Portfolio Associates LLC — Overlay management services	36,650	—
Pathway Capital Management, LP — Private equity	6,761,472	6,075,798
PGIM, Inc. — Core-plus fixed income	2,731,815	1,893,281
PGIM, Inc. — Public credit	1,744,700	116,404
Principal Global Investors, LLC — Core-plus fixed income	586,612	403,250
Principal Real Estate Debt Fund, LP — Private credit	214,008	148,660
Quantitative Management Associates LLC — International equity	1,142,044	1,198,153
RREEF America, LLC — Private real assets	2,984,291	2,872,526
State Street Global Advisors — Public real assets	106,829	121,039
TCW Asset Management Company LLC — Core-plus fixed income	966,243	909,449
TCP Direct Lending Fund VIII-A, LLC — Private credit	106,290	—
UBS Farmland Investors LLC — Private real assets	125,859	1,254
UBS Realty Investors LLC — Private real assets	1,788,916	1,660,989
Western Asset Management Company — Core-plus fixed income	1,719,429	1,528,315
Western Asset Management Company — Public credit	—	249,220
Wellington Management Company, LLP — Domestic equity	542,043	2,588,020
Wellington Management Company, LLP — International equity	3,439,501	2,633,861
<b>Total investment management fees</b>	<b>58,687,046</b>	<b>51,796,785</b>
Wilshire Associates, Inc. — Investment consultant	357,250	344,000
The Bank of New York Mellon — Custodian	772,398	727,309
Treasurer of State — Custodian	114,449	106,818
Commission expenses	5,659,528	5,363,623
Investment staff and Board expenses	1,379,645	1,308,005
Miscellaneous expenses	1,090,769	997,998
<b>Total other investment fees</b>	<b>9,374,039</b>	<b>8,847,753</b>
<b>Total investment-related expenses</b>	<b>\$68,061,085</b>	<b>\$60,644,538</b>



# Investments

# Investments

INVESTMENT OVERVIEW

INVESTMENT RESULTS

INVESTMENT POLICY AND GOAL STATEMENT

## INVESTMENT OVERVIEW

This section of the CAFR was compiled by IPERS' investment staff using information provided by Wilshire Associates 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 the members of the System 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 concerning IPERS' investment return objectives.)

The System's investments are managed 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 Trust 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. Compared to the fair values shown in this report's Financial and Actuarial sections, the values reflected in this Investments section are gross of investment receivables and cash in investment manager accounts, and net of payables and securities lending collateral.

## Asset Allocation and Diversification

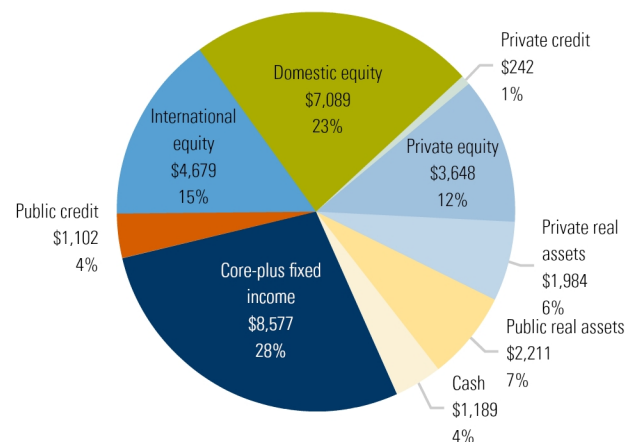
Asset allocation is a process designed to construct an optimal long-term asset mix that achieves a specific set of investment objectives. The Investment Policy and Goal Statement establishes the System's asset allocation policy as designed to meet those objectives. The Investment Board revised its asset allocation categories in fiscal year 2017 in an attempt to make risks more transparent. As a result, asset classes are first categorized by whether the investments are traded in public markets or represent less liquid private market assets. Asset classes are then further categorized by the type of risk they represent: equity, fixed income (interest rates), real assets (inflation), or credit.

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, 2017.

### Summary of Investments by Asset Class

(Fair Values in Millions)

As of June 30, 2017



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 2017 was a good year for publicly traded assets, such as stocks and lower-quality bonds. The U.S. stock market produced an annual return of 18.54 percent, non-U.S. stocks returned 20.45 percent, and U.S. high-yield bonds returned 12.70 percent for the 12 months ended June 30, 2017. Less risky fixed-income assets fared poorly as core U.S. bonds produced an annual return of -0.31 percent and U.S. Treasury Inflation-Protected Securities (TIPS) returned -0.63 percent. The return on cash, as measured by the annual return on 91-day Treasury bills, was 0.49 percent. Private markets performed well in FY2017, with private equity returning 14.11 percent and private real estate returning 6.89 percent for the fiscal year.

The results of the U.S. elections in November 2016 had a big impact on fiscal year returns for stocks, with stock prices increasing on expectations of tax reform, deregulation, and a major infrastructure initiative. Those expectations of higher growth and potentially higher inflation levels, coupled with the U.S. Federal Reserve Bank raising interest rates three times during the fiscal year, made for poor (generally negative) returns on assets sensitive to interest rates and inflation, such as bonds.

Historically high asset valuations, low wage growth, and rising U.S.-Russia and U.S.-North Korea political tensions loomed as potential challenges for capital markets at June 30, 2017. However, U.S. and most major stock markets seemed unaffected, with market-implied volatility levels at historic lows.

## Investment Portfolio Assets

At the close of fiscal year 2017, IPERS' net investment portfolio assets had a fair value of \$30.721 billion. This represents an increase of \$2.453 billion from the \$28.268 billion net investment asset fair value as of June 30, 2016. The reason for the increase in net assets was the portfolio investment return of 11.70 percent for fiscal year 2017.

## INVESTMENT RESULTS

IPERS posted a total portfolio net-of-fees investment return of 11.70 percent for the fiscal year ended June 30, 2017. This return exceeded the 11.17 percent return of IPERS' policy benchmark, a set of market indexes and weightings to those indexes that reflect IPERS' asset class targets. The value added versus the policy benchmark was mainly due to outperformance by IPERS' active managers across all asset classes.

IPERS' 11.70 percent return exceeded the actuarial assumed investment return of 7.00 percent and exceeded the annual rate of inflation, as measured by the Consumer Price Index, which was 1.63 percent for the fiscal year. IPERS' annual investment return was also well ahead of the -10.82 percent estimated return of its liabilities, which is estimated based on a market-valued liability proxy developed by IPERS and its investment consultant, Wilshire Associates.

IPERS' international equity portfolio had the highest investment return for the fiscal year at 21.16 percent. Other asset classes returned the following annual net-of-fees investment returns: domestic equity at 20.27 percent; public credit at 11.29 percent; core-plus fixed income at 1.70 percent; and private equity at 18.16 percent.

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

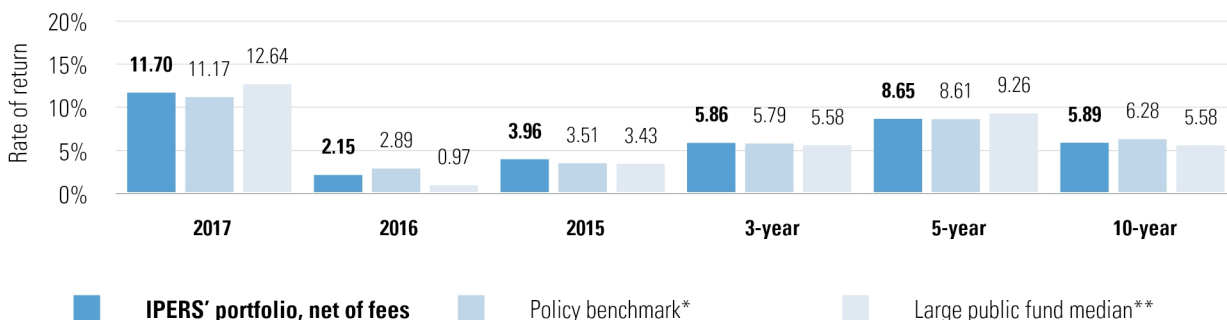
and for each asset class over various time periods. For comparison purposes, the benchmark for each asset class is also shown.

IPERS' investment policy was revised effective October 1, 2016, and asset class definitions were modified to better classify risks. As a result of this reclassification, the public real assets, private real assets, and private credit asset classes do not have a return history beyond nine months, and therefore no investment returns for these asset classes are shown in the table on the following page. The total Fund investment returns for all periods shown reflect the performance results of any former asset classes that no longer exist by policy as of June 30, 2017.

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 a meaningful comparison of a pension system's investment performance based solely on returns.

### Investment Performance Summary

For the Periods Ended June 30



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

\*\*TUCS Public Funds with Total Market Value > \$1 Billion.

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



## Rates of Return

For Periods Ended June 30, 2017<sup>1</sup>

Asset Class	Annualized Returns (%)			
	1-Year	3-Year	5-Year	10-Year
<b>Total Fund</b>				
IPERS	11.70	5.86	8.65	5.89
Policy benchmark <sup>2</sup>	11.17	5.79	8.61	6.28
CPI + 3 percentage points	4.63	3.92	4.32	4.63
Actuarial assumed investment return	7.00	7.33	7.40	7.45
TUCS Public Funds > \$1 Billion Index median	12.64	5.58	9.26	5.58
<b>Domestic equity</b>				
IPERS	20.27	9.32	14.72	6.32
Wilshire 5000	18.54	9.34	14.61	7.29
<b>International equity</b>				
IPERS	21.16	1.29	8.02	1.49
Custom benchmark	21.00	1.27	7.70	1.59
<b>Core-plus fixed income</b>				
IPERS	1.70	3.08	3.01	5.01
Custom benchmark	0.91	2.76	2.73	4.73
<b>Public credit<sup>3</sup></b>				
IPERS	11.29	4.18	5.83	6.89
Custom benchmark	9.84	4.15	5.79	6.90
<b>Public real assets<sup>4</sup></b>				
IPERS	NA	NA	NA	NA
Custom benchmark	NA	NA	NA	NA
<b>Cash</b>				
IPERS	0.56	0.33	0.24	0.87
U.S. Treasury bills	0.49	0.23	0.17	0.58
<b>Private equity<sup>5</sup></b>				
IPERS	18.16	12.32	14.22	11.04
Custom benchmark	18.16	12.32	15.06	10.00
<b>Private real assets<sup>5</sup></b>				
IPERS	NA	NA	NA	NA
Custom benchmark	NA	NA	NA	NA
<b>Private credit<sup>5</sup></b>				
IPERS	NA	NA	NA	NA
Custom benchmark	NA	NA	NA	NA

<sup>1</sup>All returns are time-weighted returns. All returns beyond one year are annualized.

<sup>2</sup>The policy benchmark on June 30, 2017, consisted of 24 percent Wilshire 5000, 16 percent MSCI ACWI ex U.S., 27 percent Barclays Universal, 7 percent custom benchmark for public real assets, 3.5 percent custom public credit benchmark, 1 percent Treasury bills, 11 percent IPERS private equity portfolio, 7.5 percent custom private real assets, and 3 percent custom private credit benchmark. The composition of the policy benchmark has changed over the 10-year period.

<sup>3</sup>This benchmark index is defined as 67 percent Citigroup HY Cash Pay Capped Index and 33 percent JP Morgan EMBI Global Index.

<sup>4</sup>This benchmark index is defined as 67 percent [50 percent Barclays Capital U.S. TIPS Index and 50 percent Barclays Capital 1-10 U.S. TIPS Index] + 22 percent [Wilshire REIT Index] + 11 percent [S&P MLP Index].

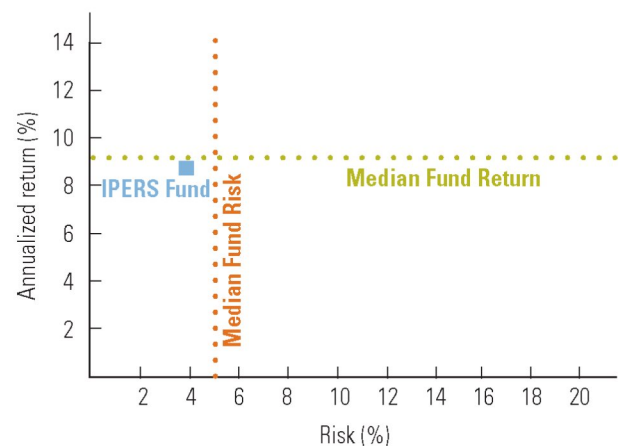
<sup>5</sup>The benchmark index for each private market asset class is the return of the portfolio itself.

A more meaningful peer comparison can be made if returns are compared on the basis of how much return was 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 the TUCS 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, while the return on IPERS' investments for the 5 years ended June 30, 2017, was slightly lower than the median large public pension fund return, it was earned with less risk.

## Risk vs. Total Return

Public Funds > \$1 Billion Index  
5 Years Ended June 30, 2017

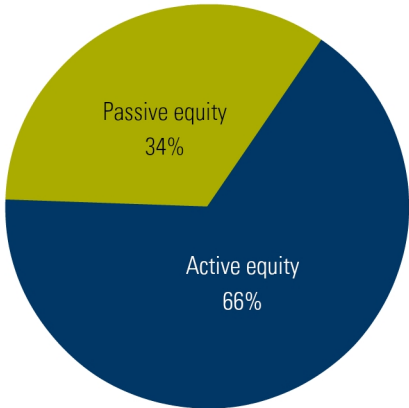


## Domestic Equity

At June 30, 2017, 23.07 percent of IPERS' total portfolio was invested in domestic equities (U.S. stocks). The total net fair value of the domestic equity portfolio was \$7.089 billion. The portfolio is widely diversified across various equity market sectors and industries. The IPERS domestic equity portfolio has two components:

### Domestic Equity Portfolio

June 30, 2017



### Active Equity

IPERS utilizes active management in small-, mid-, and large-capitalization stock strategies. The active portfolio is also invested in strategies that focus on different investment styles: a value portfolio, which focuses on companies undervalued relative to their

prospective dividend and earnings growth; a growth portfolio, which focuses on companies whose earnings are expected to grow at rates exceeding that of the general economy; and a core portfolio, which seeks to add value across all sectors through stock selection. Each investment strategy is expected to exceed an appropriate style benchmark over a full market cycle.

### Passive Equity

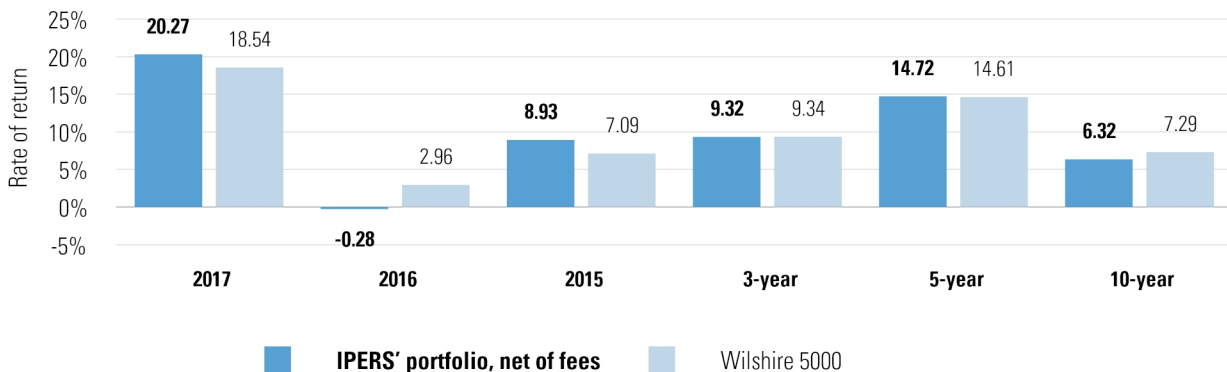
The passive component is divided into large-cap and small- to mid-cap strategies for management purposes and consists primarily of investments in commingled index funds, index futures, and short-term securities. The return objective for each passive strategy is to track, within a certain range, the returns 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, 2017, IPERS' domestic equity portfolio delivered a return of 20.27 percent, compared to 18.54 percent for its benchmark, the Wilshire 5000 Index. All of the active equity investment managers outperformed their respective benchmarks for the fiscal year. Stronger sector allocation and security selection were rewarded as the markets once again focused on fundamentals and on an improving economic environment.

## Domestic Equity Performance

For Periods Ended June 30



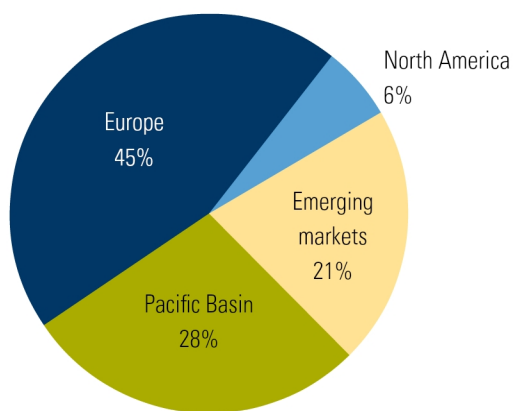
Note: 3-, 5-, and 10-year results are annualized returns.

## International Equity

At June 30, 2017, the international equity portfolio had a net fair value of \$4.679 billion, representing 15.23 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 many regions, countries, industries, and securities for diversification purposes. Regional 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.

### International Equity Portfolio

June 30, 2017



### 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. For purposes of investment management, a regional approach is used to invest in these international markets. The active equity portfolio's performance objective is to exceed the return of the MSCI All Country World ex U.S. Index.

### Passive Equity

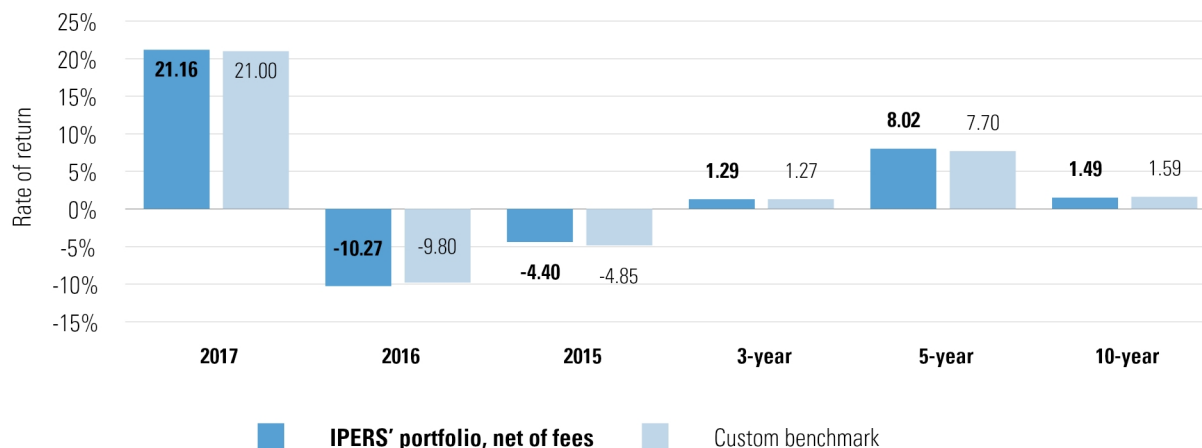
This component is a passively managed diversified portfolio consisting of commingled index fund investments in Canadian, European, EAFE (European, Australasian, and Far East), and global emerging market countries' corporate equity securities. The objective of the passive equity portfolios is to track 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 21.00 percent for the fiscal year ended June 30, 2017. IPERS' international equity portfolio modestly outperformed its benchmark in FY2017, returning 21.16 percent net of fees. Strong stock selection by IPERS' active European and emerging market managers were the key drivers of the fiscal year results. At June 30, 2017, the portfolio's 3-year net-of-fee return of 1.29 percent was in line with the 1.27 percent recorded for the asset class's composite benchmark, while on a 5-year basis the portfolio earned 8.02 percent, slightly outperforming the benchmark of 7.70 percent.

### International Equity Performance

For Periods Ended June 30



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

## PUBLIC EQUITY PORTFOLIO: TOP TEN HOLDINGS

The top ten holdings within the public equity portfolio (domestic and international combined) at June 30, 2017, follow. The listing does not include the fair value of units held in commingled fund investments. A complete listing of the holdings, including commingled fund holdings, is available upon request.

### Ten Largest Holdings at June 30, 2017

	Fair Value (\$000)	% of Total
Apple, Inc.	\$90,241	1.40
Microsoft Corporation	71,753	1.11
Amazon.com, Inc.	67,473	1.05
Facebook, Inc.	63,782	0.99
Bank of America Corporation	53,430	0.83
Citigroup, Inc.	48,476	0.75
Alibaba Group Holding Ltd.	37,760	0.59
UnitedHealth Group, Inc.	37,756	0.59
Samsung Electronics Co. Ltd.	35,596	0.55
Tencent Holdings Ltd.	35,197	0.55
<b>Total</b>	<b>\$541,464</b>	<b>8.41</b>

## Fixed Income

IPERS has a significant allocation to fixed-income securities, with a target asset allocation of 27.00 percent to core-plus fixed-income securities and 3.50 percent to public credit strategies. At fiscal year-end, IPERS' core-plus portfolio was 27.92 percent of total Fund assets and the public credit portfolio was 3.59 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, 2017, was 2.96 percent. The consolidated fixed-income portfolio fair value was \$9.679 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 10 percent of the core-plus portfolio is dedicated 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

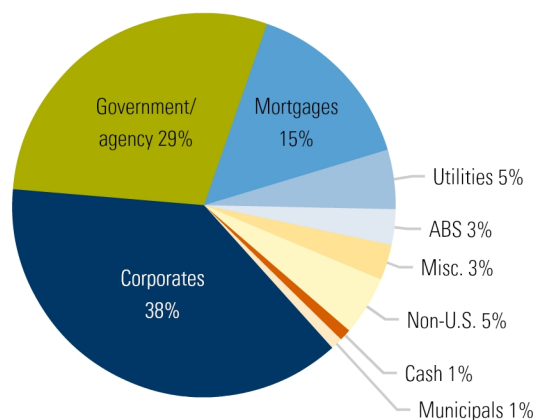
objective of exceeding the return of the Bloomberg Barclays U.S. Universal Index (Universal Index), net of fees, over a full market cycle. The Universal Index is a broader index, consisting of the core Aggregate Index plus other fixed-income sectors available to U.S. investors, such as high-yield bonds, 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 1.70 percent outperformed the Bloomberg Barclays Capital U.S. Universal Index return of 0.91 percent for the fiscal year ended June 30, 2017.

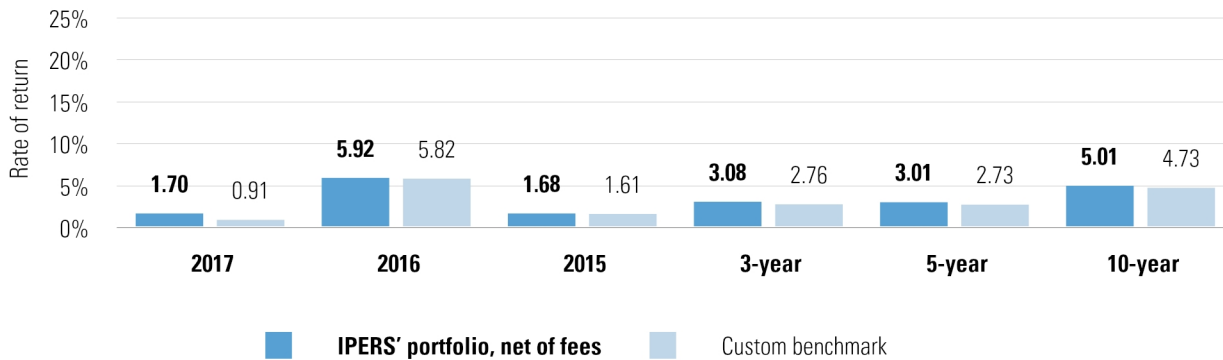
### Core-Plus Fixed-Income Portfolio

June 30, 2017



## Core-Plus Fixed-Income Performance

For Periods Ended June 30



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

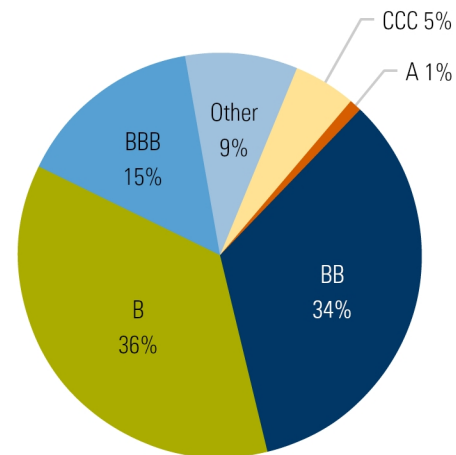
## Public Credit Fixed Income

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 11.29 percent for fiscal year 2017 versus its custom benchmark return of 9.84 percent. The high-yield portion of the portfolio provided a return of 12.61 percent versus the Citigroup High-Yield Cash-Pay Capped Index return of 11.97 percent. The emerging market debt portion of the portfolio generated a return of 8.47 percent through June 30, 2017, significantly outperforming the J.P. Morgan EMBI Global Index return of 5.54 percent over the same time period.

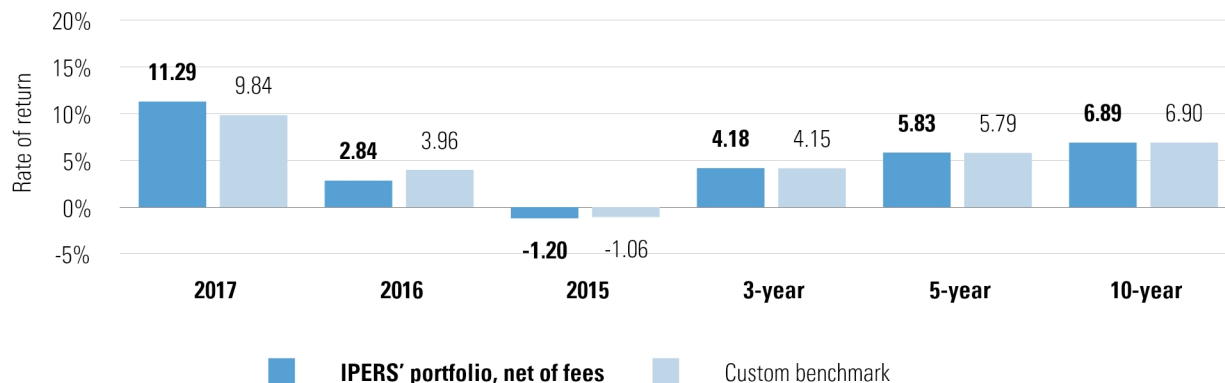
## Public Credit Fixed-Income Portfolio

June 30, 2017



## 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 ten holdings within the consolidated fixed-income portfolio (core-plus and public credit combined) at June 30, 2017, are illustrated below. The listing does not include the fair value of units held in commingled fund investments. A complete listing of the holdings, including commingled fund holdings, is available upon request.

### Ten Largest Holdings at June 30, 2017

U.S. TIPS – 0.125%, 4/15/21	\$97,772	1.05
U.S. TIPS – 0.625%, 1/15/24	89,435	0.96
U.S. Treasury Note – 1.750%, 5/31/22	87,541	0.94
U.S. Treasury Note – 1.250%, 05/31/19	83,991	0.91
U.S. TIPS – 0.125%, 4/15/20	83,696	0.90
U.S. Treasury Bond – 2.375%, 5/15/27	81,018	0.87
U.S. Treasury Note – 3.750%, 11/15/43	79,464	0.86
U.S. Treasury Note – 1.750%, 6/30/22	78,220	0.84
U.S. TIPS – 0.125%, 4/15/19	71,404	0.77
FNMA TBA 30-year – 4.000%, 7/1/47	67,196	0.72

### Total

Fair Value (\$000)	% of Total
<b>\$819,737</b>	<b>8.82</b>

## Public Real Assets

Public real assets consist of investments in liquid, publicly traded securities that have an inflation-hedging component, such as U.S. Treasury inflation-protected securities (TIPS), real estate investment trusts (REITs), and master limited partnerships (MLPs) that provide funding for the development and improvement of America's energy infrastructure. At June 30, 2017, \$2.211 billion, or 7.20 percent, of IPERS' total portfolio at fair value was invested in public real assets.

### Treasury Inflation-Protected Securities

IPERS invests in U.S. TIPS to provide inflation protection and risk diversification. U.S. TIPS can also provide deflation risk protection because the securities cannot accrue a negative coupon even if the inflation rate is negative (which is a deflationary environment). IPERS utilizes one active U.S. TIPS manager that is benchmarked against the Bloomberg Barclays Capital U.S. TIPS 1–10 Year Index and one passive manager that is benchmarked against the broader Bloomberg Barclays Capital U.S. TIPS Index. IPERS' U.S. TIPS portfolio generated a return of –0.37 percent for the fiscal year, slightly outperforming the blended custom benchmark return of –0.44 percent. The U.S. TIPS portfolio had a fair value of \$1.465 billion as of June 30, 2017.

## Real Estate Investment Trusts

IPERS invests in U.S. REITs to provide inflation protection and risk diversification. IPERS utilizes one active U.S. REIT manager that is benchmarked against the Wilshire REIT Index, and one passive manager that is benchmarked against the Dow Jones U.S. Select REIT Index. IPERS' U.S. REITs composite had a fair value of \$515.2 million as of June 30, 2017, and returned –2.77 percent for the fiscal year versus its benchmark return of –1.71 percent.

## Energy Infrastructure

IPERS invests in MLPs that fund pipelines, storage facilities, and transportation in the United States. Master limited partnerships provide access to inflation-protected revenue streams, a substantial dividend yield, and the liquidity of the public stock markets. The objective of the master limited partnership strategy is to achieve a return above the S&P Master Limited Partnership Total Return Index, net of fees. IPERS' master limited partnership portfolio had a fair value of \$231.7 million as of June 30, 2017, and returned 2.15 percent for the fiscal year versus its benchmark return of 3.23 percent.

## Private Equity

At June 30, 2017, IPERS' private equity/debt portfolio had a fair value of \$3.648 billion, representing 11.87 percent of the total IPERS portfolio. From the inception of the private equity/debt portfolio through June 30, 2017, the System has committed \$10.421 billion to 269 partnerships and one fund-of-one investment. During fiscal year 2017, IPERS committed a total of \$671.4 million to the fund-of-one investment. At June 30, 2017, commitments of \$2.178 billion remained to be called for investment.

IPERS began investing in private equity in 1985 and has, since January 1, 1993, utilized the services of a full-discretion investment management firm, Pathway Capital Management, LLP, to select partnerships and manage the portfolio of private equity funds. Beginning January 1, 2014, IPERS began utilizing a new structure for private equity investments by creating a fund-of-one partnership (Pathway Private Equity Fund XXV) with Pathway. The fund-of-one investment structure is expected to reduce IPERS' operational burden while allowing IPERS to more efficiently invest in secondary and co-investment opportunities. The new structure did not result in any changes to Pathway's existing contract, including fee arrangements.

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, time, 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 ten years or more, so a longer evaluation time horizon is appropriate.

The private equity/debt portfolio returned 10.41 percent (net IRR) versus its benchmark return of 10.18 percent for the 10-year period ended June 30, 2017. Since inception in 1985, IPERS' total private equity/debt portfolio has returned 14.13 percent, slightly underperforming the 14.73 percent asset class benchmark for private equity (Wilshire 5000 + 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 1.25.

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 2017, with data current for reporting periods ended March 31, 2017 (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 1985–2017. The IPERS program compares favorably for this period.

**Vintage Years 1985-2017**

	IRR	DPI
IPERS' private equity/debt portfolio	14.13%	1.25
Burgiss All Regions Private Equity Composite	13.79%	1.02

## Private Real Assets

Private real assets consists of investments in private equity real estate, timberland, and farmland. At June 30, 2017, \$1.984 billion, or 6.46 percent, of IPERS'

total portfolio at fair value was invested in private real assets.

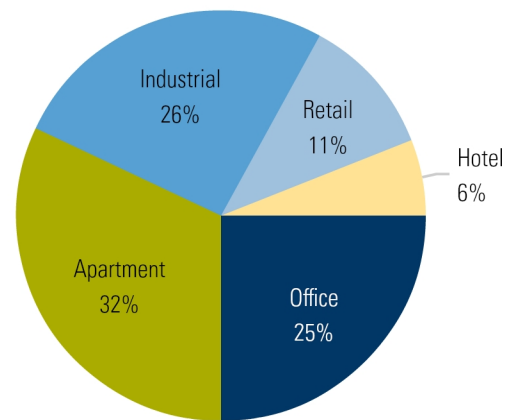
## Real Estate

IPERS' real estate portfolio had a fair value of \$1.791 billion at June 30, 2017. The real estate program serves three distinct purposes for IPERS: diversification, income production, and inflation protection. In order to mitigate risk, the real estate portfolio is diversified by both geographic location and property type, as shown in the following charts.

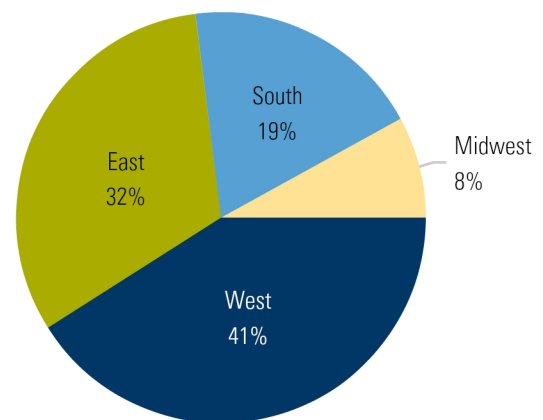
## Real Estate Portfolio

June 30, 2017

### 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 program posted a return of 8.66 percent versus the benchmark return of 6.89 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, 2017, the real estate portfolio returned 5.89 percent, net of fees, versus the portfolio's benchmark



of 6.53 percent. The long-term underperformance is mainly attributable to the poor performance of one manager that was terminated in 2012.

### **Timberland**

The objective of the timberland strategy is to achieve a 5 percent real return after inflation and manager fees. The portfolio is diversified by geography, species, and timber markets. The benchmark for the timberland portfolio is the Consumer Price Index plus 5 percentage points.

While the IPERS timberland portfolio is still in the acquisition phase, it has acquired several parcels of U.S. timberland with a fair value of \$164.3 million as of June 30, 2017, and returned 1.17 percent for the fiscal year versus its benchmark return of 6.71 percent.

### **Farmland**

The objective of the farmland strategy is to achieve a 5 percent real return after inflation and management fees. The farmland portfolio made its first investment in fiscal year 2016, and will become more diversified by geography and crop types as acquisitions continue. The benchmark for the farmland portfolio is the Consumer Price Index plus 5 percentage points. As of June 30, 2017, the fair value of the farmland portfolio was \$28.2 million. The farmland portfolio returned 13.28 percent for the fiscal year, well ahead of its benchmark return of 6.71 percent.

## **Private Credit**

IPERS' private credit portfolio consists of investments in real estate debt funds and direct lending funds. The funds are structured as partnerships and are illiquid. The long-term return objective for IPERS' private credit program 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 asset class was created in policy in fiscal year 2017 by combining previous investments made in real estate debt funds with newly funded direct lending funds. As a result, the performance history of the private credit asset class is only nine months, and fiscal year performance is not available.

## **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.

The balance of the liquidity account was unusually high on June 30, 2017, due to a pending transition to create a global smart beta equity allocation of almost \$900 million on July 1, 2017. To keep IPERS' exposure to the public equity markets near policy targets during the transition, this cash was temporarily equitized using equity futures contracts by the beta overlay manager (see Beta Management paragraph that follows).

### **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 program, dubbed liquid absolute return strategies (LARS), 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, 2017, LARS had allocated capital across six different trading advisors and the fair value of the LARS program was \$46.1 million. From its inception in December 2016 to June 30, 2017, the LARS cash overlay program produced a net-of-fees investment return of -12.47 percent.

## **Beta Management**

IPERS implemented a beta management overlay program in fiscal year 2017. 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, 2017, the System held investments of \$1.964 billion in companies of Iowa interest.

### Holdings in Companies of Iowa Interest

June 30, 2017

Asset Class	Amount
Stocks	\$1,363,370,033
Bonds	588,775,088
Private equity/debt	11,834,500
<b>Total</b>	<b>\$1,963,979,621</b>

## Investment Fees and Brokerage Commissions

### Schedule of Investment Fees

Fiscal Year Ended June 30, 2017

	Amount Paid	Average Quarterly Market Value
Domestic equity	\$10,098,234	\$7,196,939,250
International equity	11,706,061	4,798,837,500
Core-plus fixed income	7,864,552	8,255,848,500
Public credit	4,560,240	1,175,990,500
Public real assets	3,638,675	2,137,478,000
Cash	1,073,016	525,727,500
Private equity	6,761,472	3,496,806,250
Private real assets	11,089,905	1,922,837,500
Private credit	1,894,891	173,159,000
<b>Total</b>	<b>\$58,687,046</b>	<b>\$29,683,624,000</b>

Note: See Schedule 2: Schedule of Investment-Related Expenses on page 47 for fees by manager.

## Schedule of Brokerage Commissions Paid

Fiscal Year Ended June 30, 2017

### PUBLIC EQUITY

#### Brokerage Firm

Merrill Lynch
Citigroup
Goldman Sachs & Co.
J.P. Morgan
Morgan Stanley & Co. Inc.
Deutsche Bank
Credit Suisse
SG Securities
UBS Securities
Barclays Capital, Inc.
UBS Warburg
Wells Fargo Securities LLC
Jefferies & Co. Inc.
RBC Capital Markets LLC
HSBC Securities
Calyon Securities
National Financial Services Corporation
Liquidnet
Bernstein Sanford C & Co.
Macquarie Securities
Macquarie Bank Ltd.
Instinet Corporation
Pershing LLC
Scotia Capital Inc.
Credit Lyonnais Securities
All others (includes 116 brokerage firms)

Amount Paid	Shares Traded	Average Per Share
\$562,600	92,817,393	\$0.006
415,942	87,326,915	0.005
411,782	40,490,027	0.010
381,959	74,952,317	0.005
307,179	49,274,963	0.006
261,794	79,801,584	0.003
236,682	46,358,894	0.005
134,174	58,398,800	0.002
130,676	9,527,687	0.014
100,152	5,990,796	0.017
84,939	28,926,150	0.003
75,013	3,399,319	0.022
67,559	11,729,106	0.006
59,850	3,629,294	0.016
54,445	11,921,180	0.005
52,391	7,141,103	0.007
50,195	2,596,685	0.019
46,270	16,046,153	0.003
44,777	5,333,496	0.008
43,441	2,751,475	0.016
37,383	10,014,923	0.004
36,419	6,044,298	0.006
28,893	1,013,870	0.028
25,929	2,379,226	0.011
25,826	8,772,572	0.003
638,132	94,644,104	0.007
<b>\$4,314,402</b>	<b>761,282,330</b>	<b>\$0.006</b>

### FUTURES AND OPTIONS

#### Brokerage Firm

Goldman Sachs & Co.
Morgan Stanley & Co. Inc.
Citigroup
Newedge Group
J.P. Morgan

Amount Paid	Contracts Traded	Average Per Contract
\$373,493	114,921	\$3.25
856,669	442,048	1.94
256	274	0.93
114,029	86,915	1.31
679	209	3.25
<b>\$1,345,126</b>	<b>644,367</b>	<b>\$2.09</b>
<b>\$5,659,528</b>		

#### Total Futures and Options

#### Total Commissions

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

## INVESTMENT POLICY AND GOAL STATEMENT

The following excerpt from the Iowa Public Employees' Retirement System's Investment Policy and Goal Statement, as adopted by the IPERS Investment Board and last revised in September 2016, includes all Policy text, but excludes the addenda referenced in the Policy. IPERS' current investment policies are available online at [www.ipers.org](http://www.ipers.org).

### I. INTRODUCTION: IPERS' PURPOSE AND PRINCIPLES

The Iowa Public Employees' Retirement System (IPERS or System) was established in 1953, and is governed by Iowa Code chapter 97B. Since its creation, IPERS' activities have been directed toward fulfilling the foundational purpose of the System, as described in §97B.2:

... to promote economy and efficiency in the public service by providing an orderly means for employees, without hardship or prejudice, to have a retirement system which will provide for the payment of annuities, enabling the employees to care for themselves in retirement, and which will improve public employment within the state, reduce excessive personnel turnover, and offer suitable attraction to high-grade men and women to enter public service in the state.

The Investment Board (Board) is the trustee of the IPERS Trust Fund (Fund). The Board's primary mission is to establish the System's tolerance for investment risk. The primary duties of the Board are to establish investment policy, to communicate its tolerance for investment risk, review policy implementation, and approve the retention of service providers in matters relating to the investment of IPERS' assets. As trustee, the Board also adopts the actuarial methods and assumptions, approves the retention of service providers in matters relating to the actuarial valuation of the System's assets and liabilities, and adopts the System's contribution rate funding policy.

IPERS is administered through a chief executive officer, chief investment officer, chief benefits officer, and other full-time staff. The investment activities of the Board and staff are governed by the "prudent person" rules as defined in §97B.7A. The purposes of the System and the prudent person rule shall guide the Board and staff in developing this investment policy and goal statement. IPERS' investment activities shall be executed in a manner to fulfill these goals. The investment policy and the investment strategies will be periodically reviewed to ensure they conform to §§97B.2 and 97B.7A.

The chief investment officer is responsible for the administration of the investment program pursuant to the policies of the Board. Additionally, the Board supports the retention and development of sufficient investment staff and the provision of other resources as necessary to ensure the thorough oversight and administration of each investment program undertaken by the System.

### II. INVESTMENT OBJECTIVES

The Board adopts the following investment objectives for the Fund:

- A. The investment activities will be designed and executed in a manner that serves the best interests of the members and beneficiaries of the System.
- B. The investment program will strive to maintain the Board's investment risk tolerance as communicated through this policy.

- C. The investment activities will be 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 benefit funding requirements of the plan over time while staying within the Board's tolerance for risk expressed in this policy. Of primary consideration is the maintenance of funding which is adequate to provide for the payment of the plan's actuarially determined liabilities over time.
- D. The investment activities will achieve, after the deduction of management expenses, an annualized investment return that exceeds the return of the Policy Benchmark (defined in Section III.A.1 of this policy) over a minimum evaluation period of five years while staying within the Board's tolerance for active risk expressed in this policy.

### III. INVESTMENT POLICY STATEMENT

IPERS' investment policies are structured to maximize the probability that the investment goals will be fulfilled. All investment policy decisions shall include liquidity and risk considerations that are prudent and reasonable under the circumstances that exist over time. IPERS' investment policies will evolve as the internal conditions of the Fund and the capital markets environments change.

Achievement of IPERS' investment goals ultimately depends upon earning a sufficient return on the System's investments while taking a prudent amount of risk to attain the return. Investment return is comprised of two components known as "beta" and "alpha." Beta return is the return generated from exposure to a specific market or asset class. Alpha return is the excess return resulting from subtracting the beta return from the total investment return, and is conditional upon skillful active investment decision making. IPERS believes that risk-adjusted investment returns can be improved by separating beta and alpha decisions in actively managed (that is, non-passive or non-index) portfolios.

Beta decisions should focus on maximizing expected market returns at prudent levels of risk. The Board will adopt a Policy Benchmark representing what it believes is the most efficient portfolio of market exposures (the beta portfolio) that will meet the Fund's mission and goals while staying within the Board's tolerance for risk. Staff, with the assistance of the System's consultants, will implement the Board's beta decisions in the most cost-efficient manner possible and will be responsible for maintaining the beta exposure levels within the acceptable ranges established by the Board.

Alpha decisions are expected to provide additional return without significantly increasing the overall risk of the portfolio. Alpha returns can come from selection decisions of external active managers or tactical asset allocation and manager selection decisions of investment staff. The Board will adopt an active risk budget that establishes its tolerance for active risk. Staff will be responsible for allocating and rebalancing active risk with the objective of maintaining the active risk budget established by the Board.

Beta and alpha decisions shall be made and evaluated according to the Risk Management Policy adopted by the Board. (See Appendix E.) The Risk Management Policy communicates the Board's tolerance for investment risk by establishing investment risk budgets for the Fund's surplus risk and active risk. (Surplus risk takes into account the timing and potential volatility of the Fund's liabilities.)

#### A. The Beta Portfolio

The Beta Portfolio is segregated into public and private market investments. Public markets have a high degree of standardization, liquidity, and pricing transparency that allow for efficient trading of securities in most market environments. Private market investments are privately negotiated transactions (usually in a limited liability structure) that are illiquid and usually require a specific capital commitment for a number of years. It is not possible to manage the allocation of private market investments to a target allocation in the short term because IPERS staff do not control the timing of capital contributions and withdrawals, and because private market investments are not easily or quickly bought or sold. The Board recognizes these unique aspects of private market investing, and sets a target allocation for private market asset classes only as a long-term goal. The Board will annually review private market allocations versus the long-term goals and will adjust future annual commitment amounts as needed in the Board's discretion.

## 1. Policy Benchmark

The System adopts a Policy Benchmark that represents a mix of beta exposures across public and private markets that is expected over the long term to maximize the risk-adjusted beta return to the System consistent with the Board's tolerance for risk. The Policy Benchmark is predicated on a number of factors, including:

- a. The liabilities.
- b. The relationship between the current and projected assets of the plan and the plan's projected liabilities.
- c. Expectations regarding long-term capital market returns and risk, including the impact of correlations.
- d. Historical distribution of returns, average volatility of returns, and correlations between asset classes as well as liabilities.
- e. The perception of future economic conditions, including inflation and interest rate assumptions, and their impact on the System's assets and liabilities.

The table below represents the Board's adopted Policy Benchmark. The Policy Benchmark Weights establish the Board's target exposure to each asset class, measured on a market value basis, while the Asset Class Ranges establish the ranges within which actual weights may fluctuate. The Policy Benchmark Return is the sum of the products of the Policy Benchmark Weights and the respective Policy Benchmark Index returns for the period, with the exception that IPERS' actual weights and actual returns for each private market asset class will be used in the calculation. If staff utilizes futures for rebalancing or tactical allocation decisions, the gross (notional) amount of futures contracts shall be used in calculating compliance with Policy Benchmark Weights and Asset Class Ranges.

<b>PUBLIC MARKETS</b>			
<b>Asset Class</b>	<b>Asset Class Ranges</b>	<b>Policy Benchmark Weights</b>	<b>Policy Benchmark Index</b>
<b>Equities</b>		<b>40%</b>	
Domestic Equities	21%-27%	24%	Wilshire 5000
International Equities	13%-19%	16%	MSCI ACWI ex-U.S. (Gross)
<b>Fixed Income</b>		<b>30.5%</b>	
Core Plus Fixed Income	24%-30%	27%	Barclays Capital U.S. Universal
Public Credit	1.5%-5%	3.5%	Custom Index <sup>1</sup>
Public Real Assets	5%-9%	7%	Custom Index <sup>2</sup>
Cash	-2%-4%	1%	Merrill Lynch 91-Day T-Bill

<b>PRIVATE MARKETS</b>			
<b>Asset Class</b>	<b>Asset Class Targets</b>	<b>Policy Benchmark Weights</b>	<b>Policy Benchmark Index</b>
Private Equity	11%	Actual <sup>3</sup>	Portfolio <sup>4</sup>
Private Credit	3%	Actual <sup>3</sup>	Portfolio <sup>4</sup>
Private Real Assets	7.5%	Actual <sup>3</sup>	Portfolio <sup>4</sup>

<sup>1</sup>This benchmark index is defined as 67 percent Citigroup HY Cash Pay Capped Index and 33 percent JP Morgan EMBI Global Index.

<sup>2</sup>This benchmark index is defined as 67 percent [50 percent Barclays Capital U.S. TIPS Index and 50 percent Barclays Capital 1-10 Year U.S. TIPS Index] + 22 percent [Wilshire REIT Index] + 11 percent [S&P MLP Index].

<sup>3</sup>The benchmark weight for each private market asset class is the actual percentage of each asset class relative to the total fund portfolio.

<sup>4</sup>The benchmark index for each private market asset class is the return of the portfolio itself.



## 2. Policy Benchmark Components

Apart from any alpha expectations described in Section III.B., IPERS seeks to earn market returns from each asset class in the Policy Benchmark. This market exposure may be achieved by purchasing securities that comprise the respective asset classes or by purchasing derivatives designed to provide the return of a particular market. Each public market asset class has a Policy Benchmark Index that is believed to best represent the broadest market opportunity set for the respective asset class. The return on each Policy Benchmark Index is the market return (beta return) for each asset class.

### Domestic Equities

IPERS invests in the domestic equity market to earn an equity risk premium to enhance the long-term returns of the Fund. This asset class includes the broad market of publicly traded U.S. equities with varying characteristics related to market capitalization and investment style. The Policy Benchmark Index for domestic equities is the Wilshire 5000 Index.

### International Equities

IPERS invests in international equities to earn an equity risk premium and to diversify the equity exposure within the Fund. The international equities asset class includes both developed and emerging equity markets. The Policy Benchmark Index for international equities is the Morgan Stanley Capital International (MSCI) All-Country World Index ex-U.S. (ACWI ex-U.S.) calculated gross of tax credits from dividend reinvestment.

### Core-Plus Fixed Income

IPERS invests in fixed-income assets to provide stable income for the payment of benefit obligations and to diversify the market risk of the investment portfolio. The core-plus fixed-income market represents a global opportunity set of fixed-income instruments available to U.S. institutional investors. The Policy Benchmark Index for core-plus fixed income is the Barclays Capital U.S. Universal Index.

### Public Credit

IPERS invests in publicly traded credit securities such as high-yield corporate bonds and emerging markets corporate and sovereign debt to enhance the long-term returns of the investment portfolio, to provide current income, and to provide diversification benefits. The Policy Benchmark Index for public credit is a weighted custom index of 67 percent the Citigroup High-Yield Cash-Pay Capped Index and 33 percent the JP Morgan EMBI Global Index.

### Public Real Assets

IPERS invests in public real assets to provide inflation protection and risk diversification for the investment portfolio. Public real assets include U.S. Treasury Inflation Protected Securities (U.S. TIPS), publicly traded master limited partnerships (MLPs), and Real Estate Investment Trusts (REITs). The Policy Benchmark Index for public real assets is 67 percent U.S. TIPS (represented by a weighted custom index of 50 percent the Barclays Capital U.S. Treasury Inflation Protected Securities Index and 50 percent the Barclays Capital 1-10 Year U.S. Treasury Inflation Protected Securities Index), 22 percent Wilshire U.S. REIT Index, and 11 percent S&P MLP Index.

### Cash

Cash, for the purpose of applying the Policy Benchmark Weights and Asset Class Ranges, is limited to funds available prior to distribution to investment managers and the amount reserved to pay near-term benefits and administrative costs. The Policy Benchmark Index for Cash is the Merrill Lynch 91-Day Treasury Bill Index.



### Private Equity

IPERS invests in private equity to enhance the investment portfolio return through long-term capital appreciation. Private equity investments are highly illiquid, generally have lock-up periods of ten years or more, and are subject to long valuation lags. IPERS seeks to be compensated for such illiquidity by earning returns substantially greater than those available from publicly traded equity markets. Long-term performance goals are established in Appendix A in the Private Markets Investment Policy.

### Private Credit

Private credit investments include partnerships or funds that invest primarily in private debt or debt securities, as well as funds or partnerships that make direct loans to businesses or consumers. Private credit provides the opportunity to earn higher risk-adjusted returns than offered by core fixed income. Long-term performance goals are established in Appendix A in the Private Markets Investment Policy.

### Private Real Assets

Private real assets investments include direct equity investments in commercial real estate properties, or investment in partnerships or funds that invest in real estate and other real assets including, but not limited to, farmland, timberland, or infrastructure. The purpose of investing in private real assets is to provide income, diversification, and inflation protection. Long-term performance goals are established in Appendix A in the Private Markets Investment Policy.

## 3. Policy Benchmark Rebalancing

Because of the fluctuation of market values, and the effect of cash flows in and out of the System, the actual weights of each asset class can differ from the target weights established in the Policy Benchmark. In recognition of this, the Board has also adopted Asset Class Ranges for each public market asset class, and positioning within a specified Asset Class Range is acceptable and constitutes compliance with the Policy Benchmark. It is the responsibility of IPERS staff to manage the actual allocation weights within the public market Asset Class Ranges and keep them close to target, unless staff decides to tactically over- or under-weight a particular public market asset class.

Staff cannot quickly rebalance private markets to target weights due to the illiquid nature of private market assets, so any excess or deficiency between actual and target allocation for private market assets as a whole will be proportionately reallocated across all public market asset classes. For example, if the target allocation for domestic equity is 24 percent of the total fund, and the target allocations for all public market assets sum to 78.5 percent, then domestic equity would receive 30.6 percent (24 percent divided by 78.5 percent) when any excess or shortage in private markets is rebalanced across public market assets.

The CIO must formally authorize any tactical allocation decisions by staff, and each decision shall be documented and tracked for performance evaluation purposes. Tactical allocation decisions by staff shall not result in allocations that exceed the Asset Class Ranges set by the Board. It is acknowledged that market conditions or circumstances beyond IPERS' control may lead to asset class weightings being temporarily out of their target ranges, especially as those ranges relate to illiquid asset classes.

## B. The Alpha Portfolio

Alpha is the difference resulting from subtracting a beta return from a portfolio's actual return. IPERS believes that positive alpha can be consistently earned by selecting skillful managers and applying that skill to a broad set of investment strategies. By employing a combination of strategies that have low return correlation with one another, exhibit low correlation with beta returns and higher correlation to liability returns, IPERS believes that consistent positive active returns (net of all fees) can be achieved at low levels of additional risk to the total fund.

Various strategies may be employed in the creation of a diversified alpha portfolio. Factors that will determine the alpha portfolio composition will include market structure and dynamics, the estimated

degree of correlation between a strategy's performance and the Policy Benchmark, the breadth and depth of available active managers, and contribution to the active risk budget. Traditional long-only management strategies may be utilized in order to capture alpha, while portable alpha strategies, which allow alpha earned in other asset classes to be transported to a particular asset class or the total fund as an overlay through the use of derivatives, may also be utilized. In reviewing the effectiveness of alpha portfolio decisions, it is understood that a sufficient time frame is necessary to measure results through market cycles. A five-year period will generally be used to judge the results of alpha portfolio decisions.

The Board acknowledges that portable alpha strategies introduce a component of leverage into the portfolio, since market exposure is obtained through the use of derivatives while cash not needed to maintain the derivatives position is invested in alpha-producing assets. However, it is believed that a properly constructed alpha portfolio with a low correlation to the underlying beta portfolio is, from an economic perspective, equivalent to utilizing traditional long-only strategies in terms of risk and return.

Properly executed portable alpha strategies, which seek to apply manager skill across multiple alpha sources with low correlation to one another, can also have unique implementation risks that must be carefully monitored and managed. Some strategies can introduce high levels of financial leverage, valuation risks due to a lack of transparency, custody risks due to assets being held by prime brokers, and operational risks due to the use of complex, highly quantitative strategies. Staff will seek to mitigate these risks by employing a careful and thorough due diligence process in the evaluation and selection of reputable, experienced portable alpha managers, utilizing only separate accounts maintained on an independent custody and administrative platform, and utilizing the services of experts as needed to perform due diligence on prospective portable alpha investment managers. However, it is acknowledged that it may not be possible to eliminate some implementation risks associated with some portable alpha strategies.

The alpha portfolio will be structured to meet an Active Risk Budget established and defined in the Risk Management Policy that reflects the Board's tolerance for active risk. The Board and staff will annually evaluate the alpha portfolio against the Active Risk Target and determine if any actions should be taken to address any deviations.

It shall be the staff's responsibility to manage the alpha portfolio's active risk. Staff will monitor active risk on an ex-ante and ex-post basis, and shall have the discretion to take action to lower or increase the ex-ante active risk if necessary to stay within the Active Risk Budget established in the Risk Management Policy. Because of the volatility of short-term alpha returns, positioning within the specified Active Risk Range is acceptable and constitutes compliance with the policy. It is anticipated that the Board will periodically revise the active risk budget, and it is acknowledged that it may be prudent to allow an extended period of time to fully implement revisions to the Active Risk Budget.

## C. Investment Management

IPERS will select and utilize external investment management firms or funds to manage each of its portfolio accounts. Staff has authority to buy and sell exchange-traded futures contracts and exchange traded funds (ETFs) for the purpose of implementing risk management or tactical asset allocation strategies. The System will also utilize the services of investment management consultants for the purpose of performance review, asset allocation studies, risk budgeting, manager selection screening, and topical studies.

### 1. Manager/Consultant Utilization and Selection

The selection of the managers and consultants is accomplished in accordance with the applicable provisions of Iowa Code §§8.47 and 8.52, and the administrative rules adopted thereunder, except as otherwise provided in duly issued waivers by the ruling authority. The System will procure manager and consultant services with adequate attention to the principles of competition and reasonableness of costs, and will wherever feasible compensate the external managers through the use of performance-based fees.

Each investment manager and consultant shall function under a formal contract that delineates their responsibilities and the appropriate risk management and performance expectations.

## 2. Manager Discretion

The investment managers shall have full discretion to direct and manage the investment and reinvestment of assets allocated to their accounts in accordance with this document, applicable federal and state statutes and regulations, and the executed contracts. Further, the investment managers shall have full discretion to establish and execute trades through accounts with one or more securities broker/dealers as the managers may select. The investment managers will attempt to obtain the “best available price and most favorable execution” with respect to all of the portfolio transactions. In accordance with this principle, broker/dealers with an office in Iowa will be given an opportunity to compete for various transactions.

The Board and staff will consider the comments and recommendations of the managers and consultants in conjunction with other available information in making informed, prudent decisions.

## 3. Manager Evaluation

The investment managers under contract with the System will meet periodically with the Investment Board and/or staff for the purpose of reviewing the investment activities of their assigned portfolio, its performance, the investment strategy that governs its management, and the marketplace in which it exists. Such meetings may be conducted at the offices of the investment firms. A detailed discussion of IPERS’ manager evaluation policies and procedures is provided in the IPERS Manager Monitoring and Retention Policy. (See Appendix B for IPERS’ Investment Manager Monitoring and Retention Policy.)

## 4. Manager Diversification

The investment manager structure shall be diversified to reduce the risk of having too many of IPERS’ actively managed investment assets with one firm or having IPERS’ assets comprise too much of a firm’s actively managed investment strategy. The following diversification limits shall apply:

- a. The investment manager’s combined responsibility for actively managed investment strategies on behalf of IPERS shall not exceed 15 percent of the Fund’s total assets;
- b. IPERS’ investment in an investment manager’s actively managed strategy shall not exceed 20 percent of the manager’s total assets under management in that strategy. However, the chief investment officer shall have discretion to determine what types of similar products offered by a manager can be included in the definition of “actively managed strategy” for purposes of this calculation.

For purposes of this section, enhanced indexing, equity real estate, and private equity are considered to be actively managed investment strategies.

The Board acknowledges that there may be times when manager diversification limits could be exceeded due to manager terminations, abrupt changes in market conditions, or decisions made by other clients of a manager. In such times, staff shall inform the Board of the situation and shall attempt to rebalance to the diversification limits as soon as prudently possible, with periodic progress reports to the Board.

## D. Cash Management

Staff will ensure that adequate cash is available for the payment of benefit obligations and the funding of investments, and any cash held pending such uses shall be temporarily invested in the custodian’s Short Term Investment Fund (STIF) or other suitable short-term investment vehicle authorized by the Board. Cash held within the accounts of investment management firms will be managed in accordance with the guidelines established in the contractual agreement with each firm. In the case of cash denominated in a currency other than the U.S. dollar (USD), it shall be the responsibility of the investment management firm to repatriate or obtain foreign currency for any non-USD cash flows in its account. Investment managers are expected to obtain best execution on all foreign exchange transactions. IPERS staff shall have responsibility for repatriating or funding any non-USD cash flows from the Private Equity/Debt program, and will use an agency broker to attempt to obtain best execution on those foreign exchange transactions.

## E. Currency Risk Management

Investment in non-USD denominated assets introduces the risk of loss due to currency fluctuations. It shall be the responsibility of each investment manager to manage any currency risk within its portfolio according to the terms of the contract between the manager and the System. The objective of currency management is not the elimination of all currency risk, but rather the prudent management of risks associated with investing in currencies or in assets that are not denominated in U.S. dollars.

## F. Custody

The Treasurer of the State of Iowa is the custodian of the Fund. The Treasurer will hold the System's assets in a custody/recordkeeping account in a master custody bank located in a national money center and in the international subcustodian banks under contract to the custodian bank. The Treasurer shall consult with the Board prior to selecting the master custody bank. A formal written agreement shall be established between the Treasurer of State and any third-party custodian. The custodian bank agreement shall be reviewed periodically by the staff and Investment Board.

## G. Securities Lending

The primary objective of the securities lending program shall be to safely generate income from lending the System's securities to qualified borrowers. The program will only utilize lending agents that agree to indemnification provisions in the event of a counterparty insolvency.

Cash collateral received against loans of securities shall be prudently invested in a low-risk investment strategy that invests only in: (a) commingled funds or money market funds managed in accordance with the regulations and criteria specified in Rule 2(a)(7) promulgated under the Investment Company Act of 1940, or (b) separate accounts that have investment guidelines identical to those required of a 2(a)(7) fund, or (c) overnight repurchase agreements collateralized with obligations issued by the United States Treasury or obligations issued by agencies or government-sponsored entities of the United States government. The key investment objectives for investing the cash collateral shall be to: (a) safeguard principal; (b) maintain adequate liquidity; and (c) consistent with the foregoing objectives, optimize the spread between the collateral earnings and the rebate paid to the borrower of securities.

The Investment Board may select its own securities lending agent or authorize the Treasurer of the State of Iowa to manage the securities lending program in accordance with the risk guidelines established herein. Staff shall execute a formal written agreement between any lending agent (or the Treasurer, as the case may be) and IPERS stipulating the risk parameters and performance benchmarks of the program, which shall be in accordance with these guidelines. The securities lending program will be annually reviewed by the Board, and the ongoing operation of such program shall be subject to periodic reauthorization by the Board.

## H. Proxy Voting

IPERS acknowledges that proxies are a significant and valuable tool in corporate governance and therefore have economic value. The System commits to managing its proxy voting rights with the same care, skill, diligence, and prudence as is exercised in managing its other valuable assets. As responsible fiduciaries, the System's staff, its designated voting agents, its investment managers, and the trustees or agents of the System's collective, common, or pooled fund investments will exercise their proxy voting rights in the sole interest of the System's members and in accordance with the applicable statutes.

The voting rights of individual stocks held in any separate account, or any collective, common, or pooled fund will be exercised by the manager, trustees, or agents of said account or fund in accordance with their own proxy voting policies, upon the review and determination by the System that such proxy policies fulfill the above-stated mandates.

## I. Commission Recapture and Soft-Dollars

The System encourages, but does not require, certain of its active equity managers to direct brokerage transactions to commission recapture brokers to the extent these brokers can provide best execution. Best

execution is defined as achieving the most favorable price and execution service available, bearing in mind the System's best interests, and considering all relevant factors. The System will monitor on an ongoing basis the services provided by the commission recapture brokers so as to assure that the investment managers are securing the best execution of the Fund's brokerage transactions.

All rebates or credits from commissions paid by the System's investment managers to the commission recapture brokers will be realized in cash and remitted directly to the Fund. It is the System's policy to refrain from using soft-dollar credits to acquire products or services to be used in the internal administration of the Fund. If the generation of soft-dollar credits is unavoidable in certain instances, the System will make a best effort to have the credits converted to cash and remitted directly to the Fund, and, failing such conversion, will regularly monitor the managers' expenditure of soft-dollar credits to ensure an appropriate relationship to the management of their IPERS accounts.

## J. Derivatives

The System recognizes that certain derivative instruments can be useful tools in managing portfolio risk and in efficiently replicating cash market positions. However, the System also recognizes that derivatives can introduce unique risks into the portfolio that must be controlled. The following guidelines shall apply to the use of derivatives by the System's managers, and are designed to provide general risk controls that apply to all managers. The System's staff and investment consultant shall establish specific guidelines in each manager's contract to control the various risks associated with the use of derivatives for a particular manager and mandate. With the exception of portable alpha strategies, a manager is only authorized to utilize the derivative instruments permitted in this policy, and then only to the extent such usage is authorized in the manager's contract with the System.

The System defines a derivative instrument (derivative) to be a financial instrument with a return or value that is obtained from the return or value of another underlying financial instrument. Mortgage-backed securities and asset-backed securities are not considered derivatives for the purposes of this policy.

The following is a list of categories of derivatives that are permitted under this policy.

1. Futures — Bond futures, interest rate futures, stock index futures, and currency futures that are listed on major exchanges in the United States, Japan, France, the United Kingdom, and Germany.
2. Options — Options on stocks and bonds, index options, currency options, and options on futures and swaps.
3. Currency forward contracts.
4. Swaps — Interest rate, currency, index, credit default, or specific security or a group of securities swaps.
5. Warrants — A manager is not permitted to purchase warrants separately. However, a manager may purchase securities that have warrants attached to them if such securities are permitted under their contract. A manager may also hold warrants in its portfolio if such warrants were received as part of a restructuring or settlement concerning an authorized investment.

The following restrictions shall apply to any manager using derivatives in the portfolio they manage for IPERS (in addition to any other restrictions or limitations included in the manager's contract):

1. Under no circumstances shall a manager use derivatives for the purpose of leveraging its portfolio.
2. Prior to utilizing any derivative, a manager shall take all steps necessary to fully understand the instrument, its potential risks and rewards, and the impact adverse market conditions could have on the instrument and the overall portfolio, and to ensure that it has all of the operational and risk management capabilities required to prudently monitor and manage the derivative.
3. A manager utilizing over the counter, non-exchange-traded swaps or options (OTC Derivatives) shall use prudent caution in selecting counterparties, and shall have written policies in place specifying



how the manager will manage the credit risk of the counterparties. Such policies shall include, at a minimum, how the management firm will evaluate and monitor the creditworthiness of counterparties, an explanation of how the firm will determine the maximum firm-wide net market exposure amount to each counterparty, how the firm will monitor and enforce compliance with its credit policies, and other key terms that are required to be included in non-exchange-traded derivative contracts. Staff and IPERS' investment consultant shall periodically review these policies.

4. A manager shall not invest in OTC Derivatives with a counterparty that has a rating below "A3" as defined by Moody's or "A-" as defined by Standard & Poor's (S&P). Managers shall not use unrated counterparties, nor shall they use counterparties that have a "split rating" where one of the ratings is below A3 by Moody's or A- by S&P. However, managers may utilize an unrated counterparty if the manager has documentation evidencing that a parent or affiliate of the counterparty is: (a) legally bound to cover the obligations of the counterparty, and (b) has a rating of at least A3 by Moody's or A- by S&P. The counterparty shall be regulated in either the United States or the United Kingdom.
5. A manager utilizing OTC Derivatives in IPERS' account shall control the counterparty credit risk of such transactions by: (a) utilizing payment netting arrangements to minimize the amount at risk, (b) performing daily marking-to-market of derivatives contracts, and (c) requiring collateralization of net amounts owed under the contracts after meeting minimum threshold for transfers.
6. A manager shall limit the System's exposure to counterparty defaults from OTC Derivatives by limiting the dollar amount at risk with any counterparty (net of the value of any collateral held) to no more than 5 percent of the market value of the IPERS account for a counterparty with a rating above A by Moody's or A+ by S&P, or 3 percent of the market value of the IPERS account for a counterparty with a rating of or below A by Moody's or A+ by S&P. The limitations of this paragraph apply only to the net exposure attributable to OTC Derivatives.
7. OTC Derivative transactions shall be executed under an International Swap Dealers Association (ISDA) agreement, or a clearing agreement in the case of a cleared swap. Collateral provided to IPERS by counterparties under a derivatives contract shall be delivered to and held by the System's custodian bank, or delivered and held by a third party agent under a swap clearing agreement or a Credit Support Annex (CSA) to the ISDA agreement executed by IPERS or the investment manager on behalf of IPERS.
8. Managers shall reconcile cash and margin requirements concerning derivatives on a daily basis with the System's custodian bank or any applicable third party under a CSA or swap clearing agreement.
9. These restrictions do not apply to portable alpha strategies utilized by the System. In lieu of such restrictions, staff shall attempt to ensure that contracts with managers executing portable alpha strategies adequately address as many of the restrictions as possible while allowing these managers the latitude necessary to manage a portable alpha portfolio where the alpha and beta sources are in different asset classes.
10. Contracts portable alpha portfolios will articulate the specific derivative usage allowed within the manager's strategy. Additionally, the contract will incorporate the derivatives exposure parameters for that strategy. The contract will also articulate the data to be provided to IPERS staff and consultants in order to enable sufficient monitoring and evaluation of derivatives exposures.

#### K. Social Investing

As fiduciaries, the IPERS Investment Board, staff, and investment managers must perform their duties for the exclusive benefit and in the best economic interest of the System's members and beneficiaries. The System and the Board will not support investment policies or strategies which seek to promote specific social issues or agendas through investment or divestment of IPERS' assets. To act otherwise could be construed as a violation of fiduciary duty and could endanger the System's tax-exempt status.

#### L. Securities Monitoring and Litigation

IPERS has a fiduciary duty to preserve trust assets to meet the retirement promises made to its members. Included in this duty is the obligation to recover investments in public securities that incur losses as a result of corporate mismanagement and/or fraud. To preserve trust assets, the Board has adopted a securities monitoring and litigation policy to guide the System's involvement in and monitoring of securities litigation. (See Appendix C for IPERS' Securities Monitoring and Litigation Policy.)

#### M. Confidential Investment Information

Iowa Code §22.7 and §97B.17(2)e provide that certain records and information in IPERS' possession are considered confidential and thus are exceptions to Iowa's Open Records (chapter 22) laws. Included in the exceptions is information which, if released:

1. Could result in a loss to the System or to the provider of the information.
2. Would give advantage to competitors and serve no public purpose.
3. Would violate trade secrets which are recognized and protected by law.

While the staff shall provide the Board with all essential information about the investment program, communication of information that is confidential under the above Iowa Code provisions will be identified as such in the communication.

Iowa Code §97B.8A(5), an explicit exception to Iowa's Open Meetings (chapter 21) laws, reinforces the need and obligation to maintain the confidentiality of such information by expressly authorizing the Board to hold closed sessions for discussion of this information.

#### N. Ethics

Fiduciaries of the System must exercise the highest standards of care in acting for the exclusive benefit of the plan participants. IPERS has adopted an ethics policy to govern the activities of Board members, staff, consultants, and managers as it relates to the System. (See Appendix D for IPERS' Ethics Policy.)

#### O. Sudan and Iran Investment Restrictions and Divestment

Iowa Code chapters 12F and 12H require IPERS to develop lists of scrutinized companies with operations in the Sudan and/or Iran, and to restrict its purchases of, and, under certain circumstances, to divest of holdings of publicly traded securities in any company determined to have active business operations in the Sudan and/or Iran. To comply with this legislative mandate, IPERS will utilize the research and findings of an organization recognized to be an authoritative source of information in this area. This list will be updated quarterly. Staff will engage the companies on the scrutinized companies list to determine if such companies are prohibited investments under Iowa law. Firms that are deemed to be prohibited under Iowa law will be placed on a prohibited companies list.

#### P. Continuing Education

The Investment Board consists of dedicated Iowans that have agreed to serve the public in the very important roles of fiduciary and trustee for the Fund. The Board members have been entrusted with making decisions concerning complex actuarial and investment issues. However, it is recognized that Board members have varying degrees of knowledge and experience in dealing with actuarial and investment issues. Therefore, to facilitate the ongoing education of its members so that they may obtain the knowledge required to make informed decisions, the Board establishes the following continuing education guidelines applicable to all Board members:

1. In the first 12 months following appointment, a Board member is encouraged to attend an educational session concerning fiduciary duties of trustees, and another educational session concerning asset allocation, actuarial principles, or investment policy.



2. For the period from 12 months following appointment until the end of the Board member's service on the Board, a Board member is encouraged to attend at least one educational session per year concerning any investment-related topic relevant to the Fund.
3. An educational session is defined as a conference, seminar, workshop, course, or other substantive educational activity on any investment or pension fund administration subject. If possible, staff will attempt to make some educational sessions annually available in Iowa in order to meet the needs of Board members' schedules.
4. Board members are responsible for self-evaluating their educational needs and obtaining knowledge in specific-needs areas in a fiscally responsible manner. Board members are encouraged to engage the chief executive officer or IPERS investment staff to assist them in determining what educational sessions are available to meet their educational needs.
5. Board members must receive approval of the Board if they wish to attend more than two educational sessions in any 12-month period. This requirement applies only to educational sessions that require out-of-state travel.

#### IV. RESPONSIBILITIES OF THE INVESTMENT BOARD AND STAFF

Successful management and oversight of IPERS' investment activities require the Investment Board and staff to have specific responsibilities, as outlined below:

##### A. Statutory Responsibilities

1. The Board shall annually adopt an Investment Policy and Goal Statement which is consistent with Iowa Code §§97B.7A and 97B.8A.
2. The Board shall at least annually conduct a review of the investment policies and procedures utilized by the System.
3. The Board shall at least annually conduct a public meeting to review the policies and the investment performance of the Fund.
4. With the approval of the Board, the Treasurer of State may conduct a program of lending securities in the IPERS portfolio.
5. The Board shall review and approve, prior to the execution of a contract, the hiring of each investment manager and investment consultant outside of state government.
6. The Board shall select the actuary to be employed by the System, and shall adopt the mortality tables, and actuarial methods and assumptions to be used by the actuary for the annual valuation of assets.
7. The chief executive officer will consult with the Board prior to employing a chief investment officer.
8. The Board shall participate in the annual performance evaluation of the chief investment officer.
9. The chief executive officer shall consult with the Board on the budget program for the System.
10. The Treasurer of State shall consult with the Board prior to selecting any bank or other third party for purposes of investment asset safekeeping, other custody, or settlement services.
11. The Board shall consist of seven voting members and four nonvoting members as required by Iowa Code §97B.8A. Four voting members of the Board shall constitute a quorum.
12. Staff shall provide advance notice to the public of the time, date, tentative agenda, and place of each Board meeting in compliance with Iowa Code chapter 21.
13. The Board shall set the salary of the chief executive officer.

## B. Operational Responsibilities

1. Upon recommendation of the staff, consultants, or of individual Board members, the Board shall periodically and as necessary adopt changes to the Investment Policy and Goal Statement, including revisions to the Policy Benchmark targets, beta portfolio components, and active risk budgets.
2. The Board shall review the specific types and proportions of assets being utilized in implementing the overall policy, as established by the staff (for example, the proportion of mortgage bonds within the Core Plus Fixed Income portfolio).
3. The Board shall periodically review the staff's rebalancing activities and the System's compliance with Policy Benchmark Weights and Active Risk Targets within their designated ranges.
4. The staff shall have the authority to terminate, amend, or renew contracts with existing managers. Staff shall inform the Board in advance of its decision to terminate a manager.
5. The Board shall approve the termination of consultants and the solicitation of proposals for consultants. The staff shall have the authority to amend or renew contracts with existing consultants.
6. If the chief executive officer, chief investment officer, chief risk officer, any investment officer, or any IPERS attorney is in possession of information which would lead a reasonable person familiar with such matters to conclude that an investment, a commitment to an investment, or a decision to engage or terminate a contracted service provider, contradicts the fiduciary duties of the party or parties having the final authority to take such actions, it is the Board's expectation that the issue will be placed on a Board meeting agenda for review.
7. The Board shall hold public meetings to review the investment performance of the Fund, to hear presentations from a portion of the System's investment managers, and to effect its statutory and operational responsibilities.
8. To maintain and strengthen the investment management of the System:
  - a. The Board and staff shall participate in conferences/seminars related to the investment activities of public and private institutional investors.
  - b. The staff, and as appropriate, the Board, shall meet periodically with the investment managers of the Fund at the firms' offices to review and clarify investment or administrative issues related to the management of the portfolio.
  - c. The staff, and as appropriate, the Board, shall participate in investor meetings conducted by the various managers of the Fund.

These activities shall be conducted in compliance with Iowa Code chapter 68B, the "Iowa Public Officials Act."

## C. Administrative Responsibilities

1. Board meeting dates for the fiscal year shall be set by members of the Board at the first meeting of the fiscal year.
2. At the first meeting in each fiscal year, the voting Board members shall elect a chair and vice chair.
3. Parties wishing to present items for the Board's next meeting agenda shall file a written request with the chair at least five business days prior to the meeting. The Board may take up matters not included on its agenda.
4. To the extent there is no law, statute, or administrative rule governing a procedure, Board meetings shall be governed by the procedural rules established in the latest version of Robert's Rules of Order, Newly Revised.

# 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



# Cavanaugh Macdonald

CONSULTING, LLC

*The experience and dedication you deserve*

November 10, 2017

This report presents the results of the June 30, 2017 annual actuarial valuation of the Iowa Public Employees' Retirement System (IPERS). The primary purposes of performing the valuation are as follows:

- to determine the Actuarial Contribution Rates (ACR) and the Required Contribution Rates (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, 2017,
- to determine the experience of the System since the last valuation, and
- to analyze and report on trends in System contributions, assets, and liabilities over the past several years.

While there have been no changes to the plan provisions or actuarial methods since last year's valuation, an experience study of the System's economic assumptions was performed in March 2017. As a result, the Investment Board adopted a new set of economic assumptions, based on the recommendations of the System's actuary:

- Price inflation assumption decreased from 3.00% to 2.60%.
- Investment return assumption decreased from 7.50% to 7.00%.
- Wage growth assumption decreased from 4.00% to 3.25%.
- Payroll increase assumption decreased from 4.00% to 3.25%.
- Interest credited on contribution balances decreased from 3.75% to 3.50%.

The price inflation assumption is a component of other economic assumptions such as the wage growth assumption and the investment return assumption. In addition, the change to the wage growth assumption also impacts the individual salary increase assumption used to project future benefit payments. The impact of these changes on the July 1, 2017 valuation results is summarized in the following tables (dollars in millions):

Regular Members	Old Assumptions	New Assumptions	Difference
Actuarial Liability (AL)	\$33,829	\$35,177	\$1,348
Actuarial Value of Assets (AVA)	<u>28,293</u>	<u>28,293</u>	<u>0</u>
Unfunded AL (UAL)	\$ 5,536	\$ 6,884	\$1,348
Funded Ratio	83.6%	80.4%	(3.2%)
Normal Cost Rate	10.18%	10.40%	0.22%
UAL Rate	<u>3.88%</u>	<u>5.33%</u>	<u>1.45%</u>
Actuarial Contribution Rate	14.06%	15.73%	1.67%
Required Contribution Rate	14.88%	15.73%	0.85%

Note: Numbers may not add due to rounding



Sheriffs & Deputies	Old Assumptions	New Assumptions	Difference
Actuarial Liability (AL)	\$664.0	\$691.2	\$27.2
Actuarial Value of Assets (AVA)	<u>642.5</u>	<u>642.5</u>	<u>0.0</u>
Unfunded AL (UAL)	\$ 21.5	\$ 48.7	\$27.2
Funded Ratio	96.8%	93.0%	(3.8%)
Normal Cost Rate	16.44%	16.85%	0.41%
UAL Rate	<u>0.84%</u>	<u>2.67%</u>	<u>1.83%</u>
Actuarial Contribution Rate	17.28%	19.52%	2.24%
Required Contribution Rate	18.26%	19.52%	1.26%

Note: Numbers may not add due to rounding

Protection Occupation	Old Assumptions	New Assumptions	Difference
Actuarial Liability (AL)	\$1,515	\$1,572	\$57
Actuarial Value of Assets (AVA)	<u>1,537</u>	<u>1,537</u>	<u>0.0</u>
Unfunded AL (UAL)	\$ (22)	\$ 35	\$57
Funded Ratio	101.5%	97.8%	(3.7%)
Normal Cost Rate	15.93%	16.31%	0.38%
UAL Rate	<u>0.00%</u>	<u>0.71%</u>	<u>0.71%</u>
Actuarial Contribution Rate	15.93%	17.02%	1.09%
Required Contribution Rate	16.40%	17.02%	0.62%

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, 2017. There were no changes in the plan provisions or actuarial methods since the prior valuation. However, an experience study of the System’s economic assumptions was performed in March 2017. As a result of the actuary’s recommendations, the Investment Board adopted a new set of economic assumptions. The plan provisions used in the valuation are summarized in the Financial Section and the actuarial assumptions are shown in the Actuarial Section.

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 UAL on June 30, 2017 for all three membership groups covered by IPERS is \$6.968 billion as compared to an expected UAL of \$7.037 billion. The favorable experience was the net result of an experience gain of \$102 million on the actuarial value of assets and an experience loss of \$33 million on System liabilities.

Historically, the contribution rate for Regular members was set by state statute. Effective with the 2011 valuation, IPERS has the authority to set the Required Contribution Rate for the Regular membership group based on the Actuarial Contribution Rate (ACR) developed in the annual actuarial valuation, subject to a change of no more than 1.0% per year. Based on the current Contribution Rate Funding Policy, the Required Contribution Rate increased since the prior valuation by 0.85% of pay for Regular members, 0.76% of pay for Sheriffs and Deputies, and 0.62% of pay for Protection Occupation. The Required Contribution Rate is equal to the ACR for all three groups, as shown in the following table:





Contribution Rate for FY 2019			
	Regular Membership	Sheriffs and Deputies	Protection Occupation
1. Normal Cost Rate	10.40%	16.85%	16.31%
2. Amortization of UAL	<u>5.33%</u>	<u>2.67%</u>	<u>0.71%</u>
3. Actuarial Contribution Rate	15.73%	19.52%	17.02%
4. Required Contribution Rate	15.73%	19.52%	17.02%
5. Shortfall/(Margin) (3) - (4)	0.00%	0.00%	0.00%
6. Employee Contribution Rate	6.29%	9.76%	6.81%
7. Employer Contribution Rate (4) - (6)	9.44%	9.76%	10.21%
8. Unfunded Actuarial Liability (\$M)	\$6,884	\$49	\$35
9. Funded Ratio	80.4%	93.0%	97.8%

### Actuarial Value of Assets

For financial statement purposes, the System's assets are reported at current fair values. For actuarial purposes, the assets are valued using a technique which dampens the volatility in the fair value. 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 market value. Based on this methodology, there was an actuarial gain on assets of \$102 million. Between June 30, 2016 and June 30, 2017, the actuarial value of assets increased by \$1.438 billion. This represented an approximate rate of return of 7.86%, higher than the actuarial assumed rate of return of 7.50%.

### 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, 2017 in the following table:

<i>(\$Millions)</i>	Regular Membership	Sheriffs & Deputies	Protection Occupation	Total*
Actuarial Liability	\$35,177	\$691	\$1,572	\$37,440
Actuarial Value of Assets	28,293	643	1,537	30,472
Unfunded Actuarial Liability*	6,884	49	35	6,968
Funded Ratio	80.4%	93.0%	97.8%	81.4%

\*May not add due to rounding.





Changes in the UAL occur for various reasons. The net increase in the UAL from June 30, 2016 to June 30, 2017 was \$1.382 billion, largely due to the impact of the change in the economic assumptions. The components of this net change are shown in the following table (in millions):

<b>Unfunded Actuarial Liability, June 30, 2016 (\$M)</b>	\$	5,586
• Expected increase from amortization method		52
• Expected decrease from contributions above actuarial rate		(58)
• Investment experience		(102)
• Liability experience*		33
• Changes in economic assumptions		1,433
• Other		24
<b>Unfunded Actuarial Liability <u>before</u> FED transfer, June 30, 2017</b>	\$	6,968
• FED Transfer for favorable experience		0
<b>Unfunded Actuarial Liability <u>after</u> FED transfer, June 30, 2017</b>	\$	6,968

\* Liability experience is 0.09% of the actuarial liability.

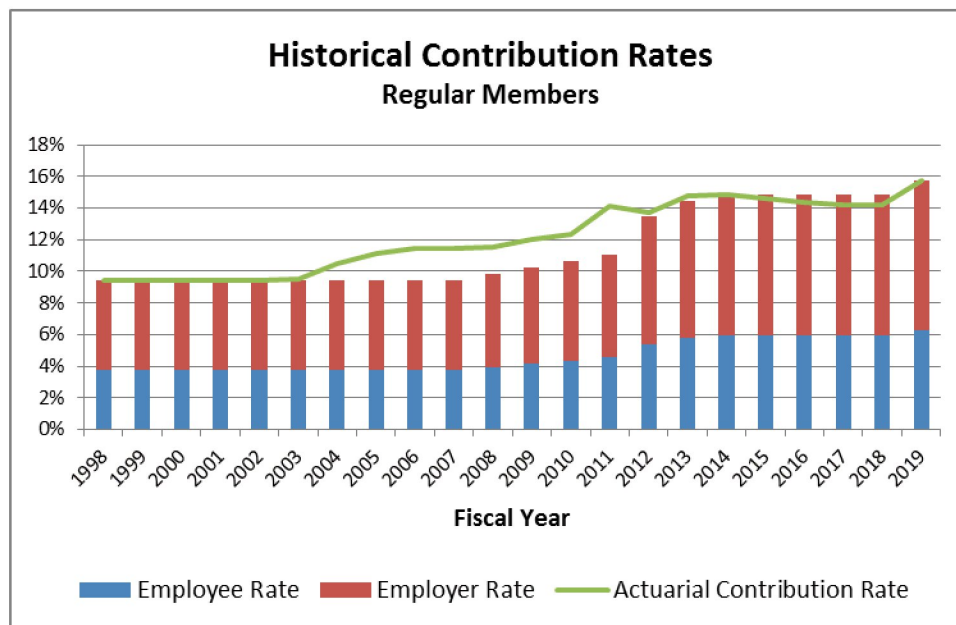
As can be observed above, various factors impacted the UAL. Actuarial gains (losses), which result from actual experience that is more (less) favorable than anticipated based on the actuarial assumptions, are reflected in the UAL and are measured as the difference between the expected unfunded actuarial liability and the actual unfunded actuarial liability, taking into account any changes due to actuarial assumptions and methods or benefit provision changes. Overall, the System experienced a net actuarial gain of \$69 million. The total actuarial gain may be explained by considering the separate experience of assets and liabilities. As noted earlier, there was a \$102 million actuarial gain as measured on the actuarial value of assets. There was a net actuarial loss of \$33 million from demographic experience that was less favorable than anticipated by the actuarial assumptions. While there are various components of demographic experience, both gains and losses, the more material impact were gains from salary and retirement experience and losses from mortality and termination of employment experience.

### **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 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 on hand.

In 2006 and 2010, legislation was passed that increased the statutory contribution rate for Regular members. Beginning with the 2011 valuation (which applied to FY2013), the Investment Board was given the authority to set the Required Contribution Rate for Regular members subject to certain statutory limitations. A historical summary of the actual contribution rate and the actuarial contribution rate is shown in the following graph:



There were several factors that impacted the contribution rates in the 2017 valuation. The contribution rates are summarized in the following table:

Contribution Rate for FY2019	Regular Membership	Sheriffs & Deputies	Protection Occupation
1. Actuarial Contribution Rate	15.73%	19.52%	17.02%
2. Required Contribution Rate	15.73%	19.52%	17.02%
3. Employee Contribution Rate	6.29%	9.76%	6.81%
4. Employer Contribution Rate (2) – (3)	9.44%	9.76%	10.21%
5. Shortfall/(Margin) (1) – (2)	0.00%	0.00%	0.00%

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, 2019 for the Regular members is 15.73%, which is equal to the Actuarial Contribution Rate. The remaining 5% of the active members, 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. Based on the current Contribution Rate Funding Policy, the Required Contribution Rate for the Sheriffs and Deputies group will increase by 0.76% of pay compared to the prior valuation and the Required Contribution Rate for the Protection Occupation group will increase by 0.62% of pay. We would note that, based on the results of this valuation, the Required Contribution Rate is equal to 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, 2017, and applies only for the fiscal year beginning July 1, 2018. 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

While there have been no changes to the plan provisions or actuarial methods since last year's valuation, an experience study of the System's economic assumptions was performed in March 2017. As a result of the actuary's recommendations, the Investment Board adopted a new set of economic assumptions. These changes include a decrease in the investment return assumption as well as lower projected salary increases, lower assumed increases in future payroll, and a lower interest crediting rate on employee account balances. As a result of the changes to the economic assumptions, the unfunded actuarial liability increased by \$1.433 billion, the funded ratio for all three groups declined and the Required Contribution Rate for all groups increased.

The investment return on the market value of assets for FY2017 was 11.70%, as reported by IPERS. However, due to the application of the asset smoothing method and the deferred investment losses from prior years, the investment return on the actuarial value of assets was 7.86%. This return is still above the assumed investment return for the year ended June 30, 2017 (7.50% used in the June 30, 2016 valuation; 7.0% applies prospectively from July 1, 2017). Therefore, there was an experience gain on the actuarial value of assets. The favorable asset experience was partially offset by unfavorable liability experience. However, the System's combined experience for FY2017 was a net experience gain of \$69 million, resulting in a lower 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 will increase by 0.85% of pay from last year to 15.73% of pay (applicable for the fiscal year ending June 30, 2019). The Required Contribution Rate for the Sheriffs and Deputies group in this valuation increased by 0.76% of pay from last year's rate to 19.52% of pay. The Required Contribution Rate for the Protection Occupation group increased by 0.62% of pay to 17.02% of pay. As a result, the Required Contribution Rate is equal to the Actuarial Contribution Rate for FY2019 for all three groups.

The Actuarial Contribution Rate is determined based on the snapshot of the System taken on the valuation date, June 30, 2017, and applies only for the fiscal year beginning July 1, 2018. 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 1.0% 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.

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 further certify that all costs, liabilities, rates of interest 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 of future experience); 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.

Actuarial computations presented in the 2017 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, 2017 actuarial funding valuation report.

We also prepared actuarial computations as of June 30, 2017 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, 2017 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 March 2017, the results of the experience analysis of the System's economic 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 June 30, 2017 actuarial valuation. The actuarial assumptions and methods in the 2017 valuation 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, 2017 and June 30, 2016 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 Pension Actuary



## PRINCIPAL VALUATION RESULTS

	June 30, 2017	June 30, 2016	% Chg
<b>SYSTEM MEMBERSHIP</b>			
1. Active Membership			
- Number of Members (excluding Retired/Reemployed)	169,909	168,372	0.9
- Projected Payroll for Upcoming Fiscal Year	\$8,058M	\$7,812M	3.1
- Average Salary	\$47,425	\$46,399	2.2
2. Inactive Membership			
- Number Not in Pay Status	67,955	66,847	1.7
- Number of Retirees/Beneficiaries	117,508	114,240	2.9
- Average Annual Benefit	\$16,602	\$16,149	2.8
<b>ASSETS AND LIABILITIES</b>			
1. Net Assets (excluding FED reserve)			
- Market Value	\$30,779M	\$28,326M	8.7
- Actuarial Value	30,472M	29,034M	5.0
2. Projected Liabilities			
- Retired Members	\$19,335M	\$17,657M	9.5
- Inactive Members	835M	748M	11.6
- Active Members	<u>24,515M</u>	<u>23,192M</u>	5.7
- Total Liability	\$44,685M	\$41,597M	7.4
3. Actuarial Liability	\$37,440M	\$34,620M	8.1
4. Unfunded Actuarial Liability	\$6,968M	\$5,586M	24.7
5. Funded Ratio			
a. Actuarial Value Assets/Actuarial Liability	81.39%	83.86%	(2.9)
b. Market Value Assets/Actuarial Liability	82.21%	81.82%	0.5
<b>SYSTEM CONTRIBUTIONS</b>			
Required Contribution Rate, Regular Members*	15.73%	14.88%	5.7
Employer Contribution Rate	9.44%	8.93%	5.7
Employee Contribution Rate	6.29%	5.95%	5.7
Total Actuarial Contribution Rate	15.73%	14.21%	10.7
Shortfall/(Margin)	0.00%	(0.67%)	(100.0)

Note: Totals may not add due to rounding

M = (\$)Millions

\* Contribution rates for Sheriffs and Deputies are 9.76% for employers, 9.76% for employees

Contribution rates for Protection Occupation are 10.21% for employers, 6.81% 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, 2017**

	<b>Regular Membership</b>	<b>Sheriffs &amp; Deputies</b>	<b>Protection Occupation</b>	<b>Total</b>
<b><u>ASSETS</u></b>				
Actuarial value of assets	\$28,292,788,895	\$642,509,070	\$1,537,125,949	\$30,472,423,914
Present value of future normal costs	6,527,041,429	164,631,493	552,591,031	7,244,263,953
Present value of future contributions to amortize unfunded actuarial liability	6,884,161,682	48,696,682	35,099,751	6,967,958,115
<b>Total Assets</b>	<b>\$41,703,992,006</b>	<b>\$855,837,245</b>	<b>\$2,124,816,731</b>	<b>\$44,684,645,982</b>
<b><u>LIABILITIES</u></b>				
Present Value of Future Benefits:				
Retired Members and Beneficiaries	\$18,304,044,337	\$325,186,602	\$705,541,965	\$19,334,772,904
Active Members	22,617,509,856	520,369,194	1,376,738,899	24,514,617,949
Inactive Members	782,437,813	10,281,449	42,535,867	835,255,129
<b>Total Liabilities</b>	<b>\$41,703,992,006</b>	<b>\$855,837,245</b>	<b>\$2,124,816,731</b>	<b>\$44,684,645,982</b>





## 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)
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%
2012	3,675,848,243	14,151,967,558	11,618,381,685	23,530,094,461	100%	100%	49%
2011	3,562,999,712	13,252,276,665	11,441,803,737	22,575,309,199	100%	100%	50%
2010	3,569,189,416	12,321,926,878	10,577,303,356	21,537,458,560	100%	100%	53%
2009	3,501,951,261	10,623,480,763	11,893,161,799	21,123,979,941	100%	100%	59%
2008	3,343,722,874	9,922,758,244	11,255,735,471	21,857,423,183	100%	100%	76%

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		
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
2012	5,979	116,825,979	2,788	24,589,757	97,260	1,463,111,176	6.73	15,043
2011	7,383	183,137,035	2,767	13,377,850	94,069	1,370,874,954	14.13	14,573
2010	6,387	104,167,926	2,705	12,096,634	89,453	1,201,115,769	8.30	13,427
2009	4,908	92,013,786	2,761	12,041,683	85,771	1,109,044,477	7.77	12,930
2008	5,098	92,991,307	2,687	10,789,250	83,624	1,029,072,374	8.68	12,306

### 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		
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
2012	464	5,918,466	247	1,858,259	4,688	46,751,054	9.51	9,972
2011	456	4,497,000	224	911,691	4,471	42,690,847	9.17	9,548
2010	397	4,387,178	239	1,231,637	4,239	39,105,538	8.78	9,225
2009	429	3,930,377	214	876,249	4,081	35,949,997	9.28	8,809
2008	335	3,673,542	205	934,239	3,866	32,895,869	9.08	8,509

\*The number of retirees and beneficiaries added to rolls in these tables does not equal the number of new retirees reported elsewhere in the CAFR. 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 89-90 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
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
2012	2,153	164,200	6,786,158,720	41,329	3.38
2011	2,177	164,467	6,574,872,719	39,977	0.78
2010	2,229	165,660	6,571,182,005	39,667	3.33
2009	2,241	167,717	6,438,643,124	38,390	5.09
2008	2,259	167,850	6,131,445,367	36,529	4.40

## 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
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
2012	23,530,094,461	29,446,197,486	79.91	5,916,103,025	6,786,158,720	87.18
2011	22,575,309,199	28,257,080,114	79.89	5,681,770,915	6,574,872,719	86.42
2010	21,537,458,560	26,468,419,650	81.37	4,930,961,090	6,571,182,005	75.04
2009	21,123,979,941	26,018,593,823	81.19	4,894,613,882	6,438,643,124	76.02
2008	21,857,423,183	24,522,216,589	89.13	2,664,793,406	6,131,445,367	43.46

\*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 43 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

To reflect anticipated future mortality improvements, generational mortality is used with projected mortality improvements based on Projection Scale AA.

#### **Pre-Retirement (effective June 30, 2010)**

##### **State**

Male	RP-2000 Employee Table, Generational, set back 3 years
Female	RP-2000 Employee Table, Generational, set back 8 years

##### **School**

Male	RP-2000 Employee Table, Generational, set back 3 years
Female	RP-2000 Employee Table, Generational, set back 8 years

##### **Other**

Male	RP-2000 Employee Table, Generational, no set back
Female	RP-2000 Employee Table, Generational, set back 8 years



**Sheriffs/Deputies and Protection Occupation**

Male	RP-2000 Employee Table, Generational
Female	RP-2000 Employee Table, Generational

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

**Post-Retirement (effective June 30, 2014)**

<b>State</b>	RP-2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	1 Year set back with 5% increase above age 75
<b>School</b>	RP-2000 Healthy Annuitant Table, Generational
Male	1 Year set back with rates decreased by 5% below age 75
Female	3 Year set back with 10% decrease before age 75 and 10% increase above age 75
<b>Other</b>	RP-2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	2 Year set back with 5% increase above age 75
<b>Sheriffs/Deputies and Protection Occupation</b>	RP-2000 Healthy Annuitant Table, Generational
Male	No age adjustment
Female	No age adjustment
<b>Beneficiaries:</b>	Same as members
<b>Disabled Members (all groups):</b>	RP-2000 Disabled Mortality, Generational Set back 1 year for males and set forward 3 years for females

**Retirement Rates (effective June 30, 2014)**

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

Age	Assumed Retirement Rates – Early		
	State	School	Other
55	5.0%	8.0%	5.0%
56	5.0%	8.0%	5.0%
57	5.0%	8.0%	5.0%
58	5.0%	8.0%	5.0%
59	5.0%	9.0%	5.0%
60	5.0%	10.0%	5.0%
61	15.0%	15.0%	10.0%
62	15.0%	20.0%	20.0%
63	15.0%	20.0%	20.0%
64	15.0%	20.0%	20.0%



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

<b>Assumed Retirement Rates – Select Unreduced</b>			
<u>Age</u>	<u>State</u>	<u>School</u>	<u>Other</u>
55	20.0%	30.0%	20.0%
56	15.0%	30.0%	20.0%
57	15.0%	30.0%	20.0%
58	15.0%	30.0%	20.0%
59	15.0%	30.0%	20.0%
60	15.0%	30.0%	20.0%
61	20.0%	30.0%	20.0%
62	40.0%	40.0%	40.0%
63	35.0%	30.0%	35.0%
64	30.0%	30.0%	35.0%
65	30.0%	30.0%	30.0%

<b>Assumed Retirement Rates – Ultimate Unreduced</b>			
<u>Age</u>	<u>State</u>	<u>School</u>	<u>Other</u>
55	15.0%	23.0%	15.0%
56	15.0%	23.0%	15.0%
57	15.0%	23.0%	15.0%
58	15.0%	23.0%	15.0%
59	15.0%	23.0%	15.0%
60	15.0%	23.0%	15.0%
61	20.0%	30.0%	20.0%
62	40.0%	35.0%	35.0%
63	30.0%	30.0%	25.0%
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	20.0%	
51	20.0%	
52	20.0%	
53	20.0%	
54	20.0%	
55	17.0%	20.0%
56	17.0%	10.0%
57	17.0%	10.0%
58	17.0%	10.0%
59	17.0%	10.0%
60	17.0%	10.0%
61	17.0%	10.0%
62	30.0%	35.0%
63	30.0%	30.0%
64	30.0%	30.0%
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, 2010)**

**Assumed Rates**

<u>Age</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	0.020%	0.020%	0.020%	0.020%	0.030%	0.020%
32	0.020%	0.020%	0.020%	0.020%	0.030%	0.020%
37	0.040%	0.040%	0.040%	0.032%	0.040%	0.032%
42	0.065%	0.065%	0.065%	0.051%	0.050%	0.051%
47	0.120%	0.110%	0.140%	0.087%	0.090%	0.087%
52	0.220%	0.160%	0.326%	0.220%	0.165%	0.200%
57	0.320%	0.260%	0.630%	0.390%	0.240%	0.350%
62	0.420%	0.360%	0.900%	0.620%	0.320%	0.500%



**Assumed Rates**  
**Sheriffs/Deputies**  
**Protection Occupation**

<u>Age</u>	<u>Rate</u>
27	0.150%
32	0.150%
37	0.150%
42	0.180%
47	0.230%
52	0.280%
57	0.380%
62	0.510%

**Rates of Termination of Employment (effective June 30, 2010)**

**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	15.4%	15.0%	21.0%	15.4%	15.0%	21.0%
5	5.5%	6.9%	8.4%	5.5%	6.9%	9.2%
10	2.2%	2.9%	4.3%	2.2%	2.9%	5.8%
15	1.7%	1.8%	2.6%	1.7%	1.8%	4.1%
20	1.1%	1.3%	2.4%	1.1%	1.3%	3.2%
25	1.1%	1.2%	2.0%	1.1%	1.2%	2.4%
30	1.1%	1.2%	1.2%	1.1%	1.2%	1.5%

**Sheriffs/Deputies and Protection Occupation**

<u>Age</u>	<u>Rate of Termination</u>
22	5.8%
27	5.8%
32	3.5%
37	3.0%
42	2.6%
47	2.0%
52	2.0%



**Probability of Electing a Deferred Vested Benefit (effective June 30, 2010)**

<u>Years of Service</u>	<b>Regular Membership</b>					
	<b>Male</b>			<b>Female</b>		
	<u>State</u>	<u>School</u>	<u>Other</u>	<u>State</u>	<u>School</u>	<u>Other</u>
5	66.0%	76.0%	61.0%	61.0%	80.0%	70.0%
10	73.0%	81.0%	66.0%	66.0%	80.0%	73.0%
15	78.0%	86.0%	71.0%	76.0%	85.0%	80.0%
20	83.0%	91.0%	76.0%	86.0%	90.0%	85.0%
25	88.0%	95.0%	80.0%	96.0%	95.0%	90.0%
30	90.0%	95.0%	80.0%	100.0%	100.0%	90.0%

<b>Sheriffs/Deputies and Protection Occupation</b>	
<u>Years of Service</u>	<u>Rate</u>
5	53%
10	65%
15	85%
20	95%
25	100%
30	100%

**Rates of Salary Increase\* (effective June 30, 2017)**

<u>Years of Service</u>	<b>Annual Increase</b>			
	<u>State</u>	<u>School</u>	<u>Other</u>	<u>Sheriffs/Deputies and Protection Occupation</u>
1	14.25%	16.25%	14.25%	16.25%
5	6.85%	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	4.05%	3.40%	3.75%	3.75%
25	3.80%	3.25%	3.65%	3.75%
30	3.55%	3.25%	3.65%	3.25%
35+	3.25%	3.25%	3.25%	3.25%

\* Includes 3.25% wage growth



### **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:
  - a. The UAL for each membership group shall be amortized over a 30-year closed period.
  - b. 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.
4. 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.
5. 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.
6. 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.
7. If the valuation shows that the group has a surplus, the prior amortization bases will be eliminated and one base equal to the amount of the 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.

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 1988.

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 Associates.

### 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.

### 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

	2017	2016	2015	2014	2013
<b>Additions</b>					
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/(loss)	3,279,743	624,854	1,080,045	3,904,374	2,338,201
Miscellaneous noninvestment income	—	—	—	—	—
<b>Total additions</b>	<b>4,462,135</b>	<b>1,801,521</b>	<b>2,195,645</b>	<b>4,986,895</b>	<b>3,356,818</b>
<b>Deductions</b>					
Trust Fund benefits*	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
QBA Fund administrative expenses	—	—	—	—	—
<b>Total deductions</b>	<b>2,009,453</b>	<b>1,904,922</b>	<b>1,804,360</b>	<b>1,827,051</b>	<b>1,721,653</b>
<b>Change in net position</b>	<b>\$2,452,682</b>	<b>(\$103,401)</b>	<b>\$391,285</b>	<b>\$3,159,844</b>	<b>\$1,635,165</b>

Continued on page 105

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

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.

## Changes in Fiduciary Net Position

(Dollar Values Expressed in Thousands)

Fiscal Years Ended June 30

Continued from page 104

	2012	2011	2010	2009	2008
<b>Additions</b>					
Employee contributions	\$366,377	\$306,472	\$293,472	\$270,934	\$245,898
Employer contributions	557,930	467,633	448,765	414,966	377,080
QBA Fund contributions	9	8	5	23	20
Service purchases	17,611	14,847	12,614	9,301	10,875
Net investment income/(loss)	823,983	3,922,569	2,477,824	(3,863,761)	(338,575)
Miscellaneous noninvestment income	500	—	—	—	—
<b>Total additions</b>	<b>1,766,410</b>	<b>4,711,529</b>	<b>3,232,680</b>	<b>(3,168,537)</b>	<b>295,298</b>
<b>Deductions</b>					
Trust Fund benefits*	1,549,167	1,456,998	1,278,550	1,183,098	1,096,078
QBA Fund benefits	9	7	6	21	20
Refunds	43,328	41,215	41,470	34,337	36,205
Trust Fund administrative expenses	12,498	9,256	8,613	10,560	9,567
QBA Fund administrative expenses	—	1	1	1	1
<b>Total deductions</b>	<b>1,605,002</b>	<b>1,507,477</b>	<b>1,328,640</b>	<b>1,228,017</b>	<b>1,141,871</b>
<b>Change in net position</b>	<b>\$161,408</b>	<b>\$3,204,052</b>	<b>\$1,904,040</b>	<b>(\$4,396,554)</b>	<b>(\$846,573)</b>

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

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.

## 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
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
2012	101,948	164,200	1,766,410,045	1,605,002,472	23,508,268,276	23,243,540,508
2011	98,540	164,467	4,711,529,286	1,507,476,979	24,064,559,555	23,082,132,935
2010	93,692	165,660	3,232,679,640	1,328,639,663	20,432,970,506	19,878,080,628
2009	89,852	167,717	(3,168,536,719)	1,228,017,619	18,715,729,776	17,974,040,651
2008	87,490	167,850	295,298,357	1,141,871,314	24,454,328,362	22,370,594,989

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
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
	<b>Total</b>	<b>341,381</b>	<b>2,688</b>	<b>11,562</b>	<b>355,631</b>
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
	<b>Total</b>	<b>335,887</b>	<b>2,613</b>	<b>11,210</b>	<b>349,710</b>
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
	<b>Total</b>	<b>332,653</b>	<b>2,526</b>	<b>10,930</b>	<b>346,109</b>
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
	<b>Total</b>	<b>333,204</b>	<b>2,455</b>	<b>10,754</b>	<b>346,413</b>
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
	<b>Total</b>	<b>329,985</b>	<b>2,402</b>	<b>10,265</b>	<b>342,652</b>
2012	Active members	155,800	1,530	6,870	164,200
	Inactive members	67,566	123	1,261	68,950
	Retired members	99,519	674	1,755	101,948
	<b>Total</b>	<b>322,885</b>	<b>2,327</b>	<b>9,886</b>	<b>335,098</b>
2011	Active members	156,011	1,524	6,932	164,467
	Inactive members	64,712	126	1,130	65,968
	Retired members	96,252	657	1,631	98,540
	<b>Total</b>	<b>316,975</b>	<b>2,307</b>	<b>9,693</b>	<b>328,975</b>
2010	Active members	157,118	1,546	6,996	165,660
	Inactive members	64,415	114	992	65,521
	Retired members	91,657	616	1,419	93,692
	<b>Total</b>	<b>313,190</b>	<b>2,276</b>	<b>9,407</b>	<b>324,873</b>
2009	Active members	159,113	1,492	7,112	167,717
	Inactive members	65,855	113	874	66,842
	Retired members	88,074	585	1,193	89,852
	<b>Total</b>	<b>313,042</b>	<b>2,190</b>	<b>9,179</b>	<b>324,411</b>
2008	Active members	161,583	1,520	4,747	167,850
	Inactive members	63,534	108	655	64,297
	Retired members	86,072	442	976	87,490
	<b>Total</b>	<b>311,189</b>	<b>2,070</b>	<b>6,378</b>	<b>319,637</b>

## 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)
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
2012	164,200	(0.2)	41,329	45.8	11.6
2011	164,467	(0.7)	39,977	45.0	11.6
2010	165,660	(1.2)	39,667	46.0	11.5
2009	167,717	(0.1)	38,390	41.4	11.7
2008	167,850	1.6	36,529	42.2	11.5

### Analysis of Change in Active Membership

Fiscal Years Ended June 30

Fiscal Year	Beginning Members	Additions	Retired	Died	Other Terminations	Ending Members
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
2012	164,467	16,878	4,928	193	12,024	164,200
2011	165,660	17,236	6,368	237	11,824	164,467
2010	167,717	14,663	5,277	244	11,199	165,660
2009	167,850	16,565	4,013	246	12,439	167,717
2008	165,241	19,943	4,237	227	12,870	167,850

## RETIREE AND BENEFIT PAYMENT STATISTICS

### New Retirees by Employer Type

Fiscal Years Ended June 30

Fiscal Year		City	County	Education	State	Utility	Health	28E Agency	Township & Cemetery	Other	Total
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	23.80	—	—	—	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	21.90	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	21.70	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
2012	Number of retirees	671	617	3,487	618	53	463	—	—	112	6,021
	Average monthly benefit	\$1,547	\$1,549	\$1,728	\$2,253	\$1,754	\$1,378	—	—	\$1,024	\$1,703
	Average years of service	21.63	21.47	22.45	21.22	21.78	18.28	—	—	15.57	21.68
2011	Number of retirees	776	859	3,822	1,728	55	—	82	—	38	7,360
	Average monthly benefit	\$1,387	\$1,397	\$1,799	\$2,285	\$1,741	—	\$655	—	\$544	\$1,803
	Average years of service	20.51	20.80	23.95	25.85	23.00	—	13.11	—	11.93	23.48
2010	Number of retirees	786	811	3,186	1,476	31	—	58	3	34	6,385
	Average monthly benefit	\$1,274	\$1,317	\$1,739	\$2,119	\$1,471	—	\$620	\$1,098	\$606	\$1,698
	Average years of service	20.25	20.40	23.92	25.14	19.70	—	12.12	20.50	11.62	23.11
2009	Number of retirees	620	800	2,571	765	44	—	49	—	28	4,877
	Average monthly benefit	\$1,226	\$1,241	\$1,610	\$2,067	\$1,586	—	\$881	—	\$467	\$1,558
	Average years of service	20.62	19.69	23.34	24.40	21.46	—	14.51	—	11.75	22.39
2008	Number of retirees	697	738	2,730	777	35	—	52	1	31	5,061
	Average monthly benefit	\$1,261	\$1,119	\$1,552	\$1,901	\$1,872	—	\$617	\$112	\$578	\$1,489
	Average years of service	20.66	19.76	23.25	23.71	24.74	—	13.61	6.25	12.61	22.29

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	
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
2012	Number of retirees	5,180	13,181	13,605	13,864	13,711	12,419	29,986	101,946
	Average monthly benefit	\$136	\$251	\$467	\$775	\$1,184	\$1,739	\$2,418	\$1,289
	Average high average salary	\$1,213	\$1,436	\$1,742	\$2,181	\$2,706	\$3,320	\$4,094	\$2,749
	Average years of service	4.47	8.46	13.33	18.45	23.29	28.22	34.43	22.31
2011	Number of retirees	4,924	12,762	13,210	13,512	13,287	12,014	28,828	98,537
	Average monthly benefit	\$123	\$235	\$441	\$731	\$1,124	\$1,667	\$2,337	\$1,234
	Average high average salary	\$1,372	\$1,296	\$1,462	\$1,763	\$2,162	\$2,679	\$3,388	\$2,284
	Average years of service	4.49	8.46	13.33	18.45	23.28	28.24	34.39	22.28
2010	Number of retirees	4,732	12,428	12,777	13,073	12,593	11,372	26,712	93,687
	Average monthly benefit	\$110	\$210	\$390	\$643	\$982	\$1,478	\$2,094	\$1,085
	Average high average salary	\$1,280	\$1,212	\$1,349	\$1,631	\$1,978	\$2,502	\$3,198	\$2,118
	Average years of service	4.49	8.47	13.34	18.44	23.29	28.25	34.36	22.10
2009	Number of retirees	4,549	12,061	12,547	12,685	12,191	10,893	24,921	89,847
	Average monthly benefit	\$108	\$209	\$392	\$644	\$973	\$1,471	\$2,071	\$1,064
	Average high average salary	\$1,203	\$1,130	\$1,252	\$1,521	\$1,834	\$2,318	\$2,943	\$1,948
	Average years of service	4.50	8.47	13.34	18.43	23.27	28.24	34.33	21.93
2008	Number of retirees	4,484	11,850	12,376	12,513	11,889	10,569	23,804	87,485
	Average monthly benefit	\$103	\$201	\$380	\$621	\$932	\$1,415	\$1,993	\$1,015
	Average high average salary	\$1,124	\$1,050	\$1,170	\$1,425	\$1,713	\$2,198	\$2,797	\$1,828
	Average years of service	4.49	8.46	13.34	18.42	23.27	28.23	34.33	21.81

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. For most of the 2000s, the highest 3-year average salary was used. A spiking control was incorporated starting in FY2008. 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
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
2012	101,948	1,134,393,596	290,216,887	43,180,523	3,595,564	39,968,472	801,062	362,184	1,512,518,288
2011	98,540	1,088,085,798	253,413,138	39,533,700	3,096,481	28,381,456	771,831	376,798	1,413,659,202
2010	93,692	951,375,232	220,803,713	36,386,690	2,653,287	27,960,711	624,888	330,890	1,240,135,411
2009	89,852	882,890,118	197,219,959	33,554,573	2,323,743	28,042,167	584,892	304,352	1,144,919,804
2008	87,490	818,804,704	180,411,922	30,892,964	1,919,799	28,284,772	563,314	303,042	1,061,180,517

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

## Schedule of Retired Members by Type of Benefit

As of June 30, 2017

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	20,423	8,839	9,835	868	111	768	2	—
250–499	16,571	6,788	7,775	1,081	89	837	—	1
500–749	11,610	5,014	5,067	867	70	592	—	—
750–999	8,738	4,108	3,395	719	46	470	—	—
1,000–1,249	8,070	4,408	2,655	588	36	381	2	—
1,250–1,499	6,544	3,752	2,065	400	42	280	1	4
1,500–1,749	6,032	3,899	1,564	318	25	216	3	7
1,750–1,999	6,007	4,410	1,178	214	30	161	12	2
2,000–2,249	6,051	4,807	949	161	18	105	6	5
2,250–2,499	5,623	4,714	688	123	11	79	6	2
2,500–2,749	4,982	4,348	483	88	9	52	2	—
2,750–2,999	4,232	3,775	364	31	6	48	8	—
3,000–3,249	3,474	3,208	185	48	4	26	3	—
3,250–3,499	2,588	2,417	122	28	—	18	3	—
3,500–3,749	1,898	1,765	92	22	2	14	3	—
3,750–3,999	1,357	1,270	60	16	4	7	—	—
4,000+	3,559	3,312	157	24	6	57	3	—
<b>Total</b>	<b>117,759</b>	<b>70,834</b>	<b>36,634</b>	<b>5,596</b>	<b>509</b>	<b>4,111</b>	<b>54</b>	<b>21</b>

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, 2017

Amount of Monthly Benefit	Number of Retirees	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6	Misc.
\$ <250	20,423	5,901	5,021	3,943	1,980	2,194	1,376	8
250–499	16,571	4,845	4,102	2,258	2,159	1,658	1,542	7
500–749	11,610	3,261	2,791	1,338	1,737	1,112	1,371	—
750–999	8,738	2,206	2,028	983	1,493	774	1,254	—
1,000–1,249	8,070	1,924	1,812	803	1,532	687	1,312	—
1,250–1,499	6,544	1,454	1,447	595	1,210	566	1,272	—
1,500–1,749	6,032	1,369	1,172	538	1,111	557	1,285	—
1,750–1,999	6,007	1,121	1,256	572	1,023	595	1,440	—
2,000–2,249	6,051	1,157	1,166	598	869	601	1,660	—
2,250–2,499	5,623	964	1,107	586	758	520	1,688	—
2,500–2,749	4,982	824	1,003	569	525	447	1,614	—
2,750–2,999	4,232	708	890	470	345	415	1,404	—
3,000–3,249	3,474	543	711	399	322	284	1,215	—
3,250–3,499	2,588	403	561	245	262	202	915	—
3,500–3,749	1,898	259	424	220	184	137	674	—
3,750–3,999	1,357	201	296	147	123	113	477	—
4,000+	3,559	453	668	398	443	334	1,263	—
<b>Total</b>	<b>117,759</b>	<b>27,593</b>	<b>26,455</b>	<b>14,662</b>	<b>16,076</b>	<b>11,196</b>	<b>21,762</b>	<b>15</b>

See definitions of benefit options beginning 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
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
2011	1,295,324,198	161,447,515	233,918
2010	1,129,876,718	148,444,926	234,200
2009	1,044,257,972	138,540,110	320,734
2008	967,877,579	128,025,532	194,748



## Benefit Payments by Iowa County

Fiscal Year 2017

County	Amount	Annual Average	Payees
Adair	\$5,470,741	\$14,284	383
Adams	2,875,668	12,953	222
Allamakee	7,959,812	13,843	575
Appanoose	7,804,837	15,009	520
Audubon	4,051,840	13,113	309
Benton	13,779,560	15,277	902
Black Hawk	65,947,701	17,045	3,869
Boone	21,709,825	16,764	1,295
Bremer	16,949,061	16,392	1,034
Buchanan	15,330,508	16,188	947
Buena Vista	10,785,149	14,959	721
Butler	8,953,980	13,546	661
Calhoun	7,894,800	14,593	541
Carroll	9,611,039	13,112	733
Cass	11,277,442	14,937	755
Cedar	9,546,202	14,755	647
Cerro Gordo	26,876,449	16,103	1,669
Cherokee	10,671,076	15,266	699
Chickasaw	7,158,994	14,610	490
Clarke	5,533,427	13,463	411
Clay	11,333,327	14,292	793
Clayton	11,968,906	14,490	826
Clinton	20,918,357	14,357	1,457
Crawford	8,396,449	13,924	603
Dallas	40,644,674	18,186	2,235
Davis	6,592,627	14,270	462
Decatur	4,631,628	12,221	379
Delaware	11,333,745	15,590	727
Des Moines	23,470,468	16,622	1,412
Dickinson	16,812,180	16,729	1,005
Dubuque	41,718,273	16,425	2,540
Emmet	6,265,499	14,437	434
Fayette	11,810,271	14,581	810
Floyd	10,425,572	14,936	698
Franklin	6,460,240	13,716	471
Fremont	4,988,283	13,704	364
Greene	7,884,715	13,409	588
Grundy	7,923,487	13,638	581
Guthrie	9,046,499	14,782	612
Hamilton	12,266,226	15,807	776
Hancock	5,670,934	12,328	460
Hardin	14,023,787	14,517	966
Harrison	6,749,876	12,981	520
Henry	16,745,890	16,830	995
Howard	5,805,242	12,170	477
Humboldt	6,516,567	13,272	491
Ida	3,746,067	13,772	272
Iowa	10,154,977	15,769	644
Jackson	10,785,837	14,675	735
Jasper	22,242,327	15,308	1,453
Jefferson	8,661,580	15,143	572

County	Amount	Annual Average	Payees
Johnson	\$55,081,336	\$17,626	3,125
Jones	15,083,436	16,449	917
Keokuk	6,093,030	12,537	486
Kossuth	9,312,389	13,858	672
Lee	21,143,242	17,024	1,242
Linn	105,679,346	17,758	5,951
Louisa	5,671,818	14,469	392
Lucas	5,892,414	14,694	401
Lyon	4,251,693	13,245	321
Madison	9,921,053	15,748	630
Mahaska	11,167,299	14,190	787
Marion	16,343,276	14,737	1,109
Marshall	28,002,741	16,187	1,730
Mills	14,044,333	17,106	821
Mitchell	6,816,229	13,826	493
Monona	6,162,465	13,664	451
Monroe	4,938,221	14,355	344
Montgomery	7,763,482	14,901	521
Muscatine	20,558,941	15,493	1,327
O'Brien	7,115,221	13,008	547
Osceola	2,815,403	13,156	214
Page	12,974,301	15,669	828
Palo Alto	7,350,196	13,764	534
Plymouth	12,026,851	13,920	864
Pocahontas	5,492,989	14,231	386
Polk	245,124,736	18,775	13,056
Pottawattamie	38,531,422	16,885	2,282
Poweshiek	9,877,476	16,009	617
Ringgold	4,258,268	12,307	346
Sac	6,511,729	13,974	466
Scott	72,892,058	18,538	3,932
Shelby	8,279,133	13,938	594
Sioux	11,420,764	13,265	861
Story	60,213,739	18,905	3,185
Tama	11,526,466	14,969	770
Taylor	4,272,710	12,349	346
Union	10,270,113	14,225	722
Van Buren	6,193,880	14,404	430
Wapello	19,685,395	15,914	1,237
Warren	33,599,012	18,481	1,818
Washington	12,166,989	13,594	895
Wayne	3,932,203	11,952	329
Webster	20,637,192	15,298	1,349
Winnebago	6,435,421	14,966	430
Winneshiek	14,366,688	15,481	928
Woodbury	46,519,869	16,794	2,770
Worth	3,508,384	13,813	254
Wright	8,382,008	13,519	620

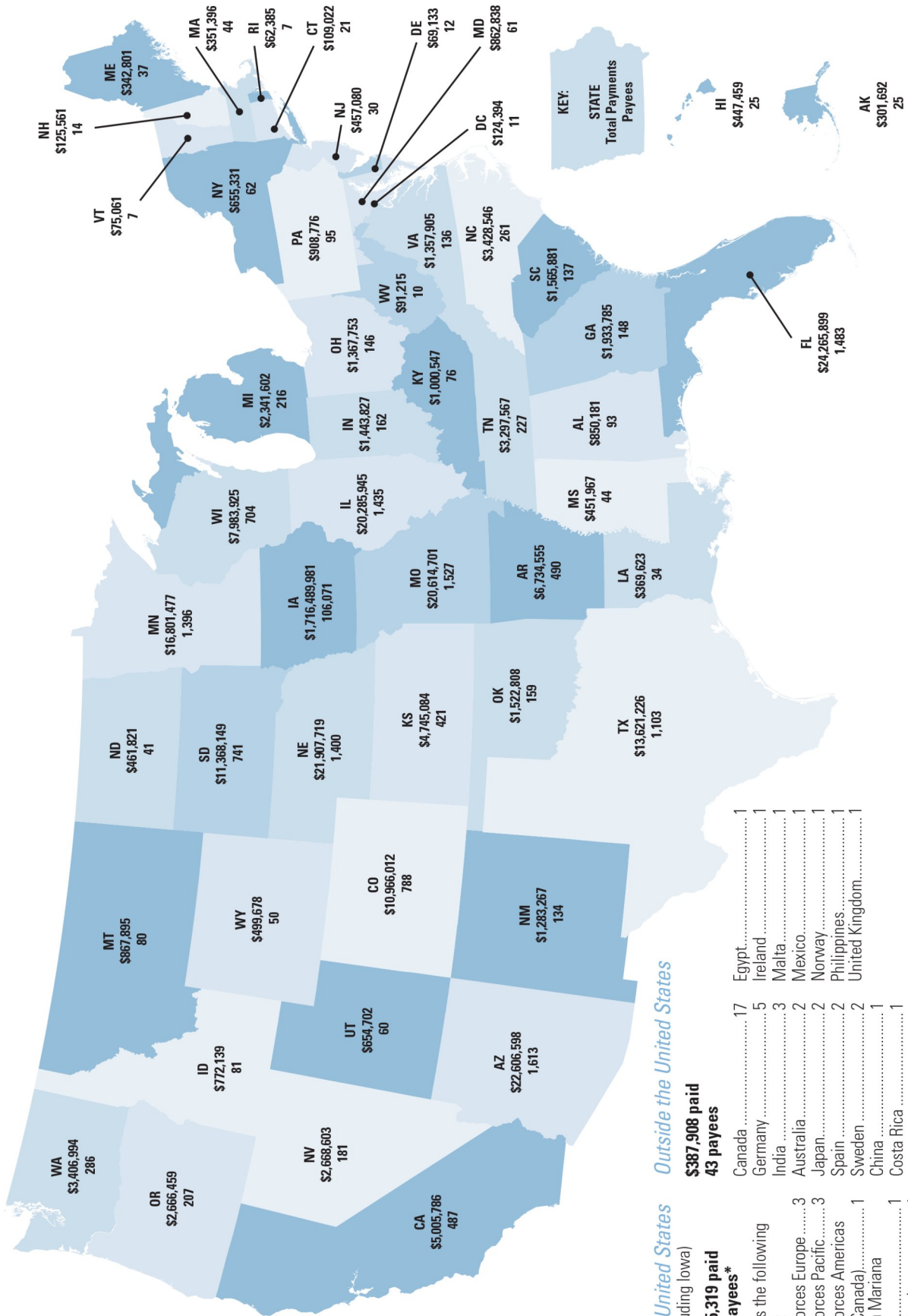
**Total Iowa Benefit Payments: \$1,716,489,981**

Note: Payments determined by zip code.



# Benefit Payments by State

Fiscal Year 2017



## In the United States

(not including Iowa)

**\$226,225,319 paid**  
**17,017 payees\***

\*Includes the following payees:

- Armed Forces Europe.....3
- Armed Forces Pacific.....3
- Armed Forces Americas (except Canada).....1
- Northern Mariana Islands.....1
- Virgin Islands.....1

## Outside the United States

**\$387,908 paid**  
**43 payees**

- Canada.....17
- Germany.....5
- Ireland.....1
- India.....3
- Australia.....2
- Japan.....2
- Spain.....2
- Sweden.....2
- China.....1
- Costa Rica.....1
- Czech Republic.....1
- Egypt.....1
- Ireland.....1
- Malta.....1
- Mexico.....1
- Norway.....1
- Philippines.....1
- United Kingdom.....1

## SUMMARY OF PRINCIPAL EMPLOYERS

### Principal Participating Employers

Fiscal Years Ended June 30

Participating Employer	2017		
	Covered Employees	Rank	Percentage of Total Covered Employees
State of Iowa Centralized Payroll	25,202	1	14.83
Des Moines Community School District (CSD)	4,973	2	2.93
Cedar Rapids CSD	2,861	3	1.68
Davenport CSD	2,586	4	1.52
Iowa City CSD	2,092	5	1.23
Dubuque CSD	1,965	6	1.16
Sioux City CSD	1,925	7	1.13
Waterloo CSD	1,682	8	0.99
Ankeny CSD	1,579	9	0.93
West Des Moines CSD	1,451	10	0.86
All other employers*	123,594		72.74
<b>Total (1,956 employers)</b>	<b>169,910</b>		<b>100.00</b>

Participating Employer	2008		
	Covered Employees	Rank	Percentage of Total Covered Employees
State of Iowa Centralized Payroll	19,542	1	11.64
Des Moines Community School District (CSD)	4,670	2	2.78
Cedar Rapids CSD	3,039	3	1.81
Iowa Department of Transportation	2,966	4	1.77
Davenport CSD	2,419	5	1.44
Dubuque CSD	1,972	6	1.17
Sioux City CSD	1,941	7	1.16
Iowa City CSD	1,782	8	1.06
Waterloo CSD	1,497	9	0.89
City of Des Moines	1,405	10	0.84
All other employers	126,617		75.44
<b>Total (2,259 employers)</b>	<b>167,850</b>		<b>100.00</b>

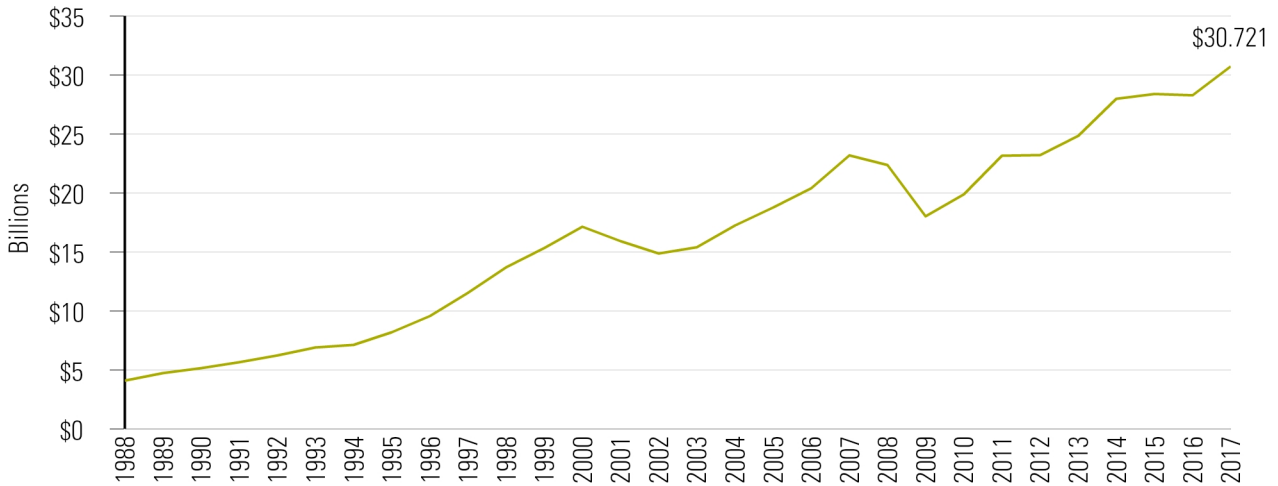
#### \*All other employers for FY2017

Type	Number	Employees
City	959	23,449
Education	348	67,329
County	348	27,076
Other	160	3,888
Utilities	131	1,852
<b>Total</b>	<b>1,946</b>	<b>123,594</b>

## INVESTMENT STATISTICS

### Growth of Net Investment Portfolio Assets

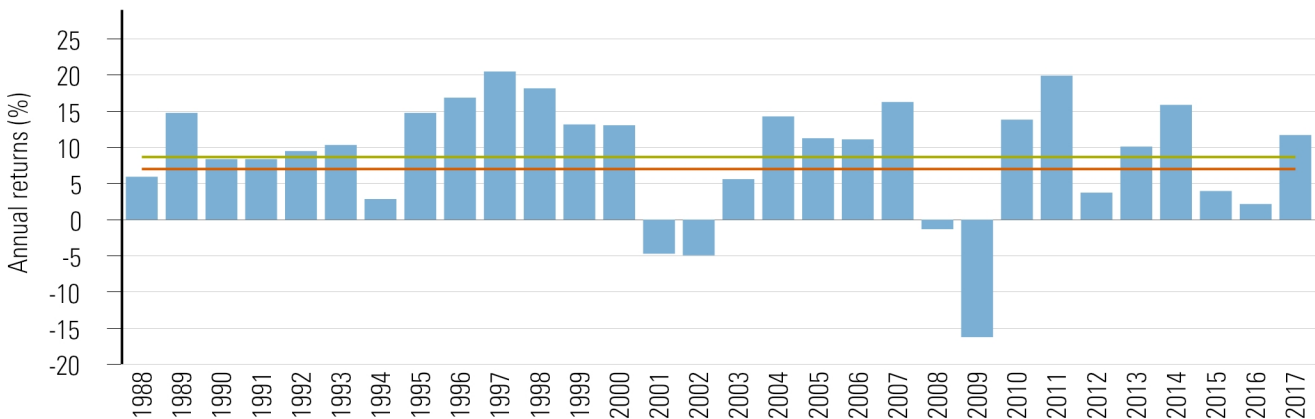
Fiscal Years Ended June 30



### Investment Returns

Fiscal Years Ended June 30

— Current actuarial assumed investment return = 7.00%\*      — 30-year annualized return = 8.65%



#### \*Actuarial assumed investment return

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

#### Annualized returns for periods ended June 30, 2017

1-year return:	11.70%	10-year return:	5.89%
3-year return:	5.86%	20-year return:	7.45%
5-year return:	8.65%	30-year return:	8.65%





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